

A L P A N A



[code**192**]



Alpana

2022R1 — Last update: Apr 13, 2022

Code 192

Table of Contents

1. About Alpana	13
1.1. Components and Architecture of Alpana	14
1.2. Getting Started.....	18
1.3. License Portal and Installers Download	20
1.4. Release Notes	21
1.4.1. v3.0.1.x.....	22
1.4.2. v3.0.2.x.....	27
1.4.3. v3.1.0.....	29
1.4.4. v3.1.2.....	31
1.4.5. v3.2.1.....	33
1.4.6. v3.2.2.....	36
1.4.7. v3.2.3.....	38
1.4.8. 2020 R1	39
1.4.9. 2020 R2	46
1.4.10. 2020 R2 Patch 1	50
1.4.11. 2021 R1	51
1.4.12. 2021 R2	54
1.4.13. 2022 R1	58
1.5. Upgrading	62
1.5.1. License incompatibility for Major upgrades.....	63
1.5.2. General upgrade procedure for v3	65
1.5.3. Upgrading from an older v2 to v3.0	68
1.5.4. Upgrading from an older v1 version	73
1.6. Third party licenses	74
2. Alpana Designer	134
2.1. Installation.....	135
2.1.1. Pre-Requisites	136
2.1.2. Installing Alpana Designer	138
2.1.3. Anti-virus and Firewall set up	142
2.1.4. Upgrading Alpana Designer	143
2.1.5. Uninstalling Alpana Designer	144
2.2. Troubleshooting	145
2.2.1. Finding error logs.....	146
2.3. Connecting to Data	148
2.3.1. Alpana data model	149
2.3.1.1. Note on data storage	151
2.3.1.2. Redundant Connections.....	152
2.3.2. The data Buffer	157
2.3.2.1. Bufferized Connection types : What gets bufferized ?	158
2.3.2.2. Data Flow : How bufferization happens ?	159
2.3.2.3. Buffer database setup.....	161
2.3.2.4. Buffer Refresh settings	162

2.3.2.5. refreshing file-based connections	164
2.3.3. Creating and Managing Connections	165
2.3.3.1. Create a Connection	166
2.3.3.2. Edit a Connection	167
2.3.3.3. Delete a Connection	168
2.3.4. Connection types	169
2.3.4.1. SQL Server	170
2.3.4.2. Excel	174
2.3.4.3. CSV	178
2.3.4.4. Wonderware Historian	181
2.3.4.5. Web	182
2.3.4.6. Oracle	198
2.3.4.7. Alpana Runtime	201
2.4. Wonderware Historian	204
2.4.1. Connecting to Wonderware Historian	205
2.4.1.1. Version compatibility	206
2.4.1.2. Important pre-requisite	207
2.4.1.3. Selecting Connection Type	208
2.4.1.4. Login to a Wonderware Historian server	209
2.4.1.5. Test connection	211
2.4.1.6. Data refresh and Buffer	213
2.4.2. Creating Queries to Wonderware Historian	214
2.4.2.1. Picking Tags	215
2.4.2.1.1. Browsing for Tags	216
2.4.2.1.2. Selecting Tags	217
2.4.2.1.3. Using Datasource as Tag list	219
2.4.2.2. Configuring the Historian Query	222
2.4.2.2.1. Going to Query Configuration	223
2.4.2.2.2. Query Type	224
2.4.2.2.3. Time Settings	225
2.4.2.2.3.1. Static Time Settings	226
2.4.2.2.3.2. Parameter Based Settings	229
2.4.2.2.4. History Values : query parameters	230
2.4.2.2.5. History Values: query Format	234
2.4.2.2.6. State Statistics : query parameters	235
2.4.2.3. Renaming the Query Table	237
2.4.3. Wonderware Historian query result	238
2.4.3.1. Connection Schema	239
2.4.3.2. Important : data limits	241
2.5. Aveva Insight	242
2.5.1. Connecting to Insight	243
2.5.1.1. Selecting Connection Type	244
2.5.1.2. Login to Aveva Cloud Operations	245
2.5.1.3. Test connection	248
2.5.1.4. Data refresh and Buffer	249

2.5.2. Querying Insight.....	250
2.5.2.1. Picking Tags.....	251
2.5.2.1.1. Browsing for Tags	252
2.5.2.1.2. Selecting Tags.....	254
2.5.2.2. Configuring the query	255
2.5.2.2.1. Going to Query Configuration	256
2.5.2.2.2. Query Type	257
2.5.2.2.3. Time Settings	258
2.5.2.2.3.1. Manual Time Settings.....	259
2.5.2.2.3.2. Parameter Based Settings.....	261
2.5.2.2.4. Process Values : query parameters	262
2.5.2.3. Renaming the Query Table	263
2.5.2.4. Configuring the query result.....	264
2.6. Transforming Data	266
2.6.1. Introduction.....	267
2.6.1.1. Learning Pre-Requisites	268
2.6.1.2. What are Data Sources.....	269
2.6.1.3. Content : Data Preparation Activities	270
2.6.2. Creating and Managing Data Sources.....	271
2.6.2.1. Create a Data Source	272
2.6.2.2. Browsing Data Sources to Edit	273
2.6.2.3. Rename a Data Source.....	274
2.6.2.4. Delete a Data Source	275
2.6.2.5. Duplicate a Data Source	276
2.6.3. Export / Import Data Sources	277
2.6.3.1. What is a Data Source Export.....	278
2.6.3.2. Export a Data Source to a file	279
2.6.3.3. Import a Data Source from a file	280
2.6.3.4. Publish a Data Source to Alpana Server	282
2.6.3.5. Import a Data Source from Alpana Server.....	283
2.6.4. Fetching Data	284
2.6.4.1. using the Data Preview	285
2.6.4.2. getting and browsing the Connection schema	286
2.6.4.3. fetching data from a data Table	290
2.6.4.4. fetching data from a data View.....	291
2.6.4.5. fetching data from a Stored Procedure.....	292
2.6.4.6. fetching data from a Table-Valued Function.....	297
2.6.4.7. Removing a table from the Data Source.....	300
2.6.5. Custom Query Tables	301
2.6.5.1. Language	302
2.6.5.2. Creating a Custom Query Table.....	303
2.6.5.3. Updating a Custom Query Table	305
2.6.5.4. Using Parameters	306
2.6.6. Merging Data	307
2.6.6.1. Creating Joins.....	308

2.6.6.2. Configuring Joins	309
2.6.6.3. Updating Joins	314
2.6.7. Filtering Data	315
2.6.7.1. Opening the Filter Editor	316
2.6.7.2. Managing Filter Conditions	317
2.6.7.3. Configuring Filter Conditions.....	318
2.6.7.3.1. Filtering string fields	319
2.6.7.3.2. Filtering number fields	321
2.6.7.3.3. Filtering date fields	324
2.6.7.4. Limiting dataset size	328
2.6.8. Calculating Expressions	329
2.6.8.1. Opening Expression Editor	330
2.6.8.2. Managing Expressions.....	331
2.6.8.3. Expression properties	332
2.6.8.4. Adding a constant.....	333
2.6.8.5. Adding a field.....	334
2.6.8.6. Adding a function.....	337
2.6.8.7. Removing an existing item.....	340
2.6.8.8. Copying and Pasting an existing item	341
2.6.8.9. Aggregated Expressions	342
2.6.8.10. Functions reference	345
2.6.9. Expressions Troubleshooting	358
2.6.9.1. Pitfall : Incorrect result in Expression with division	359
2.6.9.2. Pitfall : Calculating ratios, averages,	361
2.6.9.3. Error when mixing aggregate fields and non-aggregate fields	364
2.6.9.4. Error when wrapping aggregate fields inside aggregate functions	365
2.6.10. Value-based Settings	366
2.6.10.1. Value-based Colors	367
2.6.11. Formatting Columns.....	369
2.6.11.1. Renaming Columns	370
2.6.11.2. Changing Column Type	371
2.6.11.3. Hiding Column	372
2.6.12. Exporting Datasource content as file	374
2.7. Configuring a Widget.....	376
2.7.1. Creating and Managing Widgets	377
2.7.1.1. Adding a Widget	378
2.7.1.2. Editing a Widget	382
2.7.1.3. Renaming a Widget	384
2.7.1.4. Deleting a Widget	385
2.7.1.5. Copying/Pasting a Widget.....	386
2.7.2. Export / Import Widgets.....	387
2.7.2.1. What is a Widget Export	388
2.7.2.2. Export a Widget to a file.....	389
2.7.2.3. Import a Widget from a file.....	390
2.7.2.4. Publish a Widget to Alpana Server.....	391

2.7.2.5. Import a Widget from Alpana Server	392
2.7.3. Widget Data Binding	394
2.7.3.1. using the Widget Preview	396
2.7.3.2. Troubleshooting Widget data	397
2.7.3.3. Editing Widget data binding	398
2.7.3.4. Selecting a Data Source	400
2.7.3.5. Configuring the aggregation of number fields.....	401
2.7.3.6. Configure the grouping of category fields.....	404
2.7.3.7. Binding a data field	406
2.7.3.8. Un-binding a data field.....	408
2.7.3.9. Re-Ordering data fields.....	409
2.7.3.10. Binding to Real-Time Data	411
2.7.3.11. Additional fields	413
2.7.4. Configure a sorting order	415
2.7.5. Widget-level Filtering	416
2.7.5.1. Opening the Filter Editor	417
2.7.5.2. Managing Filter Conditions	418
2.7.5.3. Filtering aggregated values.....	419
2.7.5.4. Configuring Filter Conditions.....	422
2.7.5.4.1. Filtering string fields	423
2.7.5.4.2. Filtering number fields	425
2.7.5.4.3. Filtering date fields	428
2.7.5.5. Limiting dataset size	431
2.7.5.6. Getting Distinct Values	432
2.7.6. General Widget Properties	434
2.7.6.1. Editing Widget Properties	435
2.7.6.2. Name, Header and Description	436
2.7.6.3. Container Appearance	440
2.7.6.4. Widget Menu items	442
2.7.6.5. Measure Formatting and Date Formatting	444
2.7.6.6. Multi-items Viewport	449
2.7.6.7. Animation	453
2.7.6.8. Widget preview refresh	454
2.7.7. Interactions	455
2.7.7.1. Drill-Down.....	456
2.7.7.2. Link To URL.....	457
2.7.7.3. Master Filter	461
2.7.8. Tooltip configuration.....	462
2.8. Widget Properties Reference	464
2.8.1. Cartesian Chart.....	465
2.8.1.1. Binding Data	466
2.8.1.2. Chart Types	481
2.8.1.3. Switching Chart Types	483
2.8.1.4. Combining Chart Types	484
2.8.1.5. Series Settings	485

2.8.1.5.1. Series Name.....	486
2.8.1.5.2. Axis binding.....	487
2.8.1.5.3. Data Point information	488
2.8.1.5.4. Style and Appearance	490
2.8.1.6. Axes	494
2.8.1.6.1. X Axis.....	495
2.8.1.6.1.1. Strip Line.....	503
2.8.1.6.1.2. Paging / Scrolling	508
2.8.1.6.2. Y Axes.....	509
2.8.1.6.2.1. Strip Line.....	514
2.8.1.7. Legend	518
2.8.1.8. Managing Series Color	521
2.8.1.8.1. Chart value color binding	524
2.8.1.9. Trend Lines	528
2.8.1.10. Plot null values	529
2.8.2. Polar Chart	532
2.8.2.1. Binding Data	533
2.8.2.2. Chart Types / Draw Types	536
2.8.2.3. Switching Chart Types	538
2.8.2.4. Series Settings	539
2.8.2.4.1. Series Name.....	540
2.8.2.4.2. Style and Appearance	541
2.8.2.5. X Axis	543
2.8.2.6. Y Axis	544
2.8.2.7. Legend	545
2.8.3. Map	547
2.8.3.1. Maps format : GeoJSON.....	548
2.8.3.2. Choosing a map.....	552
2.8.3.3. Binding Data	555
2.8.3.4. Managing Colors.....	559
2.8.3.5. Data Point information	562
2.8.3.6. Runtime navigation	563
2.8.4. Grid.....	564
2.8.4.1. Binding Data	565
2.8.4.2. Layout and appearance	570
2.8.4.3. User interaction	574
2.8.4.4. Column names.....	579
2.8.4.5. Value display	583
2.8.4.6. Conditional Formatting.....	584
2.8.4.7. Grid KPI.....	589
2.8.4.8. Footer.....	593
2.8.4.9. HTML in the Grid	595
2.8.5. TreeMap	597
2.8.5.1. Binding Data	598
2.8.5.2. Managing Colors.....	607

2.8.5.3. Data Point information	608
2.8.6. Circular Gauge.....	609
2.8.6.1. Binding Data	610
2.8.6.2. Value Display.....	617
2.8.6.2.1. Threshold configuration	620
2.8.6.3. Style and Appearance.....	624
2.8.7. Linear Gauge	630
2.8.7.1. Data Binding	631
2.8.7.2. Value display and Limits configuration	634
2.8.7.3. Style and Appearance.....	636
2.8.8. Card.....	637
2.8.8.1. Binding Data	638
2.8.8.2. Value Display.....	643
2.8.8.3. Card Sparkline.....	651
2.8.9. Sparkline.....	657
2.8.9.1. Binding Data	658
2.8.9.2. Configuring Layout.....	665
2.8.9.3. Sparkline chart style	674
2.8.9.4. Style and Appearance.....	678
2.8.10. Banner	680
2.8.10.1. Binding Data	681
2.8.10.2. Style and Appearance.....	685
2.8.11. Proportion Charts.....	687
2.8.11.1. Binding Data	688
2.8.11.2. Switching Chart type	702
2.8.11.3. Data Point information	704
2.8.11.4. Legend	707
2.8.11.5. Managing Series Color	711
2.8.11.6. Interaction.....	715
2.8.11.7. Style and Appearance.....	716
2.8.12. Gantt.....	718
2.8.12.1. Binding Data	719
2.8.12.2. Data Point Information	724
2.8.12.3. Events Configuration	725
2.8.12.4. Axis Configuration.....	730
2.8.12.5. Titles Configuration.....	734
2.8.13. Sankey.....	736
2.8.13.1. Binding Data	737
2.8.13.2. Data Point information	741
2.8.14. Energy Rating	742
2.8.14.1. Binding Data	743
2.8.14.2. Grading Calculation and Display	748
2.8.14.3. Titles and Labels	751
2.8.15. Filter Widgets.....	753
2.8.15.1. ComboBox.....	754

2.8.15.1.1. Binding Data	755
2.8.15.1.2. Configuring behavior	756
2.8.15.1.3. Style and Appearance	759
2.8.15.2. CheckBox	760
2.8.15.2.1. Binding Data	761
2.8.15.2.2. Configuring behaviour.....	762
2.8.15.2.3. Style and Appearance	763
2.8.15.3. RadioButton	764
2.8.15.3.1. Binding Data	765
2.8.15.3.2. Configuring behaviour.....	766
2.8.15.3.3. Style and Appearance	767
2.8.15.4. RangeSlider	768
2.8.15.4.1. Binding Data	769
2.8.15.4.2. Configuring behaviour.....	771
2.8.15.4.3. Configuring style.....	772
2.8.15.5. DatePicker	774
2.8.15.5.1. Configuring without data	775
2.8.15.5.2. Binding Data	776
2.8.15.5.3. Configuring behaviour.....	778
2.8.15.5.4. Configuring style.....	781
2.8.15.6. RangeNavigator	783
2.8.15.6.1. Binding Data	784
2.8.15.6.2. Configuring behaviour.....	785
2.8.15.6.3. Configuring style.....	786
2.8.15.7. TreeView	788
2.8.15.7.1. Binding Data	789
2.8.15.7.2. Configuring Behaviour	791
2.8.16. Static Widgets	792
2.8.16.1. Image	793
2.8.16.1.1. bind image.....	794
2.8.16.1.2. Image Modes.....	795
2.8.16.2. Label	800
2.8.16.2.1. Configuration	801
2.8.16.3. Embed	802
2.8.16.3.1. Configuration	803
2.8.16.3.2. Note : Cross-origin resource sharing	805
2.8.16.4. PDF viewer	806
2.8.16.4.1. Configuration	807
2.8.17. Input Grid	810
2.8.17.1. Configuration	811
2.9. Using Dashboard Parameters	816
2.9.1. What is a Parameter ?	817
2.9.2. Managing Parameters.....	818
2.9.2.1. Opening the Parameters Editor.....	819
2.9.2.2. Visualizing Parameter binding.....	822

2.9.2.3. Editing Parameter bindings	825
2.9.2.3.1. Necessary connections.....	826
2.9.2.3.2. Removing a connection	827
2.9.2.3.3. Adding a connection	830
2.9.2.4. Adding/Removing Parameter	834
2.9.2.5. Edit Parameter properties	835
2.9.2.5.1. Parameter Name	836
2.9.2.5.2. Value Type	837
2.9.2.5.3. Parameter Default Value	838
2.9.2.6. example : Multi-Data Source filtering	842
2.9.3. Widget as Master Filter	843
2.9.3.1. Configuring a Widget as Master	844
2.9.3.2. Setting a Widget Default Selection.....	846
2.9.3.3. Using filters at runtime	848
2.9.4. URL Parameters to receive values	851
2.9.4.1. Example	852
2.9.4.2. Reserved words.....	853
2.9.5. Parameter usage	854
2.9.5.1. Label Parameters	855
2.9.5.2. Dynamic calls to Stored Procedures or Table-Valued Functions	857
2.9.5.3. Dynamic calls to Custom Queries	858
2.9.5.4. Dynamic Expression Values	859
2.9.5.5. Dynamic Data Source filters conditions.....	860
2.9.5.6. Dynamic Widget filters conditions	861
2.9.5.7. Dynamic Historian Queries	862
2.9.5.8. Include Parameter value in a Link to URL	863
2.9.6. Widget-specific binding	864
2.9.6.1. Grid conditional formatting	865
2.9.6.2. Dynamically updating embedded content.....	866
2.10. Dashboard Layout.....	867
2.10.1. Managing Layouts.....	868
2.10.2. Dashboard Theme and Background	870
2.10.3. Layout size and Responsiveness	874
2.10.4. Configuring Widgets on the Layout.....	876
2.10.5. Layouts for PDF Exports	880
2.10.6. Layouts for Mobile.....	883
2.11. Dashboard Settings and Publication	885
2.11.1. Dashboard Preview.....	886
2.11.2. Create and Export / Import Dashboards	887
2.11.2.1. Creating a New Dashboard	888
2.11.2.2. What is a Dashboard file	889
2.11.2.3. Save a Dashboard as file	890
2.11.2.4. Open a Dashboard file	891
2.11.2.5. Publishing a Dashboard to Alpana Server	893
2.11.2.6. Importing a Dashboard from Alpana Server	895

2.11.3. Dashboard-level Settings	897
2.11.3.1. Dashboard Title	898
2.11.3.2. Widget Auto-refresh	899
2.11.3.3. Disabling Comments	901
2.11.3.4. Widget Headers size	902
2.11.3.5. Color theme	903
2.11.4. Designer-level Settings	904
2.11.4.1. Login to Alpana Server	905
2.11.4.2. Dashboard Autorefresh	907
3. Alpana Server	908
3.1. About Alpana server	909
3.1.1. Architecture	910
3.1.2. Multitenancy	913
3.2. Installation	915
3.2.1. Pre-Requisites	916
3.2.2. Installing	921
3.2.3. Anti-virus and Firewall set up	937
3.2.4. Post-Installation	938
3.2.5. Un-Installing	947
3.3. Login and User Profile	948
3.3.1. Selecting a Tenant or the Host	949
3.3.2. Login options	951
3.3.3. User Settings and Logout	955
3.3.4. Linked Accounts	956
3.3.5. Account details and password	958
3.3.6. Account Security and Privacy	961
3.3.7. Notifications	962
3.3.8. Chat	964
3.4. Dashboards	968
3.4.1. Categories	969
3.4.2. Browsing the Dashboards	972
3.4.3. Viewing Dashboards	973
3.4.3.1. Opening Dashboards for Viewing	974
3.4.3.2. Favorite Dashboards	976
3.4.3.3. Refreshing Dashboards	977
3.4.3.4. Manual Exports	978
3.4.3.5. Dashboard Views	982
3.4.3.6. Comments	988
3.4.3.7. Pinning Widgets	993
3.4.3.8. Changing Dashboards layout	994
3.4.4. Managing / Publishing Dashboards	995
3.4.5. Dashboard Version History	1000
3.4.6. Public / Private Dashboards and Dashboard-level Permissions	1002
3.4.7. Linking / Embedding Dashboards	1005
3.4.8. Dashboard Aliases	1008

3.5. Widgets.....	1010
3.5.1. Viewing Widgets	1011
3.5.2. Managing / Publishing Widgets	1013
3.5.3. Widget Version History.....	1016
3.5.4. Linking / Embedding Widgets	1018
3.6. Data Sources	1020
3.6.1. Managing / Publishing Data Sources.....	1021
3.6.2. Data Sources Version History	1024
3.7. Schedule Management.....	1026
3.7.1. Schedules management.....	1027
3.7.2. Creating a Schedule	1029
3.7.2.1. Main	1030
3.7.2.2. Trigger.....	1032
3.7.2.2.1. Timer.....	1033
3.7.2.2.2. Data condition	1038
3.7.2.2.2.1. Managing conditions	1039
3.7.2.2.2.2. Logical condition	1040
3.7.2.2.2.3. Field value watcher	1043
3.7.2.3. Actions	1047
3.7.2.4. Targets	1049
3.8. Homepages and Pinning Widgets.....	1051
3.8.1. Viewing Homepages	1052
3.8.2. Creating Homepages	1054
3.8.3. Pinning Widgets	1057
3.8.4. Editing the Homepage Layout	1059
3.9. Stories	1061
3.9.1. Viewing Stories	1062
3.9.2. Creating / Editing Stories	1064
3.10. Runtime Connections	1067
3.10.1. Folders.....	1068
3.10.2. Browsing the Runtime Connections.....	1071
3.10.3. Creating a Runtime Connection table schema.....	1072
3.10.4. Inputting and Managing data	1081
3.10.5. Runtime Connections Management.....	1083
3.10.6. Managing Permissions of Runtime Connections.....	1086
3.11. Administration	1088
3.11.1. License Management.....	1089
3.11.1.1. License Activation.....	1090
3.11.1.2. Host-level Features.....	1094
3.11.1.3. License Deactivation.....	1095
3.11.2. Tenant Management	1097
3.11.2.1. Browsing the Tenants	1098
3.11.2.2. Creating a Tenant	1101
3.11.2.3. Tenant Features	1103
3.11.3. Users, Roles and Permissions	1104


3.11.3.1. Permissions descriptions	1105
3.11.3.2. Roles	1107
3.11.3.3. Users	1111
3.11.3.4. User Lockout	1118
3.11.3.5. User Impersonation	1122
3.11.3.6. User Settings	1124
3.11.4. Theme and Appearance	1128
3.11.5. Host-level Settings	1137
3.11.5.1. Email (SMTP)	1138
3.11.5.2. API Origins Whitelist	1141
3.11.5.3. External Login.....	1143
3.11.5.4. Concurrent Login	1149
3.11.5.5. Language	1150
3.11.6. Background Jobs	1152
3.11.7. Webhook Subscriptions.....	1153
3.12. API.....	1158
3.12.1. General API help and troubleshooting	1159
3.12.2. Authentication to the API.....	1161
3.12.3. Remote Actions.....	1163
3.12.3.1. Refreshing / Updating Filters.....	1164
3.12.3.2. Real Time Widgets Data	1166
3.12.4. Client-Side Hooks	1168
3.13. Maintenance and Migration	1169
3.13.1. Start / Stop IIS websites.....	1170
3.13.2. Backup.....	1172
3.13.3. Migration.....	1174
3.13.4. Cache management.....	1176
3.14. Troubleshooting	1177
3.14.1. Installation Troubleshooting	1178
3.14.2. Dashboard error logs	1180
3.14.3. Server usage logs	1182
3.14.4. Website Troubleshooting.....	1186
3.14.5. License troubleshooting	1189
3.14.6. Accessing behind a router.....	1191
3.15. Language support	1194
4. Alpana Mobile	1195
4.1. Installation.....	1196
4.1.1. How to get Alpana Mobile	1197
4.1.2. Setup	1198
4.2. Usage	1199
4.2.1. Login.....	1200
4.2.2. Tenancy.....	1201
4.2.3. Dashboard Page	1202
4.2.4. Settings	1203

5. Alpana Update File Dependency	1206
5.1. Installation	1207
5.1.1. Pre-Requisistes	1208
5.1.2. Installing	1209
5.2. Running the application	1212
5.3. Settings	1213
5.4. Connecting To Alpana	1215
5.5. Jobs	1217
5.5.1. Creating a Job	1218
5.5.2. Configuring a Job	1219
5.5.2.1. Target Dependency	1220
5.5.2.2. Source File	1222
5.5.2.3. Update Mode	1223
5.5.3. Running jobs	1225
5.5.4. Deleting a Job	1226
5.6. Troubleshooting	1227
6. Alpana OMI App	1228
6.1. Pre-Requisites	1229
6.2. Importing	1230
6.2.1. Importing in WSP 2017 U3	1231
6.2.2. Importing in WSP 2020	1233
6.3. Adding to a Layout	1234
6.4. Configuring	1236
6.4.1. Connecting to Alpana	1237
6.4.2. Selecting Visuals	1239
6.4.3. Configuring interactions	1241
6.4.4. Configuration options	1243
6.5. Troubleshooting	1244

1. About Alpana

Let your Data turn into Insights and put the power into your hands to take Data driven decisions !

Alpana Platform provides real-time access to your data and lets users analyze complex information through graphical representations that are easy to understand.

Alpana is published by [\[code192\]](#) 

Last modified: Feb 17, 2022

1.1. Components and Architecture of Alpana

Installable components

Alpana Platform is composed of :

- [Alpana Designer](#) : the development tool for creating Data Sources, Widgets, Dashboards
- [Alpana Server](#) : the website deployed for sharing content
- [Alpana Mobile](#) : the mobile app used for viewing on mobile devices
- [Alpana Update File Dependency](#) : the external tool for the live update of file-based connections.

An external tool may also be used for demonstration purposes, but is provided on-demand and with no warranty :

- [Alpana Real Time Data](#) : an external tool to demonstrate realtime features of the API

Roles of the Components and Users

Alpana Designer for Creating content

Alpana Designer is a desktop application that allows to connect to data and create the visualizations.

“Developer” users create content using Alpana Designer : Widgets, Dashboards, Data Sources.



In practice, Alpana Designer is very easy to use, and most *“Business” users* can also be *“Developers”* with very minimal training.

Alpana Server for Sharing content

Alpana Server is a website application that allows to make use of the content : display and interact with visualizations, export, notify, socialize.

“Business” users connect to content on Alpana Server using either :

- a desktop web browser
- the **Alpana Mobile** app for mobile devices

Each time the content is displayed, it is updated with live queries to your data.

Developer users share/publish content on Alpana Server for Business users to consume.

“Administrator” users manage the content and access on Alpana Server.



In practice, this is only a matter of permissions, and any person can be both Developer, Administrator and Business user with minimal or no training.

Alpana Update File Dependency for updating file content

Developer users deploy **Alpana Update File Dependency** if they need to display file-based data inside their content, and if they need this data to be updated.

Where to install ?

Alpana Server

To choose where to install **Alpana Server**, remember that it's a website that must :

- be accessible by the Business users from desktop or mobile
- be able to access your data to make fast queries
- be able to access its own local resources appropriately (local database, CPU/disk/RAM, ...)

See also the [software and hardware pre-requisites](#).

Alpana Designer

Alpana Designer doesn't have to be installed on the same machine as Alpana Server.

Depending on your license, you can make several installations of Alpana Designer.

Keep in mind that for developing :

- you must have access to your data from the machine where Alpana Designer is installed
- if you have access to Alpana Server from this machine, you can publish directly. If not, you can still publish manually.

See also the [pre-requisites](#)

Alpana Update File Dependency

- doesn't need to be installed if you don't need to publish file-based live data
- must have the required file system access to read the files you need to update
- must have the required network access to reach Alpana Server
- can be installed on several machines, for example if you need to read several files from different machines

Alpana security model

Overview

Alpana Server is offered as an on-premise installation that is administered by the customer (code192 does not offer it as a service).

Alpana Server is a website hosted on Microsoft IIS where users can login with different methods. The application is developed using the latest web technologies, always maintained up-to-date for security reasons.

The application model, including user login information, is stored inside a Microsoft SQL database, and the customer is responsible for configuring the security of this database.

Information for the Alpana process to login to the SQL database is stored in the file system in the installation folder, and the customer is responsible for securing this folder.

Process data is not hosted by Alpana. Alpana only configures queries to the source data stores.

Configured Alpana objects (Dashboards, Widgets, Data Sources) are stored in the SQL database and secured at the database level.

Transport layer security

Access to the website [can be configured through HTTPS](#) in order to ensure security at the transport layer.

Login security

The security of user access to visualizations is managed through the [login system and the internal permission system](#).

Login methods to Alpana Server include : – user accounts fully hosted by Alpana – Active Directory accounts imported through [LDAP](#) – Active Directory accounts authenticated through ADFS (SSO) – other SSO methods

Users can access visualizations through multiple entry points, all secured in the same way :

- desktop web browser
- native [mobile app](#)
- [Alpana Designer](#)
- [web API](#)
- [native app for OMI](#)
- [embedded](#) inside another tool

User administration

Administrators have several tools to help with security :

- They can enforce password complexity rules.
- They can force users to activate their account through e-mail.
- They can [impersonate](#) users for administration purposes.

Process data

Access to process data is configured by the developer user inside Alpana Designer.

Credentials to access process data are configured inside the corresponding [Connection](#).

Queries to those connections are stored in [Data Sources](#).

All this information is stored in encrypted form inside the Alpana objects : Data Source objects, Widget objects, Dashboard objects.

When published, they are stored in the Alpana SQL database.

When downloaded, they are stored as an encrypted file.

Some process data may be copied temporarily for processing (see an explanation of the [Buffer](#)).

Alpana Server can define a dedicated table to host user input (see an explanation of the [Runtime Connections](#))

Access from external applications

In the current OMI app, the below login model has been implemented.

A developer user configures an OMI layout to contain the Alpana app, they provide login information to Alpana Server, select a visualization that they wish to display, and configure it.

When an OMI user will browse to that layout, they will see the visualization thanks to login information configured by the developer.

Making queries to Alpana Server from another website is blocked by default (Cross-origin resource sharing / CORS).

Alpana Server allows to [configure exceptions](#) to that rule.

Last modified: Apr 13, 2022

1.2. Getting Started

Getting started with Alpana is easy, and the summary below should help you follow the steps.

Getting Alpana

1. Contact your official Distributor to **get a license**. If you don't know who is your official Distributor, get in touch with us at information@code192.com and we will sort it out !
2. Once your license is created, connect to your [License Portal](#) to **download Alpana**.
3. **Read** the *ReadMe* file and the [Release Notes](#). In particular, pay close attention to the [Pre-Requisites](#) of Alpana Server, and the [upgrade instructions](#) in general.

Installing Alpana Designer

Alpana Designer is used to create the content of Alpana (Widgets, Dashboards, Data Sources). It may be installed on the same machine as Alpana Server, or remotely. The important part is being able to access the data.

1. Check the [Release Notes](#)
2. **Install** the [Pre-Requisites](#)
3. **Install** [Alpana Designer](#)

Installing Alpana Server

Alpana Server is used to display the content of Alpana (Widgets, Dashboards, Data Sources) and share it with other users.



Important : Alpana Server is a complex application that creates databases, deploys a website, etc.

It is important to read carefully the [Pre-Requisites](#) and installation instructions.

Prepare

1. Check the [Release Notes](#) (and [Upgrade Instructions](#) if you are upgrading).
2. **Decide** where you will install Alpana Server after reading up on the [architecture of the application](#).
3. **Install** the [Pre-Requisites](#). This step is important and must be done **fully and in the right order**. A machine restart may be required.

Install

Install [Alpana Server](#)

Activate a license

1. Make sure you still have **at least 1 Activation** left [on your license](#).

2. [Login to the Host](#), see [Post-Installation steps](#).
3. [Activate your license](#)
4. [Activate the desired license features](#)
5. [Assign features to the Tenants](#) as desired.

What's next ?

See [Post-Installation steps](#).

Here are some tips on what to do next :

- Don't forget to [change the default passwords](#) !
- [Login to a Tenant](#) to configure it. Read up [the Administration chapter](#) for more information on configuration.
- [Create Categories](#) on the Tenant. This will allow users to publish Dashboards
- [Configure e-mail settings](#). This will allow to invite users by e-mail, let them recover their passwords, and more.
- Create [Users and Roles](#) to let users access Alpana Server. Configure the relevant security options.

Last modified: Apr 13, 2022

1.3. License Portal and Installers Download

Web License Portal

The web license portal is located at :

<https://secure.softwarekey.com/solo/customers/Default.aspx?AuthorID=5159868>

This is where you activate and manage your license with [code192] Alpana software editor.

Your login and password was sent to you on license delivery.

Downloading Installers

The latest installers are available in the License Portal.

In order to download them, please follow the below instructions.

Login to the Web License Portal with your Customer ID.

In the home page, click “Downloads” :



Below your license ID, click *Download* :



This downloads .zip file containing all installers and documentation allowed by your license.

Last modified: Feb 17, 2022

1.4. Release Notes

The below chapters document the release notes of each version of Alpana.

Last modified: Feb 17, 2022

1.4.1. v3.0.1.x

Release notes of items completed between Alpana v2.0.8.12 and v3.0.1.1

Upgrading

Upgrading from v2 to v3.0 requires manual steps.

Please read these steps and incompatibilities in the full chapter about [Upgrading](#).

Main Features

Some main features in a few words :

new API

Send and receive context with external applications, live update of data.

ex : Connect OPC, Wonderware sytem Platform and more to Dashboards and get live updates for targeted users.

new Widgets

All Widgets have been refreshed with the latest web technologies, and more configuration options have been exposed.

The following new Widgets Types are available :

Embed, Radar, Polar, Half-Donut / Half Pie, Range Area, Range Column, Step Line, Step Area, Spline Area, Hi/Lo, Hi/Lo Open/Close, Candle, Waterfall.

Charts have huge improvements in configurability :

- any number of chart types can be combined together
- any number of Y axis can be created and assigned to series (for different scaling)
- X axis will not be limited to "Category" type of axis : with a "real date" axis you will better see events in time, with a "real number" axis you will be able to show a real scatter plot, including logarithmic
- a Dimension field can be used to configure a series of separate charts (v2.0 Combo Chart behavior) and separate trends in the same chart (v2.0 other charts behavior), both at the same time

Gauge can display a threshold between good/bad, and can be displayed as a needle with ticks instead of only as a filling gauge

new dashboard layout and themes

Dashboards are not limited vertically to 1 page, and user will be able to scroll down to see more widgets, with no limit from our side.

Dashboard layout is configurable in a finer way : the number of tiles available for alignment is configurable

Theme support has been added : not only dashboard theme can be switched (including a dark theme), but also transparent widgets can be used on top of an image background of your choice

multi-tenant Alpana Server

OEMs will gain in maintenance and deployment costs

Administrators will be able to create a single install hosting dashboards for all their customers in fully separate instances : each will have their own portal and branding, their own dashboards, license features, users, etc... but all will be managed from a central location.

more licensing options

A Freemium tier is available.

Concurrent user licenses, with reserved users.

Ease of Use

Alpana Designer has seen some improvements, mostly focused on usability :

- any number of joins can be created between any 2 tables
- Expression editor is a lot more usable (including also copy-paste of expression parts), and also allows to use another expression inside an expression
- miscellaneous improvements in configuration interfaces

Wonderware Historian improvements

Wide query support allows many new scenarios, since each tagname can be in a separate field :

assigning each tag to a different Y axis on a Chart, using a tag as value and another as target, etc ...

Parameter-Based queries allows users to update the Historian query at runtime, and enables more data exploration scenarios.

Tasks

Features (61+) that were implemented in or before v3.0.1.x :

- ALP-T805 Filtering : dissociate “value” field and “display” field
- ALP-T744 Widget : difference between HEADER and NAME
- ALP-T747 To be able to Hide a Header of a Widget (Card,Proportion etc..)
- ALP-T763 Make Drill-Up UI more friendly
- ALP-T870 Expressions: Be able to duplicate an expression or a part of expression
- ALP-T762 Grid : implement column filters
- ALP-T907 Gauge : add needle
- ALP-T697 A solution to show quality limits on a Chart
- ALP-T768 Line Chart : allow to configure “show marker” independently for each line
- ALP-T678 Scatter/Bubble : expose chart properties

- ALP-T937 Scatter : implement drill down
- ALP-T945 Chart : dynamic Strip Lines
- ALP-T1235 avoid value label overlap
- ALP-T674 Allow to configure Virtual Scrolling
- ALP-T696 New widget : Step Line
- ALP-T695 Add drill-down to Combochart
- ALP-T671 Implement DateTime axis in all Charts
- ALP-T688 Charts : implement Secondary Axis
- ALP-T700 Combochart : allow to configure "Show Marker" for the line
- ALP-T701 New widget : Step Area
- ALP-T677 Allow Combochart as container to be configured other than full size
- ALP-T708 Widget : implement Spline Area
- ALP-T702 allow to configure separately each series in a Chart
- ALP-T704 implement Forecast Chart
- ALP-T944 logarithmic Chart Axis
- ALP-T947 Chart : better handling of empty points
- ALP-T1331 autoscale Y Axis even when Row is bound
- ALP-T1247 less threatening "no data to display"
- ALP-T690 New widget : Waterfall
- ALP-T692 New widget : radar
- ALP-T813 Link to URL : send Parameter value
- ALP-T785 Gauge: Show Target value in tooltip or next to its bar
- ALP-T717 Allow Dimensions to have measure Formatting
- ALP-T754 Label widget : create links to URL
- ALP-T689 Charts : bind field to color
- ALP-T629 Expression Editor improvements
- ALP-T1002 Designer UI : Widget Edit : show Data and Properties on same view
- ALP-T1004 Server portal : replace 1-level Categories
- ALP-T1047 Color Picker : add Hue selector
- ALP-T1226 Designer : improve configuration UI
- ALP-T1245 implement Combobox incremental search
- ALP-T759 Use Expressions in DataSource-level filters
- ALP-T909 Show the presence of DataSource-level or Widget-level filter
- ALP-T760 Use Expressions in a JOIN condition
- ALP-T838 Data Source Designer : allow to join between column values
- ALP-T749 Expressions : be able to use another Expression as field
- ALP-T715 Need to add Join conditions as many as needed
- ALP-T735 Improve Expression Editor for long expressions
- ALP-T798 implement relative date filter on Data Source
- ALP-T865 Datasource Filter Editor UI : differentiate tables
- ALP-T1375 New widget : Scatter Plot
- ALP-T1403 allow to display value labels inside Proportion Charts
- ALP-T1404 New Proportion Chart : Semi-Pie
- ALP-T1405 New Proportion Chart : Semi-Doughnut
- ALP-T1409 Gauge : show/hide ticks and axis labels
- ALP-T1410 Gauge : improve target visibility
- ALP-T1411 Gauge : show optional green/red threshold
- ALP-T1479 Widget and Data Source filter UI : search box for values

- ALP-T1506 New Widget : Embed
- ALP-T1537 automatic date format localization
- ALP-T1578 New widget : polar
- ALP-T1499 Historian : use widgets to change date range in query

Issues

Bugs (82+) that were fixed in or before v3.0.1.x :

- ALP-I1100 – autorefresh on maximized widget breaks dashboard
- ALP-I1013 – cannot multijoin when tables have same name
- ALP-I1023 – Expressions : missing editor for multiple values
- ALP-I971 – Mobile : DatePicker unusable
- ALP-I974 – mobile: linking widget not working on IOS
- ALP-I1191 – v3 widget Header and description not validated when changing tab
- ALP-I1110 – error when stored procedure schema changed
- ALP-I997 – Designer : Edit > Delete doesn't work
- ALP-I998 – Designer : widget appears incorrectly selected when closing tab
- ALP-I1001 – data preview content disappears when resizing
- ALP-I1038 – Edit>Delete Widget doesn't work
- ALP-I750 – Widget: Date Filter: Unhandled Exception
- ALP-I1031 – datetime filter implicit conversion fails on some systems
- ALP-I1037 – wrong buffer table referenced by Custom Query Table
- ALP-I915 – Dev / debug-like / fake-like error message in preview dashboard
- ALP-I941 – this dashboard freezes the browser when filtering
- ALP-I972 – Chart axis custom titles overridden on drill-down
- ALP-I981 – Autoscale starts at 0 when Line Chart has Row
- ALP-I988 – Line Chart can make browser unresponsive
- ALP-I996 – Card “show target value” doesn't work
- ALP-I1004 – copy-paste a Card loses measure formatting
- ALP-I1012 – Card shows decimals even when measure formatted with 0 decimals
- ALP-I1029 – bad query when joining 2 Custom Queries
- ALP-I1032 – Card shows decimals as 0 when system decimal symbol is not dot
- ALP-I1027 – Drill-Down on MonthYear creates wrong query in this chart
- ALP-I1016 – RadioButton without “All” item displays its state incorrectly
- ALP-I1035 – chart trendline broken when Row field configured
- ALP-I1002 – chart tooltip shows “undefined” when axis has no title
- ALP-I1005 – copy-paste a Chart loses axis labels
- ALP-I937 – Chart value labels overlap
- ALP-I944 – widget maximized on homepage loses legend
- ALP-I991 – Server responsiveness : on small resolutions important function missing
- ALP-I1019 – Designer unhandled NullReferenceException when closing window on error
- ALP-I1006 – Card: Scroll bar is visible in 1 block size widget after resize page
- ALP-I925 – Card shows needless scrollbar
- ALP-I1030 – Inconsistency in MonthYear format
- ALP-I986 – can't edit Data Source from with SQLite buffer
- ALP-I789 – Designer Preview : IIS Express generates warnings in Windows Events

- ALP-I852 – Widget preview crashes when Widget is resized
- ALP-I872 – widget legend shows scrollbar needlessly
- ALP-I982 – single Gauge as Master fails with JS error
- ALP-I993 – uncaught StackOverflowException when removing Parameter
- ALP-I1021 – in IE, can only drill-up to top
- ALP-I1022 – Chart Hide Legend ignored during drill-down
- ALP-I1028 – Gauge hangs web browser when Value=0
- ALP-I945 – JS Uncaught TypeError when “Go to Dashboard” from Homepage
- ALP-I985 – custom legend lost from this dashboard
- ALP-I1017 – Measure Formatting : must use workaround to configure Auto decimals
- ALP-I1015 – Card truncates suffix
- ALP-I1026 – Web connector can't handle sub-millisecond precision from WW Online in SQL
- ALP-I1009 – Grid virtual scrolling throws error 500 on Public dashboard
- ALP-I1018 – Published Dashboards can't be re-opened in Designer after renaming
- ALP-I1020 – Grid uncaught syntax error when using field names with single quote
- ALP-I1036 – Grid KPI Percentage of Target shows all as green
- ALP-I989 – RangeNavigator with single Date displays since January
- ALP-I992 – JS error while loading dashboard on server and clicking on collapse menu
- ALP-I999 – widget CheckBox : label alignment wrong in IE11
- ALP-I1003 – Issues with Measure formatted as Currency
- ALP-I1010 – Grid conditional formatting throws error if Excel cell empty
- ALP-I1025 – Date format wrong in Chart with data converted from Web in SQLite buffer
- ALP-I1092 – Grid with paging breaks header filters
- ALP-I1112 – Map Shape cannot bind to GeoJSON number Property
- ALP-I1111 – Map Shape doesn't accept number fields
- ALP-I935 – Mobile : Combobox filter not applied
- ALP-I936 – Mobile : Master widget filters not applied
- ALP-I1091 – TreeMap Group By doesn't accept number fields
- ALP-I959 – : RangeNavigator JS Uncaught TypeError when data has NULL
- ALP-I1113 – Choropleth Map default scale colors wrong
- ALP-I1276 – Opening Widget Filter is slow on big database
- ALP-I1538 – Widget Label : difficult to apply style to some parts
- ALP-I1477 – Some empty widget previews
- ALP-I1613 – Treemap scale wrong order
- ALP-I1039 – filter by datetime in SQLite returns no data
- ALP-I1000 – dashboard file corrupted when closing Designer
- ALP-I938 – Historian Connector Window: Selected tags panel does not appear on small resolution
- ALP-I994 – selection issues in dependent Comboboxes
- ALP-I1014 – Designer shows wrong map name
- ALP-I1007 – show two parameters label values as Widget Title shows: All
- ALP-I967 – no measure formatting in Grid exported as PDF
- ALP-I880 – misc SQL-related errors in Scheduler logs when starting machine
- ALP-I477 – Designer may disappear from taskbar
- ALP-I1646 – Designer doesn't delete temp file in working folder

Last modified: Feb 17, 2022

1.4.2. v3.0.2.x

Release notes of items completed between Alpana v3.0.1.1 and v3.0.2.2

Upgrading

Alpana Server install upgrade from v3

To upgrade Alpana Server from v3.0.1.1, first un-install the previous version from Windows Control Panel, as documented [here](#).

License upgrade

! An internal change in license naming is causing a breaking change with existing v3 installations that are not “Freemium” licenses.

If you currently have an installation of Alpana Server v3 that is not a “Freemium” license, please follow the below procedure to complete your upgrade :

1. Upgrade Alpana Server as described above
2. Activate your license again as described [here](#) (including downloading the license file)

Tasks

No new features have been implemented in this version, as it is mostly a bugfix release.

Issues

Bugs (25) that were fixed between Alpana v3.0.1.1 and v3.0.2.2 :

- ALP-I1718 – Server installer fails with SQL Windows authentication in some cases
- ALP-I1708 – Server installer rolls back when SQL server name contains antislash
- ALP-I1695 – Server : frontend doesn't start on port 80
- ALP-I1675 – performance issue when loading Alpana Server pages
- ALP-I1662 – IQ_UnableToUpdateBuffer when publishing this dashboard
- ALP-I1656 – Custom X Axis title wrong when changing drill-down fields order
- ALP-I1148 – v3 Polar / Radar doesn't support Drill-Down
- ALP-I1685 – Designer : The given key was not present in the dictionary. with Excel file.
- ALP-I1605 – RangeNavigator handles reset wrongly when using Clear Filter
- ALP-I1615 – Treemap legend ignoring Measure Formatting
- ALP-I1633 – Chart : Range styles can't display Trend
- ALP-I1658 – Designer application won't maximize on second monitor
- ALP-I1681 – renaming of license packs for pricelist v2.9
- ALP-I1683 – Notification Settings can't be displayed : JS error

- ALP-I1687 – Donut : random JS TypeError occurred
- ALP-I1697 – Server : IC_ParametersInvalid et IC_BufferConnectionFailed
- ALP-I1689 – Combobox JS Type Error when filtering this Chart
- ALP-I1679 – Polar Chart : IQ_ParameterNullOrEmpty when removing field on a widget copy
- ALP-I1684 – Bubble Chart : field configuration reset when editing series
- ALP-I1676 – RangeSlider with date : labels overlap
- ALP-I1688 – issue in this v2 imported dashboard
- ALP-I1690 – Designer UI : remove “Close tab”
- ALP-I1682 – label truncated
- ALP-I1692 – Designer UI : can’t change series order when scrollbar present
- ALP-I1655 – Depending on the dashboard, tooltip can have performance issues.
- ALP-I1686 – Card : number localization issues

Last modified: Feb 17, 2022

1.4.3. v3.1.0

Release notes of items completed between Alpana and v3.0.2.2 and v3.1.0.7

Upgrading

New Pre-Requisites

Alpana Server and Designer v3.1.0.7 now require .NET Framework 4.8

Alpana Server install upgrade from v3

To upgrade Alpana Server from v3.0.2.2, see [Upgrading Alpana from v3.0 to v3.1.0](#)

Main Features

Redundant Connections

A [Redundancy](#) mechanism has been implemented on SQL, Historian and Web connectors.

Alpana Update File Dependency

The tool [Alpana Update File Dependency](#) has been added and needs to be installed separately for live update of file-based connections.

Tasks

No other new features have been implemented in this version, as it is mostly a technology upgrade and bugfix release.

Issues

Bugs (44) that were fixed between Alpana v3.0.2.2 and v3.1.0.7 :

- ALP-I1694 – Export PDF : issue with Gauges
- ALP-I1693 – Can't export widgets on this dashboard
- ALP-I1678 – Mobile : DatePicker pop-up doesn't open
- ALP-I1671 – Server PDF exports: charts overflow at page right
- ALP-I1713 – Chart : random JS error when resizing browser
- ALP-I1717 – Views > Reset Parameter doesn't clear filter UI
- ALP-I1759 – traduction Française Paramètres SMTP
- ALP-I1763 – all license features assigned to new tenant
- ALP-I1773 – Excel Export not filtered when using custom query and relative dates
- ALP-I1787 – Chart X Axis labels overflow container in some cases
- ALP-I1722 – Designer UI : more explicit message when no permission to publish

- ALP-I1712 – IQ_UnableToRetrieveDataTable happened randomly on this dashboard
- ALP-I1702 – UI Parameter Editor issue when too many Parameters
- ALP-I1706 – Designer allow mark as Public even if impossible
- ALP-I1705 – Designer : copy-paste widget on wrong location
- ALP-I1704 – Grid : clicking header after link to url opens link
- ALP-I1701 – Issue when Expression name contains dots
- ALP-I1700 – Configuring Drill-Down and Master on same widget gives errors
- ALP-I1677 – RangeSlider with datetime : labels shifted
- ALP-I1669 – Cartesian chart javascript error
- ALP-I1659 – Chart : Y Axis auto-scale wrongly applied in mixed cases
- ALP-I1762 – error when selecting in this multi-selection Combobox
- ALP-I1768 – Parameter not set when no Listener present
- ALP-I1802 – Designer crash on copy-paste this Proportion Chart
- ALP-I1788 – Filtering based on WHERE condition on 2 datetime fields
- ALP-I1770 – can't replace custom Map
- ALP-I1774 – Designer crash when deleting Parameter after selecting condition
- ALP-I1775 – custom Choropleth Map empty
- ALP-I1716 – Reload Dashboard resets filter UI but doesn't clear filter
- ALP-I1777 – TreeMap tooltips style inconsistent and error-prone
- ALP-I1804 – NullReference while opening this dashboard
- ALP-I1801 – Erreurs sur requête Historian Wide Query avec SQL Français
- ALP-I1791 – Alpana Server setup fails when listing available IP
- ALP-I1731 – Designer: Auto-creation of parameters behaviour
- ALP-I1764 – Excel dependency not updated from file path
- ALP-I1827 – Designer : widgets toolbox : widgets names
- ALP-I1642 – Bubble Map : this custom map doesn't display shapes
- ALP-I1691 – Bubble Map error : e.map is not a function
- ALP-I1719 – Cartesian chart => Enable scrolling => scrollbar should be hidden
- ALP-I1750 – Tenants not renamed properly
- ALP-I1816 – DatePicker pre-selection marked incorrect when using Highlight Available
- ALP-I1723 – DatePicker : dates unavailable when using Highlight Available and Relative
- ALP-I1769 – Designer : Tab Headers style
- ALP-I1673 – Widgets won't refresh when resizing application

Last modified: Feb 17, 2022

1.4.4. v3.1.2

Release notes of items completed between Alpana v3.1.0.7 and v3.1.2.1

Alpana Update File Dependency has been upgraded from v1.0.0.3 to v1.0.0.4

Main Features

Date Time Picker

The Date Picker widget now supports [selecting time intervals](#).

Custom date formats

[Custom date formats](#) are now supported.

Solved Issues

The following are the main bugs that were fixed between Alpana v3.1.0.7 and v3.1.2.1 :

- ALP-I1861 – Server: dashboard background image : Cannot insert null value to the cache
- ALP-I1867 – Card error when null value present
- ALP-I1865 – JSON Connector error : The method or operation is not implemented
- ALP-I1838 – Historian redundancy not triggered
- ALP-I1868 – Choropleth Map with Calculation broken
- ALP-I1724 – RangeNavigator : wrong selection with Relative Date in this configuration
- ALP-I1834 – X Axis StripLine behaviour incorrect when duration too short
- ALP-I1830 – Bubble Map doesn't support geojson Point
- ALP-I1871 – Date Picker with range : selection maintained after clearing filter
- ALP-I1729 – Server : notification icon doesn't display when notifications are present
- ALP-I1841 – Update Dependency : error when trying to update Image
- ALP-I1843 – disable X Axis Stripline with X Axis type Category
- ALP-I1828 – Chart tooltip text overflows background
- ALP-I1829 – Bubble Map tooltip has no background

Known issues

The following are the main bugs that are known and still present at the time of release of v3.1.2.1 :

- ALP-I1879 – Null reference exception when copy-paste Widget in Designer
- ALP-I1877 – Random IOException on Map : can't access file
- ALP-I1840 – “no such column” when re-opening certain v3.0 file-based dashboards in v3.1
- ALP-I1866 – Custom date format not applied in Chrome
- ALP-I1882 – Date Picker with time : display wrong when filter empty
- ALP-I1881 – Date Picker with time : can't select time when using relative date
- ALP-I1842 – Update Dependency : error when changing credentials

- ALP-I1736 – Server : pinned Chat disappears

Last modified: Feb 17, 2022

1.4.5. v3.2.1

Release notes of items completed between Alpana v3.1.2.1 and v3.2.1.5

Alpana Update File Dependency has been upgraded from v1.0.0.4 to v1.0.2.1

New Pre-Requisites

IIS Express is no longer necessary as a pre-requisite of Alpana Designer.

It may be uninstalled safely.

New Tools

Alpana Real Time Data

A new tool was introduced for demonstration purposes :

[Alpana Real Time Data](#) v1.0.2.0

Main Features

New Widget : Sankey

A new Widget type has been added : the [Sankey diagram](#).

This widget allows beautiful representation of flows that can allow you to easily :

- detect water leaks
- analyze energy flows
- understand logistics flows
- ... and more !

New Widget : PDF Reader

A new Widget type has been added : the [PDF Reader](#).

This widget allows to embark PDF files inside a dashboard to display it inside the Dashboard.

This allows to display dynamic dashboard data side-by-side with static PDF data.

For example, the maintenance manual displayed side-by-side with the KPI's related to that maintenance operation.

The PDF file can also be changed live : depending on user action, a different PDF file gets displayed.

New connection : Oracle

Native connection to [Oracle](#) 12 and above is now supported.

API features for real time

The Alpana Server web API has been extended to allow to send data to dashboards in real-time from your external application :

- A new Connection called [Alpana Runtime](#) allows to push data in a table hosted by Alpana.
- A [new Widget configuration](#) allows to configure a Widget without a Data Source, and then push live data into it.

other Widget improvements

The [Embed widget](#) now accepts Parameters to dynamically change its content.

The [Date Picker](#) can now be configured without a Data Source.

The [Grid widget](#) now allows multiple selection as Master Widget.

The [Card widget](#) now allows to display the KPI's in any order.

Other features

Administrators now have the possibility to save up concurrent licenses by forcing users to [logout after inactivity](#).

Solved Issues

The following are the main bugs that were fixed between Alpana v3.1.2.1 and v3.2.1.5 :

- ALP-I1879 – Error when copy-paste Widget in Designer
- ALP-I1885 – Designer : dragging widget scrolls layout too fast
- ALP-I1984 – Designer error when cancelling object creation then switching back to tab
- ALP-I1891 – layout shaking when loading and on hover
- ALP-I1848 – Unpredictable behavior when resetting filter if 2 Parameters bound
- ALP-I1648 – Chart: Enable Scrolling with several Series is not based on each Series per Page
- ALP-I1906 – Date Time Picker AM/PM not visible
- ALP-I1882 – Date Picker with time : display wrong when filter empty
- ALP-I1881 – Date Picker with time : can't select time when using relative date
- ALP-I1991 – some Comment text styles not applied
- ALP-I1889 – Background image not displayed in some cases
- ALP-I1840 – “no such column” when re-opening some older CSV dashboards
- ALP-I1877 – Random IOException on Map : can't access file
- ALP-I1988 – Line marker remains highlighted after mouse leaves
- ALP-I1896 – snippet “Embed in code” doesn't escape quotes

Known issues

The following are the main issues that are known and still present at the time of release of v3.2.1.5 :

- The language selector has been removed, and will be replaced by a more complete implementation in an upcoming version.

- ALP-I1998 – Error if opening Dashboard without having opened Designer first. To solve this, open Alpana Designer one time from the desktop shortcut.
- ALP-I1993 – When adding a date dimension to a Chart, it looks like the X Axis is formatted as datetime instead of Year. Please refresh the Widget preview to fix this graphical issue.
- ALP-I1980 – Cannot change profile picture
- ALP-I2005 – new CORS whitelist item overwrites previous item

Last modified: Apr 13, 2022

1.4.6. v3.2.2

Release notes of items completed between Alpana v3.2.1.5 and v3.2.2.10

Alpana Update File Dependency has been upgraded from v1.0.2.1 to v1.0.2.2

Alpana Real Time Data has been upgraded from v1.0.2.0 to v1.0.2.1

Alpana OMI App v1.1 is now available upon request.

Main Features

Alpana v3.2.2.10 implements the following main features :

General improvement : refresh smoothing

To create a more pleasant user experience, the data refresh has been “smoothed” :

- when using filters at runtime, the listener widgets will only display a “loading” animation if the query is slow. Otherwise, the listener widgets will refresh smoothly and just display the new data content.
- when using the [real-time API features](#), the target widget will refresh smoothly and just display the new data content.

Performance improvements

As part of a continuous effort to improve performance, some noticeable progress includes :

- important performance improvements for bufferized connections
- a big performance improvement in Alpana Designer when opening a Connection with many objects in the schema (example : Wonderware Historian “Runtime” database)

Grid widget features

The Grid widget has received miscellaneous improvements based on user requests :

- [Footers](#) : you can now add Footers at the bottom of the Grid, to use as summation rows (can also calculate average, count, etc...)
- [Nested Columns](#) : you can now group Grid columns and configure a common title on top of the columns titles.
- columns resizing : users can [resize Grid columns at runtime](#), to see content more easily
- alternate background color : to view large tabular data more easily, you can now configure the Grid to display each row with an [alternate background color that is configurable](#)

Designer

Some improvements were implemented to make the developer life a bit easier :

- a [search text box](#) allows to browse the database schema more conveniently
- file-based Connections now have [an easy shortcut](#) to refresh the file content in Alpana Designer

- to allow easier SQL Connection migration, the database name is not reset anymore when changing the host address

API

The [API](#) `GetWidgets` method now includes parameters `Filter` and `IsPublic`, to make it easier to search for Widgets.

Solved Issues

The following are the main bugs that were fixed between Alpana v3.2.1.5 and v3.2.2.10 :

- ALP-I1998 – Error if opening Dashboard without having opened Designer first
- ALP-I1993 – When adding a date dimension to a Chart, it looks like the X Axis is formatted as datetime instead of Year.
- ALP-I1980 – Cannot change profile picture
- ALP-I2005 – new CORS whitelist item overwrites previous item
- ALP-I2033 – install with subdomains contains wrong CorsOrigins in appsettings
- ALP-I2019 – Donut selected state doesn't match the filter state
- ALP-I2115 – Widget Export menu invisible if Image Export disabled
- ALP-I2012 – Range Navigator interval includes next period
- ALP-I2015 – Radar Chart item labels are not in front of values
- ALP-I2057 – Mobile : multi-selection Combobox cannot be validated
- ALP-I2013 – Display issues in Grid with paging and several columns with the same name
- ALP-I2021 – Designer “Clear Filter” button in widget edit tab not working
- ALP-I2025 – Gauge's arc disappearing in Designer
- ALP-I2014 – Designer shows empty UI when deleting Widget then switching back to tab
- ALP-I2035 – field type not updated when Custom Query updated

Known issues

The following are the main issues that are known and still present at the time of release of v3.2.2.10 :
(no known issues at this time)

Last modified: Feb 17, 2022

1.4.7. v3.2.3

Release notes of items completed between Alpana v3.2.2.10 and v3.2.3.3

Alpana Update File Dependency has been upgraded from v1.0.2.2 to v1.0.3.1

Alpana Real Time Data has been upgraded from v1.0.2.1 to v1.0.3.1

Main Features

Alpana v3.2.3 is mostly a bugfix release with the following minor additions :

- [Parameter default values](#) can now properly handle all the cases : some selected, all selected, none selected, `NULL` selected.
- a new option to help with [license troubleshooting](#)
- when opening the link to a dashboard while user is not logged in, there is now a shortcut to login.

Solved Issues

The following are the main bugs that were fixed between Alpana v3.2.2.10 and v3.2.3.3 :

- ALP-I2120 – In some dashboards from previous versions, there was “no data” in the Designer.
- ALP-I2118 – Alpana Update File Dependency internal error when connecting
- ALP-I2122 – “Pin Widget” not working on some widgets
- ALP-I2126 – Wrong display on filter widgets when `NULL` values are present
- ALP-I2140 – Range Slider sometimes inverts interval and creates wrong query
- ALP-I2139 – Bar Chart : some X Axis settings reset to defaults when scrolling
- ALP-I2137 – Sankey : scroll view not reset on filter

Known issues

The following are the main issues that are known and still present at the time of release of v3.2.3.3 :

- ALP-I2143 – In specific cases, using the text search in multi-selection Combobox makes the page unresponsive

Last modified: Feb 17, 2022

1.4.8. 2020 R1

Release notes of items completed between Alpana v3.2.3.3 and 2020 R1

Alpana Update File Dependency has been upgraded from v1.0.2.1 to 1.1.0.2

Alpana Real Time Data has been upgraded from v1.0.2.1 to 1.1.0.2

Introduction

Version 2020 R1 is the first big release of the year and includes many new features and bugfixes.

As usual, the application is updated to the latest web technologies (Angular 9, .NET Core 3.1), with the latest security features and patches.



Some of the changes require **special attention when upgrading**, so please read below for details.

New versioning :

After version v3.2.3.3, and since Alpana version 2020 R1, a new versioning scheme is used.

The internal version number for 2020 R1 is 3.3.0.25.

See [upgrading](#) for more information.

Upgrade Instructions

To upgrade your installation, please see the generic [upgrading](#) chapter.

In addition, this version has specific instructions listed below.

Alpana Server

New Pre-Requisite

Alpana Server now requires to install a new version of .Net Core v3.1 Runtime & Hosting Bundle.

See [Server Pre-Requisites](#) for more information.



Note : this new .Net Core version can be installed side-by-side with the previous one, which can be useful to minimize downtime during the upgrade.

Previous versions of .Net Core may be uninstalled safely if they are not used by other software.

License upgrade

Important : This is a new major version, so it requires a valid support contract to upgrade, and you must ask for a new license Activation to your support.

Upgrading Schedules

Following a change in the scheduling engine, existing Schedules need to be upgraded manually.

You will have to manually Disable/Enable each Schedule to upgrade it, or to Edit and save it.

In addition :

- “Minutes” will lose the “seconds” details
- “Hourly” will lose the “seconds” details
- “Daily” will lose the “seconds” details
- “Weekly” will lose the “seconds” details
- “Monthly” will lose the “seconds” details
- “Advanced CRON expressions” are replaced by a compatible expression

Enabling Runtime Connections

Following upgrade, to enable the new Runtime Connections feature on a tenant :

- activate the *Runtime Connections* license feature at the Host level
- add the *Runtime Connections* license feature to the desired tenants
- add the *Runtime Connections* permission to the Admin Role of the tenant, and to all desired Users and Roles

Alpana Designer

New Pre-Requisites

Alpana Designer now requires to install .Net Core v3.1 Runtime & Hosting Bundle.

See [Designer Pre-Requisites](#) for more information.

Dashboards

Special characters

Following an improvement on the management of international characters, some dashboards need to be upgraded manually.

If your dashboards configuration (headers, descriptions, etc, but not data) contain special characters, such as symbols m^3 or non-English characters é or money symbols €, upon upgrade they will be displayed as question mark ?.

To solve this, just open the dashboard in Alpana Designer, and save again.

Main Features

New Features : Paginated PDF Exports, Mobile configuration and Layout Management

A new concept has been introduced in each Dashboard : [Layouts](#).

You can now display the same Dashboard in many display conditions, and **control** exactly how it will be displayed, for example :

- on a desktop web browser
- on a big screen
- in a PDF report
- on a mobile device
- inside InTouch OMI
- embedded in another website
- ...

In all cases, you just re-use the same existing configuration (Widgets, Data Sources, etc) from the same Dashboard, and just change the layout :

- display/hide the Widget on some layouts
- move/resize content to view better
- change the theme to fit the embedding context

In particular, the PDF exports can now have a fully configurable Header and Footer, pagination and paper size.

The Designer has been improved for such tasks, with a new interface for zooming the canvas, viewing PDF page limits, hiding/displaying widgets, ...

New PDF export behaviors have also been implemented to handle widgets with hidden data (example : Grid with pagination)

As another consequence, the Mobile layout can now be manually configured to display exactly as desired.

New Feature : Runtime Connections

Alpana now allows to create and host simple data tables.

See [Runtime Connections on Alpana Server](#) to create and manage those new objects.

Users can use interactive input forms inside dashboards to input data.

See the new [Input Grid](#) widget to add this possibility to Dashboards.

Developers can read this data to display it in a Dashboard.

See the new [Alpana Runtime](#) Connection type to use it in a Data Source.

New Connection : Insight

Alpana now includes a native Connection to [Aveva Insight](#)

It allows to connect to Aveva Cloud Operations to get historical data from Insight.

Connection improvements : Web

The “Web connector”: [Web connector](#) now allows to connect to more API types, including Ampla.

New Widget : Linear Gauge

KPI's can now be displayed on a scale with the new [Linear Gauge](#) Widget type.

The previous “Gauge” Widget was renamed to [Circular Gauge](#)

New Widget : Sparkline

You can now display a KPI along with its history on a mini-trend with high/low limits, thanks to the new [Sparkline](#) Widget type.

New Widget : Banner

You can now display value cards on a scrolling banner similar to stock exchange websites, thanks to the new [Banner](#) Widget type.

New Widget : Gantt

You can now display scheduling and timeline data on the new [Gantt](#) Widget type.

New Widget : Energy Rating

You can now display regulatory environmental and energy performance data on the new [Energy Rating](#) Widget type.

New Widget : Tree View

You can now select filter values from tree-like hierarchical data thanks to the new [Tree View](#) filter Widget type.

Widget improvements

Card re-vamp

The [Card](#) has been completely overhauled to allow more configurability of the KPI display. In addition, the Card can now display a [sparkline](#) to add historical insight to the single-value display. This works particularly well with the new aggregation type called “Last”.

Chart improvement

The [Spline Type option](#) for Spline chart types now includes a “Monotonic” option that doesn't overshoot (it doesn't go over or under the actual values).

Range Navigator improvement

There is now a new option for the value display of the [Range Navigator](#) : *Axis Interval Type*

Designer improvements

New aggregation function : Last

The [Last Value aggregation function](#) now allows developers to easily display the single last value of a field.

This responds to the common requirement to “only see the value” in a Widget, despite having many values in a Data Source, and the general need for aggregation.

Parameter binding

The Parameter editor has been improved to display all uses of a Parameter, including in Expression, Stored Procedures, Filters, and Widget specific behaviors.

This allows to have a central location for analyzing more complex Parameter behaviors.

The automatic creation and binding of Parameters has also been improved, in order to give a more pleasant developer experience.

Similarly, Parameter deletion has been made easier.

Border configuration for Widgets

Now all Widgets types can have a configurable Border.

Performance

Designer error logs are now paged and will not have performance issues with very large files.

New query configuration : Distinct

All Widgets now have a now query configuration option : [distinct](#).

This is enabled by default as it represents the most common case.

However, if you want to display repeated values from your data, you can now disable this.

Server improvements

LDAP integration

Previously, only integration with ADFS was possible.

Now, administrators can configure their Tenant to accept connection from Active Directory users, by simply configuring an AD server and admin user credentials.

AD users who connect will automatically have their Alpana account created with default Roles.

New Background Jobs management

Long-running tasks are now managed by a [Background Jobs](#) manager : manual dashboard exports, manual data import from files, etc

Results are communicated through the [Notifications](#).

This allows a better handling of simultaneous exports

Concurrent login

Administrators can now choose to [prevent users from connecting simultaneously](#) from multiple browsers.

Category move

Dashboard [Sub-Categories](#) can now be moved to become a Root Category thanks to a dedicated control.

Changes in Guest permissions

The Guest default [Server Role](#) now has a new default behavior : by default, it has no access, and will only have access to content if explicitly granted.

Performance

Miscellaneous internal optimizations have lead to general performance improvements in page loading.

Known Issues and Incompatibilities

- The SQLite Connection was only used for internal tasks, and has been dropped from Alpana. If you need this connector, please contact your support.
- Excel formulas are not run in XLSX format
- The Range Navigator in “auto” mode may sometime display incorrect intervals.
- The “Candle” Chart when configured with more than 15 values of “split into same chart” will show the other items as black
- There are some issues with visual feedback when selecting from a chart as master widget
- On an upgraded installation, a message for an “internal error” may be displayed upon connecting, with no functional issue. If this impacts you, please contact support to apply a simple fix.

Solved Issues

The following are the main bugs that were fixed between Alpana v3.2.3.3 and v3.3.0.25 :

- ALP-I2159 – Grid paging broken with Historian query
- ALP-I2195 – Designer crash when removing a field from Grid with KPI
- ALP-I2155 – Scheduling : Data conditions never met
- ALP-I2179 – Parameter placeholder not replaced correctly in published Widget
- ALP-I2123 – Designer doesn't allow to access changes in parameters of stored procedures
- ALP-I2145 – Expression deleted silently in specific workflow
- ALP-I2147 – Range Navigator may not display all dates
- ALP-I2210 – Server : Installation fails with some password characters
- ALP-I2252 – Grid conditional formatting causes error when bound to Parameter
- ALP-I2178 – Embed link of Widget pinned to Homepage is incorrect
- ALP-I2259 – “no data” in some cases when loading saved View
- ALP-I2175 – Schedule : logical condition's Filter radiobutton resets automatically
- ALP-I2174 – Schedule : Targets User unbound when Editing
- ALP-I2248 – Schedule configuration : watcher field is not remembered correctly
- ALP-I2265 – error when exporting Host Change Logs to Excel in some cases

- ALP-I2172 – Comments : cannot see the presence of widget comments
- ALP-I2176 – Widget comment thread copied in Main
- ALP-I2180 – Cannot connect specific Excel XLS file : IQ_UnableToUpdateBuffer
- ALP-I2158 – date formatting HH:mm:ss.fff doesn't show milliseconds
- ALP-I2164 – Designer : cannot see full tagnames when editing connection
- ALP-I2328 – Host admin : incorrect results when filtering Users list by Permission
- ALP-I2144 – Unwanted automatic Parameter links
- ALP-I2157 – Grid selection maintained incorrectly across paging
- ALP-I2109 – Treemap : default selection UI feedback incorrect
- ALP-I2153 – incorrect configuration which shows “No data” in Designer only
- ALP-I2150 – Server login page blocks when login failed
- ALP-I2314 – Euro “€” label rendered as question mark “?” in Chrome
- ALP-I2156 – Layout shaking a lot on certain dashboards with certain window sizes
- ALP-I2161 – Server : dashboard list “blinks” with specific workflow
- ALP-I2167 – Pin Widget disabled on published Widget
- ALP-I2169 – Disabled Link button on pinned dashboard
- ALP-I2154 – Default series name inconsistent
- ALP-I2258 – URL Parameter causes incorrect behavior in Views
- ALP-I2297 – inconsistent Parameter reset with URL Parameter
- ALP-I2319 – Chart : cannot edit legend when multiple measures but no split
- ALP-I2282 – Designer : cannot Publish to overwrite existing Widget
- ALP-I2028 – Column chart X axis labels display issue with long strings
- ALP-I2146 – Range Navigator doesn't update selection when mouse is released outside
- ALP-I2165 – Grid maintains a visual selection even when not master
- ALP-I2303 – Chart : autoscale slightly wrong in some cases
- ALP-I2151 – Chart allows incorrect Y axis configuration and shows error
- ALP-I2293 – Data Source page : default pagination incorrect
- ALP-I2177 – User gets notified of own comments
- ALP-I2327 – silent error when importing incorrect users from Excel
- ALP-I2312 – Historian : random error “The ConnectionString property has not been initialized.”
- ALP-I2171 – Designer : Logs dialog very slow to open when many logs
- ALP-I2322 – Treemap tooltip shows all decimals
- ALP-I2163 – glitch when cancelling out of Rename Homepage dialog
- ALP-I2162 – Dashboard loses Favourite status when updated
- ALP-I2168 – Designer : setting Autorefresh doesn't make the project “dirty”
- ALP-I2192 – Designer : state is not dirty when background color changed
- ALP-I2160 – incorrect error message when adding wrong user to chat
- ALP-I2092 – Range Navigator : clicking year has a different display after refresh
- ALP-I2149 – Parameter Editor UI : button overflows
- ALP-I2271 – Designer : Configuring Multi-Items Viewport doesn't set project to dirty

In addition, many fixes were made to advanced Widget configurations.

Last modified: Apr 13, 2022

1.4.9. 2020 R2

Release notes of items completed between Alpana 2020 R1 and 2020 R2

Alpana Server and Alpana Designer have been upgraded from 3.3.0.25 to 3.3.1.17

Alpana Update File Dependency has been upgraded from 1.1.0.2 to 1.1.1.0

Introduction

Version 2020 R2 is a minor release and includes mostly bugfixes and improvements.

As usual, the application is updated to the latest web technologies (Angular 9, .NET Core 3.1), with the latest security features and patches.

Upgrade Instructions

To upgrade your installation, please see the generic [upgrading](#) chapter.

Don't forget to instruct all your users to clear their browser cache or do a hard refresh.

Alpana Server

License upgrade

This is a minor version, so it doesn't require a valid support contract to upgrade, and you need not ask for a new license Activation to your support.

Enabling Webhooks

Following upgrade, to enable the new *Webhooks* feature on a tenant :

- activate the *Webhooks* license feature at the Host level
- add the *Webhooks* license feature to the desired tenants
- add the *Webhooks* permission to the Admin Role of the tenant, and to all desired Users and Roles

Main Features

New Feature : Webhooks

A new feature has been added to trigger [Webhooks](#) upon Alpana Server events.

Developers can now [configure Alpana Server](#) to inform an external web API when an event happens on Alpana objects.

Thanks to this feature, Alpana Server can now be fully integrated in a two-way relationship with other web applications :

- Alpana Server can send information to notify external web application through Webhooks without other application having to poll Alpana Server.
- External applications can query Alpana Server through the [Alpana Server API](#) to get more

information on-demand, or to create behaviors.

For example, you can :

1. inform your users to post Dashboard Comments with the text `#support` in the content if they want to create a ticket to your support platform **X**
2. program an external website **Y** with the following behavior : when they receive a HTTP request that informs of a new Dashboard Comment from Alpana Server, then query the Alpana Server API to get the comment content (and possibly other useful metadata like dashboard name and user e-mail), parse the comment content to look for the string `#support`, then automatically post a new Ticket to your support platform **X**, including the relevant metadata
3. configure Alpana Server to trigger a Webhook and notify your website **Y** whenever a new Comment is posted in Alpana

⇒ Now your users can simply post a comment on any dashboard to create a Ticket !

Improvements to Layouts and PDF exports

[Background properties](#) have been moved from layouts to views.

This allows to have a different background color for Desktop and PDF for example.

To aid with composing a PDF export, [editing the Pdf Export view](#) of a Dashboard now displays with the same DPI as the final PDF export.

Improvements have also been made to the navigation between multiple pages.

Widget improvements

Chart improvements

[Chart thickness](#) now defaults to 2px and is configurable.

This allows for better readability of Line charts on bigger monitors or with higher DPI.

The Polar Chart now allows to [force a min/max for the Y Axis scale](#).

This allows for example to display percent values that don't go above 100%.

Grid improvements

[The Grid Widget](#) now allows paging with up to 5000 rows per page.

The Grid performance allows it, and this configurability allows to solve useful user cases.

Date Picker improvements

The Date Picker can now have a [custom format](#) for displaying the selected date.

This is particularly useful for avoiding confusion in displayed dates for users accustomed to the `day/month/year` format for example.

Input Grid improvements

The text of the [Input Grid Header](#) can now be configured.

This makes it easier to distinguish multiple Input Grids on the same dashboard.

Connectors improvements

Historian connector improvements

The data table returned by the Historian connector now include [MinEU and MaxEU](#) data.

This can be particularly useful with widgets that allow to configure a dynamic minimum and maximum, such as the Circular Gauge, Range Area, Linear Gauge, etc.

The Historian connector now allows to [search tags by description](#).

This makes it easier for the developer to find the desired tags.

SQL connector improvements

Developers can now use the [SQL Connector](#) to [access other SQL schemas](#) than `dbo` to get data.

Server improvements

Social improvements

Views can have their own dedicated [comment thread](#).

This allows to interact with other users around a specific “data slice”.

SSO improvements

External logins through [SSO](#) have been greatly improved and are easier to use.

Additionally, authentication through Twitter is now possible.

Known Issues and Incompatibilities

- ALP-I2415 In some cases, when a Proportion Chart tries to display a large number of value labels in a small space, the Dashboard may become unresponsive and render the web browser unresponsive. As a workaround, you can [disable the value labels display](#) on the Proportion Chart of the impacted Dashboards.

Solved Issues

The following are the main bugs that were fixed between Alpana v3.3.0.25 and v3.3.1.17 :

- ALP-I2336 – Fixed a display issue in the Export menu if the widget Header is not aligned Left
- ALP-I2337 – Even when a Widget is hidden from the Pdf Export view, it may now be exported correctly if it has an own “Export” button
- ALP-I2338 – Designer : Fixed issue when login to Server was incorrectly marked as success
- ALP-I2340 – Tree View : unfolding a node now correctly leaves the filter value untouched
- ALP-I2342 – Excel : sheets with parenthesis in their name can now correctly be used
- ALP-I2343 – Improved the performance when many Card widgets exist in the same dashboard
- ALP-I2344 – Fixed an error message that could happen when deleting a master widget

- ALP-I2345 – Fixed an issue where in some cases Polar Charts could disappear when filtered
- ALP-I2348 – RangeSlider now correctly displays “No Data” when the dataset is empty
- ALP-I2349 – Numbers from formatted dates (like week numbers) can now include prefix/suffix from Measure Formatting
- ALP-I2351 – Server : improved UX when uploading a Dashboard with an existing name
- ALP-I2353 – Server : Fixed an issue where multiple dashboards with the same name can exist in the same category
- ALP-I2360 – Server : Fixed an issue where a Schedule would fail if the Dashboard contained an Embed website that had Javascript errors
- ALP-I2363 – Linear Gauge : Improved handling of axis labels overlap
- ALP-I2364 – Server : Improved UX when accessing unauthorized dashboard or widget
- ALP-I2367 – Designer : Fixed an issue where the function “Last” would incorrectly appear in Expression functions
- ALP-I2368 – Improved the behavior of selected values when a View is loaded
- ALP-I2369 – Fixed the display of Comments when the thread text is too long
- ALP-I2372 – PDF exports : Fixed a case where the background color stops applying after the last widget
- ALP-I2373 – PDF exports : Improved the behavior of margins when a header/footer is configured
- ALP-I2374 – Server : Improved UX when editing the API Origins Whitelist
- ALP-I2377 – Range Navigator : Improved the display of handles when the Parameter changes
- ALP-I2379 – Range Slider : improved the way axes and ticks are displayed
- ALP-I2380 – Fixed an issue when importing a Card widget from Alpana v2
- ALP-I2381 – Improved the behavior of Buffer tables with Runtime Connections
- ALP-I2382 – Improved the display of the Views pop-up in edge cases
- ALP-I2385 – Proportion Chart : Fixed an issue where the widget was configured as Master and Clear filter would make the widget unresponsive to user actions.
- ALP-I2387 – Fixed an issue when importing a Card widget from Alpana v2
- ALP-I2388 – Fixed an issue where importing a dashboard from Alpana v2 would display a wrong layout in some configurations
- ALP-I2389 – Proportion Chart : When the widget is Master, clicking on a selected slice now correctly removes the selection.
- ALP-I2395 – Card, Energy Rating & Linear Gauge : Fixed a wrong behavior on clear filter
- ALP-I2401 – Designer : Fixed a SQL error message in data preview when the SQL data contained the XML datatype.
- ALP-I2406 – Designer : improved behavior on move/resize of the application window
- ALP-I2407 – Now the background image of a Dashboard has the same layout in the PDF export.
- ALP-I2409 – Banner : Widget now correctly handles null values
- ALP-I2410 – Designer : SQL Server stored procedure from a schema other than dbo can now correctly be used
- ALP-I2431 – Designer setup now informs better of missing pre-requisites.

Last modified: Feb 17, 2022

1.4.10. 2020 R2 Patch 1

Release notes of items completed between Alpana 2020 R2 and 2020 R2 Patch 1
Alpana Server and Alpana Designer have been upgraded from 3.3.1.17 to 3.3.1.20
Alpana Update File Dependency has been upgraded from 1.1.0.2 to 1.1.1.0

Introduction

Version 2020 R2 Patch 1 is a minor release including bugfixes only.
As usual, the application is updated to the latest web technologies (Angular 9, .NET Core 3.1), with the latest security features and patches.

Upgrade Instructions

To upgrade your installation, please see the generic [upgrading](#) chapter.
Don't forget to instruct all your users to clear their browser cache or do a hard refresh.

Alpana Server

License upgrade

This is a minor version, so it doesn't require a valid support contract to upgrade, and you need not ask for a new license Activation to your support.

Solved Issues

The following are the main bugs that were fixed between Alpana v3.3.1.17 and v3.3.1.20 :

- ALP-I2362 Login page visual improvement.
- ALP-i2445 Sankey diagram color mismatch between designer and server.
- ALP-I2446 Improper closing view when editing Runtime Connection custom title.
- ALP-I2450 Joins connection in a Datasource show an error Table 'XXX' was not found.
- ALP-I2451 Import widget in designer need a refresh to show.
- ALP-I2452 Checkbox (All) options disapeer.
- ALP-I2453 Tooltip error in Bubble chart.

Last modified: Feb 17, 2022

1.4.11. 2021 R1

Release notes of items completed between 2020 R2 Patch 1 and 2021 R1
Alpana Server and Alpana Designer have been upgraded from 3.3.1.20 to 3.4.0.3
Alpana Update File Dependency has been upgraded from 1.1.0.2 to 1.2.0.1

Introduction

Version 2021R1 is a major release includes new features and bugfixes.
The application is updated to the latest web technologies ([.NET 5](#)), with the latest security features and patches.

✿ Some of the changes require **special attention when upgrading**, so please read below for details.

Upgrade Instructions

To upgrade your installation, please see the generic [upgrading](#) chapter.
Don't forget to instruct all your users to **clear their browser cache** or do a **hard refresh**.

Alpana Server

License upgrade

Important: This is a new major version, so it requires a valid support contract to upgrade, and you must ask for a new license Activation to your support.

New Pre-Requisite

Alpana Server now requires to install a new version of .Net 5 Runtime & Hosting Bundle.
See [Server Pre-Requisites](#) for more information.

✿ Note : this new .Net 5 version can be installed side-by-side with the previous one, which can be useful to minimize downtime during the upgrade.

Previous versions of .Net Core may be uninstalled safely if they are not used by other software.

License upgrade

Important: This is a new major version, so it requires a valid support contract to upgrade, and you must ask for a new license Activation to your support.

Alpana Designer

New Pre-Requisites

Alpana Designer now requires to install “ASP.NET Core Runtime 5.0” and “.NET Desktop Runtime 5.0”
See [Designer Pre-Requisites](#) for more information.

Main Features

Enhanced Feature: New color palette

New color palette will be applied to new dashboard. If you want to keep the old style, please check corresponding chapter : [Color Theme](#)

Enhanced Feature: Web connector

The web connector has been improved to connect to more complex restful API. Check [chapter](#) to see how to configure it

New Feature: Widget manual export management

It's now possible to choose in the designer which widget can export his data.

New Feature: OMI options for maximize and refresh

In the OMI configuration, maximize and refresh option is available to enable or disable controls in widgets.

New feature

Enhanced Feature: Auto refresh

The widget auto refresh configuration can set which widget will be auto updated.

Enhanced feature: Export notification

The export notification feature now is possible on multiple dashboard tab and stay open as long as you don't download it. Don't lose time to wait for it, you can continue your browsing meanwhile the export is in progress and you can go back the tab to get your export. It will just wait for you!

Widget improvements

Label widget connected to Data

The widget can connect to data source to show the datas with aggregated feature.
See [Label chapter](#) for more information.

Range navigator color

The range navigator main color can be changed to get a better integration to your interface branding.

Server improvements

Runtime Connections Management

The Runtime connection can be imported or exported for backup purpose or to be transferred to another environment. More information about runtime connection management can be found [here](#)

Known Issues and Incompatibilities

- Widget header can overlap content if the font size is too big.
- Due to cyber security rules export in mobile application has been removed. It will be available again in a future release.

Solved Issues

The following are the main bugs that were fixed between Alpana v 3.3.1.20 to v3.4.0.20

ALP-I2466 : Improved tooltip display when mouse is moving over the widget
ALP-I2357 : Improved OMI behavior when Current asset is updated several time
ALP-I2458 : Updated link to online documentation
ALP-I2454 : Fixed a problem on Gantt display when published
ALP-I2449 : Improved Sankey value display on mobile app
ALP-I2457 : Comment windows from widget can't close
ALP-I2459 : Improved Excel file connection to support % symbol in column header
ALP-I2461 : Historian Connector – Improve boolean management in data source
ALP-I2463 : Improved automatic scale handling when min and max scale change due to filtering
ALP-I2443 : Fixed widget card pdf export
ALP-I2465 : Fixed Grid widget conditional line color
ALP-I2464 : Fixed Historian corrector Tag fetch with inconsistent connection
ALP-I2462 : Fixed Checkbox selection when multiple checkbox widgets filter themselves
ALP-I2460 : Fixed problem when first tenant has been removed
ALP-I2356 : Fixed OMI Problem when update a dashboard with publish

In addition, minor corrections have been added to product.

Last modified: Apr 13, 2022

1.4.12. 2021 R2

Release notes of items completed between 2021 R1 and 2021 R2

Alpana Server and Alpana Designer have been upgraded from 3.4.0.3 to 3.4.1.19

Alpana Update File Dependency has been upgraded from 1.2.0.1 to 1.2.1.2

Introduction

Version 2021R2 is a minor release and includes mostly bugfixes and improvements.

The application is updated to the latest web technologies ([.NET 5](#)), with the latest security features and patches.



Some of the changes require **special attention when upgrading**, so please read below for details.

Upgrade Instructions

To upgrade your installation, please see the generic [upgrading](#) chapter.

Don't forget to instruct all your users to clear their browser cache or do a hard refresh.

Alpana Server

Installer

A New installer has been included. It will check prerequisites before installing Alpana and give you log file after installation (succeeded or not)

License upgrade

This is a minor version, so it doesn't require a valid support contract to upgrade, and you need not ask for a new license Activation to your support.

Enabling Stories

Following upgrade, to enable the new *Stories* feature on a tenant:

- activate the *Stories* license feature at the Host level
- add the *Stories* license feature to the desired tenants
- add the *Stories* permission to the Admin Role of the tenant, and to all desired Users and Roles

Main Features

New Feature: Stories

A new feature has been added to create slideshows from Images and Dashboards inside Alpana server.

With this feature you can get automated screen display with your dashboard.

New Feature: Additional fields

Get the capability to link more related data in your dashboard. In a widget, you can show a specific information but when user want to filter, it will use another data to give information to the user.

As an example, from a batch number, you can filter the teams who worked on it or the percentage of good product produced and use this data to filter the rest of your dashboard.

New Feature: Tooltip customization

You can now choose what fields are displayed in the tooltip. Linked to the .Additional fields it's possible to show all available data in your datasource in the tooltip of any widgets.

Improvements: Widget Header customization

Instead of using CSS to customize widget headers, feature to control it without editing CSS has been added in the designer :

- Font family
- Font Size
- Font Style
- Alignment

or type or size and header positioning are customizable.

Improvements: Circular Gauge widget

The widget gets improvements in the data displaying:

- You can bind more data for the visualization: Min/Max, Tolerance Threshold Min/max.
- You can choose what is the main value and secondary value in your widget (Actual value, Variation, Target, Variation from target, both variations)

Improvements: Card widget

The widget gets improvements in the data displaying:

- You can choose what is the KPI value and left value and Right value in your widget (Absolute difference, Percentage of target, Actual value, Target Value, Percent of change)

Improvements: Web connector Custom query

We've added the custom query functionality with the web connector.

Improvements: Export feature available for public dashboard

You can enable exporting feature for public dashboard

Improvements: Widget localization

In the 2021R1 release, Alpana server interface has been translated in French. Now all widgets is translated too and use default regional settings for data displaying.

✿ Due to widget date time localization, you may encounter some changes in your dashboard after migrating. If it happens, download your dashboard, change date time format to the good one and republish the dashboard.

Improvements: Multiple value parameter handling

When parameter return multiple values, you can use each value of the parameter in data source query or filtering. You can also use them in Labels widget.

example: With the time range calendar you will get a parameter that contains two value for start and end date. if you want to use them separately in 2 SQL parameter it is now possible.

To prevent Alpana server poor performance by publishing faulty designed Dashboard (Source file too big, multiple unused connection, etc.) the Designer now limits dashboards to these values:

- Maximum widgets per Dashboard: 50
- Maximum file size for connection (CSV, Excel...): 100 Mo
- Maximum Connections per Dashboard: 30
- Maximum Data Sources per Dashboard: 10
- Maximum parameter per Dashboard: 100
- Maximum Connections per Data source: 10
- Maximum expressions per Data Source: 50
- Maximum Layout configurations per Dashboard: 20

Known Issues and Incompatibilities

- AL5-I8 – External login : Facebook external login may not works depending on your account authorization and verified status.

! Microsoft Windows 7 support has ended so the compatibility with Alpana is no longer assured.
Prerequisites such as .net are not supported anymore by microsoft for this version of windows.
If you are using it, please upgrade your windows version as soon as possible.

Migrating Alpana Runtime Connection

The new release will migrate the Alpana Runtime Connection.

If you want to import older Runtime Connection (from version 2021R1 or older) in your 2021R2 version. You will have to upgrade the Runtime Connection first with a 2021R1 Alpana server to 2021R2 version

and restore them to the 2021R2 server.



Runtime Connection export and import feature are available for the same version of Alpana, you cannot import from an older version.

Runtime Connection export and import feature are available for the same version of Alpana, you cannot import from an older version.

OMI Application

Using OMI and Alpana may require an Undeploy/Deploy and OMI viewer restart if you encounter some trouble in dashboard visualization after version upgrade.

Solved Issues

The following are the main bugs that were fixed between Alpana 3.4.0.3 to 3.4.1.17 :

- ALP-I2437 : Range Slider range changes after moving a range
- AL5-I7 : Empty header cells with excel file cause buffer error
- AL5-I2 : Error when duplicating layout with background image
- AL5-I1 : Schedule edit impossible if target dashboard deleted
- AL5-I4 : Gantt option “act as master” is checkable even if the configuration does not permit filter
- AL5-I5 : Improving slideshow menu
- AL5-I6 : Embed with showmaximize=0 disable clear filter button
- AL5-T70 : Update File Dependency : keep job after upgrading

In addition, minor corrections have been added to product.

Last modified: Feb 17, 2022

1.4.13. 2022 R1

Release notes of items completed between 2021 R2 and 2022 R1

Alpana Server and Alpana Designer have been upgraded from 3.4.1.19 to 3.5.0.18

Alpana Update File Dependency has been upgraded from 1.2.0.1 to 1.2.1.3

Introduction

Version 2022R1 is a major release and includes new features and improvements and bugfixes.

The application is updated to the latest web technologies ([.NET 6](#)), with the latest security features and patches.

To operate Alpana server you will need to install .NET 6 Hosting Bundle and .NET Desktop Runtime.

Please check Prerequisites chapter for more information.



Some of the changes require **special attention when upgrading**, so please read below for details.

Upgrade Instructions

To upgrade your installation, please see the generic [upgrading](#) chapter.

Don't forget to instruct all your users to clear their browser cache or do a hard refresh.

Alpana Server

Installer

The installer will check prerequisites before installing Alpana, but you need to install [.net core runtime 6](#) before starting it.

License upgrade

Important: This is a new major version, so it requires a valid support contract to upgrade, and you must ask for a new license Activation to your support.

Main Features

New widget: Switch Panel

A new widget is coming to this release: The switch Panel can be used to show different widget depending on context. From a value of a parameter, the display widget will show a specific widget configured at the design time.

New Feature Circular gauge multicolor zones

A major improvement has been applied to the Gauge widget: It is now possible to configure up to 10

colors zone. It's possible to bind the zone to parameters.

New Feature: Export Data Source values

In the Designer data management, users will be able to export Data Source values as csv or json file. It allows to create POC faster since the original data source doesn't need to be connected since you can import the newly created file in a dashboard as a standalone data source. Otherwise, you can use the data as source file for other tools.

New Feature: Dynamic parameter default value

Instead of using a hard coded default value, Alpana can use default value from a Data Source field. By configuring the Parameter with the Data source information, it will get a default value that can change depending on the Data source values. (i.e., Last produced batch, highest priority alarm, etc.)

New Feature: Dashboard Alias

Aliases are used to create a unique name to navigate through dashboards with the link feature. Instead of using the dashboard url, the alias will allow to create a link that won't change even if you change the target dashboard.

New Feature: Changing dashboard layout

From the top menu of the displayed dashboard user will be able to navigate through all configured layout dynamically.

Improvements: Historian Connector Selecting tags from datasource

It is now possible to configure the Historian connector with a list of tags from a datasource to create dynamic query.

Improvements: Designer stop refresh in design time

By stopping refresh at the design time (widget or dashboard) user can work faster since heavy content won't be loaded for every change in the dashboard.

Improvements: Designer Link to URL

In order to use the new Alias feature, the *Link to URL* has been changed to enable the Alias configuration and improving the passing parameter configuration.

Improvements: Combo box wildcard

By using the asterisk character in the combo box, user can search a part of the name of an element with the wildcard:

- `Equipment*` will list all item that start with Equipment is their name
- `*temp*` will list all item that contain temp in their name
- `*Alarm` will list all item that finish with Alarm in their name

Improvements: Excel export

Now date field in excel export will be displayed as date instead of the Unix date format.

Improvements: Managing null value in Chart widget

Using the Plot null configuration it is possible to improve the chart visualization of you data if there are too much null value inside it.

Improvements: Dark mode

Nearly All themes are now available in Dark Mode.

Improvements: Mono tenant simplified interface

Allows to get a faster access to the tenant by auto selecting it in the login page if there is only one tenant enabled on the server.

Improvements: Password management

The password management can be configured to add an expiration date and prevent using the same password.

Known Issues and Incompatibilities

- Filtering not working after hovering the map: After filtering the map, it may appear some problems in the hovering of elements in the widget
- Widget filter First and Last aggregation: By adding multiple First and Last when filtering widget or adding First or last with distinct value may cause error in the way filter should work.

OMI Application

Using OMI and Alpana may require an Undeploy/Deploy and OMI viewer restart if you encounter some trouble in dashboard visualization after version upgrade.

It is also possible to delete manually the OMI deployed application cache folder: C:\Users\User\AppData\Local\ViewApps\[OMI View App Folder]

Dashboard Embedding



Due to cyber security policies from web browsers, the embedding capability with different domain must be used with HTTPS – both host site and Alpana.
Some changes must be done in the Alpana server configuration to make it works. Check Linking / Embedding Dashboards.

Solved Issues

The following are the main bugs that were fixed between Alpana 3.4.1.19 to 3.5.0.18 :

- AL5-I28: Need to display the current month in drop down
- AL5-I29: Usage SELECT ALL Parameter with Custom Query
- AL5-I26: Expression: Division on column with int
- AL5-I25: Designer – Widget Pie -Preview is not updated when changing border thickness
- AL5-I24: Text in top menu with High contrast is not visible
- AL5-I22: Link to URL not working with map
- AL5-I21: Filtering Data with removed parameter doesn't display any error
- AL5-I19: Chart Drill down level Issue with data time in Axis
- AL5-I18: Combo box – Problem displaying selected element list when combo box is closed at opening
- AL5-I16: problems with a widget regarding hovering over lines in an older version
- AL5-I15: Strip line color transparency not working
- AL5-I9: iOS app – Tenant logo not appearing

In addition, minor corrections have been added to product.

Last modified: Apr 04, 2022

1.5. Upgrading

Please read the below chapters to upgrade Alpana.

Last modified: Feb 17, 2022

1.5.1. License incompatibility for Major upgrades

! Upgrading may require to re-activate your license in some cases. Read below for details. If this is your case, please **check beforehand that you will have a the ability to activate**, otherwise your Alpana Server installation will stop working while you are reaching Support to solve it.
In case this happens, you may downgrade again to a version that supports your license, until a new activation is made available to you.
Check with your Support for more information.

License compatibility

Versions before v3.0

Alpana v1 and v2 licensing is not compatible with current v3 licensing.

When needing to upgrade from v1 or v2, please contact your Distributor to get a v3 license.

Versions since v3.0

A license activation is only valid for the same *major* version.

If the upgrade involves a change in major version, then the license needs to be fully activated again, and you will need to submit again a license file and do a full activation.

! Until then, the Alpana Server installation will be unlicensed and will not work.

In order to fix this, please make sure you still are under a support contract, and contact your support to get an Activation for the new version.

Alpana versioning : what is a major version

Initially, Alpana used a version number like v3.2.3.3.

For those versions :

- the *major* version corresponds to the first 2 digits of the version number. Example : v3.2 is the major version for version v3.2.3.3
- the *minor* version corresponds to the last 2 digits of the version number. Example : .0.7 is the minor version for version v3.1.0.7

After version v3.2.3.3, and since Alpana version 2020 R1, a new versioning scheme is used :

- the *major* version corresponds to the “year” part of the version number. Example : 2020 is the major version for version 2020 R1

- the *minor* version corresponds to the “R” part of the version number. Example : R2 SP1 would be the minor version for version 2020 R2 SP1

Major	Full
3.0	v3.0.1.1
3.0	v3.0.2.2
3.1	v3.1.0.7
3.1	v3.1.2.1
3.2	v3.2.1.5
3.2	v3.2.2.10
3.2	v3.2.3.3
3.3 (2020)	v3.3.0.25 (2020 R1)
3.3 (2020)	v3.3.1.17 (2020 R2)

A major upgrade happens when the upgrade involves a change in major version.

Example : from 2020 R1 to 2020 R2 SP1, the license is still valid because you're still in version 2020. You don't need to activate your license again. It works normally following the upgrade.

Example : from 2020 R2 to 2021 R1, the license is not valid anymore because you upgrade from version 2020 to version 2021. **You will need to activate your license again.**

Example : from v3.2.3.3 to 2020 R1, the license is not valid anymore because you upgrade from previous version v3.2 to version 2020. **You will need to activate your license again.**

Last modified: Feb 17, 2022

1.5.2. General upgrade procedure for v3

Introduction : limits of applicability

This procedure only applies if you are upgrading from Alpana Server v3.0 or newer.
Upgrading from older versions requires manual steps detailed elsewhere.

Some v3 upgrades may still require specific attention or manual steps. Please read the corresponding release notes.

Upgrading Alpana Designer

Upgrading Alpana Designer is straightforward :

1. [Un-install](#) any previous version of Alpana Designer.
2. [Run the new installer](#)

Upgrading Alpana Server

To upgrade Alpana Server to a newer version, please follow the below procedure.

! If your version of Alpana is older than v3.0, then this procedure doesn't apply.
Please contact Support for information on this kind of upgrade.

1. Backup

You must make sure you have all information to install again :

Folder path to the website

Note the current folder path of the installation.

! It must be the same during the upgrade, otherwise you will not be able to keep your configuration and dashboards on upgrade !

Network configuration

Note the DNS or IP addresses and ports of Frontend and Backend
If you used HTTPS, gather all required SSL information.

***** If you change those settings during the upgrade, your users won't be able to reach the website on the same address again.

SQL database connection

The upgrade will ask again for credentials to let Alpana access its SQL database.
Check that you have all the required information.



It must be pointing to the same database during the upgrade, otherwise you will not be able to keep your configuration and dashboards on upgrade !

Other IIS configuration

If you tinkered with the IIS configuration manually, you must also back it up, as you will have to re-create it.

(optional) Application backup

As with any maintenance operation, you may wish to do a [backup](#) before the upgrade.

2. Read about the upgrade

Read the corresponding [Release Notes](#)

Make sure your license will allow the upgrade : read the chapter [License incompatibility for Major upgrades](#).

3. Un-install

Use Windows Control Panel to un-install previous versions of Alpana Server and Designer.



Note : If you don't stop the application, Windows will probably require you to reboot.
If you don't want to reboot, you must stop the application before uninstalling.
To completely stop the application, you may need to [stop the IIS server itself](#).
⇒ If you do this, don't forget to start IIS again after uninstallation.

4. Pre-Requisites

Make sure you still meet the new [Pre-Requisites](#) (they may change for the newer version).
For instance, you may need to upgrade Asp.NET Core to the newer version.

5. Install

Run the new installers and perform the installation procedures again for [Alpana Server](#) and [Alpana Designer](#).



When upgrading Alpana Server, please instruct all your users to clear their browser cache or do a hard refresh.

1.5.3. Upgrading from an older v2 to v3.0

Introduction : limits of applicability

This procedure only applies if you are upgrading from Alpana Server version number starting with v2

Dashboards migration

Notice of incompatibility

Due to internal changes for supporting new features, two component from previous v2.0.8.x cannot be migrated natively : Wonderware Historian Connections, and CSV Connections.

If your v2 Dashboards contain Wonderware Historian Connections or CSV Connections, you will have to re-create them manually.

File format difference

Dashboards from Alpana v3.0.1.x use a file format with extension *.alpdx which is a different format from previous v2.0.8.x versions with extension *.sydx

To migrate a dashboard file, please follow the below procedure.

Alpana Server installation migration

Notice of incompatibility

Due to deep internal changes for supporting new features and improving the product, Alpana Server installations from v2.0.8.x cannot be migrated natively.

In order to upgrade Alpana Server installations from v2 (v2.0.8.12 and before) to v3.0 (up to v3.0.1.1 at least), you will need to perform manual steps :

1. upgrade Dashboards to v3.0
2. backup v2.0 installation
3. un-install v2.0
4. install and configure v3.0
5. publish dashboards and re-create users, categories, schedules

Please see below for advice and more details.

New licensing

Upgrading from v2.0 requires to generate a new compatible license key.

Please make sure before upgrading that you will have a compatible license for the new version.

General advice

You should keep your v2.0 installation running as long as possible in order to be able to view the old configuration at any time. You should wait to have re-created your dashboards before deploying v3.0 fully, in order to ensure continuity of service.

Dashboards can be migrated using Alpana Designer only, by following the above procedure.

1 – Upgrade Dashboards

To upgrade a file `dashboard_v2.sydx` :

1. rename the file with extension `*.alpd`, for example `dashboard_v2.alpd (*)`
2. open the file in Alpana Designer
3. check that migration happened correctly, make any fix necessary, or take advantage of new features
4. save the dashboard with a new name : for example `dashboard_v3.alpd`

! (*) The `dashboard_v2.alpd` file is just a renaming of the file extension, but the file is not in the correct format for v3. This file will cause confusion, so please delete it when you are finished migrating.

Other files upgrade procedure

Other files are migrated with the same procedure as above, just replace the correct file extension names :

- Dashboards : `*.sydx` becomes `*.alpd`
- Widgets : `*.sydw` becomes `*.alpw`
- Data Sources : `*.syds` becomes `*.alps`

2 – Backup v2.0 installation

backup

Perform a complete backup of your v2.0 installation :

- archive the complete folder `C:\code192\Alpana Server\Server.Web\App_Data\`
- archive the Alpana Server database you configured when installing v2. You can find its name by using `C:\code192\Alpana Server\Utilities\ConnectionStringEditor\ConnectionStringEditor.exe`

prepare user import

If you have many users to re-create, you can export the list as CSV from v2 : In the Alpana Server database, export the content of the `[ALP_User]` table as CSV.

prepare website binding

In IIS (inetmgr), take a note of the current bindings for your Alpana website : port number, name, ...

prepare configuration

In Alpana Server web portal, go to the administration pages (at “http://yoursite/en-us/administration”) and take a note of all configuration to re-create :

- site URL
- branding
- e-mail settings
- AD settings

List other items

If there are other items to re-create from Server, list them :

- Categories
- Schedules
- published Dashboards/Widgets/DataSources

3 – Uninstall v2.0

The best workflow is to leave v2.0 installed as long as possible and deploy v3.0 on a different machine. This way, you can ensure that the migrated platform will behave as expected. For this workflow, you can delay the un-install of v2.0 to a later step.

However, if you need to install Alpana v3.0 on the same machine as the current v2.0, you will need to uninstall v2.0 first.

uninstall Dashboard Designer

From Windows Control Panel, uninstall “code192 Dashboard Designer”

uninstall Dashboard Server

! WARNING : At this step, you will lose your v2.0 dashboards and configuration if you didn't make backups.

1. Make sure that you have backups
2. From Windows Control Panel, uninstall “code192 Dashboard Server”
3. During uninstallation, select to uninstall license, and select to “Remove resources and drop the database”. WARNING : At this step, you will lose your v2.0 dashboards and configuration if you didn't make backups.
4. in Windows services.msc , make sure that the Service “Code192 Dashboard Server Scheduler” is well un-installed

Clean up

Services

If a service didn't uninstall properly, you can follow the following Windows procedure :

1. get the Service name from services.msc, for example Code192 Dashboard Server Scheduler
2. Open a command prompt with administrative rights
3. stop the service using the command `SC STOP` for example : `SC STOP Code192 Dashboard Server Scheduler`
4. delete the service using the command `SC DELETE` for example : `SC DELETE "Code192 Dashboard Server Scheduler"`

Folders

Unless you have other [code192] products installed, make sure that there are no more code192 folders inside :

C:\Program Files (x86)\
C:\ProgramData\
C:\ root directory

4 – Install and configure v3.0

Installation

- Check the new pre-requisites for Alpana v3.0. In particular, there is new software pre-requisites and a more recent version of .NET Framework required.
- Follow installation instructions to install Alpana v3.0 [Server](#) and [Designer](#).
- When installing Alpana Server, install with the appropriate port

configure Alpana Server

In Alpana Server web portal, go to the administration pages and restore all the configuration needed :

- site URL
- branding
- e-mail settings
- AD settings

5 – Publish dashboards and re-create users, categories, schedules

In your new fresh install of Alpana Server v3.0, you will need to re-create items as backed-up previously :

create Categories

- Create the Categories needed. You can make use of v3.0 new feature of Categories contained under other Categories

Publish items

- Publish the validated Dashboards/Widgets/DataSources

Update Links

- Dashboards URL have a different format, so Links To URL between Dashboards need to be updated.

give access to users

- re-create Roles for users
- re-create Users. If you have many users, you can make use of the [ALP_User] table you exported as CSV from v2, and use *New User > Import from CSV*.
- assign permissions for Roles and Users to Dashboards and other items

Last modified: Feb 17, 2022

1.5.4. Upgrading from an older v1 version

Introduction : limits of applicability

This procedure only applies if you are upgrading from Alpana Server version number starting with v1

Notice of incompatibility

After v1 (Alpana v1.1.1.5 and earlier), major changes were made in the core of Alpana.
Due to those breaking changes, v1 installation and dashboards will not be compatible with later versions.

Procedure

If you need to upgrade from v1, Support can help you find a solution. Please contact your Distributor.

Last modified: Feb 17, 2022

1.6. Third party licenses

Alpana is running with third part add-ons that are under open source licenses.

This is a list of all license text required to appear in Alpana :

This software is provided ‘as-is’, without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment (see the following) in the product documentation is required.

Portions Copyright © 2002-2007 Charlie Poole or Copyright © 2002-2004 James W. Newkirk, Michael C. Two, Alexei A. Vorontsov or Copyright © 2000-2002 Philip A. Craig

2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.

3. This notice may not be removed or altered from any source distribution.

This Zimbra Public License (this “Agreement”) is a legal agreement that describes the terms under which Syancor, Inc., a Delaware corporation (“Zimbra”) will provide software to you via download or otherwise (“Software”). By using the Software, you, an individual or an entity (“You”) agree to the terms of this Agreement.

In consideration of the mutual promises and upon the terms and conditions set forth below, the parties agree as follows:

1. Grant of Copyright License

1.1 – Subject to the terms and conditions of this Agreement, Zimbra hereby grants to You, under any and all of its copyright interest in and to the Software, a royalty-free, non-exclusive, non-transferable license to copy, modify, compile, execute, and distribute the Software and Modifications. For the purposes of this Agreement, any change to, addition to, or abridgement of the Software made by You is a “Modification;” however, any file You add to the Software that does not contain any part of the Software is not a “Modification.”

1.2 – If You are an individual acting on behalf of a corporation or other entity, Your use of the Software or any Modification is subject to Your having the authority to bind such corporation or entity to this Agreement. Providing copies to persons within such corporation or entity is not considered distribution for purposes of this Agreement.

1.3 – For the Software or any Modification You distribute in source code format, You must do so only under the terms of this Agreement, and You must include a complete copy of this Agreement with Your distribution. With respect to any Modification You distribute in source code format, the terms of this Agreement will apply to You in the same way those terms apply to Zimbra with respect to the Software. In other words, when You are distributing Modifications under this Agreement, You “stand in the shoes” of Zimbra in terms of the rights You grant and how the terms and conditions apply to You and the

licensees of Your Modifications. Notwithstanding the foregoing, when You “stand in the shoes” of Zimbra, You are not subject to the jurisdiction provision under Section 7, which requires all disputes under this Agreement to be subject to the jurisdiction of federal or state courts of Northern Texas.

1.4 – For the Software or any Modification You distribute in compiled or object code format, You must also provide recipients with access to the Software or Modification in source code format along with a complete copy of this Agreement. The distribution of the Software or Modifications in compiled or object code format may be under a license of Your choice, provided that You are in compliance with the terms of this Agreement. In addition, You must make absolutely clear that any license terms applying to such Software or Modification that differ from this Agreement are offered by You alone and not by Zimbra, and that such license does not restrict recipients from exercising rights in the source code to the Software granted by Zimbra under this Agreement or rights in the source code to any Modification granted by You as described in Section 1.3.

1.5 – This Agreement does not limit Your right to distribute files that are entirely Your own work (i.e., which do not incorporate any portion of the Software and are not Modifications) under any terms You choose.

2. Support

Zimbra has no obligation to provide technical support or updates to You. Nothing in this Agreement requires Zimbra to enter into any license with You for any other edition of the Software.

3. Intellectual Property Rights

3.1 – Except for the license expressly granted under copyright in Section 1.1, no rights, licenses or forbearances are granted or may arise in relation to this Agreement whether expressly, by implication, exhaustion, estoppel or otherwise. All rights, including all intellectual property rights, that are not expressly granted under this Agreement are hereby reserved.

3.2 – In any copy of the Software or in any Modification you create, You must retain and reproduce any and all copyright, patent, trademark, and attribution notices that are included in the Software in the same form as they appear in the Software. This includes the preservation of attribution notices in the form of trademarks or logos that exist within a user interface of the Software.

3.3 – This license does not grant You rights to use any party’s name, logo, or trademarks, except solely as necessary to comply with Section 3.2.

4. Disclaimer of Warranties

THE SOFTWARE IS PROVIDED “AS IS” AND WITHOUT WARRANTY OF ANY KIND. ZIMBRA MAKES NO WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, REGARDING OR RELATING TO THE SOFTWARE. SPECIFICALLY, ZIMBRA DOES NOT WARRANT THAT THE SOFTWARE WILL BE ERROR FREE OR WILL PERFORM IN AN UNINTERRUPTED MANNER. TO THE GREATEST EXTENT ALLOWED BY LAW, ZIMBRA SPECIFICALLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (EVEN IF ZIMBRA HAD BEEN INFORMED OF SUCH PURPOSE), AND NONINFRINGEMENT WITH RESPECT TO THE SOFTWARE, ANY MODIFICATIONS THERETO, AND WITH RESPECT TO THE USE OF THE FOREGOING.

5. Limitation of Liability

IN NO EVENT WILL ZIMBRA BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES OF ANY KIND (INCLUDING WITHOUT LIMITATION LOSS OF PROFITS, LOSS OF USE, BUSINESS INTERRUPTION, LOSS OF DATA, AND COST OF COVER) IN CONNECTION WITH OR ARISING OUT OF OR RELATING TO THE FURNISHING, PERFORMANCE, OR USE OF THE SOFTWARE OR ANY OTHER RIGHTS GRANTED HEREUNDER, WHETHER ALLEGED AS A BREACH OF CONTRACT OR TORTIOUS CONDUCT, INCLUDING NEGLIGENCE, AND EVEN IF ZIMBRA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

6. Term and Termination

6.1 – This Agreement will continue in effect unless and until terminated earlier pursuant to this Section 6.

6.2 – In the event You violate the terms of this Agreement, Zimbra may terminate this Agreement.

6.3 – All licenses granted hereunder shall terminate upon the termination of this Agreement. Termination will be in addition to any rights and remedies available to Zimbra at law or equity or under this Agreement.

6.4 – Termination of this Agreement will not affect the provisions regarding reservation of rights (Section 3.1), provisions disclaiming or limiting Zimbra's liability (Sections 4 and 5), Termination (Section 6), or Miscellaneous (Section 7), which provisions will survive termination of this Agreement.

7. Miscellaneous

This Agreement contains the entire agreement of the parties with respect to the subject matter of this Agreement and supersedes all previous communications, representations, understandings, and agreements, either oral or written, between the parties with respect to said subject matter. The relationship of the parties hereunder is that of independent contractors, and this Agreement will not be construed as creating an agency, partnership, joint venture, or any other form of legal association between the parties. If any term, condition, or provision in this Agreement is found to be invalid, unlawful, or unenforceable to any extent, this Agreement will be construed in a manner that most closely effectuates the intent of this Agreement. Such invalid term, condition or provision will be severed from the remaining terms, conditions, and provisions, which will continue to be valid and enforceable to the fullest extent permitted by law. This Agreement will be interpreted and construed in accordance with the laws of the State of Delaware and the United States of America, without regard to conflict of law principles. The U.N. Convention on Contracts for the International Sale of Goods shall not apply to this Agreement. All disputes arising out of this Agreement involving Zimbra or any of its parents or subsidiaries shall be subject to the jurisdiction of the federal or state courts of Northern Texas, with venue lying in Dallas County, Texas. No rights may be assigned, no obligations may be delegated, and this Agreement may not be transferred by You, in whole or in part, whether voluntary or by operation of law, including by way of sale of assets, merger, or consolidation, without the prior written consent of Zimbra, and any purported assignment, delegation, or transfer without such consent shall be void ab initio. Any waiver of the provisions of this Agreement or of a party's rights or remedies under this Agreement must be in writing to be effective. Failure, neglect, or delay by a party to enforce the provisions of this Agreement or its rights or remedies at any time will not be construed or be deemed to be a waiver of such party's rights under this Agreement and will not in any way affect the validity of the whole or any part of this Agreement or prejudice such party's right to take subsequent action.

Zimbra Public License, Version 1.3 (ZPL)

This Zimbra Public License (this "Agreement") is a legal agreement that describes the terms under which VMware, Inc., a Delaware corporation having its principal place of business at 3401 Hillview Avenue, Palo Alto, California 94304 ("VMware") will provide software to you via download or otherwise ("Software"). By using the Software, you, an individual or an entity ("You") agree to the terms of this Agreement.

In consideration of the mutual promises and upon the terms and conditions set forth below, the parties agree as follows:

1. Grant of Copyright License

1.1 – Subject to the terms and conditions of this Agreement, VMware hereby grants to You, under any and all of its copyright interest in and to the Software, a royalty-free, non-exclusive, non-transferable license to copy, modify, compile, execute, and distribute the Software and Modifications. For the purposes of this Agreement, any change to, addition to, or abridgement of the Software made by You is

a “Modification;” however, any file You add to the Software that does not contain any part of the Software is not a “Modification.”

1.2 – If You are an individual acting on behalf of a corporation or other entity, Your use of the Software or any Modification is subject to Your having the authority to bind such corporation or entity to this Agreement. Providing copies to persons within such corporation or entity is not considered distribution for purposes of this Agreement.

1.3 – For the Software or any Modification You distribute in source code format, You must do so only under the terms of this Agreement, and You must include a complete copy of this Agreement with Your distribution. With respect to any Modification You distribute in source code format, the terms of this Agreement will apply to You in the same way those terms apply to VMware with respect to the Software. In other words, when You are distributing Modifications under this Agreement, You “stand in the shoes” of VMware in terms of the rights You grant and how the terms and conditions apply to You and the licensees of Your Modifications. Notwithstanding the foregoing, when You “stand in the shoes” of VMware, You are not subject to the jurisdiction provision under Section 7, which requires all disputes under this Agreement to be subject to the jurisdiction of federal or state courts of northern California.

1.4 – For the Software or any Modification You distribute in compiled or object code format, You must also provide recipients with access to the Software or Modification in source code format along with a complete copy of this Agreement. The distribution of the Software or Modifications in compiled or object code format may be under a license of Your choice, provided that You are in compliance with the terms of this Agreement. In addition, You must make absolutely clear that any license terms applying to such Software or Modification that differ from this Agreement are offered by You alone and not by VMware, and that such license does not restrict recipients from exercising rights in the source code to the Software granted by VMware under this Agreement or rights in the source code to any Modification granted by You as described in Section 1.3.

1.5 – This Agreement does not limit Your right to distribute files that are entirely Your own work (i.e., which do not incorporate any portion of the Software and are not Modifications) under any terms You choose.

2. Support

VMware has no obligation to provide technical support or updates to You. Nothing in this Agreement requires VMware to enter into any license with You for any other edition of the Software.

3. Intellectual Property Rights

3.1 – Except for the license expressly granted under copyright in Section 1.1, no rights, licenses or forbearances are granted or may arise in relation to this Agreement whether expressly, by implication, exhaustion, estoppel or otherwise. All rights, including all intellectual property rights, that are not expressly granted under this Agreement are hereby reserved.

3.2 – In any copy of the Software or in any Modification you create, You must retain and reproduce, any and all copyright, patent, trademark, and attribution notices that are included in the Software in the same form as they appear in the Software. This includes the preservation of attribution notices in the form of trademarks or logos that exist within a user interface of the Software.

3.3 – This license does not grant You rights to use any party’s name, logo, or trademarks, except solely as necessary to comply with Section 3.2.

4. Disclaimer of Warranties

THE SOFTWARE IS PROVIDED “AS IS” AND WITHOUT WARRANTY OF ANY KIND. VMWARE MAKES NO WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY REGARDING OR RELATING TO THE SOFTWARE. SPECIFICALLY, VMWARE DOES NOT WARRANT THAT THE SOFTWARE WILL BE ERROR FREE OR WILL PERFORM IN AN UNINTERRUPTED MANNER. TO THE GREATEST EXTENT ALLOWED BY LAW, VMWARE SPECIFICALLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (EVEN IF

VMWARE HAD BEEN INFORMED OF SUCH PURPOSE), AND NONINFRINGEMENT WITH RESPECT TO THE SOFTWARE, ANY MODIFICATIONS THERETO AND WITH RESPECT TO THE USE OF THE FOREGOING.

5. Limitation of Liability

IN NO EVENT WILL VMWARE BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES OF ANY KIND (INCLUDING WITHOUT LIMITATION LOSS OF PROFITS, LOSS OF USE, BUSINESS INTERRUPTION, LOSS OF DATA, COST OF COVER) IN CONNECTION WITH OR ARISING OUT OF OR RELATING TO THE FURNISHING, PERFORMANCE OR USE OF THE SOFTWARE OR ANY OTHER RIGHTS GRANTED HEREUNDER, WHETHER ALLEGED AS A BREACH OF CONTRACT OR TORTIOUS CONDUCT, INCLUDING NEGLIGENCE, AND EVEN IF VMWARE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

6. Term and Termination

6.1 – This Agreement will continue in effect unless and until terminated earlier pursuant to this Section 6.

6.2 – In the event You violate the terms of this Agreement, VMware may terminate this Agreement.

6.3 – All licenses granted hereunder shall terminate upon the termination of this Agreement. Termination will be in addition to any rights and remedies available to VMware at law or equity or under this Agreement.

6.4 – Termination of this Agreement will not affect the provisions regarding reservation of rights (Section 3.1), provisions disclaiming or limiting VMware's liability (Sections 4 and 5), Termination (Section 6) or Miscellaneous (Section 7), which provisions will survive termination of this Agreement.

7. Miscellaneous

This Agreement contains the entire agreement of the parties with respect to the subject matter of this Agreement and supersedes all previous communications, representations, understandings and agreements, either oral or written, between the parties with respect to said subject matter. The relationship of the parties hereunder is that of independent contractors, and this Agreement will not be construed as creating an agency, partnership, joint venture or any other form of legal association between the parties. If any term, condition, or provision in this Agreement is found to be invalid, unlawful or unenforceable to any extent, this Agreement will be construed in a manner that most closely effectuates the intent of this Agreement. Such invalid term, condition or provision will be severed from the remaining terms, conditions and provisions, which will continue to be valid and enforceable to the fullest extent permitted by law. This Agreement will be interpreted and construed in accordance with the laws of the State of California and the United States of America, without regard to conflict of law principles. The U.N. Convention on Contracts for the International Sale of Goods shall not apply to this Agreement. All disputes arising out of this Agreement involving VMware or any of its subsidiaries shall be subject to the jurisdiction of the federal or state courts of northern California, with venue lying in Santa Clara County, California. No rights may be assigned, no obligations may be delegated, and this Agreement may not be transferred by You, in whole or in part, whether voluntary or by operation of law, including by way of sale of assets, merger or consolidation, without the prior written consent of VMware, and any purported assignment, delegation or transfer without such consent shall be void ab initio. Any waiver of the provisions of this Agreement or of a party's rights or remedies under this Agreement must be in writing to be effective. Failure, neglect or delay by a party to enforce the provisions of this Agreement or its rights or remedies at any time, will not be construed or be deemed to be a waiver of such party's rights under this Agreement and will not in any way affect the validity of the whole or any part of this Agreement or prejudice such party's right to take subsequent action.

Yahoo! Public License, Version 1.1 (YPL)

This Yahoo! Public License (this "Agreement") is a legal agreement that describes the terms under which Yahoo! Inc., a Delaware corporation having its principal place of business at 701 First Avenue,

Sunnyvale, California 94089 (“Yahoo!”) will provide software to you via download or otherwise (“Software”). By using the Software, you, an individual or an entity (“You”) agree to the terms of this Agreement.

In consideration of the mutual promises and upon the terms and conditions set forth below, the parties agree as follows:

Grant of Copyright License

1.1 – Subject to the terms and conditions of this Agreement, Yahoo! hereby grants to You, under any and all of its copyright interest in and to the Software, a royalty-free, non-exclusive, non-transferable license to copy, modify, compile, execute, and distribute the Software and Modifications. For the purposes of this Agreement, any change to, addition to, or abridgement of the Software made by You is a “Modification;” however, any file You add to the Software that does not contain any part of the Software is not a “Modification.”

1.2 – If You are an individual acting on behalf of a corporation or other entity, Your use of the Software or any Modification is subject to Your having the authority to bind such corporation or entity to this Agreement. Providing copies to persons within such corporation or entity is not considered distribution for purposes of this Agreement.

1.3 – For the Software or any Modification You distribute in source code format, You must do so only under the terms of this Agreement, and You must include a complete copy of this Agreement with Your distribution. With respect to any Modification You distribute in source code format, the terms of this Agreement will apply to You in the same way those terms apply to Yahoo! with respect to the Software. In other words, when You are distributing Modifications under this Agreement, You “stand in the shoes” of Yahoo! in terms of the rights You grant and how the terms and conditions apply to You and the licensees of Your Modifications. Notwithstanding the foregoing, when You “stand in the shoes” of Yahoo!, You are not subject to the jurisdiction provision under Section 7, which requires all disputes under this Agreement to be subject to the jurisdiction of federal or state courts of northern California.

1.4 – For the Software or any Modification You distribute in compiled or object code format, You must also provide recipients with access to the Software or Modification in source code format along with a complete copy of this Agreement. The distribution of the Software or Modifications in compiled or object code format may be under a license of Your choice, provided that You are in compliance with the terms of this Agreement. In addition, You must make absolutely clear that any license terms applying to such Software or Modification that differ from this Agreement are offered by You alone and not by Yahoo!, and that such license does not restrict recipients from exercising rights in the source code to the Software granted by Yahoo! under this Agreement or rights in the source code to any Modification granted by You as described in Section 1.3.

1.5 – This Agreement does not limit Your right to distribute files that are entirely Your own work (i.e., which do not incorporate any portion of the Software and are not Modifications) under any terms You choose.

Support

Yahoo! has no obligation to provide technical support or updates to You. Nothing in this Agreement requires Yahoo! to enter into any license with You for any other edition of the Software.

Intellectual Property Rights

3.1 – Except for the license expressly granted under copyright in Section 1.1, no rights, licenses or forbearances are granted or may arise in relation to this Agreement whether expressly, by implication, exhaustion, estoppel or otherwise. All rights, including all intellectual property rights, that are not expressly granted under this Agreement are hereby reserved.

3.2 – In any copy of the Software or in any Modification you create, You must retain and reproduce, any

and all copyright, patent, trademark, and attribution notices that are included in the Software in the same form as they appear in the Software. This includes the preservation of attribution notices in the form of trademarks or logos that exist within a user interface of the Software.

3.3 – This license does not grant You rights to use any party's name, logo, or trademarks, except solely as necessary to comply with Section 3.2.

Disclaimer of Warranties

THE SOFTWARE IS PROVIDED "AS IS" AND WITHOUT WARRANTY OF ANY KIND. YAHOO! MAKES NO WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY REGARDING OR RELATING TO THE SOFTWARE. SPECIFICALLY, YAHOO! DOES NOT WARRANT THAT THE SOFTWARE WILL BE ERROR FREE OR WILL PERFORM IN AN UNINTERRUPTED MANNER. TO THE GREATEST EXTENT ALLOWED BY LAW, YAHOO! SPECIFICALLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (EVEN IF YAHOO! HAD BEEN INFORMED OF SUCH PURPOSE), AND NONINFRINGEMENT WITH RESPECT TO THE SOFTWARE, ANY MODIFICATIONS THERETO AND WITH RESPECT TO THE USE OF THE FOREGOING.

Limitation of Liability

IN NO EVENT WILL YAHOO! BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES OF ANY KIND (INCLUDING WITHOUT LIMITATION LOSS OF PROFITS, LOSS OF USE, BUSINESS INTERRUPTION, LOSS OF DATA, COST OF COVER) IN CONNECTION WITH OR ARISING OUT OF OR RELATING TO THE FURNISHING, PERFORMANCE OR USE OF THE SOFTWARE OR ANY OTHER RIGHTS GRANTED HEREUNDER, WHETHER ALLEGED AS A BREACH OF CONTRACT OR TORTIOUS CONDUCT, INCLUDING NEGLIGENCE, AND EVEN IF YAHOO! HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Term and Termination

6.1 – This Agreement will continue in effect unless and until terminated earlier pursuant to this Section 6.

6.2 – In the event You violate the terms of this Agreement, Yahoo! may terminate this Agreement.

6.3 – All licenses granted hereunder shall terminate upon the termination of this Agreement. Termination will be in addition to any rights and remedies available to Yahoo! at law or equity or under this Agreement.

6.4 – Termination of this Agreement will not affect the provisions regarding reservation of rights (Section 3.1), provisions disclaiming or limiting Yahoo!'s liability (Sections 4 and 5), Termination (Section 6) or Miscellaneous (Section 7), which provisions will survive termination of this Agreement.

Miscellaneous

This Agreement contains the entire agreement of the parties with respect to the subject matter of this Agreement and supersedes all previous communications, representations, understandings and agreements, either oral or written, between the parties with respect to said subject matter. The relationship of the parties hereunder is that of independent contractors, and this Agreement will not be construed as creating an agency, partnership, joint venture or any other form of legal association between the parties. If any term, condition, or provision in this Agreement is found to be invalid, unlawful or unenforceable to any extent, this Agreement will be construed in a manner that most closely effectuates the intent of this Agreement. Such invalid term, condition or provision will be severed from the remaining terms, conditions and provisions, which will continue to be valid and enforceable to the fullest extent permitted by law. This Agreement will be interpreted and construed in accordance with the laws of the State of California and the United States of America, without regard to conflict of law principles. The U.N. Convention on Contracts for the International Sale of Goods shall not apply to this Agreement. All disputes arising out of this Agreement involving Yahoo! or any of its subsidiaries shall be subject to the jurisdiction of the federal or state courts of northern California, with venue lying in Santa Clara County, California. No rights may be assigned, no obligations may be delegated, and this Agreement may not be transferred by You, in whole or in part, whether voluntary or by operation of law,

including by way of sale of assets, merger or consolidation, without the prior written consent of Yahoo!, and any purported assignment, delegation or transfer without such consent shall be void ab initio. Any waiver of the provisions of this Agreement or of a party's rights or remedies under this Agreement must be in writing to be effective. Failure, neglect or delay by a party to enforce the provisions of this Agreement or its rights or remedies at any time, will not be construed or be deemed to be a waiver of such party's rights under this Agreement and will not in any way affect the validity of the whole or any part of this Agreement or prejudice such party's right to take subsequent action.

Copyright © 1994-2006 The XFree86 Project, Inc.
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

1. Redistributions of source code must retain the above copyright notice, this list of conditions, and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution, and in the same place and form as other copyright, license and disclaimer information.
3. The end-user documentation included with the redistribution, if any, must include the following acknowledgment: "This product includes software developed by The XFree86 Project, Inc (<http://www.xfree86.org/>) and its contributors", in the same place and form as other third-party acknowledgments. Alternately, this acknowledgment may appear in the software itself, in the same form and location as other such third-party acknowledgments.
4. Except as contained in this notice, the name of The XFree86 Project, Inc shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization from The XFree86 Project, Inc.

THIS SOFTWARE IS PROVIDED "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE XFREE86 PROJECT, INC OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright © 1996 X Consortium

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including

without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE X CONSORTIUM BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of the X Consortium shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization from the X Consortium.

X Window System is a trademark of X Consortium, Inc.

2.2. Berkeley-based copyrights:

2.2.1. General

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

2.2.2. UCB/LBL

Copyright © 1993 The Regents of the University of California. All rights reserved.

This software was developed by the Computer Systems Engineering group at Lawrence Berkeley Laboratory under DARPA contract BG 91-66 and contributed to Berkeley.

All advertising materials mentioning features or use of this software must display the following acknowledgement: This product includes software developed by the University of California, Lawrence Berkeley Laboratory.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

All advertising materials mentioning features or use of this software must display the following acknowledgement: This product includes software developed by the University of California, Berkeley and its contributors.

Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

2.3. NVidia Corp

Copyright © 1996-1998 NVIDIA, Corp. All rights reserved.

NOTICE TO USER: The source code is copyrighted under U.S. and international laws. NVIDIA, Corp. of Sunnyvale, California owns the copyright and as design patents pending on the design and interface of the NV chips. Users and possessors of this source code are hereby granted a nonexclusive, royalty-free copyright and design patent license to use this code in individual and commercial software.

Any use of this source code must include, in the user documentation and internal comments to the code, notices to the end user as follows:

Copyright © 1996-1998 NVIDIA, Corp. NVIDIA design patents pending in the U.S. and foreign countries. NVIDIA, CORP. MAKES NO REPRESENTATION ABOUT THE SUITABILITY OF THIS SOURCE CODE FOR ANY PURPOSE. IT IS PROVIDED "AS IS" WITHOUT EXPRESS OR IMPLIED WARRANTY OF ANY KIND. NVIDIA, CORP. DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOURCE CODE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL NVIDIA, CORP. BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOURCE CODE.

License

By obtaining and/or copying this work, you (the licensee) agree that you have read, understood, and will comply with the following terms and conditions.

Permission to copy, modify, and distribute this work, with or without modification, for any purpose and without fee or royalty is hereby granted, provided that you include the following on ALL copies of the work or portions thereof, including modifications:

The full text of this NOTICE in a location viewable to users of the redistributed or derivative work.

Any pre-existing intellectual property disclaimers, notices, or terms and conditions. If none exist, the W3C Software and Document Short Notice should be included.

Notice of any changes or modifications, through a copyright statement on the new code or document such as "This software or document includes material copied from or derived from [title and URI of the W3C document]. Copyright © [YEAR] W3C® (MIT, ERCIM, Keio, Beihang)."

Disclaimers

THIS WORK IS PROVIDED “AS IS,” AND COPYRIGHT HOLDERS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF THE SOFTWARE OR DOCUMENT WILL NOT INFRINGE ANY THIRD PARTY PATENTS, COPYRIGHTS, TRADEMARKS OR OTHER RIGHTS.

COPYRIGHT HOLDERS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY USE OF THE SOFTWARE OR DOCUMENT.

The name and trademarks of copyright holders may NOT be used in advertising or publicity pertaining to the work without specific, written prior permission. Title to copyright in this work will at all times remain with copyright holders.

W3C® SOFTWARE NOTICE AND LICENSE

Copyright © 1994-2002 World Wide Web Consortium, (Massachusetts Institute of Technology, Institut National de Recherche en Informatique et en Automatique, Keio University). All Rights Reserved.
<http://www.w3.org/Consortium/Legal/>

This W3C work (including software, documents, or other related items) is being provided by the copyright holders under the following license. By obtaining, using and/or copying this work, you (the licensee) agree that you have read, understood, and will comply with the following terms and conditions:

Permission to use, copy, modify, and distribute this software and its documentation, with or without modification, for any purpose and without fee or royalty is hereby granted, provided that you include the following on ALL copies of the software and documentation or portions thereof, including modifications, that you make:

The full text of this NOTICE in a location viewable to users of the redistributed or derivative work. Any pre-existing intellectual property disclaimers, notices, or terms and conditions. If none exist, a short notice of the following form (hypertext is preferred, text is permitted) should be used within the body of any redistributed or derivative code: “Copyright © [\$date-of-software] World Wide Web Consortium, (Massachusetts Institute of Technology, Institut National de Recherche en Informatique et en Automatique, Keio University). All Rights Reserved. <http://www.w3.org/Consortium/Legal/>”
Notice of any changes or modifications to the W3C files, including the date changes were made. (We recommend you provide URIs to the location from which the code is derived.)

THIS SOFTWARE AND DOCUMENTATION IS PROVIDED “AS IS,” AND COPYRIGHT HOLDERS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF THE SOFTWARE OR DOCUMENTATION WILL NOT INFRINGE ANY THIRD PARTY PATENTS, COPYRIGHTS, TRADEMARKS OR OTHER RIGHTS.

COPYRIGHT HOLDERS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY USE OF THE SOFTWARE OR DOCUMENTATION.

The name and trademarks of copyright holders may NOT be used in advertising or publicity pertaining to the software without specific, written prior permission. Title to copyright in this software and any associated documentation will at all times remain with copyright holders.

This license applies to all software incorporated in the “Vovida Open Communication Application Library” except for those portions incorporating third party software specifically identified as being licensed under separate license.

The Vovida Software License, Version 1.0

Copyright © 2000 Vovida Networks, Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The names “VOCAL”, “Vovida Open Communication Application Library”, and “Vovida Open Communication Application Library (VOCAL)” must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact vocal@vovida.org.
4. Products derived from this software may not be called “VOCAL”, nor may “VOCAL” appear in their name, without prior written permission.

THIS SOFTWARE IS PROVIDED “AS IS” AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT ARE DISCLAIMED. IN NO EVENT SHALL VOVIDA NETWORKS, INC. OR ITS CONTRIBUTORS BE LIABLE FOR ANY DAMAGES IN EXCESS OF \$1,000, NOR FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

TORQUE v2.5+ Software License v1.1

Copyright © 2010-2011 Adaptive Computing Enterprises, Inc. All rights reserved.

Use this license to use or redistribute the TORQUE software v2.5+ and later versions. For free support for TORQUE users, questions should be emailed to the community of TORQUE users at torqueusers@supercluster.org. Users can also subscribe to the user mailing list at <http://www.supercluster.org/mailman/listinfo/torqueusers>. Customers using TORQUE that also are licensed users of Moab branded software from Adaptive Computing Inc. can get TORQUE support from Adaptive Computing via:
 Email: torque-support@adaptivecomputing.com.
 Phone: (801) 717-3700
 Web: www.adaptivecomputing.com www.clusterresources.com

This license covers use of the TORQUE v2.5 software (the “Software”) at your site or location, and, for certain users, redistribution of the Software to other sites and locations¹. Later versions of TORQUE are also covered by this license. Use and redistribution of TORQUE v2.5 in source and binary forms, with or without modification, are permitted provided that all of the following conditions are met.

1. Any Redistribution of source code must retain the above copyright notice and the acknowledgment contained in paragraph 5, this list of conditions and the disclaimer contained in paragraph 5.
2. Any Redistribution in binary form must reproduce the above copyright notice and the acknowledgment contained in paragraph 4, this list of conditions and the disclaimer contained in paragraph 5 in the documentation and/or other materials provided with the distribution.
3. Redistributions in any form must be accompanied by information on how to obtain complete source code for TORQUE and any modifications and/or additions to TORQUE. The source code must either be included in the distribution or be available for no more than the cost of distribution plus a nominal fee, and all modifications and additions to the Software must be freely redistributable by any party (including Licensor) without restriction.
4. All advertising materials mentioning features or use of the Software must display the following acknowledgment:

“TORQUE is a modification of OpenPBS which was developed by NASA Ames Research Center, Lawrence Livermore National Laboratory, and Veridian
TORQUE Open Source License v1.1.

1

Information Solutions, Inc. Visit www.clusterresources.com/products/ for more information about TORQUE and to download TORQUE.

For information about Moab branded products and so receive support from Adaptive Computing for TORQUE, see www.adaptivecomputing.com.”

5.

DISCLAIMER OF WARRANTY

THIS SOFTWARE IS PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND. ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT ARE EXPRESSLY DISCLAIMED.

IN NO EVENT SHALL ADAPTIVE COMPUTING ENTERPRISES, INC. CORPORATION, ITS AFFILIATED COMPANIES, OR THE U.S. GOVERNMENT OR ANY OF ITS AGENCIES BE LIABLE FOR ANY DIRECT OR INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This license will be governed by the laws of Utah, without reference to its choice of law rules.

Note 1: TORQUE is developed from an earlier version v2.3 of OpenPBS. TORQUE has

been developed beyond OpenPBS v2.3. The OpenPBS v2.3 license and OpenPBS software can be obtained at:

http://www.pbsworks.com/ResLibSearchResult.aspx?keywords=openpbs&industry=All&product_service=All&category=Free%20Software%20Downloads&order_by=title. Users of TORQUE should comply with the TORQUE license as well as the OpenPBS license.

SUN INDUSTRY STANDARDS SOURCE LICENSE

Version 1.2

1.0 DEFINITIONS

1.1 Commercial Use means distribution or otherwise making the Original Code available to a third party.

1.2 Contributor Version means the combination of the Original Code, and the Modifications made by that particular Contributor.

1.3 Electronic Distribution Mechanism means a mechanism generally accepted in the software development community for the electronic transfer of data.

1.4 Executable means Original Code in any form other than Source Code.

1.5 Initial Developer means the individual or entity identified as the Initial Developer in the Source Code notice required by Exhibit A.

1.6 Larger Work means a work which combines Original Code or portions thereof with code not governed by the terms of this License.

1.7 License means this document.

1.8 Licensable means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9 Modifications means any addition to or deletion from the substance or structure of either the Original Code or any previous Modifications. A Modification is:

A. Any addition to or deletion from the contents of a file containing Original Code or previous Modifications.

B. Any new file that contains any part of the Original Code or previous Modifications.

1.10 Original Code means Source Code of computer software code which is described in the Source Code notice required by Exhibit A as Original Code.

1.11 Patent Claims means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12 Source Code means the preferred form of the Original Code for making modifications to it, including all modules it contains, plus any associated interface definition files, or scripts used to control compilation and installation of an Executable.

1.13 Standards means the standards identified in Exhibit B.

1.14 You (or Your) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License or a future version of this License issued under Section 6.1. For legal entities, You includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2.0 SOURCE CODE LICENSE

2.1 The Initial Developer Grant The Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual property claims:

- (a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer to use, reproduce, modify, display, perform, sublicense and distribute the Original Code (or portions thereof) with or without Modifications, and/or as part of a Larger Work; and
 - (b) under Patents Claims infringed by the making, using or selling of Original Code, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Code (or portions thereof).
- © the licenses granted in this Section 2.1(a) and (b) are effective on the date Initial Developer first distributes Original Code under the terms of this License.
- (d) Notwithstanding Section 2.1(b) above, no patent license is granted: 1) for code that You delete from the Original Code; 2) separate from the Original Code; or 3) for infringements caused by: i) the modification of the Original Code or ii) the combination of the Original Code with other software or devices, including but not limited to Modifications.

3.0 DISTRIBUTION OBLIGATIONS

3.1 Application of License.

The Source Code version of Original Code may be distributed only under the terms of this License or a future version of this License released under Section 6.1, and You must include a copy of this License with every copy of the Source Code You distribute. You may not offer or impose any terms on any Source Code version that alters or restricts the applicable version of this License or the recipients rights hereunder. Your license for shipment of the Contributor Version is conditioned upon Your full compliance with this Section. The Modifications which You create must comply with all requirements set out by the Standards body in effect one hundred twenty (120) days before You ship the Contributor Version. In the event that the Modifications do not meet such requirements, You agree to publish either (i) any deviation from the Standards protocol resulting from implementation of Your Modifications and a reference implementation of Your Modifications or (ii) Your Modifications in Source Code form, and to make any such deviation and reference implementation or Modifications available to all third parties under the same terms as this license on a royalty free basis within thirty (30) days of Your first customer shipment of Your Modifications. Additionally, in the event that the Modifications you create do not meet the requirements set out in this Section, You agree to comply with the Standards requirements set out in Exhibit B.

3.2 Required Notices. You must duplicate the notice in Exhibit A in each file of the Source Code. If it is not possible to put such notice in a particular Source Code file due to its structure, then You must include such notice in a location (such as a relevant directory) where a user would be likely to look for such a notice. If You created one or more Modification(s) You may add Your name as a Contributor to the notice described in Exhibit A. You must also duplicate this License in any documentation for the Source Code where You describe recipients rights or ownership rights relating to Initial Code.

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Your version of the Code. However, You may do so only on Your own behalf, and not on behalf of the Initial Developer. You must make it absolutely clear than any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer for any liability incurred by the Initial Developer as a result of warranty, support, indemnity or liability terms You offer.

3.3 Distribution of Executable Versions. You may distribute Original Code in Executable and Source form only if the requirements of Sections 3.1 and 3.2 have been met for that Original Code, and if You include a notice stating that the Source Code version of the Original Code is available under the terms of this License. The notice must be conspicuously included in any notice in an Executable or Source versions, related documentation or collateral in which You describe recipients rights relating to the Original Code. You may distribute the Executable and Source versions of Your version of the Code or ownership rights under a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License. If You distribute the Executable and Source versions under a different license You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer. You hereby agree to indemnify the Initial Developer for any liability incurred by the Initial Developer as a result of any such terms You offer.

3.4 Larger Works. You may create a Larger Work by combining Original Code with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Original Code.

4.0 INABILITY TO COMPLY DUE TO STATUTE OR REGULATION

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Original Code due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be included in the LEGAL file described in Section 3.2 and must be included with all distributions of the Source Code. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5.0 APPLICATION OF THIS LICENSE

This License applies to code to which the Initial Developer has attached the notice in Exhibit A and to related Modifications as set out in Section 3.1.

6.0 VERSIONS OF THE LICENSE

6.1 New Versions. Sun may publish revised and/or new versions of the License from time to time. Each version will be given a distinguishing version number.

6.2 Effect of New Versions. Once Original Code has been published under a particular version of the License, You may always continue to use it under the terms of that version. You may also choose to use such Original Code under the terms of any subsequent version of the License published by Sun. No one other than Sun has the right to modify the terms applicable to Original Code.

7.0 DISCLAIMER OF WARRANTY

ORIGINAL CODE IS PROVIDED UNDER THIS LICENSE ON AN AS IS BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION,

WARRANTIES THAT THE ORIGINAL CODE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE ORIGINAL CODE IS WITH YOU. SHOULD ANY ORIGINAL CODE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY ORIGINAL CODE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

8.0 TERMINATION

8.1 This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. All sublicenses to the Original Code which are properly granted shall survive any termination of this License. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive. 8.2 In the event of termination under Section 8.1 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or any distributor hereunder prior to termination shall survive termination.

EXHIBIT A – Sun Industry Standards Source License

“The contents of this file are subject to the Sun Industry Standards Source License Version 1.2 (the License); You may not use this file except in compliance with the License.”

“You may obtain a copy of the License at gridengine.sunsource.net/license.html”

“Software distributed under the License is distributed on an AS IS basis, WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License for the specific language governing rights and limitations under the License.”

“The Original Code is Grid Engine.”

“The Initial Developer of the Original Code is:
Sun Microsystems, Inc.”

“Portions created by: Sun Microsystems, Inc. are
Copyright © 2001 Sun Microsystems, Inc.”

“All Rights Reserved.”

“Contributor(s): _____”

EXHIBIT B – Standards

1.0 Requirements for project Standards. The requirements for project Standards are version-dependent and are defined at: Grid Engine standards.

2.0 Additional requirements. The additional requirements pursuant to Section 3.1 are defined as:

2.1 Naming Conventions. If any of your Modifications do not meet the requirements of the Standard, then you must change the product name so that Grid Engine, gridengine, gridengine.sunsource, and similar naming conventions are not used.

2.2 Compliance Claims. If any of your Modifications do not meet the requirements of the Standards you may not claim, directly or indirectly, that your implementation of the Standards is compliant.

Standard License Header

The contents of this file are subject to the Sun Industry Standards Source License Version 1.2 (the License); You may not use this file except in compliance with the License. You may obtain a copy of the License at gridengine.sunsource.net/license.html

Software distributed under the License is distributed on an AS IS basis, WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License for the specific language governing rights and limitations under the License.

The Original Code is Grid Engine.

The Initial Developer of the Original Code is:
Sun Microsystems, Inc.

Portions created by: Sun Microsystems, Inc. are
Copyright © 2001 Sun Microsystems, Inc.

All Rights Reserved.

Sun Industry Standards Source License – Version 1.1

1.0 DEFINITIONS 1.1 “Commercial Use” means distribution or otherwise making the Original Code available to a third party. 1.2 “Contributor Version” means the combination of the Original Code, and the Modifications made by that particular Contributor. 1.3 “Electronic Distribution Mechanism” means a mechanism generally accepted in the software development community for the electronic transfer of data. 1.4 “Executable” means Original Code in any form other than Source Code. 1.5 “Initial Developer” means the individual or entity identified as the Initial Developer in the Source Code notice required by Exhibit A. 1.6 “Larger Work” means a work which combines Original Code or portions thereof with code not governed by the terms of this License. 1.7 “License” means this document. 1.8 “Licensable” means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein. 1.9 “Modifications” means any addition to or deletion from the substance or structure of either the Original Code or any previous Modifications. A Modification is: A. Any addition to or deletion from the contents of a file containing Original Code or previous Modifications. B. Any new file that contains any part of the Original Code or previous Modifications. 1.10 “Original Code” means Source Code of computer software code which is described in the Source Code notice required by Exhibit A as Original Code. 1.11 “Patent Claims” means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process,

and apparatus claims, in any patent Licensable by grantor. 1.12 “Source Code” means the preferred form of the Original Code for making modifications to it, including all modules it contains, plus any associated interface definition files, or scripts used to control compilation and installation of an Executable. 1.13 “Standards” means the standards identified in Exhibit B. 1.14 “You” (or “Your”) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License or a future version of this License issued under Section 6.1. For legal entities, “You” includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, “control” means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2.0 SOURCE CODE LICENSE

2.1 The Initial Developer Grant The Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual property claims: (a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer to use, reproduce, modify, display, perform, sublicense and distribute the Original Code (or portions thereof) with or without Modifications, and/or as part of a Larger Work; and (b) under Patents Claims infringed by the making, using or selling of Original Code, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Code (or portions thereof). © the licenses granted in this Section 2.1(a) and (b) are effective on the date Initial Developer first distributes Original Code under the terms of this License. (d) Notwithstanding Section 2.1(b) above, no patent license is granted: 1) for code that You delete from the Original Code; 2) separate from the Original Code; or 3) for infringements caused by: i) the modification of the Original Code or ii) the combination of the Original Code with other software or devices, including but not limited to Modifications.

3.0 DISTRIBUTION OBLIGATIONS

3.1 Application of License. The Source Code version of Original Code may be distributed only under the terms of this License or a future version of this License released under Section 6.1, and You must include a copy of this License with every copy of the Source Code You distribute. You may not offer or impose any terms on any Source Code version that alters or restricts the applicable version of this License or the recipients’ rights hereunder. Your license for shipment of the Contributor Version is conditioned upon Your full compliance with this Section. The Modifications which You create must comply with all requirements set out by the Standards body in effect one hundred twenty (120) days before You ship the Contributor Version. In the event that the Modifications do not meet such requirements, You agree to publish either (i) any deviation from the Standards protocol resulting from implementation of Your Modifications and a reference implementation of Your Modifications or (ii) Your Modifications in Source Code form, and to make any such deviation and reference implementation or Modifications available to all third parties under the same terms as this license on a royalty free basis within thirty (30) days of Your first customer shipment of Your Modifications.

3.2 Required Notices. You must duplicate the notice in Exhibit A in each file of the Source Code. If it is not possible to put such notice in a particular Source Code file due to its structure, then You must include such notice in a location (such as a relevant directory) where a user would be likely to look for such a notice. If You created one or more Modification(s) You may add Your name as a Contributor to the notice described in Exhibit A. You must also duplicate this License in any documentation for the Source Code where You describe recipients’ rights or ownership rights relating to Initial Code. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Your version of the Code. However, You may do so only on Your own behalf, and not on behalf of the Initial Developer. You must make it absolutely clear than any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer for any liability incurred by the Initial Developer as a result of warranty, support, indemnity or liability terms You offer.

3.3 Distribution of Executable Versions. You may distribute Original Code in Executable and Source form only if the requirements of Sections 3.1 and 3.2 have been met for that Original Code, and if You include a notice stating that the Source Code version of the Original Code is available under the terms of this License. The notice must be conspicuously included in any notice in an Executable or Source versions, related documentation or collateral in which You describe recipients’ rights

relating to the Original Code. You may distribute the Executable and Source versions of Your version of the Code or ownership rights under a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License. If You distribute the Executable and Source versions under a different license You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer. You hereby agree to indemnify the Initial Developer for any liability incurred by the Initial Developer as a result of any such terms You offer.

3.4 Larger Works.

You may create a Larger Work by combining Original Code with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Original Code.

4.0 INABILITY TO COMPLY DUE TO STATUTE OR REGULATION

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Original Code due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be included in the LEGAL file described in Section 3.2 and must be included with all distributions of the Source Code. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5.0 APPLICATION OF THIS LICENSE

This License applies to code to which the Initial Developer has attached the notice in Exhibit A and to related Modifications as set out in Section 3.1.

6.0 VERSIONS OF THE LICENSE

6.1 New Versions.

Sun may publish revised and/or new versions of the License from time to time. Each version will be given a distinguishing version number.

6.2 Effect of New Versions.

Once Original Code has been published under a particular version of the License, You may always continue to use it under the terms of that version. You may also choose to use such Original Code under the terms of any subsequent version of the License published by Sun. No one other than Sun has the right to modify the terms applicable to Original Code.

7.0 DISCLAIMER OF WARRANTY

ORIGINAL CODE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE ORIGINAL CODE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE ORIGINAL CODE IS WITH YOU. SHOULD ANY ORIGINAL CODE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY ORIGINAL CODE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

8.0 TERMINATION

8.1

This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. All sublicenses to the Original Code which are properly granted shall survive any termination of this License. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

8.2

In the event of termination under Section 8.1 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or any distributor hereunder prior to termination shall survive termination.

9.0 LIMIT OF LIABILITY

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF ORIGINAL CODE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF

INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU. 10.0 U.S. GOVERNMENT END USERS U.S. Government: If this Software is being acquired by or on behalf of the U.S. Government or by a U.S. Government prime contractor or subcontractor (at any tier), then the Government's rights in the Software and accompanying documentation shall be only as set forth in this license; this is in accordance with 48 C.F.R. 227.7201 through 227.7202-4 (for Department of Defense (DoD) acquisitions) and with 48 C.F.R. 2.101 and 12.212 (for non-DoD acquisitions). 11.0 MISCELLANEOUS This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by California law provisions (except to the extent applicable law, if any, provides otherwise), excluding its conflict-of-law provisions. With respect to disputes in which at least one party is a citizen of, or an entity chartered or registered to do business in the United States of America, any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California, with venue lying in Santa Clara County, California, with the losing party responsible for costs, including without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. EXHIBIT A – Sun Standards License “The contents of this file are subject to the Sun Standards License Version 1.1 (the “License”); You may not use this file except in compliance with the License. You may obtain a copy of the License at _____.

Software distributed under the License is distributed on an “AS IS” basis, WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License for the specific language governing rights and limitations under the License.

The Original Code is _____.

The Initial Developer of the Original Code is:
Sun Microsystems, Inc..

Portions created by: _____

are Copyright ©: _____

All Rights Reserved.

Contributor(s): _____

EXHIBIT B – Standards The Standard is defined as the following: OpenOffice.org XML File Format Specification, located at <http://xml.openoffice.org> OpenOffice.org Application Programming Interface Specification, located at <http://api.openoffice.org> We welcome your feedback. CollabNet, Inc. CollabNet is a trademark of CollabNet, Inc. Sun, Sun Microsystems, the Sun Logo, Solaris, Java, StarOffice, StarOffice 6.0 and StarSuite 6.0 are trademarks or registered trademarks of Sun Microsystems, Inc., in the United States and other countries.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

-Redistribution of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

-Redistribution in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of Sun Microsystems, Inc. nor the names of contributors may be used to endorse or promote products derived from this software without specific prior written permission.

This software is provided "AS IS," without a warranty of any kind. ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE HEREBY EXCLUDED. SUN MICROSYSTEMS, INC. ("SUN") AND ITS LICENSORS SHALL NOT BE LIABLE FOR ANY DAMAGES SUFFERED BY LICENSEE AS A RESULT OF USING, MODIFYING OR DISTRIBUTING THIS SOFTWARE OR ITS DERIVATIVES. IN NO EVENT WILL SUN OR ITS LICENSORS BE LIABLE FOR ANY LOST REVENUE, PROFIT OR DATA, OR FOR DIRECT, INDIRECT, SPECIAL, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, HOWEVER CAUSED AND REGARDLESS OF THE THEORY OF LIABILITY, ARISING OUT OF THE USE OF OR INABILITY TO USE THIS SOFTWARE, EVEN IF SUN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

You acknowledge that this software is not designed, licensed or intended for use in the design, construction, operation or maintenance of any nuclear facility.

SUGARCRM PUBLIC LICENSE

Version 1.1.3

The SugarCRM Public License Version ("SPL") consists of the Mozilla Public License Version 1.1, modified to be specific to SugarCRM, with the Additional Terms in Exhibit B. The original Mozilla Public License 1.1 can be found at: <http://www.mozilla.org/MPL/MPL-1.1.html>

1. Definitions.

1.0.1. "Commercial Use" means distribution or otherwise making the Covered Code available to a third party.

1.1. "Contributor" means each entity that creates or contributes to the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original Code, prior Modifications used by a Contributor, and the Modifications made by that particular Contributor.

1.3. "Covered Code" means the Original Code or Modifications or the combination of the Original Code and Modifications, in each case including portions thereof.

1.4. "Electronic Distribution Mechanism" means a mechanism generally accepted in the software development community for the electronic transfer of data.

1.5. "Executable" means Covered Code in any form other than Source Code.

1.6. “Initial Developer” means the individual or entity identified as the Initial Developer in the Source Code notice required by Exhibit A.

1.7. “Larger Work” means a work which combines Covered Code or portions thereof with code not governed by the terms of this License.

1.8. “License” means this document.

1.8.1. “Licensable” means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. “Modifications” means any addition to or deletion from the substance or structure of either the Original Code or any previous Modifications. When Covered Code is released as a series of files, a Modification is:

A. Any addition to or deletion from the contents of a file containing Original Code or previous Modifications.

B. Any new file that contains any part of the Original Code or previous Modifications.

1.10. “Original Code” means Source Code of computer software code which is described in the Source Code notice required by Exhibit A as Original Code, and which, at the time of its release under this License is not already Covered Code governed by this License.

1.10.1. “Patent Claims” means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.11. “Source Code” means the preferred form of the Covered Code for making modifications to it, including all modules it contains, plus any associated interface definition files, scripts used to control compilation and installation of an Executable, or source code differential comparisons against either the Original Code or another well known, available Covered Code of the Contributor's choice. The Source Code can be in a compressed or archival form, provided the appropriate decompression or de-archiving software is widely available for no charge.

1.12. “You” (or “Your”) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License or a future version of this License issued under Section 6.1. For legal entities, “You” includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, “control” means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. Source Code License.

2.1. The Initial Developer Grant.

The Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual property claims:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer to use, reproduce, modify, display, perform, sublicense and distribute the Original Code (or portions thereof) with or without Modifications, and/or as part of a Larger Work; and

(b) under Patents Claims infringed by the making, using or selling of Original Code, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Code (or portions thereof).

© the licenses granted in this Section 2.1(a) and (b) are effective on the date Initial Developer first

distributes Original Code under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: 1) for code that You delete from the Original Code; 2) separate from the Original Code; or 3) for infringements caused by: i) the modification of the Original Code or ii) the combination of the Original Code with other software or devices.

2.2. Contributor Grant.

Subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor, to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof) either on an unmodified basis, with other Modifications, as Covered Code and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: 1) Modifications made by that Contributor (or portions thereof); and 2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

© the licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first makes Commercial Use of the Covered Code.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: 1) for any code that Contributor has deleted from the Contributor Version; 2) separate from the Contributor Version; 3) for infringements caused by: i) third party modifications of Contributor Version or ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or 4) under Patent Claims infringed by Covered Code in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Application of License.

The Modifications which You create or to which You contribute are governed by the terms of this License, including without limitation Section 2.2. The Source Code version of Covered Code may be distributed only under the terms of this License or a future version of this License released under Section 6.1, and You must include a copy of this License with every copy of the Source Code You distribute. You may not offer or impose any terms on any Source Code version that alters or restricts the applicable version of this License or the recipients' rights hereunder. However, You may include an additional document offering the additional rights described in Section 3.5.

3.2. Availability of Source Code.

Any Modification which You create or to which You contribute must be made available in Source Code form under the terms of this License either on the same media as an Executable version or via an accepted Electronic Distribution Mechanism to anyone to whom you made an Executable version available; and if made available via Electronic Distribution Mechanism, must remain available for at least twelve (12) months after the date it initially became available, or at least six (6) months after a subsequent version of that particular Modification has been made available to such recipients. You are responsible for ensuring that the Source Code version remains available even if the Electronic Distribution Mechanism is maintained by a third party.

3.3. Description of Modifications.

You must cause all Covered Code to which You contribute to contain a file documenting the changes You made to create that Covered Code and the date of any change. You must include a prominent statement that the Modification is derived, directly or indirectly, from Original Code provided by the Initial Developer and including the name of the Initial Developer in (a) the Source Code, and (b) in any notice in an Executable version or related documentation in which You describe the origin or ownership of the Covered Code.

3.4. Intellectual Property Matters

(a) Third Party Claims.

If Contributor has knowledge that a license under a third party's intellectual property rights is required to exercise the rights granted by such Contributor under Sections 2.1 or 2.2, Contributor must include a text file with the Source Code distribution titled "LEGAL" which describes the claim and the party making the claim in sufficient detail that a recipient will know whom to contact. If Contributor obtains such knowledge after the Modification is made available as described in Section 3.2, Contributor shall promptly modify the LEGAL file in all copies Contributor makes available thereafter and shall take other steps (such as notifying appropriate mailing lists or newsgroups) reasonably calculated to inform those who received the Covered Code that new knowledge has been obtained.

(b) Contributor APIs.

If Contributor's Modifications include an application programming interface and Contributor has knowledge of patent licenses which are reasonably necessary to implement that API, Contributor must also include this information in the LEGAL file.

© Representations.

Contributor represents that, except as disclosed pursuant to Section 3.4(a) above, Contributor believes that Contributor's Modifications are Contributor's original creation(s) and/or Contributor has sufficient rights to grant the rights conveyed by this License.

3.5. Required Notices.

You must duplicate the notice in Exhibit A in each file of the Source Code. If it is not possible to put such notice in a particular Source Code file due to its structure, then You must include such notice in a location (such as a relevant directory) where a user would be likely to look for such a notice. If You created one or more Modification(s) You may add your name as a Contributor to the notice described in Exhibit A. You must also duplicate this License in any documentation for the Source Code where You describe recipients' rights or ownership rights relating to Covered Code. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Code. However, You may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.6. Distribution of Executable Versions.

You may distribute Covered Code in Executable form only if the requirements of Section 3.1-3.5 have been met for that Covered Code, and if You include a notice stating that the Source Code version of the Covered Code is available under the terms of this License, including a description of how and where You have fulfilled the obligations of Section 3.2. The notice must be conspicuously included in any notice in an Executable version, related documentation or collateral in which You describe recipients' rights relating to the Covered Code. You may distribute the Executable version of Covered Code or ownership

rights under a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable version does not attempt to limit or alter the recipient's rights in the Source Code version from the rights set forth in this License. If You distribute the Executable version under a different license You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or any Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.7. Larger Works.

You may create a Larger Work by combining Covered Code with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Code.

4. Inability to Comply Due to Statute or Regulation.

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Code due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be included in the LEGAL file described in Section 3.4 and must be included with all distributions of the Source Code. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Application of this License.

This License applies to code to which the Initial Developer has attached the notice in Exhibit A and to related Covered Code.

6. Versions of the License.

6.1. New Versions.

SugarCRM Inc. ("SugarCRM") may publish revised and/or new versions of the License from time to time. Each version will be given a distinguishing version number.

6.2. Effect of New Versions.

Once Covered Code has been published under a particular version of the License, You may always continue to use it under the terms of that version. You may also choose to use such Covered Code under the terms of any subsequent version of the License published by SugarCRM. No one other than SugarCRM has the right to modify the terms applicable to Covered Code created under this License.

6.3. Derivative Works.

If You create or use a modified version of this License (which you may only do in order to apply it to code which is not already Covered Code governed by this License), You must (a) rename Your license so that the phrases "SugarCRM", "SPL" or any confusingly similar phrase do not appear in your license (except to note that your license differs from this License) and (b) otherwise make it clear that Your version of the license contains terms which differ from the SugarCRM Public License. (Filling in the name of the Initial Developer, Original Code or Contributor in the notice described in Exhibit A shall not of themselves be deemed to be modifications of this License.)

7. DISCLAIMER OF WARRANTY.

COVERED CODE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION,

WARRANTIES THAT THE COVERED CODE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED CODE IS WITH YOU. SHOULD ANY COVERED CODE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED CODE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

8. TERMINATION.

8.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. All sublicenses to the Covered Code which are properly granted shall survive any termination of this License. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

8.2. If You initiate litigation by asserting a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You file such action is referred to as "Participant") alleging that:

(a) such Participant's Contributor Version directly or indirectly infringes any patent, then any and all rights granted by such Participant to You under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively, unless if within 60 days after receipt of notice You either: (i) agree in writing to pay Participant a mutually agreeable reasonable royalty for Your past and future use of Modifications made by such Participant, or (ii) withdraw Your litigation claim with respect to the Contributor Version against such Participant. If within 60 days of notice, a reasonable royalty and payment arrangement are not mutually agreed upon in writing by the parties or the litigation claim is not withdrawn, the rights granted by Participant to You under Sections 2.1 and/or 2.2 automatically terminate at the expiration of the 60 day notice period specified above.

(b) any software, hardware, or device, other than such Participant's Contributor Version, directly or indirectly infringes any patent, then any rights granted to You by such Participant under Sections 2.1(b) and 2.2(b) are revoked effective as of the date You first made, used, sold, distributed, or had made, Modifications made by that Participant.

8.3. If You assert a patent infringement claim against Participant alleging that such Participant's Contributor Version directly or indirectly infringes any patent where such claim is resolved (such as by license or settlement) prior to the initiation of patent infringement litigation, then the reasonable value of the licenses granted by such Participant under Sections 2.1 or 2.2 shall be taken into account in determining the amount or value of any payment or license.

8.4. In the event of termination under Sections 8.1 or 8.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or any distributor hereunder prior to termination shall survive termination.

9. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED CODE, OR ANY SUPPLIER OF ANY OF

SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

10. U.S. GOVERNMENT END USERS.

The Covered Code is a "commercial item," as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of "commercial computer software" and "commercial computer software documentation," as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Code with only those rights set forth herein.

11. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by California law provisions (except to the extent applicable law, if any, provides otherwise), excluding its conflict-of-law provisions. With respect to disputes in which at least one party is a citizen of, or an entity chartered or registered to do business in the United States of America, any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California, with venue lying in Santa Clara County, California, with the losing party responsible for costs, including without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License.

12. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

13. MULTIPLE-LICENSED CODE.

Initial Developer may designate portions of the Covered Code as "Multiple-Licensed". "Multiple-Licensed" means that the Initial Developer permits you to utilize portions of the Covered Code under Your choice of the SPL or the alternative licenses, if any, specified by the Initial Developer in the file described in Exhibit A.

SugarCRM Public License 1.1.3 – Exhibit A

The contents of this file are subject to the SugarCRM Public License Version 1.1.3 ("License"); You may not use this file except in compliance with the License. You may obtain a copy of the License at <http://www.sugarcrm.com/SPL>
Software distributed under the License is distributed on an "AS IS" basis,

WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License for the specific language governing rights and limitations under the License.

The Original Code is: SugarCRM Open Source

The Initial Developer of the Original Code is SugarCRM, Inc.

Portions created by SugarCRM are Copyright © 2004 SugarCRM, Inc.;

All Rights Reserved.

Contributor(s): _____.

[NOTE: The text of this Exhibit A may differ slightly from the text of the notices in the Source Code files of the Original Code. You should use the text of this Exhibit A rather than the text found in the Original Code Source Code for Your Modifications.]

SugarCRM Public License 1.1.3 – Exhibit B

Additional Terms applicable to the SugarCRM Public License.

I. Effect.

These additional terms described in this SugarCRM Public License – Additional Terms shall apply to the Covered Code under this License.

II. SugarCRM and logo.

This License does not grant any rights to use the trademarks “SugarCRM” and the “SugarCRM” logos even if such marks are included in the Original Code or Modifications.

However, in addition to the other notice obligations, all copies of the Covered Code in Executable and Source Code form distributed must, as a form of attribution of the original author, include on each user interface screen (i) the “Powered by SugarCRM” logo and (ii) the copyright notice in the same form as the latest version of the Covered Code distributed by SugarCRM, Inc. at the time of distribution of such copy. In addition, the “Powered by SugarCRM” logo must be visible to all users and be located at the very bottom center of each user interface screen. Notwithstanding the above, the dimensions of the “Powered By SugarCRM” logo must be at least 106 × 23 pixels. When users click on the “Powered by SugarCRM” logo it must direct them back to <http://www.sugarforge.org>. In addition, the copyright notice must remain visible to all users at all times at the bottom of the user interface screen. When users click on the copyright notice, it must direct them back to <http://www.sugarcrm.com>

SGI FREE SOFTWARE LICENSE B (Version 1.0 [1/25/2000])

2. License Grant and Restrictions.

1. License Grant. Subject to the provisions of this License and any third party intellectual property claims, for the duration of intellectual property protections inherent in the Original Code, SGI hereby grants Recipient a worldwide, royalty-free, non-exclusive license, to do the following: (i) under copyrights Licensable by SGI, to reproduce, distribute, create derivative works from, and, to the extent applicable, display and perform the Original Code alone and/or as part of a Larger Work; and (ii) under any patent claims Licensable by SGI and embodied in the Original Code, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Code. Recipient accepts the terms and conditions of this License by undertaking any of the aforementioned actions. 2. Restriction on Patent License. Notwithstanding the provisions of Section

2.1(ii), no patent license is granted: 1) separate from the Original Code; nor 2) for infringements caused by (i) modification of the Original Code, or (ii) the combination of the Original Code with other software or Hardware. 3. No License For Hardware Implementations. The licenses granted in Section 2.1 are not applicable to implementation in Hardware of the algorithms embodied in the Original Code. 4. Modifications License and API Compliance. Modifications are only licensed under Section 2.1(i) to the extent such Modifications are fully compliant with any API as may be identified in Additional Notice Provisions as appear in the Original Code.

3. Redistributions.

1. Retention of Notice/Copy of License. The Notice set forth in Exhibit A, below, must be conspicuously retained or included in any and all redistributions of Covered Code. For distributions of the Covered Code in source code form, the Notice must appear in every file that can include a text comments field; in executable form, the Notice and a copy of this License must appear in related documentation or collateral where the Recipient's rights relating to Covered Code are described. Any Additional Notice Provisions which actually appears in the Original Code must also be retained or included in any and all redistributions of Covered Code.

2. Alternative License. Provided that Recipient is in compliance with the terms of this License, Recipient may distribute the source code and/or executable version(s) of Covered Code under (1) this License; (2) a license identical to this License but for only such changes as are necessary in order to clarify Recipient's role as licensor of Modifications, without derogation of any of SGI's rights; and/or (3) a license of Recipient's choosing, containing terms different from this License, provided that the license terms include this Section 3 and Sections 4, 6, 7, 10, 12, and 13, which terms may not be modified or superseded by any other terms of such license. If Recipient elects to use any license other than this License, Recipient must make it absolutely clear that any of its terms which differ from this License are offered by Recipient alone, and not by SGI. 3. Indemnity. Recipient hereby agrees to indemnify SGI for any liability incurred by SGI as a result of any such alternative license terms Recipient offers.

4. Termination. This License and the rights granted hereunder will terminate automatically if Recipient breaches any term herein and fails to cure such breach within 30 days thereof. Any sublicense to the Covered Code that is properly granted shall survive any termination of this License, absent termination by the terms of such sublicense. Provisions that, by their nature, must remain in effect beyond the termination of this License, shall survive.

5. No Trademark Or Other Rights. This License does not grant any rights to: (i) any software apart from the Covered Code, nor shall any other rights or licenses not expressly granted hereunder arise by implication, estoppel or otherwise with respect to the Covered Code; (ii) any trade name, trademark or service mark whatsoever, including without limitation any related right for purposes of endorsement or promotion of products derived from the Covered Code, without prior written permission of SGI; or (iii) any title to or ownership of the Original Code, which shall at all times remains with SGI. All rights in the Original Code not expressly granted under this License are reserved.

6. Compliance with Laws; Non-Infringement. Recipient hereby assures that it shall comply with all applicable laws, regulations, and executive orders, in connection with any and all dispositions of Covered Code, including but not limited to, all export, re-export, and import control laws, regulations, and executive orders, of the U.S. government and other countries. Recipient may not distribute Covered Code that (i) in any way infringes (directly or contributorily) the rights (including patent, copyright, trade secret, trademark or other intellectual property rights of any kind) of any other person or entity or (ii) breaches any representation or warranty, express, implied or statutory, to which, under any applicable law, it might be deemed to have been subject.

7. Claims of Infringement. If Recipient learns of any third party claim that any disposition of Covered Code and/or functionality wholly or partially infringes the third party's intellectual property rights, Recipient will promptly notify SGI of such claim.

8. Versions of the License. SGI may publish revised and/or new versions of the License from time to time, each with a distinguishing version number. Once Covered Code has been published under a particular version of the License, Recipient may, for the duration of the license, continue to use it under the terms of that version, or choose to use such Covered Code under the terms of any subsequent version published by SGI. Subject to the provisions of Sections 3 and 4 of this License, only SGI may modify the terms applicable to Covered Code created under this License.

9. DISCLAIMER OF WARRANTY. COVERED CODE IS PROVIDED "AS IS." ALL EXPRESS AND IMPLIED WARRANTIES AND CONDITIONS ARE DISCLAIMED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. SGI ASSUMES NO RISK AS TO THE QUALITY AND PERFORMANCE OF THE SOFTWARE. SHOULD THE SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, SGI ASSUMES NO COST OR LIABILITY FOR SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY IS AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED CODE IS AUTHORIZED HEREUNDER EXCEPT SUBJECT TO THIS DISCLAIMER.

10. LIMITATION OF LIABILITY. UNDER NO CIRCUMSTANCES NOR LEGAL THEORY, WHETHER TORT (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE OR STRICT LIABILITY), CONTRACT, OR OTHERWISE, SHALL SGI OR ANY SGI LICENSOR BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, LOSS OF DATA, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SGI's NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THAT EXCLUSION AND LIMITATION MAY NOT APPLY TO RECIPIENT.

11. Indemnity. Recipient shall be solely responsible for damages arising, directly or indirectly, out of its utilization of rights under this License. Recipient will defend, indemnify and hold harmless Silicon Graphics, Inc. from and against any loss, liability, damages, costs or expenses (including the payment of reasonable attorneys fees) arising out of Recipient's use, modification, reproduction and distribution of the Covered Code or out of any representation or warranty made by Recipient.

12. U.S. Government End Users. The Covered Code is a "commercial item" consisting of "commercial computer software" as such terms are defined in title 48 of the Code of Federal Regulations and all U.S. Government End Users acquire only the rights set forth in this License and are subject to the terms of this License.

13. Miscellaneous. This License represents the complete agreement concerning the its subject matter. If any provision of this License is held to be unenforceable, such provision shall be reformed so as to achieve as nearly as possible the same legal and economic effect as the original provision and the

remainder of this License will remain in effect. This License shall be governed by and construed in accordance with the laws of the United States and the State of California as applied to agreements entered into and to be performed entirely within California between California residents. Any litigation relating to this License shall be subject to the exclusive jurisdiction of the Federal Courts of the Northern District of California (or, absent subject matter jurisdiction in such courts, the courts of the State of California), with venue lying exclusively in Santa Clara County, California, with the losing party responsible for costs, including without limitation, court costs and reasonable attorneys fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License.

Exhibit A

License Applicability. Except to the extent portions of this file are made subject to an alternative license as permitted in the SGI Free Software License B, Version 1.0 (the "License"), the contents of this file are subject only to the provisions of the License. You may not use this file except in compliance with the License. You may obtain a copy of the License at Silicon Graphics, Inc., attn: Legal Services, 1600 Amphitheatre Parkway, Mountain View, CA 94043-1351, or at:

<http://oss.sgi.com/projects/FreeB>

Note that, as provided in the License, the Software is distributed on an "AS IS" basis, with ALL EXPRESS AND IMPLIED WARRANTIES AND CONDITIONS DISCLAIMED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT.

Original Code. The Original Code is: [name of software, version number, and release date], developed by Silicon Graphics, Inc. The Original Code is Copyright © [dates of first publication, as appearing in the Notice in the Original Code] Silicon Graphics, Inc. Copyright in any portions created by third parties is as indicated elsewhere herein. All Rights Reserved.

Additional Notice Provisions: [such additional provisions, if any, as appear in the Notice in the Original Code under the heading "Additional Notice Provisions"]

The Q Public License Version 1.0

Copyright © 1999 Trolltech AS, Norway.

Everyone is permitted to copy and distribute this license document.

The intent of this license is to establish freedom to share and change the software regulated by this license under the open source model.

This license applies to any software containing a notice placed by the copyright holder saying that it may be distributed under the terms of the Q Public License version 1.0. Such software is herein referred to as the Software. This license covers modification and distribution of the Software, use of third-party application programs based on the Software, and development of free software which uses the Software.

Granted Rights

1. You are granted the non-exclusive rights set forth in this license provided you agree to and comply with any and all conditions in this license. Whole or partial distribution of the Software, or software items that link with the Software, in any form signifies acceptance of this license.
2. You may copy and distribute the Software in unmodified form provided that the entire package, including – but not restricted to – copyright, trademark notices and disclaimers, as released by the initial developer of the Software, is distributed.
3. You may make modifications to the Software and distribute your modifications, in a form that is separate from the Software, such as patches. The following restrictions apply to modifications:
 - a. Modifications must not alter or remove any copyright notices in the Software.
 - b. When modifications to the Software are released under this license, a non-exclusive royalty-free right is granted to the initial developer of the Software to distribute your modification in future versions of the Software provided such versions remain available under these terms in addition to any other license(s) of the initial developer.
4. You may distribute machine-executable forms of the Software or machine-executable forms of modified versions of the Software, provided that you meet these restrictions:
 - a. You must include this license document in the distribution.
 - b. You must ensure that all recipients of the machine-executable forms are also able to receive the complete machine-readable source code to the distributed Software, including all modifications, without any charge beyond the costs of data transfer, and place prominent notices in the distribution explaining this.
 - c. You must ensure that all modifications included in the machine-executable forms are available under the terms of this license.
5. You may use the original or modified versions of the Software to compile, link and run application programs legally developed by you or by others.
6. You may develop application programs, reusable components and other software items that link with the original or modified versions of the Software. These items, when distributed, are subject to the following requirements:
 - a. You must ensure that all recipients of machine-executable forms of these items are also able to receive and use the complete machine-readable source code to the items without any charge beyond the costs of data transfer.
 - b. You must explicitly license all recipients of your items to use and re-distribute original and modified versions of the items in both machine-executable and source code forms. The recipients must be able to do so without any charges whatsoever, and they must be able to re-distribute to anyone they choose.
 - c. If the items are not available to the general public, and the initial developer of the Software requests a copy of the items, then you must supply one.

Limitations of Liability

In no event shall the initial developers or copyright holders be liable for any damages whatsoever, including – but not restricted to – lost revenue or profits or other direct, indirect, special, incidental or consequential damages, even if they have been advised of the possibility of such damages, except to the extent invariable law, if any, provides otherwise.

No Warranty

The Software and this license document are provided AS IS with NO WARRANTY OF ANY KIND, INCLUDING THE WARRANTY OF DESIGN, MERCHANTABILITY AND FITNESS FOR A PARTICULAR

PURPOSE.

Choice of Law

This license is governed by the Laws of Norway. Disputes shall be settled by Oslo City Court.

The OpenLDAP Public License Version 2.8, 17 August 2003

Redistribution and use of this software and associated documentation ("Software"), with or without modification, are permitted provided that the following conditions are met:

1. Redistributions in source form must retain copyright statements and notices,
2. Redistributions in binary form must reproduce applicable copyright statements and notices, this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution, and
3. Redistributions must contain a verbatim copy of this document.

The OpenLDAP Foundation may revise this license from time to time. Each revision is distinguished by a version number. You may use this Software under terms of this license revision or under the terms of any subsequent revision of the license.

THIS SOFTWARE IS PROVIDED BY THE OPENLDAP FOUNDATION AND ITS CONTRIBUTORS ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OPENLDAP FOUNDATION, ITS CONTRIBUTORS, OR THE AUTHOR OR OWNER OF THE SOFTWARE BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The names of the authors and copyright holders must not be used in advertising or otherwise to promote the sale, use or other dealing in this Software without specific, written prior permission. Title to copyright in this Software shall at all times remain with copyright holders.

OpenLDAP is a registered trademark of the OpenLDAP Foundation.

Copyright 1999-2003 The OpenLDAP Foundation, Redwood City, California, USA. All Rights Reserved. Permission to copy and

distribute verbatim copies of this document is granted.

Open CASCADE Technology Public License

Version 6.6, April 2013

OPEN CASCADE releases and makes publicly available the source code of the software Open CASCADE Technology to the free software development community under the terms and conditions of this license.

It is not the purpose of this license to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this license has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

Please read this license carefully and completely before downloading this software. By downloading, using, modifying, distributing and sublicensing this software, you indicate your acceptance to be bound by the terms and conditions of this license. If you do not want to accept or cannot accept for any reasons the terms and conditions of this license, please do not download or use in any manner this software.

1. Definitions

Unless there is something in the subject matter or in the context inconsistent therewith, the capitalized terms used in this License shall have the following meaning.

“Applicable Intellectual Property Rights” means (a) with respect to the Initial Developer, any rights under patents or patents applications or other intellectual property rights that are now or hereafter acquired, owned by or assigned to the Initial Developer and that cover subject matter contained in the Original Code, but only to the extent necessary to use, reproduce, modify, distribute or sublicense the Original Code without infringement; and (b) with respect to You or any Contributor, any rights under patents or patents applications or other intellectual property rights that are now or hereafter acquired, owned by or assigned to You or to such Contributor and that cover subject matter contained in Your Modifications or in such Contributor’s Modifications, taken alone or in combination with Original Code.

“Contributor” means each individual or legal entity that creates or contributes to the creation of any Modification, including the Initial Developer.

“Derivative Program”: means a new program combining the Software or portions thereof with other source code not governed by the terms of this License.

“Initial Developer”: means OPEN CASCADE, with main offices at 1, place des Frères Montgolfier, 78280, Guyancourt, France.

“Modifications”: mean any addition to, deletion from or change to the substance or the structure of the Software. When source code of the Software is released as a series of files, a Modification is: (a) any addition to, deletion from or change to the contents of a file containing the Software or (b) any new file or other representation of computer program statements that contains any part of the Software. By way of example, Modifications include any debug of, or improvement to, the Original Code or any of its

components or portions as well as its next versions or releases thereof.

“Original Code”: means (a) the source code of the software Open CASCADE Technology originally made available by the Initial Developer under this License, including the source code of any updates or upgrades of the Original Code and (b) the object code compiled from such source code and originally made available by Initial Developer under this License.

“Software”: means the Original Code, the Modifications, the combination of Original Code and any Modifications or any respective portions thereof.

“You” or “Your”: means an individual or a legal entity exercising rights under this License

2. Acceptance of license

By using, reproducing, modifying, distributing or sublicensing the Software or any portion thereof, You expressly indicate Your acceptance of the terms and conditions of this License and undertake to act in accordance with all the provisions of this License applicable to You.

3. Scope and purpose

This License applies to the Software and You may not use, reproduce, modify, distribute, sublicense or circulate the Software, or any portion thereof, except as expressly provided under this License. Any attempt to otherwise use, reproduce, modify, distribute or sublicense the Software is void and will automatically terminate Your rights under this License.

4. Contributor license

Subject to the terms and conditions of this License, the Initial Developer and each of the Contributors hereby grant You a world-wide, royalty-free, irrevocable and non-exclusive license under the Applicable Intellectual Property Rights they own or control, to use, reproduce, modify, distribute and sublicense the Software provided that:

You reproduce in all copies of the Software the copyright and other proprietary notices and disclaimers of the Initial Developer as they appear in the Original Code and attached hereto as Schedule “A” and any other notices or disclaimers attached to the Software and keep intact all notices in the Original Code that refer to this License and to the absence of any warranty;

You include a copy of this License with every copy of the Software You distribute;

If you distribute or sublicense the Software (as modified by You or on Your behalf as the case may be), You cause such Software to be licensed as a whole, at no charge, to all third parties, under the terms and conditions of the License, making in particular available to all third parties the source code of the Software;

You document all Your Modifications, indicate the date of each such Modification, designate the version of the Software You used, prominently include a file carrying such information with respect to the Modifications and duplicate the copyright and other proprietary notices and disclaimers attached hereto as Schedule “B” or any other notices or disclaimers attached to the Software with your Modifications.

For greater certainty, it is expressly understood that You may freely create Derivative Programs (without any obligation to publish such Derivative Program) and distribute same as a single product. In such

case, You must ensure that all the requirements of this License are fulfilled for the Software or any portion thereof.

5. Your license

You hereby grant all Contributors and anyone who becomes a party under this License a world-wide, non-exclusive, royalty-free and irrevocable license under the Applicable Intellectual Property Rights owned or controlled by You, to use, reproduce, modify, distribute and sublicense all Your Modifications under the terms and conditions of this License.

6. Software subject to license

Your Modifications shall be governed by the terms and conditions of this License. You are not authorized to impose any other terms or conditions than those prevailing under this License when You distribute and/or sublicense the Software, save and except as permitted under Section 7 hereof.

7. Additional terms

You may choose to offer, on a non-exclusive basis, and to charge a fee for any warranty, support, maintenance, liability obligations or other rights consistent with the scope of this License with respect to the Software (the "Additional Terms") to the recipients of the Software. However, You may do so only on Your own behalf and on Your sole and exclusive responsibility. You must obtain the recipient's agreement that any such Additional Terms are offered by You alone, and You hereby agree to indemnify, defend and hold the Initial Developer and any Contributor harmless for any liability incurred by or claims asserted against the Initial Developer or any Contributors with respect to any such Additional Terms.

8. Disclaimer of warranty

The Software is provided under this License on an "as is" basis, without warranty of any kind, including without limitation, warranties that the Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Software is with You.

9. Liability

Under no circumstances shall You, the Initial Developer or any Contributor be liable to any person for any direct or indirect damages of any kind including, without limitation, damages for loss of goodwill, loss of data, work stoppage, computer failure or malfunction or any and all other commercial damages or losses resulting from or relating to this License or indirectly to the use of the Software.

10. Trademark

This License does not grant any rights to use the trademarks, trade names and domain names "MATRA", "EADS Matra Datavision", "CAS.CADE", "Open CASCADE", "opencascade.com" and "opencascade.org" or any other trademarks, trade names or domain names used or owned by the Initial Developer.

11. Copyright

The Initial Developer retains all rights, title and interest in and to the Original Code. You may not remove the copyright © notice which appears when You download the Software.

12. Term

This License is granted to You for a term equal to the remaining period of protection covered by the intellectual property rights applicable to the Original Code.

13. Termination

In case of termination, as provided in Section 3 above, You agree to immediately stop any further use, reproduction, modification, distribution and sublicensing of the Software and to destroy all copies of the Software that are in Your possession or control. All sublicenses of the Software which have been properly granted prior to termination shall survive any termination of this License. In addition, Sections 5, 8 to 11, 13.2 and 15.2 of this License, in reason of their nature, shall survive the termination of this License for a period of fifteen (15) years.

14. Versions of the license

The Initial Developer may publish new versions of this License from time to time. Once Original Code has been published under a particular version of this License, You may choose to continue to use it under the terms and conditions of that version or use the Original Code under the terms of any subsequent version of this License published by the Initial Developer.

15. Miscellaneous

15.1 Relationship of the Parties This License will not be construed as creating an agency, partnership, joint venture or any other form of legal association between You and the Initial Developer, and You will not represent to the contrary, whether expressly, by implication or otherwise.

15.2 Independent Development Nothing in this License will impair the Initial Developer's right to acquire, license, develop, have others develop for it, market or distribute technology or products that perform the same or similar functions as, or otherwise compete with, Modifications, Derivative Programs, technology or products that You may develop, produce, market or distribute.

15.3 Severability If for any reason a court of competent jurisdiction finds any provision of this License, or portion thereof, to be unenforceable, that provision of the License will be enforced to the maximum extent permissible so as to effect the economic benefits and intent of the parties, and the remainder of this License will continue in full force and extent.

END OF THE TERMS AND CONDITIONS OF THIS LICENSE

OPEN CASCADE is a French société par actions simplifiée having its registered head office at 1, place des Frères Montgolfier, 78280, Guyancourt, France and main offices at 1, place des Frères Montgolfier, 78280, Guyancourt, France. Its web site is located at the following address opencascade.com

Open CASCADE Technology Public License Schedule "A"

The content of this file is subject to the Open CASCADE Technology Public License (the "License"). You may not use the content of this file except in compliance with the License. Please obtain a copy of the License at opencascade.com and read it completely before using this file.

The Initial Developer of the Original Code is OPEN CASCADE, with main offices at 1, place des Frères Montgolfier, 78280, Guyancourt, France. The Original Code is copyright © OPEN CASCADE SAS, 2001. All rights reserved. "The Original Code and all software distributed under the License are distributed on an "AS IS" basis, without warranty of any kind, and the Initial Developer hereby disclaims all such warranties, including without limitation, any warranties of merchantability, fitness for a particular purpose or non-infringement.

Please see the License for the specific terms and conditions governing rights and limitations under the License”.

End of Schedule “A”

Open CASCADE Technology Public License

Schedule “B”

“The content of this file is subject to the Open CASCADE Technology Public License (the “License”). You may not use the content of this file except in compliance with the License. Please obtain a copy of the License at opencascade.com and read it completely before using this file.

The Initial Developer of the Original Code is OPEN CASCADE, with main offices at 1, place des Frères Montgolfier, 78280, Guyancourt, France. The Original Code is copyright © Open CASCADE SAS, 2001. All rights reserved.

Modifications to the Original Code have been made by _____. Modifications are copyright © [Year to be included]. All rights reserved.

The software Open CASCADE Technology and all software distributed under the License are distributed on an “AS IS” basis, without warranty of any kind, and the Initial Developer hereby disclaims all such warranties, including without limitation, any warranties of merchantability, fitness for a particular purpose or non-infringement.

Please see the License for the specific terms and conditions governing rights and limitations under the License”

End of Schedule “B”

GNU LESSER GENERAL PUBLIC LICENSE Version 3, 29 June 2007

Copyright © 2007 Free Software Foundation, Inc. Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed. This version of the GNU Lesser General Public License incorporates the terms and conditions of version 3 of the GNU General Public License, supplemented by the additional permissions listed below.

0. Additional Definitions. As used herein, “this License” refers to version 3 of the GNU Lesser General Public License, and the “GNU GPL” refers to version 3 of the GNU General Public License. “The Library” refers to a covered work governed by this License, other than an Application or a Combined Work as defined below. An “Application” is any work that makes use of an interface provided by the Library, but which is not otherwise based on the Library. Defining a subclass of a class defined by the Library is deemed a mode of using an interface provided by the Library. A “Combined Work” is a work produced by combining or linking an Application with the Library. The particular version of the Library with which the Combined Work was made is also called the “Linked Version”. The “Minimal Corresponding Source” for a Combined Work means the Corresponding Source for the Combined Work, excluding any source code for portions of the Combined Work that, considered in isolation, are based on the Application, and not on the Linked Version. The “Corresponding Application Code” for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL. You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions. If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an

Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version: a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files. The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following: a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License. b) Accompany the object code with a copy of the GNU GPL and this license document.

4. Combined Works. You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following: a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License. b) Accompany the Combined Work with a copy of the GNU GPL and this license document. c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document. d) Do one of the following: 0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source. 1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version. e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries. You may place library facilities that are a work based on the library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following: a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License. b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License. The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation. If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement

of acceptance of any version is permanent authorization for you to choose that version for the Library.

Copyright © 2003, The Regents of the University of California, through Lawrence Berkeley National Laboratory (subject to receipt of any required approvals from the U.S. Dept. of Energy). All rights reserved. Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- (1) Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- (2) Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- (3) Neither the name of the University of California, Lawrence Berkeley National Laboratory, U.S. Dept. of Energy nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

You are under no obligation whatsoever to provide any bug fixes, patches, or upgrades to the features, functionality or performance of the source code ("Enhancements") to anyone; however, if you choose to make your Enhancements available either publicly, or directly to Lawrence Berkeley National Laboratory, without imposing a separate written license agreement for such Enhancements, then you hereby grant the following license: a non-exclusive, royalty-free perpetual license to install, use, modify, prepare derivative works, incorporate into other computer software, distribute, and sublicense such Enhancements or derivative works thereof, in binary and source code form.

Imlib2 License

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies of the Software and its Copyright notices. In addition publicly documented acknowledgment must be given that this software has been used if no

source code of this software is made available publicly. Making the source available publicly means including the source for this software with the distribution, or a method to get this software via some reasonable mechanism (electronic transfer via a network or media) as well as making an offer to supply the source on request. This Copyright notice serves as an offer to supply the source on request as well. Instead of this, supplying acknowledgments of use of this software in either Copyright notices, Manuals, Publicity and Marketing documents or any documentation provided with any product containing this software. This License does not apply to any software that links to the libraries provided by this software (statically or dynamically), but only to the software provided.

Please see the COPYING-PLAIN for a plain-english explanation of this notice and its intent.

THE SOFTWARE IS PROVIDED “AS IS”, WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

IBM Public License Version 1.0

THE ACCOMPANYING PROGRAM IS PROVIDED UNDER THE TERMS OF THIS IBM PUBLIC LICENSE (“AGREEMENT”). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM CONSTITUTES RECIPIENT’S ACCEPTANCE OF THIS AGREEMENT.

1. DEFINITIONS

“Contribution” means:

1. in the case of International Business Machines Corporation (“IBM”), the Original Program, and 2. in the case of each Contributor, 1. changes to the Program, and 2. additions to the Program; where such changes and/or additions to the Program originate from and are distributed by that particular Contributor. A Contribution ‘originates’ from a Contributor if it was added to the Program by such Contributor itself or anyone acting on such Contributor’s behalf. Contributions do not include additions to the Program which: (i) are separate modules of software distributed in conjunction with the Program under their own license agreement, and (ii) are not derivative works of the Program.

“Contributor” means IBM and any other entity that distributes the Program.

“Licensed Patents “ mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program.

“Original Program” means the original version of the software accompanying this Agreement as released by IBM, including source code, object code and documentation, if any.

“Program” means the Original Program and Contributions.

“Recipient” means anyone who receives the Program under this Agreement, including all Contributors.

2. GRANT OF RIGHTS

1. Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free copyright license to reproduce, prepare derivative works of, publicly display, publicly perform, distribute and sublicense the Contribution of such Contributor, if any, and such derivative works, in source code and object code form. 2. Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell, offer to sell, import and otherwise transfer the Contribution of such Contributor, if any, in source code and object code form. This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the Licensed Patents. The patent license shall not apply to any other combinations which include the Contribution. No hardware per se is licensed hereunder. 3. Recipient understands that although each Contributor grants the licenses to its Contributions set forth herein, no assurances are provided by any Contributor that the Program does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to Recipient for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, each Recipient hereby assumes sole responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow Recipient to distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program. 4. Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant the copyright license set forth in this Agreement.

3. REQUIREMENTS

A Contributor may choose to distribute the Program in object code form under its own license agreement, provided that:

1. it complies with the terms and conditions of this Agreement; and 2. its license agreement: 1. effectively disclaims on behalf of all Contributors all warranties and conditions, express and implied, including warranties or conditions of title and non-infringement, and implied warranties or conditions of merchantability and fitness for a particular purpose; 2. effectively excludes on behalf of all Contributors all liability for damages, including direct, indirect, special, incidental and consequential damages, such as lost profits; 3. states that any provisions which differ from this Agreement are offered by that Contributor alone and not by any other party; and 2. 4. states that source code for the Program is available from such Contributor, and informs licensees how to obtain it in a reasonable manner on or through a medium customarily used for software exchange.

When the Program is made available in source code form:

1. it must be made available under this Agreement; and 2. a copy of this Agreement must be included with each copy of the Program.

Each Contributor must include the following in a conspicuous location in the Program:

Copyright © 1996, 1999 International Business Machines Corporation and others. All Rights Reserved.

In addition, each Contributor must identify itself as the originator of its Contribution, if any, in a manner that reasonably allows subsequent Recipients to identify the originator of the Contribution.

4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities with respect to end users,

business partners and the like. While this license is intended to facilitate the commercial use of the Program, the Contributor who includes the Program in a commercial product offering should do so in a manner which does not create potential liability for other Contributors. Therefore, if a Contributor includes the Program in a commercial product offering, such Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the Program in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense.

For example, a Contributor might include the Program in a commercial product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement, including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations.

6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this Agreement, and without further action by the parties hereto, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

If Recipient institutes patent litigation against a Contributor with respect to a patent applicable to software (including a cross-claim or counterclaim in a lawsuit), then any patent licenses granted by that Contributor to such Recipient under this Agreement shall terminate as of the date such litigation is filed.

In addition, if Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed. All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive.

IBM may publish new versions (including revisions) of this Agreement from time to time. Each new version of the Agreement will be given a distinguishing version number. The Program (including Contributions) may always be distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to distribute the Program (including its Contributions) under the new version. No one other than IBM has the right to modify this Agreement. Except as expressly stated in Sections 2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly, by implication, estoppel or otherwise. All rights in the Program not expressly granted under this Agreement are reserved.

This Agreement is governed by the laws of the State of New York and the intellectual property laws of the United States of America. No party to this Agreement will bring a legal action under this Agreement more than one year after the cause of action arose. Each party waives its rights to a jury trial in any resulting litigation.

Part of the software embedded in this product is gSOAP software.

Portions created by gSOAP are Copyright © 2001-2009 Robert A. van Engelen, Genivia inc. All Rights Reserved.

THE SOFTWARE IN THIS PRODUCT WAS IN PART PROVIDED BY GENIVIA INC AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

1. This LICENSE AGREEMENT is between the Corporation for National Research Initiatives, having an office at 1895 Preston White Drive, Reston, VA 20191 ("CNRI"), and the Individual or Organization ("Licensee") accessing and using JPython version 1.1.x in source or binary form and its associated documentation as provided herein ("Software").

2. Subject to the terms and conditions of this License Agreement, CNRI hereby grants Licensee a non-exclusive, non-transferable, royalty-free, world-wide license to reproduce, analyze, test, perform and/or display publicly, prepare derivative works, distribute, and otherwise use the Software alone or in any

derivative version, provided, however, that CNRI's License Agreement and CNRI's notice of copyright, i.e., "Copyright © 1996-1999 Corporation for National Research Initiatives; All Rights Reserved" are both retained in the Software, alone or in any derivative version prepared by Licensee. Alternatively, in lieu of CNRI's License Agreement, Licensee may substitute the following text (omitting the quotes), provided, however, that such text is displayed prominently in the Software alone or in any derivative version prepared by Licensee: "JPython (Version 1.1.x) is made available subject to the terms and conditions in CNRI's License Agreement. This Agreement may be located on the Internet using the following unique, persistent identifier (known as a handle): 1895.22/1006. The License may also be obtained from a proxy server on the Web using the following URL: <http://hdl.handle.net/1895.22/1006>."

3. In the event Licensee prepares a derivative work that is based on or incorporates the Software or any part thereof, and wants to make the derivative work available to the public as provided herein, then Licensee hereby agrees to indicate in any such work, in a prominently visible way, the nature of the modifications made to CNRI's Software.

4. Licensee may not use CNRI trademarks or trade name, including JPython or CNRI, in a trademark sense to endorse or promote products or services of Licensee, or any third party. Licensee may use the mark JPython in connection with Licensee's derivative versions that are based on or incorporate the Software, but only in the form "JPython-based _____," or equivalent.

5. CNRI is making the Software available to Licensee on an "AS IS" basis. CNRI MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, CNRI MAKES NO AND DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF THE SOFTWARE WILL NOT INFRINGE ANY THIRD PARTY RIGHTS.

6. CNRI SHALL NOT BE LIABLE TO LICENSEE OR OTHER USERS OF THE SOFTWARE FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSS AS A RESULT OF USING, MODIFYING OR DISTRIBUTING THE SOFTWARE, OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF. SOME STATES DO NOT ALLOW THE LIMITATION OR EXCLUSION OF LIABILITY SO THE ABOVE DISCLAIMER MAY NOT APPLY TO LICENSEE.

7. This License Agreement may be terminated by CNRI (i) immediately upon written notice from CNRI of any material breach by the Licensee, if the nature of the breach is such that it cannot be promptly remedied; or (ii) sixty (60) days following notice from CNRI to Licensee of a material remediable breach, if Licensee has not remedied such breach within that sixty-day period.

8. This License Agreement shall be governed by and interpreted in all respects by the law of the State of Virginia, excluding conflict of law provisions. Nothing in this Agreement shall be deemed to create any relationship of agency, partnership, or joint venture between CNRI and Licensee.

9. By clicking on the "ACCEPT" button where indicated, or by installing, copying or otherwise using the Software, Licensee agrees to be bound by the terms and conditions of this License Agreement.

Copyright 1989, 1991, 1992 by Carnegie Mellon University

Derivative Work – 1996, 1998-2000 Copyright 1996, 1998-2000 The Regents of the University of California

All Rights Reserved

Permission to use, copy, modify and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appears in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of CMU and The Regents of the University of California not be used in advertising or publicity pertaining to distribution of the software without specific written permission.

CMU AND THE REGENTS OF THE UNIVERSITY OF CALIFORNIA DISCLAIM ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL CMU OR THE REGENTS OF THE UNIVERSITY OF CALIFORNIA BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM THE LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Redistribution and use in source and binary forms, with or without modification, are permitted (subject to the limitations in the disclaimer below) provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. * Neither the name of Copyright Holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

NO EXPRESS OR IMPLIED LICENSES TO ANY PARTY'S PATENT RIGHTS ARE GRANTED BY THIS LICENSE. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This program, "bzip2", the associated library "libbzip2", and all documentation, are copyright © 1996-2010 Julian R Seward. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
3. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
4. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Julian Seward, jseward@bzip.org
bzip2/libbzip2 version 1.0.6 of 6 September 2010

APPLE PUBLIC SOURCE LICENSE

Version 2.0 – August 6, 2003

Please read this License carefully before downloading this software. By downloading or using this software, you are agreeing to be bound by the terms of this License. If you do not or cannot agree to the terms of this License, please do not download or use the software.

1. General; Definitions. This License applies to any program or other work which Apple Computer, Inc. ("Apple") makes publicly available and which contains a notice placed by Apple identifying such program or work as "Original Code" and stating that it is subject to the terms of this Apple Public Source License version 2.0 ("License"). As used in this License:

1.1 "Applicable Patent Rights" mean: (a) in the case where Apple is the grantor of rights, (i) claims of patents that are now or hereafter acquired, owned by or assigned to Apple and (ii) that cover subject matter contained in the Original Code, but only to the extent necessary to use, reproduce and/or distribute the Original Code without infringement; and (b) in the case where You are the grantor of rights, (i) claims of patents that are now or hereafter acquired, owned by or assigned to You and (ii) that cover subject matter in Your Modifications, taken alone or in combination with Original Code.

1.2 "Contributor" means any person or entity that creates or contributes to the creation of Modifications.

1.3 “Covered Code” means the Original Code, Modifications, the combination of Original Code and any Modifications, and/or any respective portions thereof.

1.4 “Externally Deploy” means: (a) to sublicense, distribute or otherwise make Covered Code available, directly or indirectly, to anyone other than You; and/or (b) to use Covered Code, alone or as part of a Larger Work, in any way to provide a service, including but not limited to delivery of content, through electronic communication with a client other than You.

1.5 “Larger Work” means a work which combines Covered Code or portions thereof with code not governed by the terms of this License.

1.6 “Modifications” mean any addition to, deletion from, and/or change to, the substance and/or structure of the Original Code, any previous Modifications, the combination of Original Code and any previous Modifications, and/or any respective portions thereof. When code is released as a series of files, a Modification is: (a) any addition to or deletion from the contents of a file containing Covered Code; and/or (b) any new file or other representation of computer program statements that contains any part of Covered Code.

1.7 “Original Code” means (a) the Source Code of a program or other work as originally made available by Apple under this License, including the Source Code of any updates or upgrades to such programs or works made available by Apple under this License, and that has been expressly identified by Apple as such in the header file(s) of such work; and (b) the object code compiled from such Source Code and originally made available by Apple under this License.

1.8 “Source Code” means the human readable form of a program or other work that is suitable for making modifications to it, including all modules it contains, plus any associated interface definition files, scripts used to control compilation and installation of an executable (object code).

1.9 “You” or “Your” means an individual or a legal entity exercising rights under this License. For legal entities, “You” or “Your” includes any entity which controls, is controlled by, or is under common control with, You, where “control” means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of fifty percent (50%) or more of the outstanding shares or beneficial ownership of such entity.

2. Permitted Uses; Conditions & Restrictions. Subject to the terms and conditions of this License, Apple hereby grants You, effective on the date You accept this License and download the Original Code, a world-wide, royalty-free, non-exclusive license, to the extent of Apple’s Applicable Patent Rights and copyrights covering the Original Code, to do the following:

2.1 Unmodified Code. You may use, reproduce, display, perform, internally distribute within Your organization, and Externally Deploy verbatim, unmodified copies of the Original Code, for commercial or non-commercial purposes, provided that in each instance:

(a) You must retain and reproduce in all copies of Original Code the copyright and other proprietary notices and disclaimers of Apple as they appear in the Original Code, and keep intact all notices in the Original Code that refer to this License; and

(b) You must include a copy of this License with every copy of Source Code of Covered Code and

documentation You distribute or Externally Deploy, and You may not offer or impose any terms on such Source Code that alter or restrict this License or the recipients' rights hereunder, except as permitted under Section 6.

2.2 Modified Code. You may modify Covered Code and use, reproduce, display, perform, internally distribute within Your organization, and Externally Deploy Your Modifications and Covered Code, for commercial or non-commercial purposes, provided that in each instance You also meet all of these conditions:

(a) You must satisfy all the conditions of Section 2.1 with respect to the Source Code of the Covered Code;

(b) You must duplicate, to the extent it does not already exist, the notice in Exhibit A in each file of the Source Code of all Your Modifications, and cause the modified files to carry prominent notices stating that You changed the files and the date of any change; and

© If You Externally Deploy Your Modifications, You must make Source Code of all Your Externally Deployed Modifications either available to those to whom You have Externally Deployed Your Modifications, or publicly available. Source Code of Your Externally Deployed Modifications must be released under the terms set forth in this License, including the license grants set forth in Section 3 below, for as long as you Externally Deploy the Covered Code or twelve (12) months from the date of initial External Deployment, whichever is longer. You should preferably distribute the Source Code of Your Externally Deployed Modifications electronically (e.g. download from a web site).

2.3 Distribution of Executable Versions. In addition, if You Externally Deploy Covered Code (Original Code and/or Modifications) in object code, executable form only, You must include a prominent notice, in the code itself as well as in related documentation, stating that Source Code of the Covered Code is available under the terms of this License with information on how and where to obtain such Source Code.

2.4 Third Party Rights. You expressly acknowledge and agree that although Apple and each Contributor grants the licenses to their respective portions of the Covered Code set forth herein, no assurances are provided by Apple or any Contributor that the Covered Code does not infringe the patent or other intellectual property rights of any other entity. Apple and each Contributor disclaim any liability to You for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, You hereby assume sole responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow You to distribute the Covered Code, it is Your responsibility to acquire that license before distributing the Covered Code.

3. Your Grants. In consideration of, and as a condition to, the licenses granted to You under this License, You hereby grant to any person or entity receiving or distributing Covered Code under this License a non-exclusive, royalty-free, perpetual, irrevocable license, under Your Applicable Patent Rights and other intellectual property rights (other than patent) owned or controlled by You, to use, reproduce, display, perform, modify, sublicense, distribute and Externally Deploy Your Modifications of the same scope and extent as Apple's licenses under Sections 2.1 and 2.2 above.

4. Larger Works. You may create a Larger Work by combining Covered Code with other code not

governed by the terms of this License and distribute the Larger Work as a single product. In each such instance, You must make sure the requirements of this License are fulfilled for the Covered Code or any portion thereof.

5. Limitations on Patent License. Except as expressly stated in Section 2, no other patent rights, express or implied, are granted by Apple herein. Modifications and/or Larger Works may require additional patent licenses from Apple which Apple may grant in its sole discretion.

6. Additional Terms. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations and/or other rights consistent with the scope of the license granted herein ("Additional Terms") to one or more recipients of Covered Code. However, You may do so only on Your own behalf and as Your sole responsibility, and not on behalf of Apple or any Contributor. You must obtain the recipient's agreement that any such Additional Terms are offered by You alone, and You hereby agree to indemnify, defend and hold Apple and every Contributor harmless for any liability incurred by or claims asserted against Apple or such Contributor by reason of any such Additional Terms.

7. Versions of the License. Apple may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Once Original Code has been published under a particular version of this License, You may continue to use it under the terms of that version. You may also choose to use such Original Code under the terms of any subsequent version of this License published by Apple. No one other than Apple has the right to modify the terms applicable to Covered Code created under this License.

8. NO WARRANTY OR SUPPORT. The Covered Code may contain in whole or in part pre-release, untested, or not fully tested works. The Covered Code may contain errors that could cause failures or loss of data, and may be incomplete or contain inaccuracies. You expressly acknowledge and agree that use of the Covered Code, or any portion thereof, is at Your sole and entire risk. THE COVERED CODE IS PROVIDED "AS IS" AND WITHOUT WARRANTY, UPGRADES OR SUPPORT OF ANY KIND AND APPLE AND APPLE'S LICENSOR (COLLECTIVELY REFERRED TO AS "APPLE" FOR THE PURPOSES OF SECTIONS 8 AND 9) AND ALL CONTRIBUTORS EXPRESSLY DISCLAIM ALL WARRANTIES AND/OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES AND/OR CONDITIONS OF MERCHANTABILITY, OF SATISFACTORY QUALITY, OF FITNESS FOR A PARTICULAR PURPOSE, OF ACCURACY, OF QUIET ENJOYMENT, AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. APPLE AND EACH CONTRIBUTOR DOES NOT WARRANT AGAINST INTERFERENCE WITH YOUR ENJOYMENT OF THE COVERED CODE, THAT THE FUNCTIONS CONTAINED IN THE COVERED CODE WILL MEET YOUR REQUIREMENTS, THAT THE OPERATION OF THE COVERED CODE WILL BE UNINTERRUPTED OR ERROR-FREE, OR THAT DEFECTS IN THE COVERED CODE WILL BE CORRECTED. NO ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY APPLE, AN APPLE AUTHORIZED REPRESENTATIVE OR ANY CONTRIBUTOR SHALL CREATE A WARRANTY. You acknowledge that the Covered Code is not intended for use in the operation of nuclear facilities, aircraft navigation, communication systems, or air traffic control machines in which case the failure of the Covered Code could lead to death, personal injury, or severe physical or environmental damage.

9. LIMITATION OF LIABILITY. TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT SHALL APPLE OR ANY CONTRIBUTOR BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR RELATING TO THIS LICENSE OR YOUR USE OR INABILITY TO USE THE COVERED CODE, OR ANY PORTION THEREOF, WHETHER UNDER A

THEORY OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), PRODUCTS LIABILITY OR OTHERWISE, EVEN IF APPLE OR SUCH CONTRIBUTOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND NOTWITHSTANDING THE FAILURE OF ESSENTIAL PURPOSE OF ANY REMEDY. SOME JURISDICTIONS DO NOT ALLOW THE LIMITATION OF LIABILITY OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS LIMITATION MAY NOT APPLY TO YOU. In no event shall Apple's total liability to You for all damages (other than as may be required by applicable law) under this License exceed the amount of fifty dollars (\$50.00).

10. Trademarks. This License does not grant any rights to use the trademarks or trade names "Apple", "Apple Computer", "Mac", "Mac OS", "QuickTime", "QuickTime Streaming Server" or any other trademarks, service marks, logos or trade names belonging to Apple (collectively "Apple Marks") or to any trademark, service mark, logo or trade name belonging to any Contributor. You agree not to use any Apple Marks in or as part of the name of products derived from the Original Code or to endorse or promote products derived from the Original Code other than as expressly permitted by and in strict compliance at all times with Apple's third party trademark usage guidelines which are posted at <http://www.apple.com/legal/guidelinesfor3rdparties.html>.

11. Ownership. Subject to the licenses granted under this License, each Contributor retains all rights, title and interest in and to any Modifications made by such Contributor. Apple retains all rights, title and interest in and to the Original Code and any Modifications made by or on behalf of Apple ("Apple Modifications"), and such Apple Modifications will not be automatically subject to this License. Apple may, at its sole discretion, choose to license such Apple Modifications under this License, or on different terms from those contained in this License or may choose not to license them at all.

12. Termination.

12.1 Termination. This License and the rights granted hereunder will terminate:

(a) automatically without notice from Apple if You fail to comply with any term(s) of this License and fail to cure such breach within 30 days of becoming aware of such breach;

(b) immediately in the event of the circumstances described in Section 13.5(b); or

© automatically without notice from Apple if You, at any time during the term of this License, commence an action for patent infringement against Apple; provided that Apple did not first commence an action for patent infringement against You in that instance.

12.2 Effect of Termination. Upon termination, You agree to immediately stop any further use, reproduction, modification, sublicensing and distribution of the Covered Code. All sublicenses to the Covered Code which have been properly granted prior to termination shall survive any termination of this License. Provisions which, by their nature, should remain in effect beyond the termination of this License shall survive, including but not limited to Sections 3, 5, 8, 9, 10, 11, 12.2 and 13. No party will be liable to any other for compensation, indemnity or damages of any sort solely as a result of terminating this License in accordance with its terms, and termination of this License will be without prejudice to any other right or remedy of any party.

13. Miscellaneous.

13.1 Government End Users. The Covered Code is a “commercial item” as defined in FAR 2.101. Government software and technical data rights in the Covered Code include only those rights customarily provided to the public as defined in this License. This customary commercial license in technical data and software is provided in accordance with FAR 12.211 (Technical Data) and 12.212 (Computer Software) and, for Department of Defense purchases, DFAR 252.227-7015 (Technical Data — Commercial Items) and 227.7202-3 (Rights in Commercial Computer Software or Computer Software Documentation). Accordingly, all U.S. Government End Users acquire Covered Code with only those rights set forth herein.

13.2 Relationship of Parties. This License will not be construed as creating an agency, partnership, joint venture or any other form of legal association between or among You, Apple or any Contributor, and You will not represent to the contrary, whether expressly, by implication, appearance or otherwise.

13.3 Independent Development. Nothing in this License will impair Apple’s right to acquire, license, develop, have others develop for it, market and/or distribute technology or products that perform the same or similar functions as, or otherwise compete with, Modifications, Larger Works, technology or products that You may develop, produce, market or distribute.

13.4 Waiver; Construction. Failure by Apple or any Contributor to enforce any provision of this License will not be deemed a waiver of future enforcement of that or any other provision. Any law or regulation which provides that the language of a contract shall be construed against the drafter will not apply to this License.

13.5 Severability. (a) If for any reason a court of competent jurisdiction finds any provision of this License, or portion thereof, to be unenforceable, that provision of the License will be enforced to the maximum extent permissible so as to effect the economic benefits and intent of the parties, and the remainder of this License will continue in full force and effect. (b) Notwithstanding the foregoing, if applicable law prohibits or restricts You from fully and/or specifically complying with Sections 2 and/or 3 or prevents the enforceability of either of those Sections, this License will immediately terminate and You must immediately discontinue any use of the Covered Code and destroy all copies of it that are in your possession or control.

13.6 Dispute Resolution. Any litigation or other dispute resolution between You and Apple relating to this License shall take place in the Northern District of California, and You and Apple hereby consent to the personal jurisdiction of, and venue in, the state and federal courts within that District with respect to this License. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded.

13.7 Entire Agreement; Governing Law. This License constitutes the entire agreement between the parties with respect to the subject matter hereof. This License shall be governed by the laws of the United States and the State of California, except that body of California law concerning conflicts of law.

Where You are located in the province of Quebec, Canada, the following clause applies: The parties hereby confirm that they have requested that this License and all related documents be drafted in English. Les parties ont exigé que le présent contrat et tous les documents connexes soient rédigés en anglais.

EXHIBIT A.

“Portions Copyright © 1999-2003 Apple Computer, Inc. All Rights Reserved.

This file contains Original Code and/or Modifications of Original Code as defined in and that are subject to the Apple Public Source License Version 2.0 (the ‘License’). You may not use this file except in compliance with the License. Please obtain a copy of the License at <http://www.opensource.apple.com/apsl/> and read it before using this file.

The Original Code and all software distributed under the License are distributed on an ‘AS IS’ basis, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, AND APPLE HEREBY DISCLAIMS ALL SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT OR NON-INFRINGEMENT. Please see the License for the specific language governing rights and limitations under the License.”

Apache License Version 2.0, January 2004 <http://www.apache.org/licenses/> TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions. “License” shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document. “Licensor” shall mean the copyright owner or entity authorized by the copyright owner that is granting the License. “Legal Entity” shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, “control” means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity. “You” (or “Your”) shall mean an individual or Legal Entity exercising permissions granted by this License. “Source” form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files. “Object” form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types. “Work” shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below). “Derivative Works” shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof. “Contribution” shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, “submitted” means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as “Not a Contribution.” “Contributor” shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-

charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions: (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and (b) You must cause any modified files to carry prominent notices stating that You changed the files; and © You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and (d) If the Work includes a “NOTICE” text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License. You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an “AS IS” BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole

responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability. END OF TERMS AND CONDITIONS

```
/* ===== * The Apache
Software License, Version 1.1 * Copyright © 2000 The Apache Software Foundation. All rights *
reserved. * * Redistribution and use in source and binary forms, with or without * modification, are
permitted provided that the following conditions * are met: * * 1. Redistributions of source code must
retain the above copyright * notice, this list of conditions and the following disclaimer. * * 2.
Redistributions in binary form must reproduce the above copyright * notice, this list of conditions and the
following disclaimer in * the documentation and/or other materials provided with the * distribution. * * 3.
The end-user documentation included with the redistribution, * if any, must include the following
acknowledgment: * "This product includes software developed by the * Apache Software Foundation
(http://www.apache.org/)." * Alternately, this acknowledgment may appear in the software itself, * if and
wherever such third-party acknowledgments normally appear. * * 4. The names "Apache" and "Apache
Software Foundation" must * not be used to endorse or promote products derived from this * software
without prior written permission. For written * permission, please contact apache@apache.org. * * 5.
Products derived from this software may not be called "Apache", * nor may "Apache" appear in their
name, without prior written * permission of the Apache Software Foundation. * * THIS SOFTWARE IS
PROVIDED ``AS IS'' AND ANY EXPRESSED OR IMPLIED * WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES * OF MERCHANTABILITY AND FITNESS FOR A
PARTICULAR PURPOSE ARE * DISCLAIMED. IN NO EVENT SHALL THE APACHE SOFTWARE
FOUNDATION OR * ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, *
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT * LIMITED TO,
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF * USE, DATA, OR PROFITS;
OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND * ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT LIABILITY, * OR TORT (INCLUDING NEGLIGENCE OR
OTHERWISE) ARISING IN ANY WAY OUT * OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF * SUCH DAMAGE. *
```

=====

All rights reserved.

Redistribution and use in any form of this material and any product thereof including software in source or binary forms, along with any related documentation, with or without modification ("this material"), is permitted provided that the following conditions are met:

Redistributions of source code of any software must retain the above copyright notice and all terms of this license as part of the code. Redistributions in binary form of any software must reproduce the above copyright notice and all terms of this license in any related documentation and/or other materials. Neither the names nor trademarks of Advanced Micro Devices, Inc. or any copyright holders or contributors may be used to endorse or promote products derived from this material without specific prior written permission. Notice about U.S. Government restricted rights: This material is provided with "RESTRICTED RIGHTS." Use, duplication or disclosure by the U.S. Government is subject to the full extent of restrictions set forth in FAR52.227 and DFARS252.227 et seq., or any successor or applicable regulations. Use of this material by the U.S. Government constitutes acknowledgment of the proprietary rights of Advanced Micro Devices, Inc. and any copyright holders and contributors. ANY BREACH OF ANY TERM OF THIS LICENSE SHALL RESULT IN THE IMMEDIATE REVOCATION OF ALL RIGHTS TO REDISTRIBUTE, ACCESS OR USE THIS

MATERIAL.

THIS MATERIAL IS PROVIDED BY ADVANCED MICRO DEVICES, INC. AND ANY COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" IN ITS CURRENT CONDITION AND WITHOUT ANY REPRESENTATIONS, GUARANTEE, OR WARRANTY OF ANY KIND OR IN ANY WAY RELATED TO SUPPORT, INDEMNITY, ERROR FREE OR UNINTERRUPTED OPERATION, OR THAT IT IS FREE FROM DEFECTS OR VIRUSES. ALL OBLIGATIONS ARE HEREBY DISCLAIMED – WHETHER EXPRESS, IMPLIED, OR STATUTORY – INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, ACCURACY, COMPLETENESS, OPERABILITY, QUALITY OF SERVICE, OR NON-INFRINGEMENT. IN NO EVENT SHALL ADVANCED MICRO DEVICES, INC. OR ANY COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, REVENUE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED OR BASED ON ANY THEORY OF LIABILITY ARISING IN ANY WAY RELATED TO THIS MATERIAL, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. THE ENTIRE AND AGGREGATE LIABILITY OF ADVANCED MICRO DEVICES, INC. AND ANY COPYRIGHT HOLDERS AND CONTRIBUTORS SHALL NOT EXCEED TEN DOLLARS (US \$10.00). ANYONE REDISTRIBUTING OR ACCESSING OR USING THIS MATERIAL ACCEPTS THIS ALLOCATION OF RISK AND AGREES TO RELEASE ADVANCED MICRO DEVICES, INC. AND ANY COPYRIGHT HOLDERS AND CONTRIBUTORS FROM ANY AND ALL LIABILITIES, OBLIGATIONS, CLAIMS, OR DEMANDS IN EXCESS OF TEN DOLLARS (US \$10.00). THE FOREGOING ARE ESSENTIAL TERMS OF THIS LICENSE AND, IF ANY OF THESE TERMS ARE CONSTRUED AS UNENFORCEABLE, FAIL IN ESSENTIAL PURPOSE, OR BECOME VOID OR DETRIMENTAL TO ADVANCED MICRO DEVICES, INC. OR ANY COPYRIGHT HOLDERS OR CONTRIBUTORS FOR ANY REASON, THEN ALL RIGHTS TO REDISTRIBUTE, ACCESS OR USE THIS MATERIAL SHALL TERMINATE IMMEDIATELY. MOREOVER, THE FOREGOING SHALL SURVIVE ANY EXPIRATION OR TERMINATION OF THIS LICENSE OR ANY AGREEMENT OR ACCESS OR USE RELATED TO THIS MATERIAL.

NOTICE IS HEREBY PROVIDED, AND BY REDISTRIBUTING OR ACCESSING OR USING THIS MATERIAL SUCH NOTICE IS ACKNOWLEDGED, THAT THIS MATERIAL MAY BE SUBJECT TO RESTRICTIONS UNDER THE LAWS AND REGULATIONS OF THE UNITED STATES OR OTHER COUNTRIES, WHICH INCLUDE BUT ARE NOT LIMITED TO, U.S. EXPORT CONTROL LAWS SUCH AS THE EXPORT ADMINISTRATION REGULATIONS AND NATIONAL SECURITY CONTROLS AS DEFINED THEREUNDER, AS WELL AS STATE DEPARTMENT CONTROLS UNDER THE U.S. MUNITIONS LIST. THIS MATERIAL MAY NOT BE USED, RELEASED, TRANSFERRED, IMPORTED, EXPORTED AND/OR RE-EXPORTED IN ANY MANNER PROHIBITED UNDER ANY APPLICABLE LAWS, INCLUDING U.S. EXPORT CONTROL LAWS REGARDING SPECIFICALLY DESIGNATED PERSONS, COUNTRIES AND NATIONALS OF COUNTRIES SUBJECT TO NATIONAL SECURITY CONTROLS. MOREOVER, THE FOREGOING SHALL SURVIVE ANY EXPIRATION OR TERMINATION OF ANY LICENSE OR AGREEMENT OR ACCESS OR USE RELATED TO THIS MATERIAL.

This license forms the entire agreement regarding the subject matter hereof and supersedes all proposals and prior discussions and writings between the parties with respect thereto. This license does not affect any ownership, rights, title, or interest in, or relating to, this material. No terms of this license can be modified or waived, and no breach of this license can be excused, unless done so in a writing signed by all affected parties. Each term of this license is separately enforceable. If any term of this

license is determined to be or becomes unenforceable or illegal, such term shall be reformed to the minimum extent necessary in order for this license to remain in effect in accordance with its terms as modified by such reformation. This license shall be governed by and construed in accordance with the laws of the State of Texas without regard to rules on conflicts of law of any state or jurisdiction or the United Nations Convention on the International Sale of Goods. All disputes arising out of this license shall be subject to the jurisdiction of the federal and state courts in Austin, Texas, and all defenses are hereby waived concerning personal jurisdiction and venue of these courts.

Copyrights mentions:

Copyright © 2002-2007 Charlie Poole

Copyright © 2002-2004 James W. Newkirk, Michael C. Two, Alexei A. Vorontsov

Copyright © 2000-2002 Philip A. Craig

Copyright 1992-2012 The FreeBSD Project. All rights reserved.

Copyright © 2008 The NetBSD Foundation, Inc.

Copyright 1989, 1991, 1992 by Carnegie Mellon University

this software is based in part on the work of the Independent JPEG Group

Copyright © 1996-1999 Corporation for National Research Initiatives; All Rights Reserved

This product includes software from the Condor Project (<http://www.condorproject.org/>)

Copyright © 1998, 1999, 2000 Red Hat, Inc. All Rights Reserved

Copyright © 2006-2011 Ekioh Ltd.

Copyright © 2000 Carsten Haitzler and various contributors

Copyright © 2001 EU DataGrid. All rights reserved.

Copyright © 1998, 1999 Henry Spencer. All rights reserved.

Copyright © 2000- 2022 OCLC Online Computer Library Center, Inc. and other contributors. All rights reserved.

Copyright 1999-2003 The OpenLDAP Foundation, Redwood City, California, USA.

Copyright © 1998-2007 The OpenSSL Project. All rights reserved.

Copyright © 2008, 2014 Oracle and/or its affiliates. All rights reserved.

Copyright © 1984-1989, 1994 Adobe Systems Incorporated.

Copyright © 2003 Eric Anholt

Copyright © 2002 Apple Computer, Inc. All Rights Reserved.

Copyright © 2005 ASPEED Technology Inc.

Copyright © 1988 AT&T. All Rights Reserved.

Copyright © 1992 by Robert Baron

Copyright © 1996-1998 by David Bateman

Copyright © 1988 Bitstream, Inc., Cambridge, Massachusetts, USA

Copyright © 2001 by Stephen Blackheath

Copyright © 1993 by Jon Block

Copyright © 2000 Compaq Computer Corporation, Inc.

Copyright © 1998 by Concurrent Computer Corporation

Copyright © 1994-2000 by Robin Cutshaw

Copyright © 1992, 1993, 2002 by David Dawes

Copyright © 2000 by Egbert Eich

Copyright © 2002 by Paul Elliott

Copyright © 1987-1994 by Digital Equipment Corporation

Copyright © 1988 by Evans & Sutherland Computer Corporation. All Rights Reserved

Copyright © 1992, 1993, 1994 by FUJITSU LIMITED

Copyright © 2003 by Bryan W. Headley.

Copyright © 2000 by Richard A. Hecker, California, United States
Copyright © 2002 Hewlett Packard Company, Inc.
Copyright © 1997 Matthieu Herrb
Copyright © 2000 Christian Herzog
Copyright © 1999 by David Holland
Copyright © 1992-2004 by Alan Hourihane
Copyright © 2000 Roland Jansen
Copyright © 2001 by J. Kean Johnston
Copyright © 2000, 2001 Ani Joshi
Copyright © 2000 by Rainer Keller
Copyright © 1999-2003 by Peter Kunzmann, Citron GmbH, Germany.
Copyright © 1994 through 2008 by Marc Aurele La France (TSI UQV), tsixfree86.org
Copyright © 1996 by Steven Lang
Copyright © 1995, 1999 by Patrick Lecoanet, France.
Copyright © 2001 by Patrick LERDA
Copyright © 2000 Tuomas J. Lukka
Copyright © 2000-2001 by Sven Luther
Copyright © 2002, 2003 Torrey T. Lyons. All Rights Reserved.
Copyright © 1996, 1998 by Sebastien Marineau
Copyright © 1984-1989, 1991, 1993 Massachusetts Institute of Technology
Copyright © 1993 by David McCullough
Copyright © 1995-1998 Metro Link, Inc.
Copyright © MontaVista Software Inc.
Copyright © 1993, 1996, 1999 by Thomas Mueller
Copyright © 1992 by Rich Murphey
Copyright © 1993, 1994 NCR Corporation – Dayton, Ohio, USA
Copyright © 1989-1995 Network Computing Devices;
Copyright © 1990, 1991 by Nippon Telegraph and Telephone Corporation
Copyright © 1990, 1991 by NTT Software Corporation
Copyright © 1998 by Number Nine Visual Technology, Inc.
Copyright © 1990, 1991 by OMRON Corporation
Copyright © 1991 by the Open Software Foundation
Copyright © 1998-2002 Keith Packard
Copyright © 1997 Takis Psarogiannakopoulos, Cambridge, UK
Copyright © 1993 Quarterdeck Office Systems
Copyright © 2002 by Red Hat Inc.
Copyright © 1990,91 by Thomas Roell, Dinkelscherben, Germany.
Copyright © 1989 Dale Schumacher
Copyright © 1993-1997 by Silicon Graphics Computer Systems, Inc.
Copyright © 2002 Manish Singh
Copyright © 1993, 1994 by Sony Corporation
Copyright © 1988 SRI
Copyright © 1987, 1988, 1991, 1992, 2000 by Sun Microsystems, Inc. All Rights Reserved.
Copyright © 1999, 2000 SuSE, Inc.
Copyright © 2002 by SuSE Linux AG
Copyright © 1993-2005 by The XFree86 Project, Inc.
Copyright © 1999-2001 by Thomas Thanner, Citron GmbH, Germany.
Copyright © 1992, 1993 by TOSHIBA Corp.

Copyright © 1992 by Jim Tsillas

Copyright © 1997, 1998 by UCHIYAMA Yasushi

Copyright © 1990, 1991 UNIX System Laboratories, Inc. All Rights Reserved.

Copyright © 1994, 1996 by Holger Veit

Copyright © 1992 Vrije Universiteit, The Netherlands

Copyright © 1993 by David Wexelblat

Copyright © 2001-2004 Thomas Winischhofer, Vienna, Austria.

Copyright © 1993 by Thomas Wolfram, Berlin, Germany.

Copyright © 1996 X Consortium, Inc.

Copyright © 1998 by Kazutaka YOKOTA

Copyright © 1992 by Orest Zborowski

Copyright © 1991-2022 Unicode, Inc. All rights reserved.

Last modified: Mar 28, 2022

2. Alpana Designer

Alpana Designer is used to create the content of Alpana (Widgets, Dashboards, Data Sources). Drag and drop widgets into the interface and manipulate your data right away. The desktop application allows you full autonomy. Once the Dashboard ready, share with your colleagues through Alpana Server and start to collaborate.

Read below the documentation of Alpana Designer to learn more.

Last modified: Feb 17, 2022

2.1. Installation

Installation of Alpana Designer is light on resource and pretty straightforward.
Proceed to the next chapters to complete the installation.

Last modified: Feb 17, 2022

2.1.1. Pre-Requisites

This section explains the system requirements to run Alpana Designer.

Software Requirements

The following minimum software requirements are necessary to run Alpana Designer :

Operating System

Windows OS (x64) :

- Windows 10+
- Windows Server 2012R2+

Microsoft .NET Framework

Microsoft .NET Framework 4.8 must be installed.

An offline installer exists at the following direct link :

<https://dotnet.microsoft.com/download/dotnet-framework/thank-you/net48-offline-installer>

(Alternately, go to the [download page](#) then download the “Runtime”).)



Installing this component requires to restart the machine.

.NET 6.0

“ASP.NET hosting-bundle 6.0” and “.NET Desktop Runtime 6.0” must be installed.

Installers for latest v6.0.3 can be found at the direct link:

- [Hosting Bundle](#)
- [Desktop Runtime](#)



Both .net components must be installed

(Alternately, go to the [.NET 6.0 download page](#) and select version ASP.NET Core Runtime “Hosting Bundle” for Windows. and .NET Desktop Runtime 6.0)

Supported Browsers

Recent versions of Google Chrome, Firefox, Edge (only the recent “Chromium” versions of Microsoft Edge).

Hardware Requirements

The following minimum hardware requirements are necessary to run Alpana Designer, but more is better for bigger projects :

- Processor : Dual Core 64-bit CPU (x64)
- Hard disk : 1 GB, preferably SSD
- RAM : 2 GB, preferably more
- Accelerated graphics



Note : Graphic acceleration

Alpana Designer is a WPF application that requires accelerated graphics for best performance.

On a physical host this is enabled, but on virtual machines this is a dedicated setting (in VmWare, under “Settings>Display>Accelerate 3D graphics”)

Last modified: Apr 05, 2022

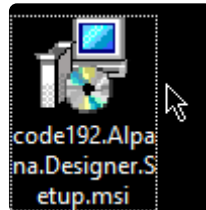
2.1.2. Installing Alpana Designer

Download installer

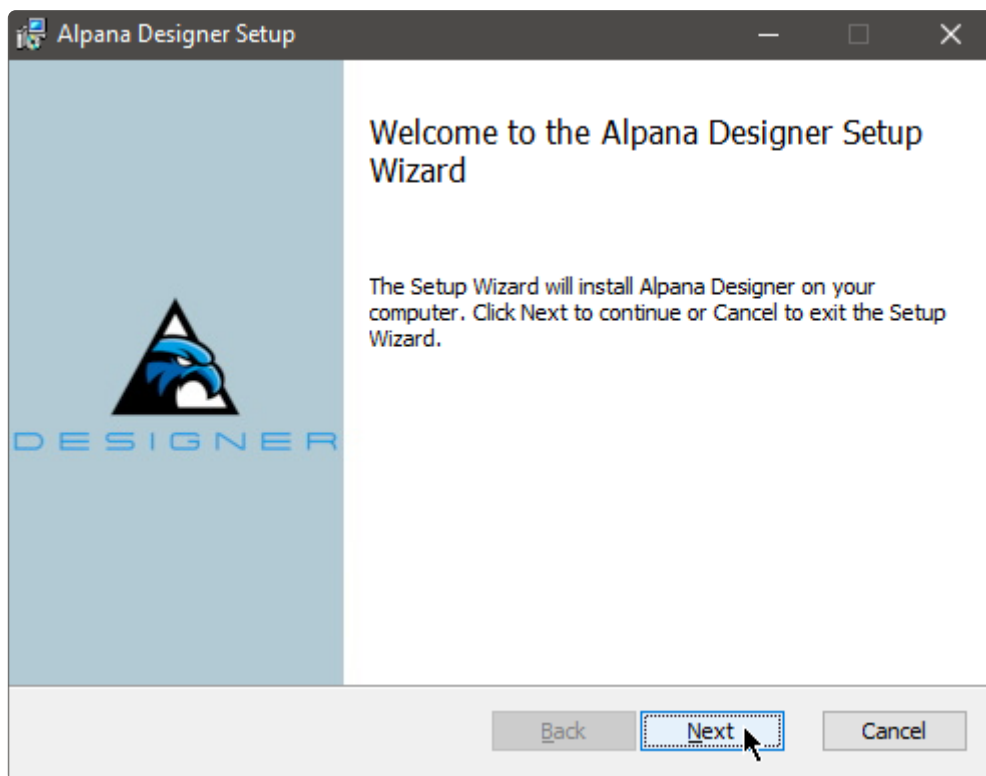
[See here to download the installer](#)

Run installer

Double-click the installer to start installation :

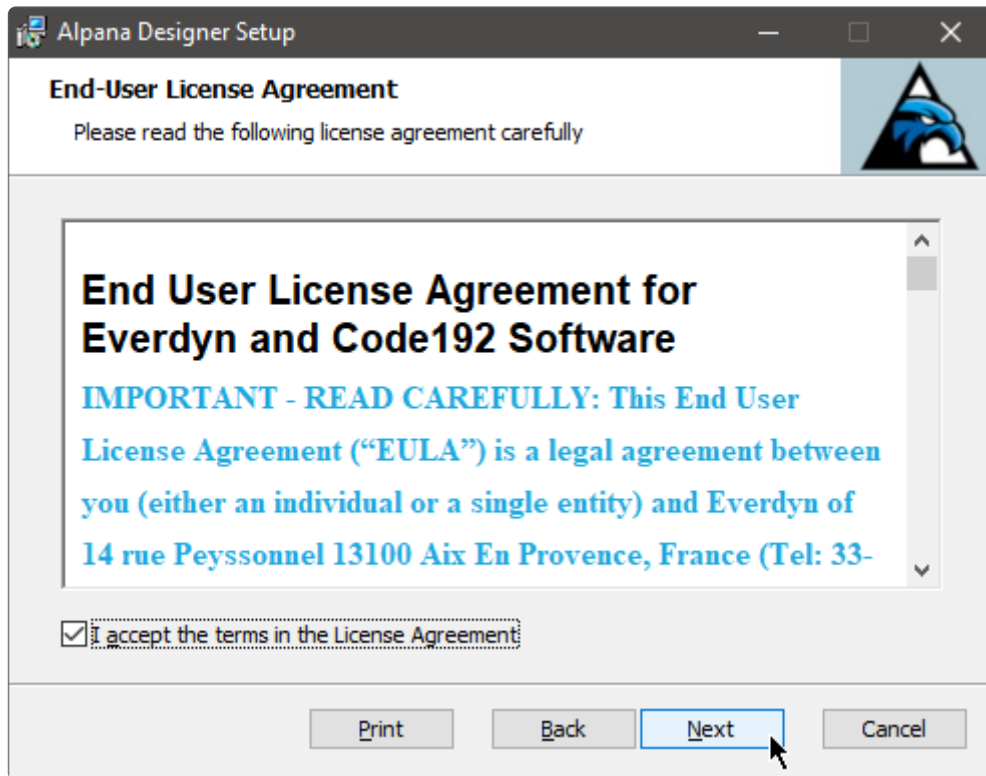


On the welcome screen, click *Next* to continue :



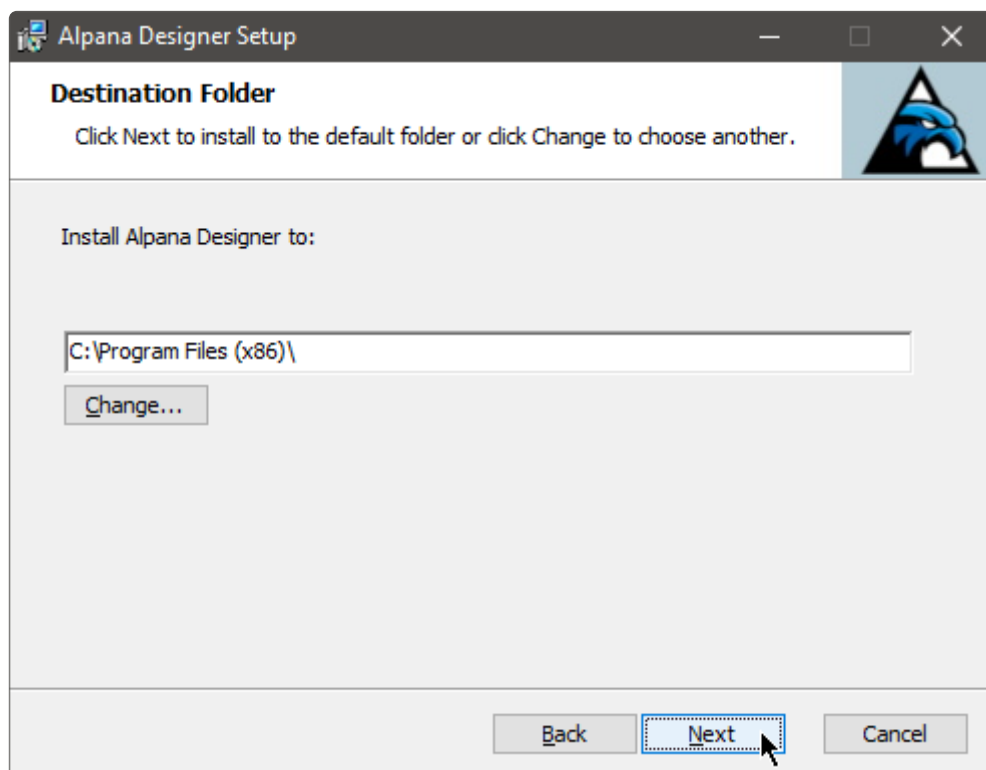
Accept EULA

Read and accept the license agreement, and click *Next* to continue :



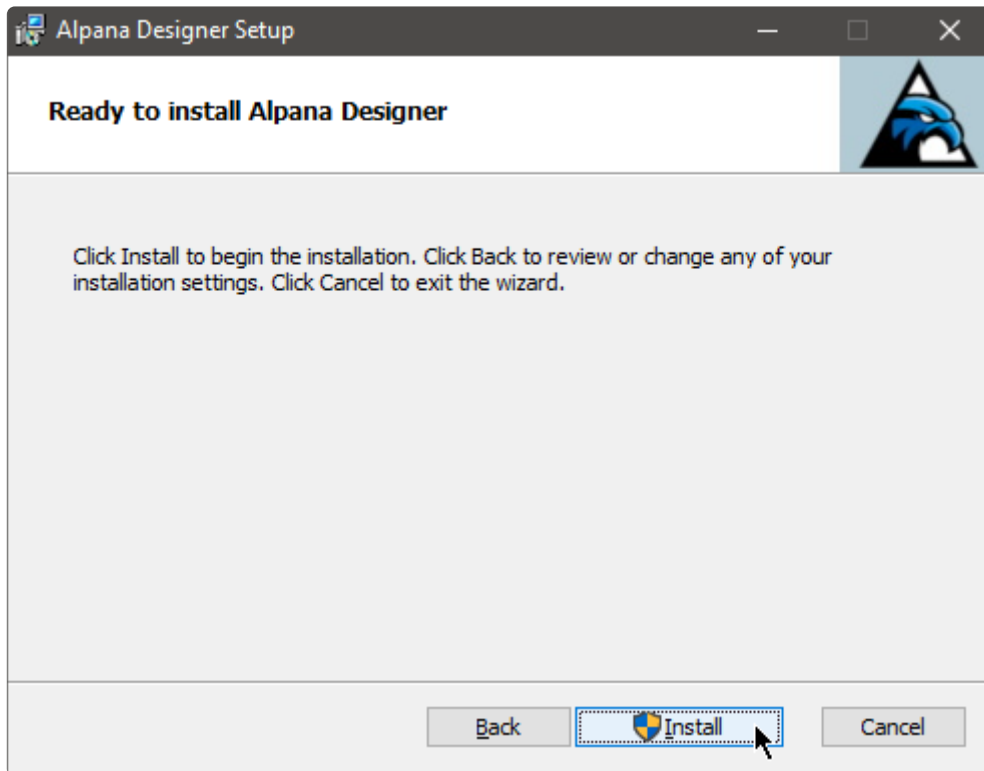
Install location

Validate the install location and click *Next* to continue :



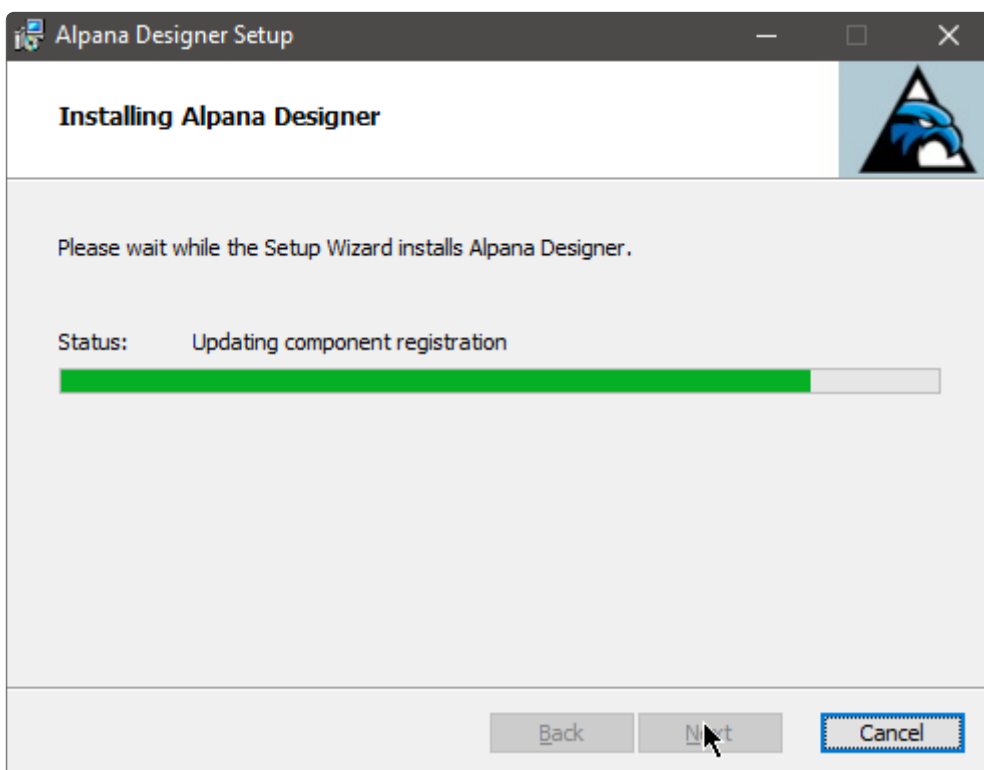
Start installation

Confirm the installation by clicking *Install*. You may be required to enter administrator credentials :



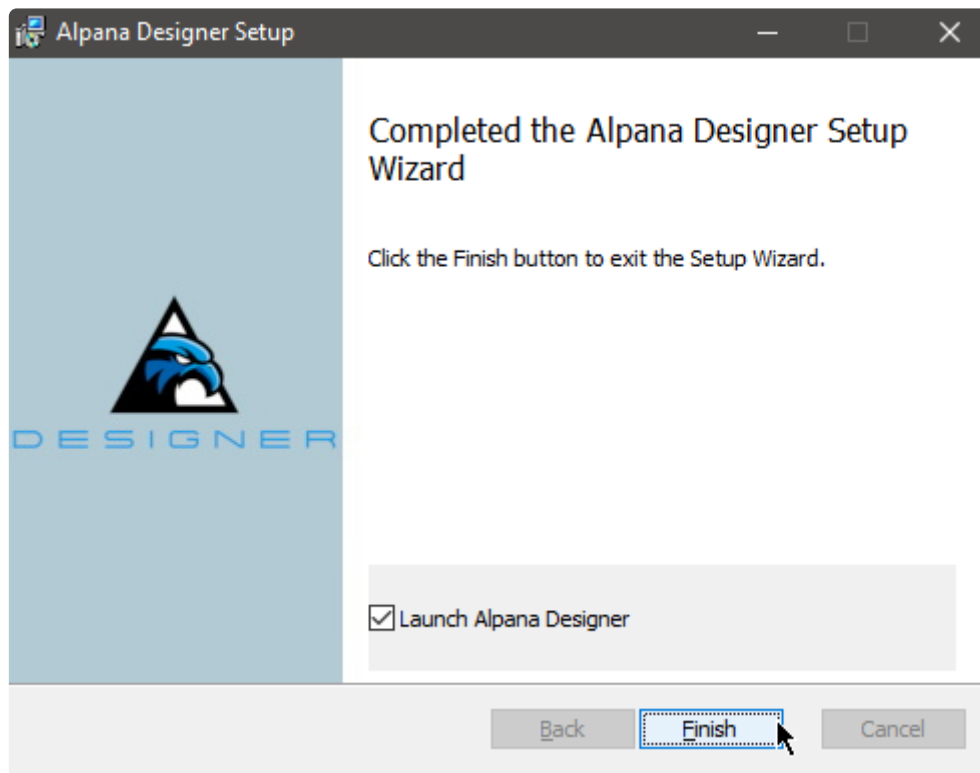
Wait

Wait for the installation to complete :



Complete

When the installation has completed, you can click *Finish* to exit the installer :



Last modified: Feb 17, 2022

2.1.3. Anti-virus and Firewall set up

Ports

Port 5001 must be available for Alpana Designer.

This is where the previews are running.

Anti-virus

Alpana Designer may make queries to external IP addresses (for fetching data from data sources, for example on port 1433 for SQL).

This may be detected as suspicious behavior by some security software.

For normal operation, you should let your security software allow this access to Alpana Designer.

Two processes may need to access external IP addresses :

`code192.Alpana.Designer.WPF.exe` : for the Data Source preview

`code192.Alpana.Designer.Preview.exe` : for the Widget previews

Last modified: Feb 17, 2022

2.1.4. Upgrading Alpana Designer

Upgrading Alpana Designer is straightforward :

1. [Un-install](#) any previous version of Alpana Designer.
2. [Run the new installer](#)

Last modified: Feb 17, 2022

2.1.5. Uninstalling Alpana Designer

To uninstall Alpana Designer, use *Windows Control Panel > Uninstall a Program* and select *Uninstall*.

Last modified: Feb 17, 2022

2.2. Troubleshooting

Troubleshooting Alpana Designer involves reading error messages from error logs.

To learn how to find those logs, see next.

Designer won't start after installation.

Depending of you installation, you may need to install

Visual C++ Redistributable component :

<https://www.microsoft.com/en-us/download/details.aspx?id=48145>

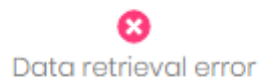
Last modified: Feb 17, 2022

2.2.1. Finding error logs

What are error logs

Alpana Designer can encounter errors while configuring Dashboards. For example if the desired query cannot be run at that moment.

For similar reasons, during a Dashboard Preview, a “Data Retrieval Error” can be displayed. Typically, this will show a *Data retrieval error* message in place of the Widget’s visuals :

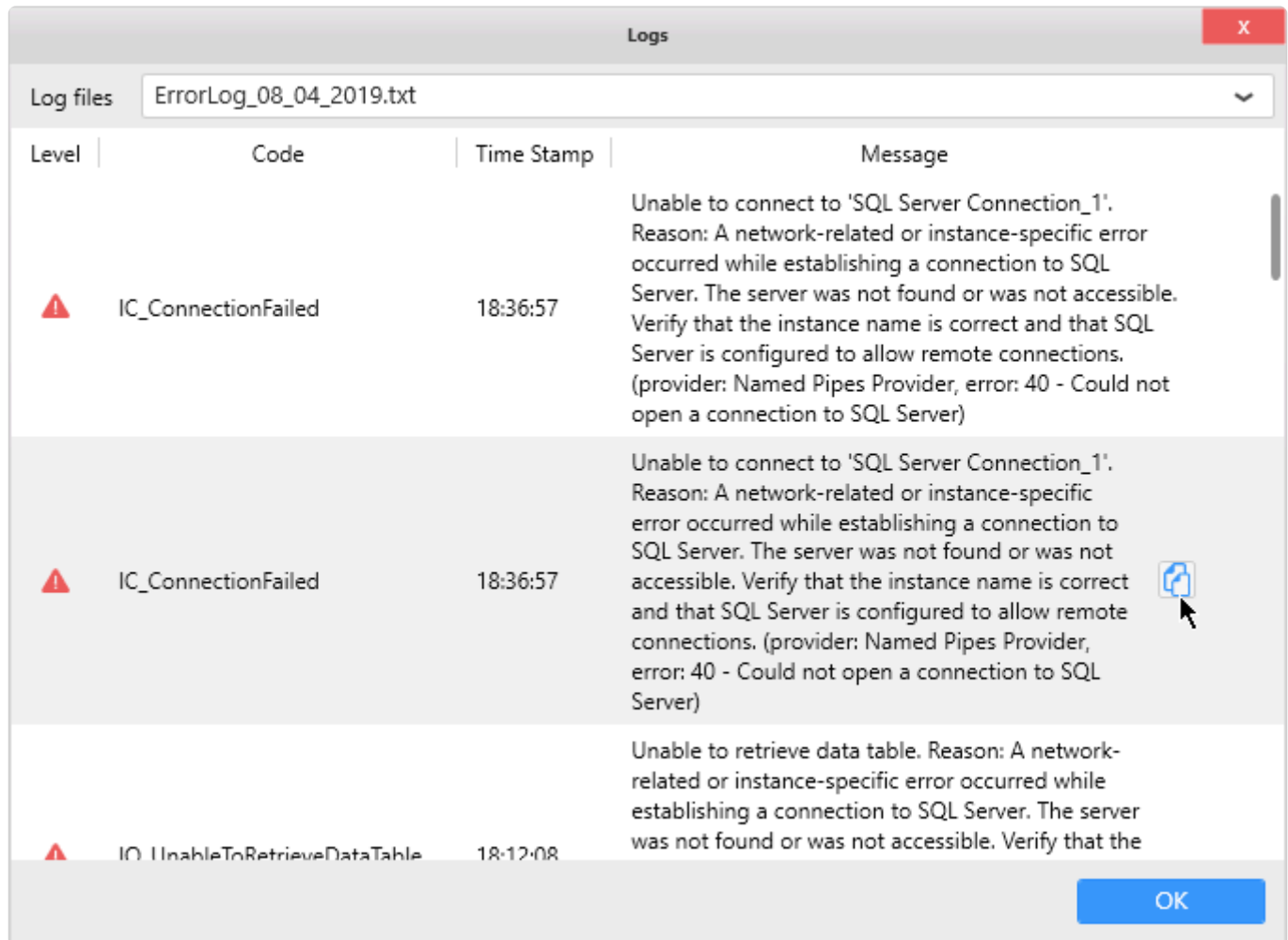


Browsing error logs easily

Since Alpana Designer v3.0, you can use a convenient browser for your error logs. Click on the following icon at the top of the Designer window :



Select an error log file to open (by default, the latest is open), and browse the list of errors for that day. You can also copy an error log to paste it into a ticket :



Where are error logs

In order to investigate and solve these errors, you can find the error log files at the following location on the machine where Alpana Designer is installed :

```
%localappdata%\code192\Alpana Platform\Alpana Designer\ (version number) \ErrorLogs\ErrorLog_*.txt
```



Tip :

To access the Local App Data folder, you can write the following in the location bar of Windows Explorer :

```
%localappdata%
```

Press enter and you will browse the desired location.

Usually, this folder is located at an address like C:\Users\ (your user name) \AppData\Local\

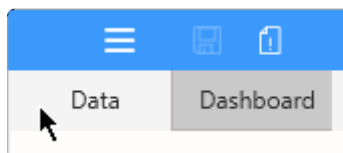
There is one ErrorLog_*.txt per day.

Last modified: Feb 17, 2022

2.3. Connecting to Data

Alpana Designer allows to connect to your data using *Connections*.
The current chapter describes this process.

Since Alpana Designer v3.0, all data preparation is made inside the *Data* activity tab.



Last modified: Feb 17, 2022

2.3.1. Alpana data model

Alpana Designer allows to access your data by providing a variety of **Connection** types. Once the appropriate credentials are validated, you will be able to navigate the data structure and retrieve the raw data.

Now, in order to feed your *Dashboard* with data, you will need to choose what data table from your *Connection* will become a **Data Source**.

In a basic workflow, this is enough. However, *Alpana Designer* lets you compose more complex preparation on your data when needed. For example, you can join tables together, including from multiple *Connections*, filter data, create Expressions, ...

Connections

What is a Connection

The **Connection** represents how you access the data :

- the Connection *type*, e.g. : Wonderware Historian, SQL Server, Excel, ...
- for server-based *Connections* : the *server address*
- for file-based *Connections* : the *file address*
- the necessary *credentials* : authentication mode, user name, password.

How Connections are managed in Alpana Designer

In *Alpana Designer*, you can :

- [Create a Connection](#)
- [Edit a Connection](#) to modify one of its parameters
- [Delete a Connection](#) to remove it from the current Dashboard

✿ A Dashboard can contain up to 30 connections.

Data Sources

What is a Data Source

The **Data Source** is a representation of your data that you prepared from your created *Connection(s)*. It's what your *Widgets* (and your *Dashboard*) see.

A *Data Source* can be created by adding one or more element from one or more *Connection(s)* and joining them together :

- a data Table
- a data View
- a Stored Procedure
- a Custom Query

On top of that, further data preparation can be made :

- [hiding or renaming columns](#) to simplify the Data Source usage
- [filtering](#) the *Data Source* to limit the data
- [creating Expressions](#) in order to make more complex calculations

How Data Sources are managed in Alpana

In *Alpana Designer*, you can fully [manage](#) and [export](#) Data sources.

Last modified: Feb 17, 2022

2.3.1.1. Note on data storage

Alpana generally doesn't replicate data.

Alpana Dashboards, Data Sources and Connections generally don't contain the data itself. They only contain information on how to query the data sources and prepare the data on the fly.
Each Dashboard contains the definition of the Data Sources and Connections that were created within.

There are some exceptions listed below :

Exceptions

Buffer

A slight exception is the Buffer : for bufferized Connections, the buffer temporarily holds the data from the latest query, but it is flushed on the next refresh.

For details, see the chapter on [The data buffer](#)

File-based Connections

For file-based Connections (Excel, CSV, ...), Alpana stores a copy of the source file.
This is to allow to continue displaying data even when the original file is not accessible.

When saving a Dashboard.alpd file, the file will contain a copy of all files from the dependent file-based Connections.
So if a dashboard is based only on file data, it can be re-opened in a different environment even without the original files.

When getting data for a file-based Connection, the workflow is :

1. if file exists at location defined in the Connection, query the file
2. else open file embarked withing the Dashboard.alpd file

Last modified: Feb 17, 2022

2.3.1.2. Redundant Connections

What are redundant Connections

Since v3.1.0, Alpana implements a redundancy mechanism on Connections that allows to store multiple connection configurations inside a single Connection.

Each connection configuration is defined by a set of parameters (database name, user name, etc...), called a *Parameter Set*.

This can be used in basically 3 types of scenarios :

1. Using different databases for design time and run time
2. Implementing a fail-over mechanism to keep Dashboards working even when the primary database is down
3. a combination of scenario 1 and 2

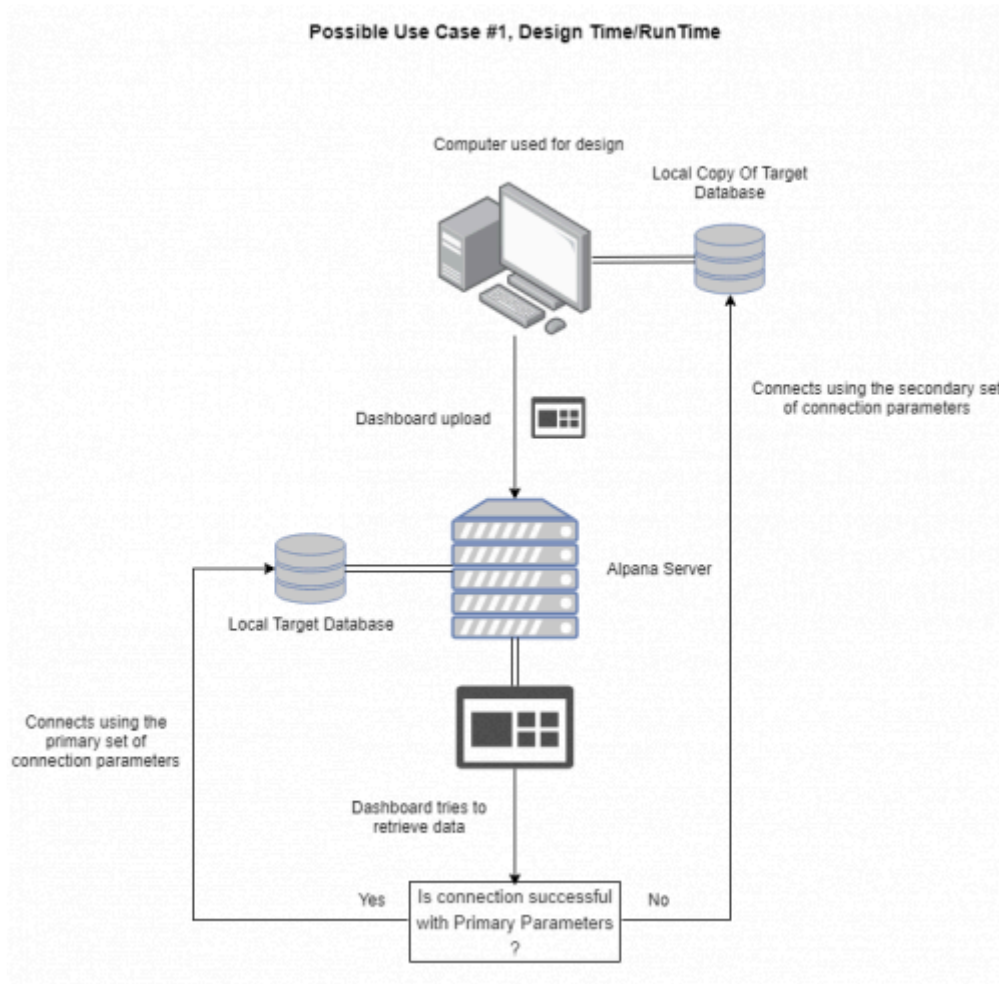
Scenario 1 : Design Time / Run Time

You can select a different Parameter Set for Alpana Designer and Alpana Server.

This is useful for example if the developer doesn't have access to the production database from the development machine, maybe because they are on a different network.

In this case, you can configure 2 different Parameter Sets :

1. one to work in the Designer by pointing on the local development database
2. one for the published Dashboards by pointing to the production database



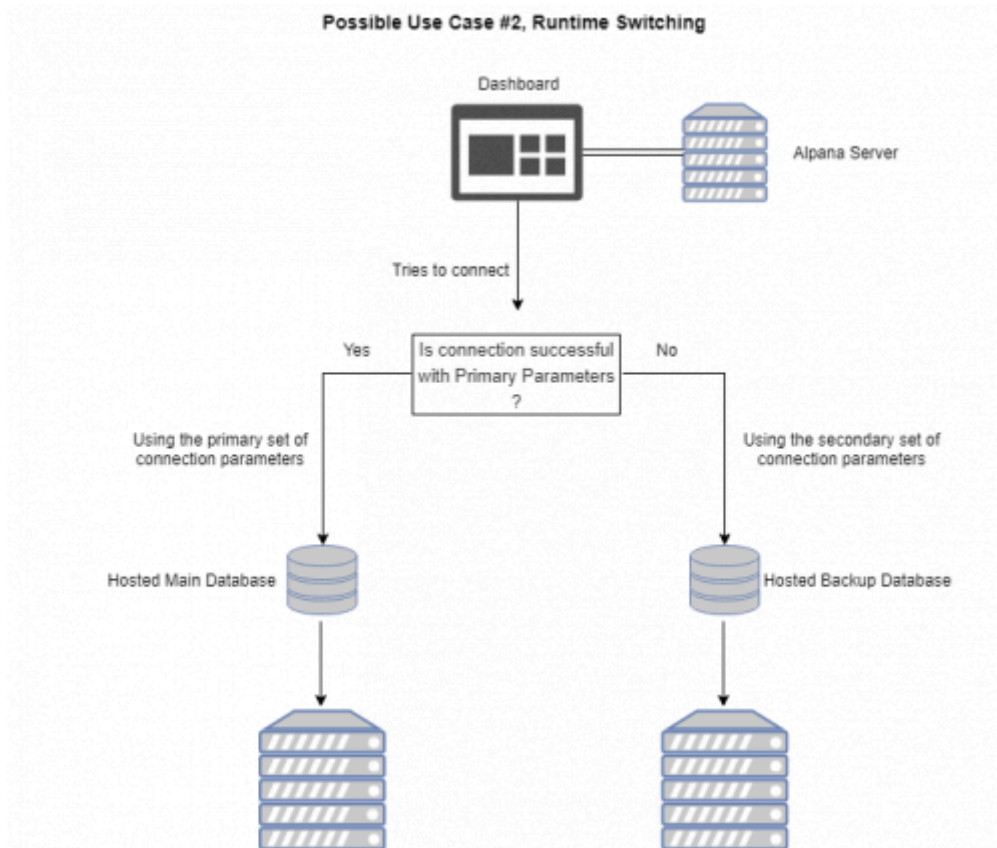
Scenario 2 : Database1 / Database2

The **Primary Parameter Set** is where Alpana will try to connect first.
If the connection fails, Alpana will use the **Secondary Parameter Set**.

This is useful for example to ensure that Dashboards can always get data, even when the main database is unavailable.

In this case, you can configure 2 different Parameter Sets :

1. one pointing to the main database
2. one pointing to the backup database



Scenario 3 : combine

You can create 3 parameter sets for handling both scenarios above :

1. Parameter Set 1 : primary development
2. Parameter Set 2 : primary production
3. Parameter Set 3 : backup production

Fallback Logic

When a primary connection fails, Alpana will check the next one in order until it succeeds, or until all fail.



Sometimes the connection failure is slow to detect, for example on some network timeouts.

If the primary connection fails with a 30s timeout, it means the fallback mechanism won't kick in until then.

This delay will be repeated each time the dashboard is loaded, and until the primary connection is back online.

As a mitigation, all widgets that use the same connection will inherit the fallback.

This means that during a single page load, the timeout will happen only once per Connection.



Note : there is a caching mechanism, so you may not notice the redundancy

immediately.

When redundancy happens, you may need to refresh the page.

When the connection becomes good again, you may need to wait a few minutes for the dashboards to apply the primary connection again.

Alpana Designer

In Alpana Designer, the order is :

1. try to connect to the *Primary parameters at design time*
2. if it fails, try to connect to the *Primary parameters after publication*
3. if it fails, try to connect to other parameters

Alpana Server

In Alpana Server, the order is :

1. try to connect to the *Primary parameters after publication*
2. if it fails, try to connect to the *Primary parameters at design time*
3. if it fails, try to connect to other parameters

Connection Types

Redundant connections are supported by the following Connection types :

- SQL
- Historian
- Web

Managing *Parameter Sets*

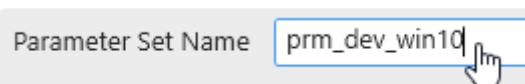
A *Parameter Set* is the set of all the parameters required to connect to the data.

Default behavior

By default, only one Parameter Set is created for the current connection, and is used for both Designer and Server.

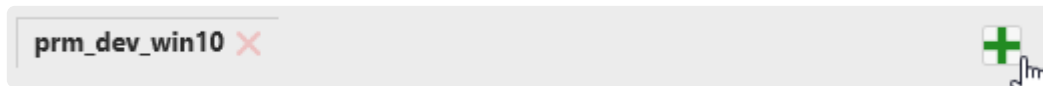
Renaming *Parameter Sets*

You can rename each Parameter Set :



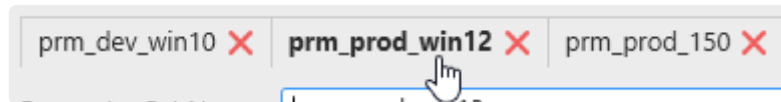
Creating *Parameter Sets*

Click the + icon to create a new Parameter Set :



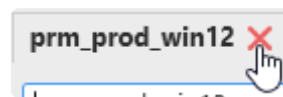
Editing other *Parameter Sets*

To edit a Parameter Set, click on the corresponding tab :



Deleting *Parameter Sets*

Click on the red cross to delete the corresponding Parameter Set :



Designer ⇔ Server switching

To choose which Parameter Set to use for Designer or Server, select the desired Parameter Set in each list :

1. *Primary parameters at design time* : primary connection to use while in Alpana Designer
2. *Primary parameters after publication* : primary connection to use while published in Alpana Server

Primary parameters at design time :	prm_dev_win10	▼
Primary parameters after publication :	prm_prod_win12	▼

Last modified: Feb 17, 2022

2.3.2. The data Buffer

Introduction : What is the Buffer ?

The primary source for data in Alpana is a **database** (SQL Server, Oracle).

When a *Dashboard* requires data from a *Data Source* that is based only on **database Connections**, the query is composed by *Alpana* and executed directly on the target database.



except in multi-source : when the database Connection is used together with another Connection, it also becomes **bufferized** as multi-source (see [next page](#))

On the other hand, Data that comes from other types of *Connections*, need to be **bufferized** : data is first fetched from the source and copied inside a *Buffer database* internal to *Alpana*, then *Dashboards* will query this *Buffer*.

Last modified: Feb 17, 2022

2.3.2.1. Bufferized Connection types : What gets bufferized ?

All Connection types that are not **databases** are bufferized :

- RESTful API (web)
- Insight
- Alpana Runtime Connections
- file-based Connections : Excel, CSV

Multi-Source case

Multi-Source is a special case : in a Multi-Source context, even database-based Connections are bufferized.

Example :

SQL Connection1 points to your “MESDB” database, and **SQL Connection2** points to your “OTHER_DB” database.

You create DataSource1 by making a join between Table1 from Connection1 and Table2 from Connection2.

⇒ Your DataSource1 is a **Multi-Source** Data Source. It is bufferized.

Last modified: Feb 17, 2022

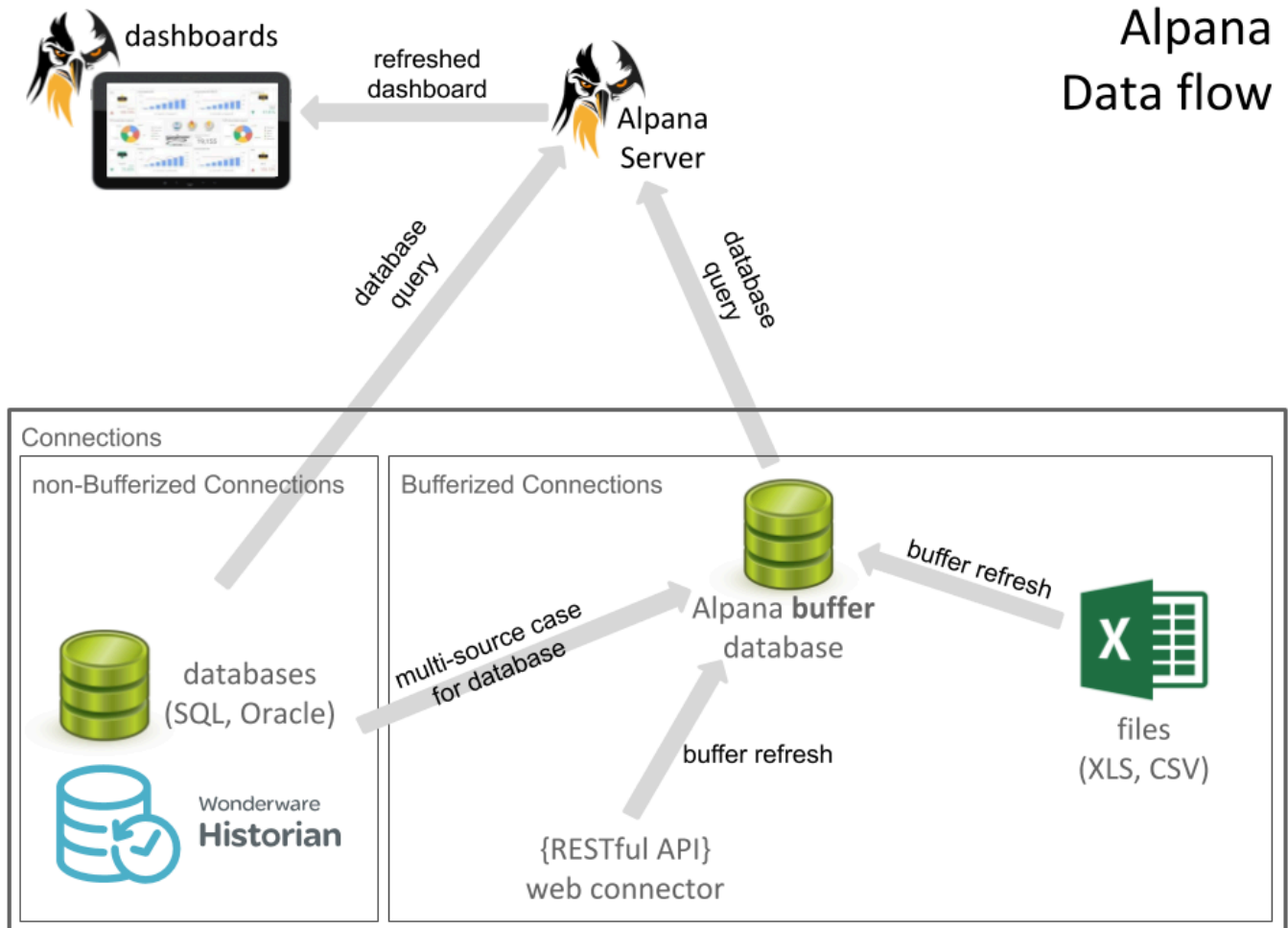
2.3.2.2. Data Flow : How bufferization happens ?

Data flow

When data is requested from a bufferized *Connection*, the following happens :

- If **Buffer Refresh** is not enabled : data is retrieved from the buffer.
- If **Buffer Refresh** is enabled :
 - If the buffer is valid \Rightarrow data is retrieved from the buffer.
 - If the buffer is out of date \Rightarrow the buffer is refreshed by data from the Connection (the Web connection, the CSV file, etc...).

Alpana Data flow



Content of the Alpana buffer database

Alpana Server creates, deletes and updates tables in the buffer database.

This is a purely internal mechanism and should not be relied on by external tools.



You shouldn't use the buffer database for other purposes, otherwise you might lose your data.

Last modified: Feb 17, 2022

2.3.2.3. Buffer database setup

In Alpana v3.0.0, the Buffer database is setup automatically :

- for the Alpana Server : this setting applies to published Dashboards. A Microsoft SQL database is created by Alpana Server to host the buffer tables.
- for each Alpana Designer installation : this setting applies when editing Dashboards on that host. A SQLite database is created in a local folder.

Last modified: Feb 17, 2022

2.3.2.4. Buffer Refresh settings

What is Buffer Refresh Settings

This setting represents : How long do you want to query the old data in the buffer instead of getting new data from the source ?

For example

You connect to an Excel file.

The data is first copied in the buffer.

If you don't set up Buffer Refresh Settings, it will never be updated.

If you set up "Refresh Every 1 Week", it will not be update for 1 Week.

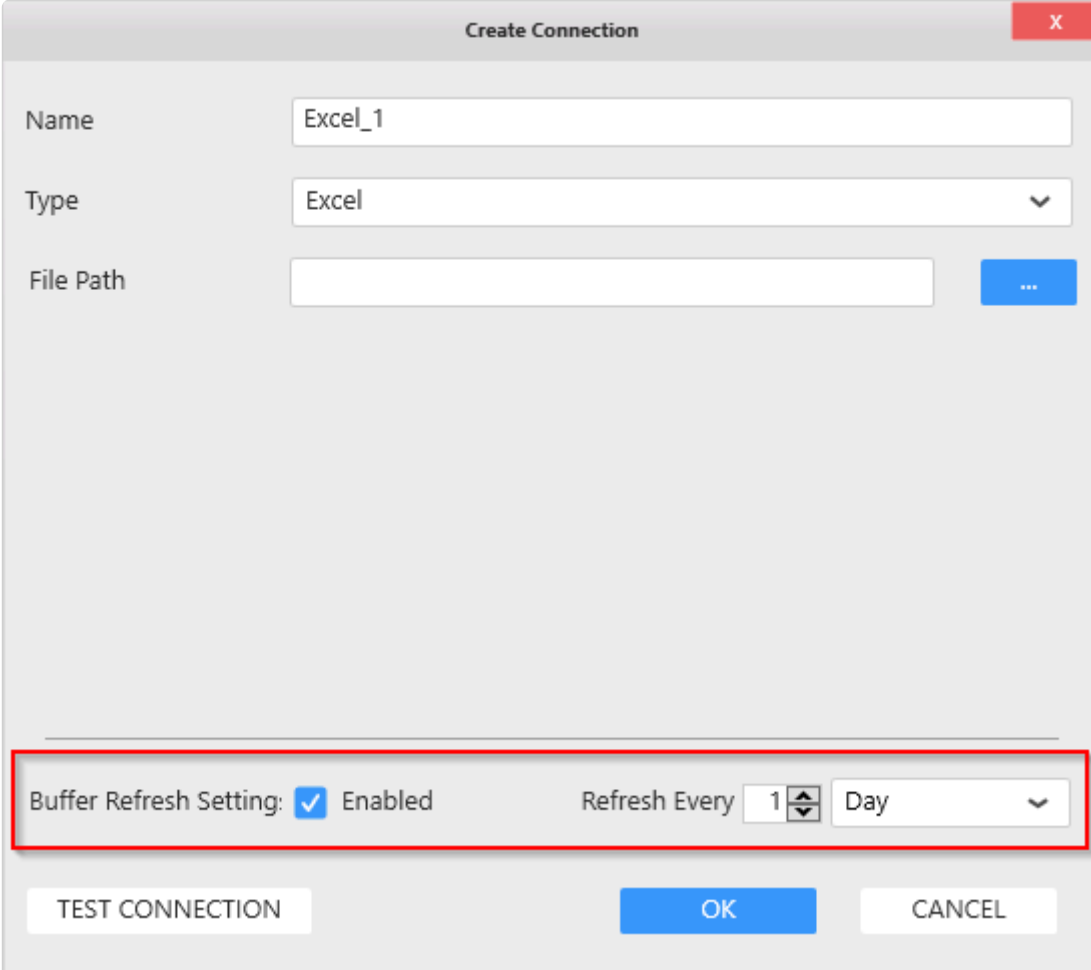
Then, the next time someone makes a query to this Connection, new data is copied in the Buffer.

Where to set up

Each *Connection* has its own refresh settings.

You can change the refresh duration by default at the Connection creation (or edition).

Just edit the Connection, and set up "Buffer Refresh Settings" as Enabled, and a duration to "Refresh Every".



The image shows a 'Create Connection' dialog box with a title bar containing a close button (X). The dialog has three main input fields: 'Name' with the value 'Excel_1', 'Type' with a dropdown menu showing 'Excel', and 'File Path' with an empty text box and a blue button with three dots. At the bottom, there is a section for 'Buffer Refresh Setting' which is highlighted with a red rectangle. This section includes a checked checkbox labeled 'Enabled', a 'Refresh Every' spinner box set to '1', and a dropdown menu set to 'Day'. Below this section are three buttons: 'TEST CONNECTION', 'OK', and 'CANCEL'.

Create Connection

Name: Excel_1

Type: Excel

File Path: [Empty field] [...]

Buffer Refresh Setting: ☒ Enabled Refresh Every: 1 Day

TEST CONNECTION OK CANCEL

* Note : don't forget to set Buffer Refresh settings also for a SQL Connection if you intend to use it in a multi-Connection Data Source !

Last modified: Feb 17, 2022

2.3.2.5. refreshing file-based connections

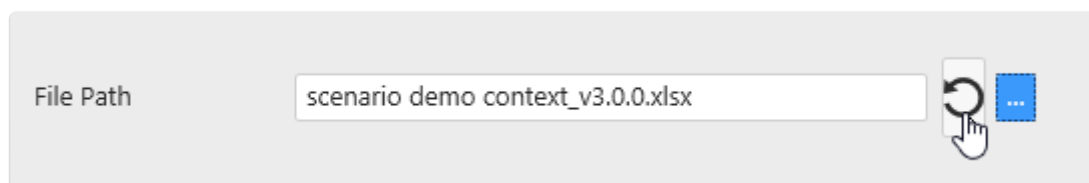
Published Dashboards

* Once published, the file-based connections **don't refresh** based on the file location.

If you want to refresh data for a dashboard based on a file (CSV, Excel, JSON), use the external tool [Alpana Update File Dependency](#)

Refreshing in the Designer

Inside the Designer, you can manually force the refresh by Editing the Connection and clicking the refresh button next to the file name :



This will import the file changes inside the Designer, regardless of the Buffer Refresh settings.

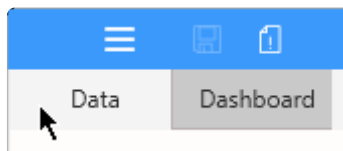
* Note : this only works if you configured the file name during the current Designer session, because the file name is not stored

Last modified: Feb 17, 2022

2.3.3. Creating and Managing Connections

Alpana Designer allows to create as many Connections as required.

Work with Connections is all done inside the *Data* activity tab of Alpana Designer :

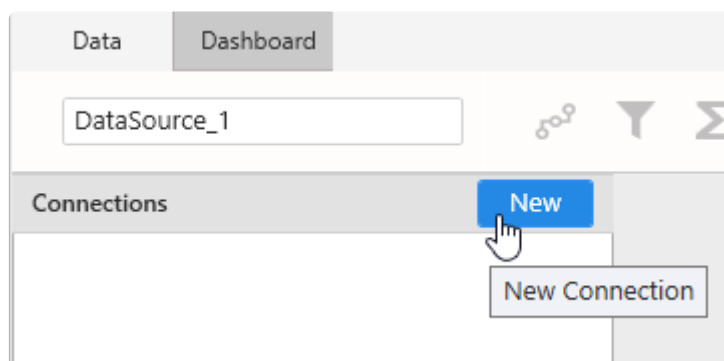


To learn how to create and manage Connections, see the current chapter.

Last modified: Feb 17, 2022

2.3.3.1. Create a Connection

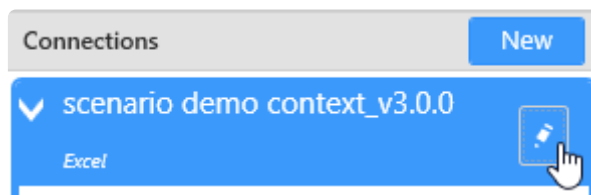
To create a new Connection, click *New* :



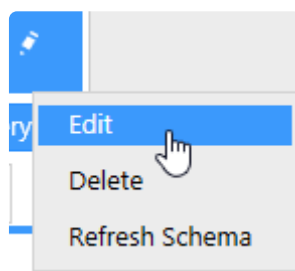
Last modified: Feb 17, 2022

2.3.3.2. Edit a Connection

To open a Connection to start to Edit it, click the pen icon next to the Connection name :



From the pop-up, select *Edit* :

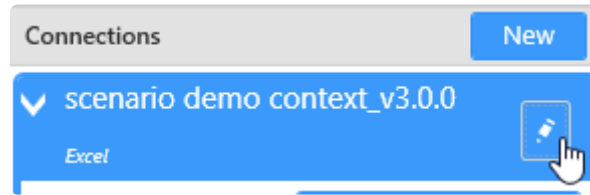


Then the corresponding “Edit Connection” dialog opens for edition (see below for each [Connection type](#)).

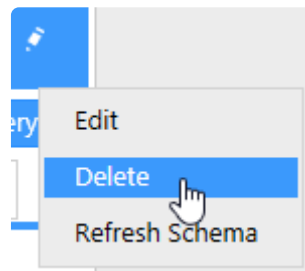
Last modified: Feb 17, 2022

2.3.3.3. Delete a Connection

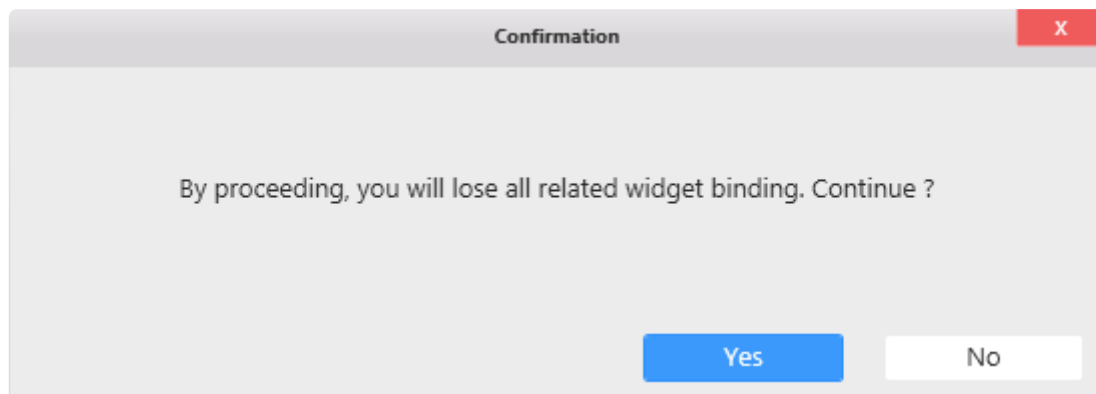
To Delete an existing Connection, click the pen icon next to the Connection name :



From the pop-up, select *Delete* :



If the Connection is used by any Widget or any Data Source, the following message will appear :



If you choose “Yes”, the Connection is deleted and all dependent Data Sources and Widgets lose their data binding.

Last modified: Feb 17, 2022

2.3.4. Connection types

All connection types are listed in the next chapters, with all their configuration properties.

Last modified: Feb 17, 2022

2.3.4.1. SQL Server

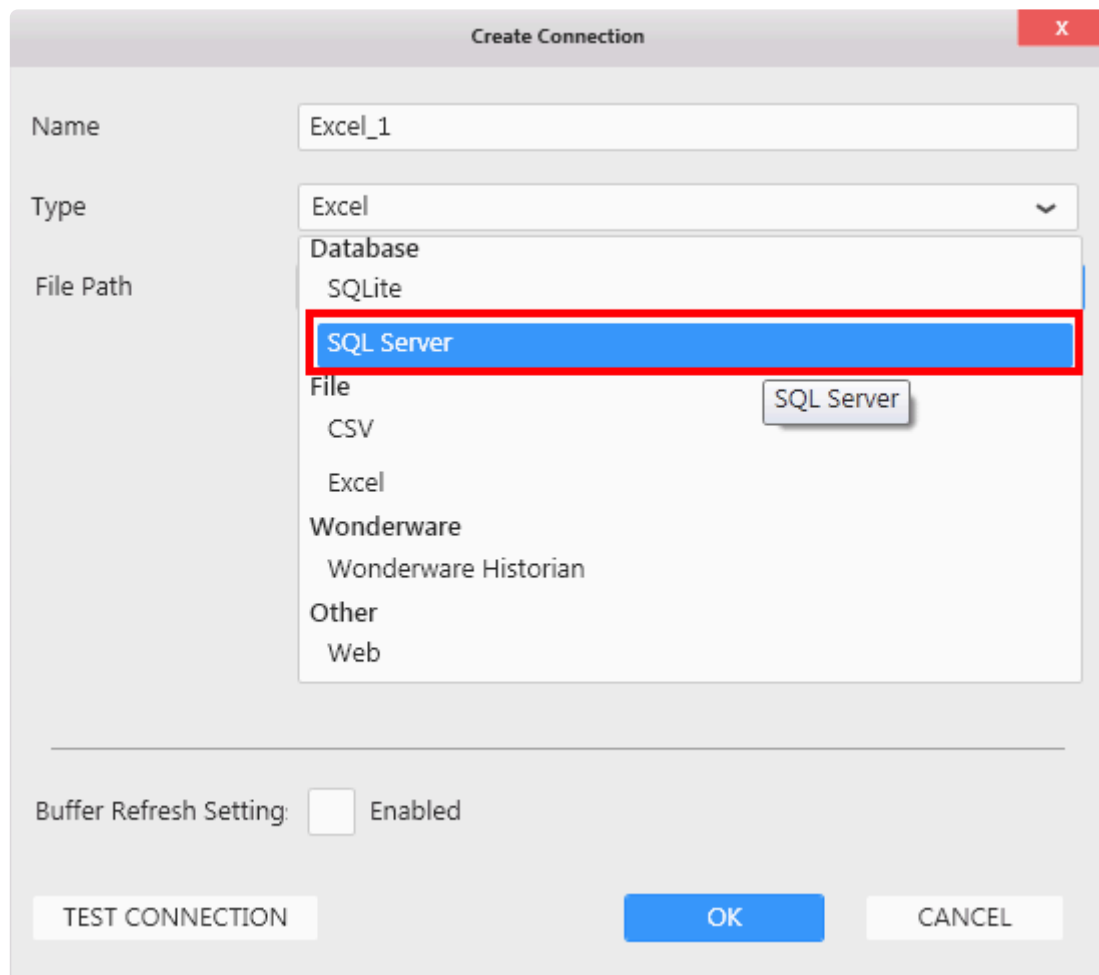
Versions

This connector can be used to get data from local or remote Microsoft SQL Server installations with the following versions :

- Microsoft SQL Server 2012 and later
- Microsoft SQL Server Express 2012 and later

Selecting Connection Type

In the “Create Connection” dialog change the Connection “Type” by selecting “SQL Server” :



Connection Parameters

The screenshot shows a configuration window with the following fields and options:

- Server:** A text box containing "localhost".
- Authentication Mode:** A dropdown menu showing "Windows".
- User Name:** An empty text box.
- Password:** An empty text box.
- Database:** A section containing two radio buttons:
 - Manual:** An unselected radio button next to a text box containing "Northwind".
 - Detection:** A selected radio button (indicated by a blue circle) next to a dropdown menu showing "Northwind".

Server

This is the address of the SQL Server instance you need to access. Possible values are :

- `(local)` or `localhost` : local server
- `<NetBIOSName>` : server named with a NetBIOS name
- `<IPv4Address>` : server accessible through a IP v4 address
- `<IPv6Address>` : server accessible through a IP v6 address
- `<server address>\<instance name>` : connect to a specific instance. For SQL Express, it may be necessary to use `<server address>\SQLEXPRESS`
- `<server address>,1433` : 1433 is the default port for SQL Server, but can be changed like this
Be aware that when searching for a server instance, Alpana waits for a response. If the server instance doesn't respond, there is a rather long timeout.

Authentication Mode

"SQL Server" : will use SQL Server authentication with "User name" and "Password".

"Windows" : will use Windows Authentication from the Windows user that generates the query.

Important note on Windows Authentication

! Important :
Windows Authentication will use a **different Windows user** when in Designer and when published in Server.
 That Windows user may not have the required access to SQL Server.
 This will result in **Data Retrieval Error** messages.

When published in Alpana Server, the Windows user will be that configured in the IIS site : IIS APPPOOL\Alpana3App (see the Server [Architecture](#) chapter).

This is because there are 2 different threads owned by 2 different Windows users :

- the Designer is in a thread owned by your current Windows user
- the Server is in a thread is owned by the IIS application pool identity : `IIS APPPOOL\Alpana3App`

In order to allow Windows authentication on published Dashboards to a database X on SQL Server Y, you need to :

- make sure the `IIS APPPOOL\Alpana3App` SQL user exists on SQL Server Y, and that the corresponding Windows user is bound. If you installed Alpana Server with SQL authentication, or if SQL Server Y is on another SQL Server, then you will have to manually create this user in SQL.
- make sure the `IIS APPPOOL\Alpana3App` SQL user has the required permissions on database X. For example, this user will need `db_owner` permissions to run stored procedures or functions.

Database

The name of the database to connect to.

Detection

This lets you select the database name from the list of databases.



Tip : After changing credentials, you can fetch again a new list of database names, by clicking the refresh icon.

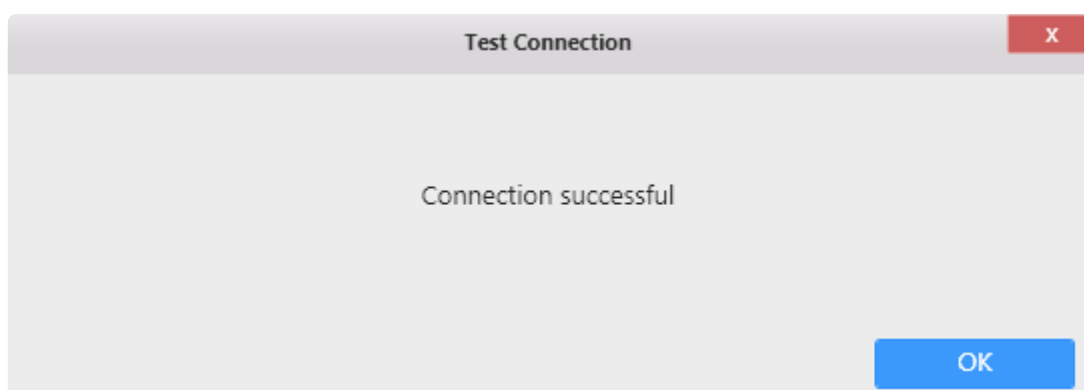
Manual

This lets you write the database name as free text.

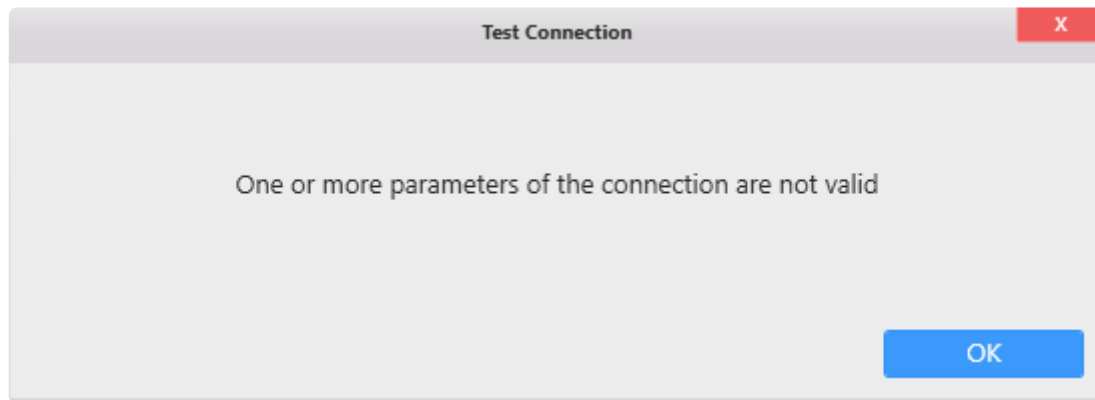
This is useful for creating a connection to a database which you cannot access while in the Designer. For example when the database name is different in the production environment.

Test Connection

To test the connection for validity, click “Test Connection” button. The following confirmation message will confirm its validity.



If the connection is invalid, the following message appears :



Then you will need to fix the Connection parameters (credentials, server name, ...) or check network connectivity (is the SQL Server accessible from here ?)

Connection Schema

The SQL Server Connector fetches the following object types in the database schema :

- Tables
- Views
- Stored Procedures
- Table-Valued Functions

Database Schema

(new in version 2020 R2)

The SQL Connector allows to fetch data from objects belonging to any *Database Schema*, not just `dbo`. If you need to restrict the schema, see chapter [getting and browsing the Connection schema](#).

Data refresh and Buffer

The SQL Connector is not bufferized by default.

However, when data is joined with another Alpana Connection (including another SQL Connection), data is bufferized.

If you need to get new data, see Chapter [The data Buffer](#)

Last modified: Feb 17, 2022

2.3.4.2. Excel

Formats

You can connect to Microsoft Excel workbooks in format `*.xlsx` or `*.xls` containing “database-like” tabular data.

The Excel workbook should have column names at first row of sheets followed by data rows.

The data type of all values in a column should all be the same. Trying to parse an Excel file where a column has a number as first value and string as second value will result in a parsing error in SQL buffer.

Other complex sheet designs may not be supported.

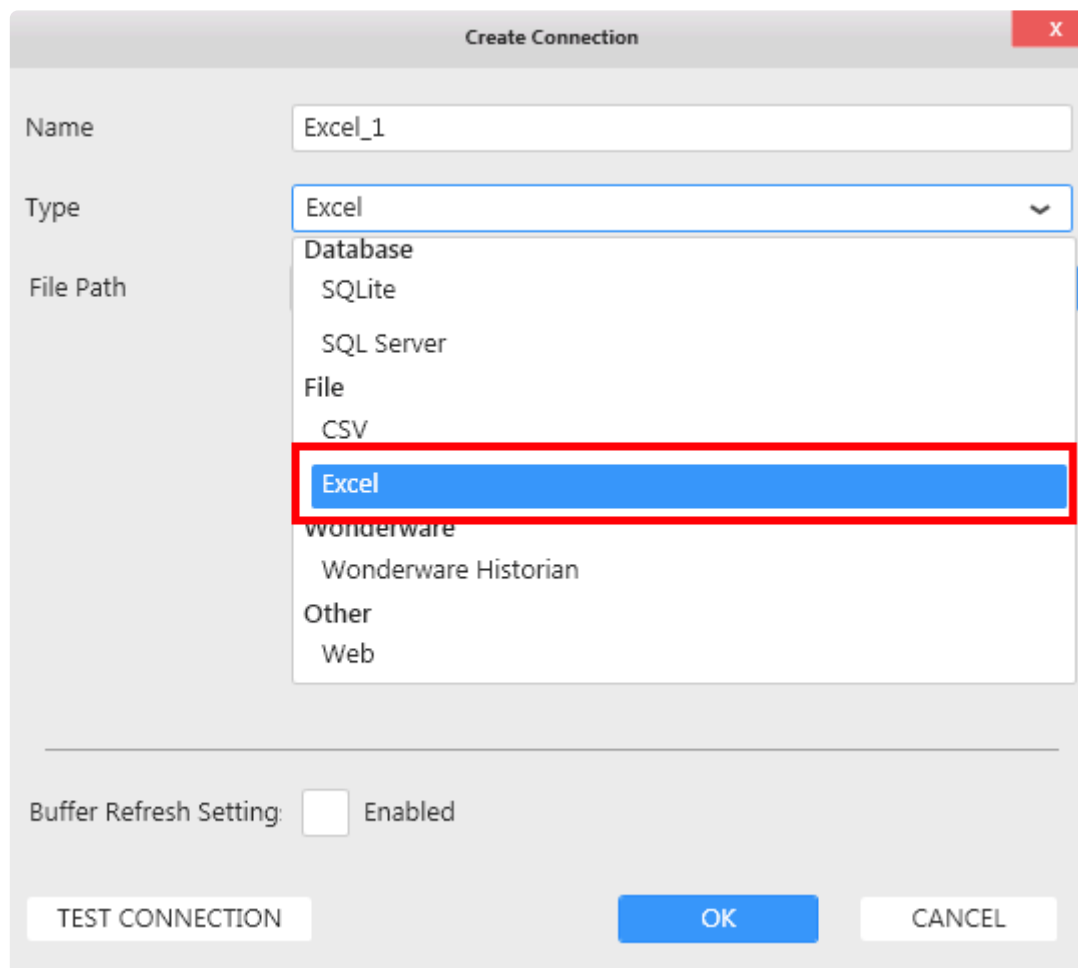
Formulas are executed every time the file is opened.



The maximum file size you can use in a connection is 100Mo

Selecting Connection Type

In the “Create Connection” dialog change the Connection “Type” by selecting “*Excel*” (should be selected by default) :



The image shows a 'Create Connection' dialog box with a title bar containing a close button (X). The dialog has three main input fields: 'Name' with the value 'Excel_1', 'Type' with a dropdown menu showing 'Excel' selected, and 'File Path' which is currently empty. The dropdown menu is open, showing a list of connection types: 'Database' (with sub-items 'SQLite' and 'SQL Server'), 'File' (with sub-item 'CSV'), 'Excel' (highlighted with a blue background and a red border), 'Wonderware' (with sub-item 'Wonderware Historian'), and 'Other' (with sub-item 'Web'). Below the input fields, there is a 'Buffer Refresh Setting' section with a checkbox and the text 'Enabled'. At the bottom, there are three buttons: 'TEST CONNECTION', 'OK', and 'CANCEL'.

Create Connection

Name: Excel_1

Type: Excel

File Path:

Database

- SQLite
- SQL Server

File

- CSV

Excel

Wonderware

- Wonderware Historian

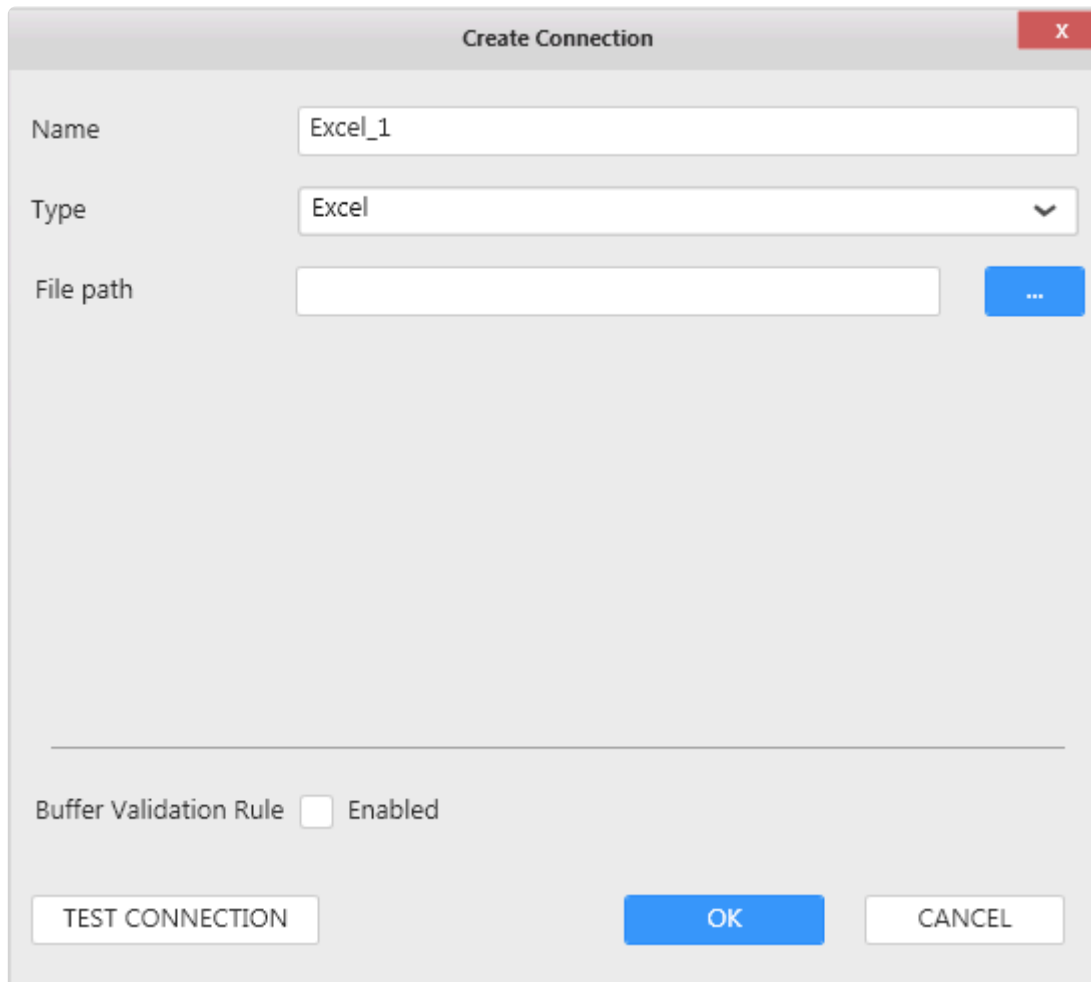
Other

- Web

Buffer Refresh Setting: ☐ Enabled

TEST CONNECTION OK CANCEL

Connection Parameters



The image shows a 'Create Connection' dialog box with a title bar containing a close button (X). The dialog has three main input fields: 'Name' with the text 'Excel_1', 'Type' with a dropdown menu showing 'Excel', and 'File path' with an empty text box and a blue button with three dots (browse). Below these fields is a section for 'Buffer Validation Rule' with an unchecked checkbox and the text 'Enabled'. At the bottom, there are three buttons: 'TEST CONNECTION', 'OK', and 'CANCEL'.

File Path

Click to browse for an Excel file.



Important :

The path configured here may not be accessible when published in Alpana Server for different reasons (maybe it's a different machine and the Excel file is not there at the same path, maybe the Windows user doesn't have access to the path).

When published in Server, the Windows user will be that configured in the IIS site, by default "LocalSystem", which can correspond to "NT AUTHORITY\SYSTEM".

When the file is not found at the configured path, Alpana uses the copy of the Excel file that is embarked within the Dashboard. If so, then you will not see your data update.

Connection Schema

The Excel Connection presents Excel Sheets as tables to be used in a Data Source.

Data refresh and Buffer

The Excel Connector is bufferized.

If you need to get new data, see Chapter [The data Buffer](#)


Last modified: Feb 17, 2022

2.3.4.3. CSV

Formats

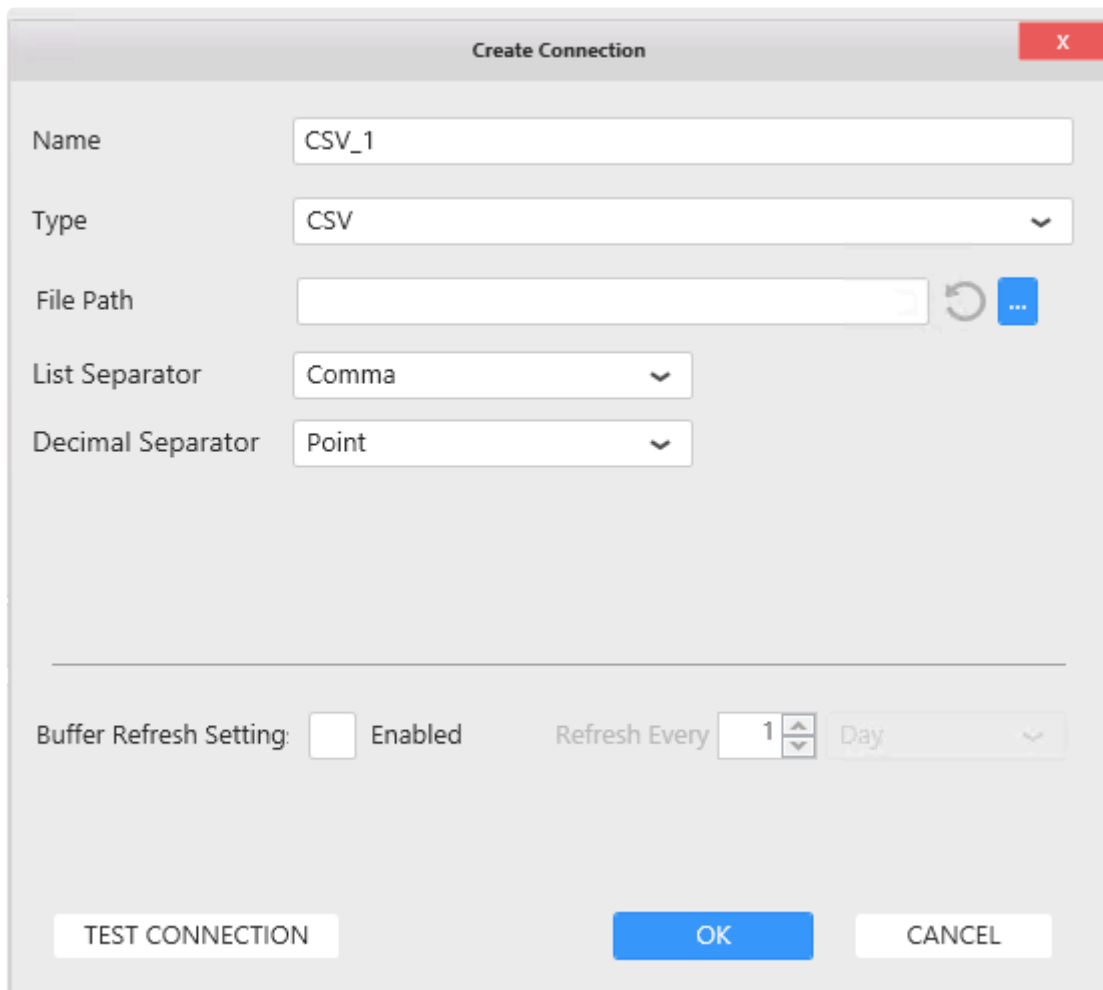
Although “CSV” means “Comma-Separated Values”, Alpana supports other separators than comma :

- Comma : “ , ”
- Semicolon : “ ; ”
- Space : “ ”
- Tab : “ ”

 The maximum file size you can use in a connection is 100Mo

Selecting Connection Type

In the “Create Connection” dialog change the Connection “Type” by selecting “CSV” :



The image shows a "Create Connection" dialog box with the following fields and options:

- Name:** CSV_1
- Type:** CSV (selected from a dropdown menu)
- File Path:** (empty text field with a browse button and a refresh button)
- List Separator:** Comma (selected from a dropdown menu)
- Decimal Separator:** Point (selected from a dropdown menu)
- Buffer Refresh Setting:** ☐ Enabled
- Refresh Every:** 1 (spin box) Day (dropdown menu)
- Buttons:** TEST CONNECTION, OK, CANCEL

Connection Parameters

File Path

Click to browse for a CSV file.



Important :

The path configured here may not be accessible when published in Alpana Server for different reasons (maybe it's a different machine and the CSV file is not there at the same path, maybe the Windows user doesn't have access to the path).

When published in Server, the Windows user will be that configured in the IIS site, by default "LocalSystem", which can correspond to "NT AUTHORITY\SYSTEM".

When the file is not found at the configured path, Alpana uses the copy of the CSV file that is embarked within the Dashboard. If so, then you will not see your data update.

Decimal Separator

The decimal separator can be changed depending on the csv localization. It's possible to choose comma “ , ” or dot “ . ”



you can use a file with the same character for value separator and decimal separator, it won't import data correctly.

Connection Schema

The CSV Connection presents a single object in the schema : a table with the same name as the file.

Data fields type

Since CSV doesn't allow to create explicit data types, Alpana has to detect the data types of fields.

If this automatic detection is incorrect, you can always change the data type in the Data Source :

[Changing Column Type](#)



Integers have a size limit. If this causes an issue, you can switch to the "Number" data type.

Data refresh and Buffer

The CSV Connector is bufferized.

If you need to get new data, see Chapter [The data Buffer](#)



There is limitation for csv file :

- The number of line must be less than 1 million line
- Maximum file size is 100MB

Last modified: Feb 17, 2022

2.3.4.4. Wonderware Historian

Specific documentation to connect to Wonderware Historian is available here : [Wonderware Historian](#)

Last modified: Feb 17, 2022

2.3.4.5. Web

The web connector is used to connect to different [Web API](#) source.

Using [GET or POST](#) methods, you can query your data.



Alpana is using [JSONPath](#) to perform transformation to the received data.

Formats

The Web Connector allows to get data from RESTful Web Services that serve JSON content.

Supported response content include the three most commons standards: JSON:API, ODATA, JSEND

JSON:API format example:

```
{
  "links": {
    "self": "http://example.com/articles"
  },
  "data": [
    {
      "type": "articles",
      "id": "1",
      "attributes": "att1"
    },
    {
      "type": "articles",
      "id": "2",
      "attributes": "att2"
    }
  ]
}
```

With this format, the connector will create a one table schema. This table will be named “data”.

ODATA Example:

```
{
  "@context": "http://host/service/$metadata",
  "value": [
    {
      "name": "Orders",
      "kind": "EntitySet",
      "url": "Orders"
    }
  ]
}
```

```

    },
    {
      "name": "OrderItems",
      "title": "Order Details",
      "url": "OrderItems"
    },
    {
      "name": "TopProducts",
      "title": "Best-Selling Products",
      "kind": "FunctionImport",
      "url": "TopProducts"
    }
  ]
}

```

Similarly to the JSON:API format, the connector will create a one table schema. This table will be named “value”.

JSEND Example:

```

{
  "status": "success",
  "message": "Data found",
  "data": {
    "requests": [
      {
        "id": 10,
        "request_code": "8B2BD1",
        "provider_name": "Al Marasim Ladies Salon",
        "provider_name_ar": "Al Marasim Ladies Salon",
        "provider_name_en": "Al Marasim Ladies Salon",
        "service_name": "Nails & Feet",
        "start_datetime": "2018-09-04 18:03:07",
        "status_label": "Pending",
        "status": 1
      },
      {
        "id": 8,
        "request_code": "8713ED",
        "provider_name": "Provider",
        "provider_name_ar": "Provider",
        "provider_name_en": "Provider",
        "service_name": "Nails & Feet",
        "start_datetime": "2018-09-04 18:03:07",
        "status_label": "Pending",
        "status": 1
      }
    ]
  }
}

```

```

    }
  ]
}
}

```

For this exact format, the Web connector would create a one table schema with one table named “request”. However, depending on how the JSEND API was programmed, the sub-object under data could be named differently e.g “payload”, “post” or basically any name the original developers decided to use. In this cases, the connector will name the table accordingly to the keyword used.

In addition to these three standard formats, the Web connector also support multiple non-standard json responses.

Simple Array:

```

[
  {
    "Id": 8569,
    "Module": "Production",
    "Shift": "Noon",
    "Staff": "Captain Marvel",
    "Kiln_Feed": 89.6533838600779
  },
  {
    "Id": 8563,
    "Module": "Production",
    "Shift": "Noon",
    "Staff": "Captain America",
    "Kiln_Feed": 89.3475083300634
  },
  {
    "Id": 8556,
    "Module": "Production",
    "Shift": "Noon",
    "Staff": "Captain America",
    "Kiln_Feed": 88.3035192802069
  }
]

```

With this type of response the connector will create a one table schema with one table named “data array”.

Multiple Arrays

```

{
  "TableA": [

```

```

    { // data record 1 for TableA
      "FieldA1": "ValueA1_1",
      "FieldA2": "ValueA2_1",
      ...
    },
    { // data record 2 for TableA
      "FieldA1": "ValueA1_2",
      "FieldA2": "ValueA2_2",
      ...
    },
    { // data record 3 for TableA
      "FieldA1": "ValueA1_3",
      "FieldA2": "ValueA2_3",
      ...
    },
    ...
  ],
  "TableB": [
    { // data record 1 for TableB
      "FieldB1": "ValueB1_1",
      "FieldB2": "ValueB2_1",
      ...
    },
    ...
  ],
  ...
}

```

Here a multi-table schema will be created with one table for each object array present in the response.

Data Property

```

{
  "cityid": "101010100",
  "date": "201805",
  "cityEn": "beijing",
  "avgbWendu": "28",
  "avgyWendu": "16",
  "maxAqi": "186",
  "minAqi": "99",
  "maxAqiLevel": "4",
  "minAqiLevel": "1",
  "data": [
    {
      "ymd": "2018-05-01",
      "aqi": "121",

```



```

    "aqiLevel": "3"
  },
  {
    "ymd": "2018-05-02",
    "aqi": "44",
    "aqiLevel": "1"
  }
]
}
```

If no common standard is recognized, the connector will look for a “data” property. In this response example, the connector would create a single-table schema with a table named “data”.

✿ Click on the link for more information about [Web API](#)

Selecting Connection Type

In the “Create Connection” dialog change the Connection “Type” by selecting “Generic” under “Web” category.

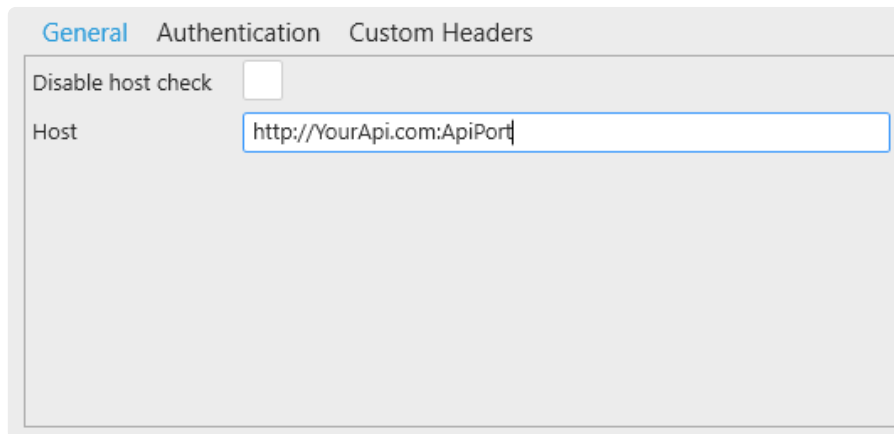
The screenshot shows the 'Create Connection' dialog box. The 'Name' field is labeled 'Name of your connection'. The 'Type' dropdown menu is open, showing a list of connection types. The 'Web' category is expanded, and 'Generic' is selected. Other categories visible include 'Generic', 'Oracle', 'SQL Server', 'Other', 'Alpana Runtime', 'File', 'CSV', 'Excel', 'JSON', 'Wonderware', 'Wonderware Historian', 'Insight', and 'Web'.

Connection Parameters

General

Host

Under the General tab, enter the API base URL that will be used to create a request with your API.



The screenshot shows a configuration window with three tabs: 'General', 'Authentication', and 'Custom Headers'. The 'General' tab is active. It contains a 'Disable host check' checkbox which is currently unchecked. Below it is a 'Host' label followed by a text input field containing the URL 'http://YourApi.com:ApiPort'.

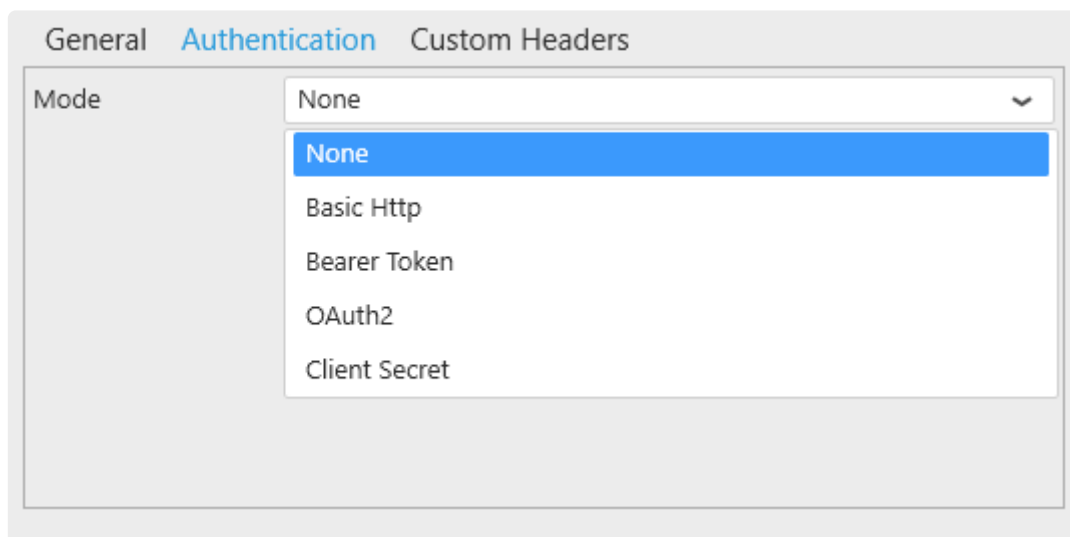
* If the targeted API doesn't allow browsing the root address and return error (i.e HTTP 404 response) you can check the **Disable host check** option to bypass the API validation process in the web connection

Authentication Mode

* Username, Password, ClientID, Client Secret and token Endpoint come from your authentication service.
For more information: [Web API security](#)

Under the authentication tab, select the the authentication mode to use:

- None
- Basic Http
- Bearer Token
- OAuth2
- Client Secret



General **Authentication** Custom Headers

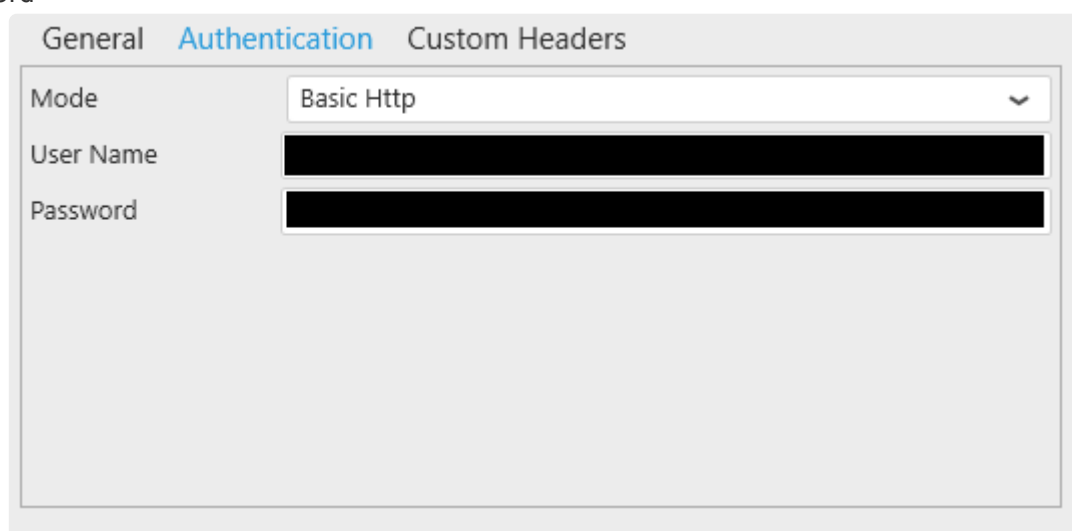
Mode: None

- None
- Basic Http
- Bearer Token
- OAuth2
- Client Secret

Basic Http

To authenticate with Basic Http, enter the following information:

- UserName
- Password



General **Authentication** Custom Headers

Mode: Basic Http

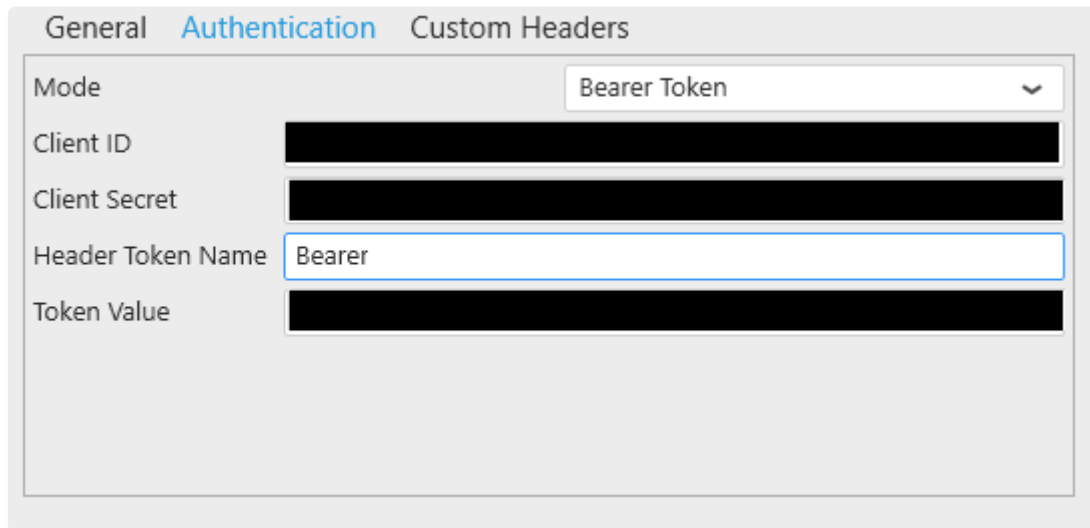
User Name: [Redacted]

Password: [Redacted]

Bearer Token

To authenticate with Bearer Token, Enter the following information:

- Client Id
- Client Secret
- Header Token Name: by default "Bearer"
- Token Value



The screenshot shows a configuration window with three tabs: 'General', 'Authentication' (selected), and 'Custom Headers'. The 'Authentication' tab contains the following fields:

- Mode:** A dropdown menu set to 'Bearer Token'.
- Client ID:** A text field containing a redacted value.
- Client Secret:** A text field containing a redacted value.
- Header Token Name:** A text field set to 'Bearer'.
- Token Value:** A text field containing a redacted value.

OAuth2

To authenticate with OAuth2, enter the following information:

- UserName
- Password
- Client ID
- Client Secret
- Header token Name: by default "Bearer"
- Token Request Method: Get or post method
- Token Request Endpoint
- Token Request Body
- Token Path in Response

✿ For Token Request body, use the placeholders **username** , **password** , **clientId** and **clientSecret** encapsulated with **\${}** Use the Json format to enter the information in the Token Request Body like the example below.
More information about [JSON](#)

Use placeholders \${username}, \${password}, \${clientId} and \${clientSecret} in token request body, token endpoint, custom headers and in requests endpoints and bodies

General **Authentication** Custom Headers

Mode OAuth2

User Name

Password

Client ID

Client Secret

Header Token Name Bearer

Token Request Method Post

Token Endpoint

Token Request Body

```
{
  "grant_type": "password",
  "username": "${username}",
  "password": "${password}",
  "scope": "",
  "client_id": "${clientId}",
  "client_secret": "${clientSecret}"
}
```

Token Path in Response access_token

Client Secret:

To authenticate with Client Secret, enter the following information:

- Client ID
- Client Secret

General **Authentication** Custom Headers

Mode Client Secret

Client ID

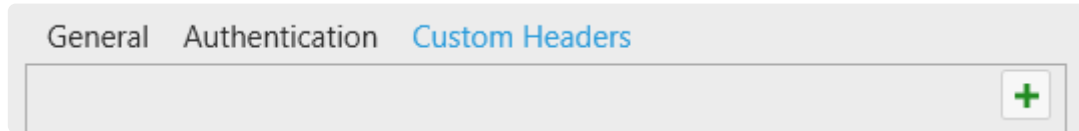
Client Secret

Custom Headers

The web connector allows you to pass custom headers in the request header.

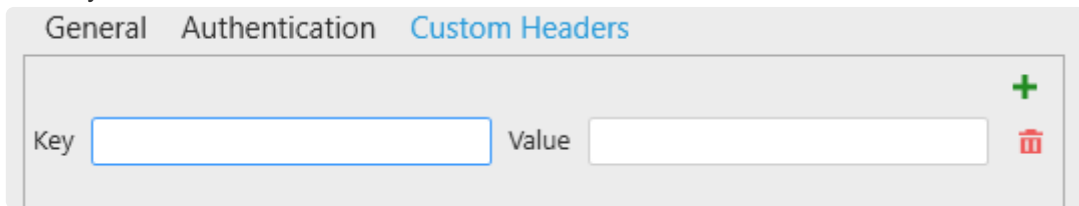
Adding Custom Headers

Click the + icon to add a new Custom Header:



A screenshot of the 'Custom Headers' tab in a web interface. The tab is selected and highlighted in blue. Below the tab name, there is a list of custom headers, which is currently empty. A green plus icon is visible in the bottom right corner of the list area, indicating the option to add a new header.

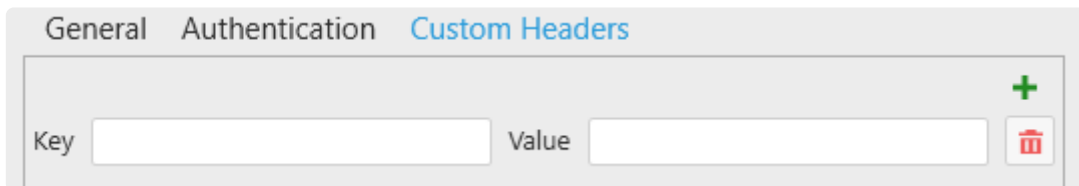
Then enter the key and its value:




A screenshot of the 'Custom Headers' tab showing a form to add a new header. The form has two input fields: 'Key' and 'Value'. A green plus icon is in the top right corner, and a red trash icon is in the bottom right corner of the form area.

Deleting Custom Headers

Click on the delete icon, to delete the corresponding custom header.

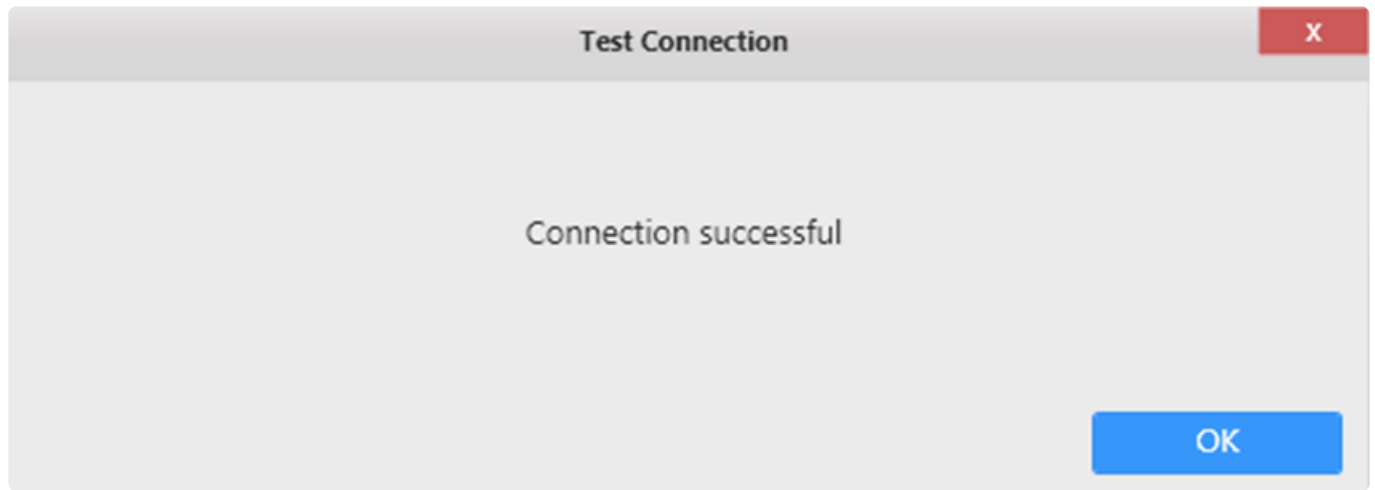


A screenshot of the 'Custom Headers' tab showing a form to add a new header. The form has two input fields: 'Key' and 'Value'. A green plus icon is in the top right corner, and a red trash icon is in the bottom right corner of the form area.

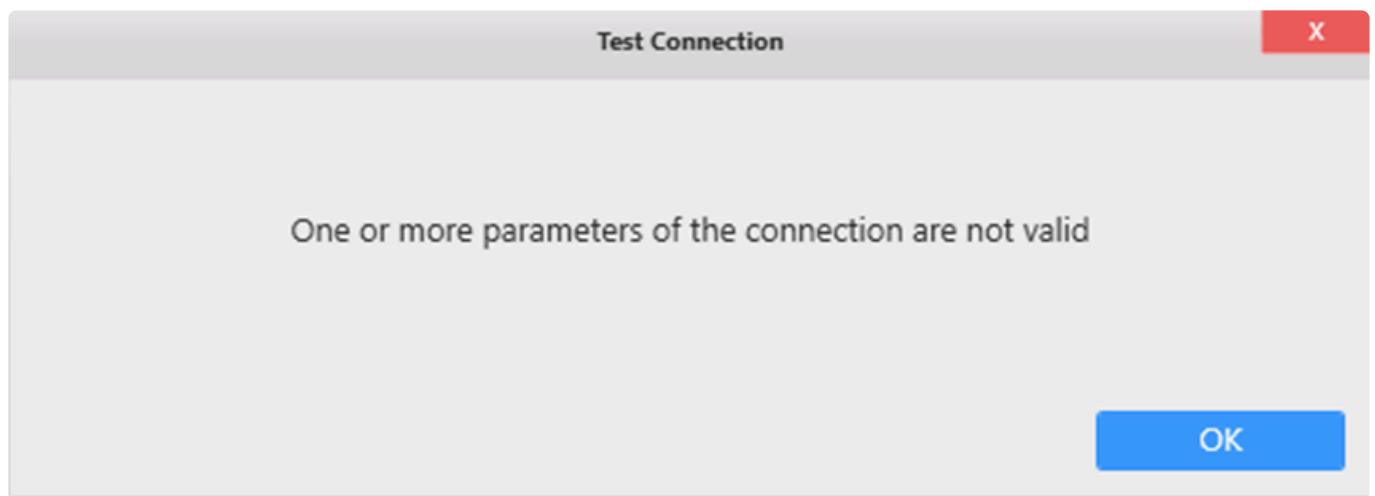
 You can enter a maximum of 5 Custom Headers

Test Connection

To test the connection for validity, click “*Test Connection*” button. The following confirmation message will confirm its validity.



If the connection is invalid, the following message appears :



Then you will need to fix the Connection parameters (credentials, server name, ...) or check network connectivity (is the API accessible from here ?)

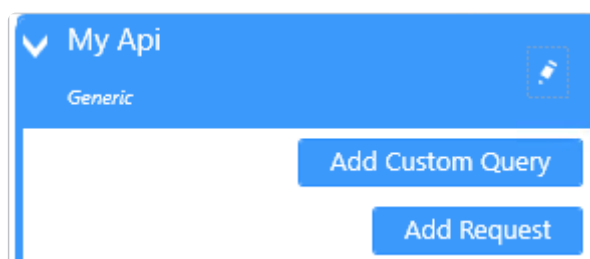
Data refresh and Buffer

The Web Connector is bufferized.

If you need to get new data, see Chapter [The data Buffer](#)

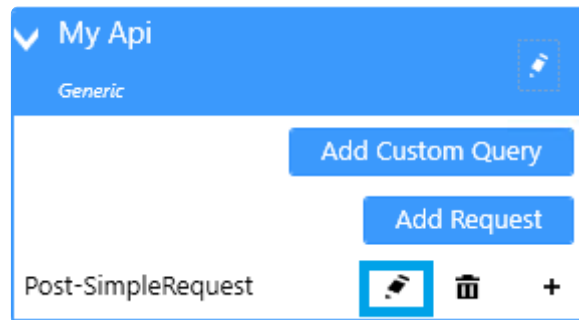
Adding Request

click "Add Request" button:



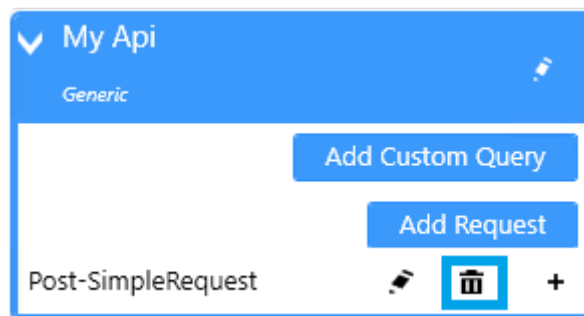
Editing Request

Click on the pen icon of the request.



Deleting Request

Click on the delete icon to delete the request



Configuring api Request

In the “Configure api Request” dialog, enter:

- Name
- Relative Path & Query: the endpoint of your API (the base URL of the connection will be use with this endpoint)
- Verb: Select either Get or Post verb
- Data Jpath in response: (optional) to get data in nested objects.

✿ You can use a parameter with the placeholder `${PARAMETER_NAME}` in the request path or the request body to replace it with a parameter's value(s) at runtime.

Get Verb

Use the get verb if you don't have to pass information in the body of the request.

Configure api Request

X

General

Request Body

Parameters

Name

Get-Weather

Relative Path & Query

/WeatherForecast

Verb

Get

▼

Data JPath in response

Request Result

[
{
 "date": "2021-05-06T17:20:08.3703334+02:00",
 "temperatureC": 4,
 "temperatureF": 39,
 "summary": "Scorching"
},
{
 "date": "2021-05-07T17:20:08.370338+02:00",
 "temperatureC": -15,
 "temperatureF": 6,
 "summary": "Balmy"
},
{
 "date": "2021-05-08T17:20:08.3703385+02:00",
 "temperatureC": -10,
 "temperatureF": 15,
 "summary": "Sweltering"
}
]

Send Request

OK

CANCEL

Post verb

Use the post verb to pass search criteria in the body of the request.

In the following example, our data are inside "role", so in the Data JPath response we tell Alpana where to search for the data.

Configure api Request

General

Request Body

Parameters

Name

Post-RequestRole

Relative Path & Query

/api/Users/roles

Verb

Post

Data JPath in response

role

Request Result

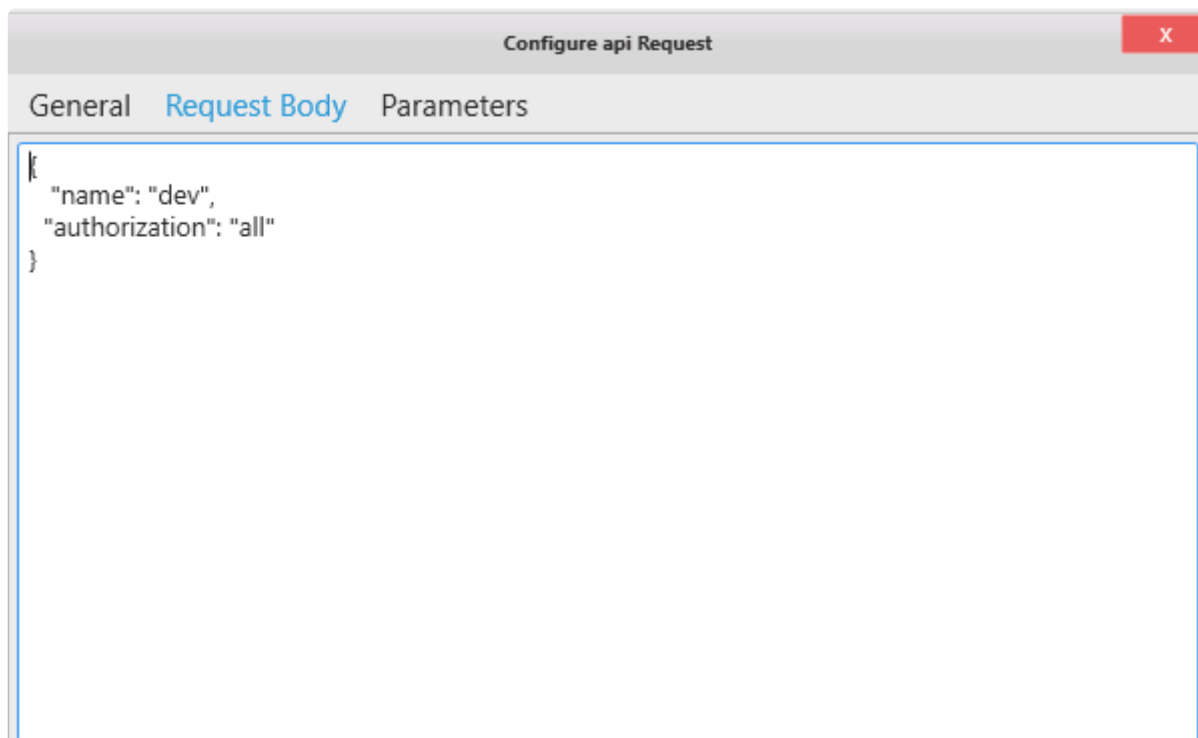
```
{
  "id": 10,
  "name": "",
  "role": [
    {
      "id": 3,
      "name": "dev",
      "authorization": "all",
      "userID": 1
    },
    {
      "id": 6,
      "name": "dev",
      "authorization": "all",
      "userID": 2
    },
    {
      "id": 7
    }
  ]
}
```

Send Request

OK

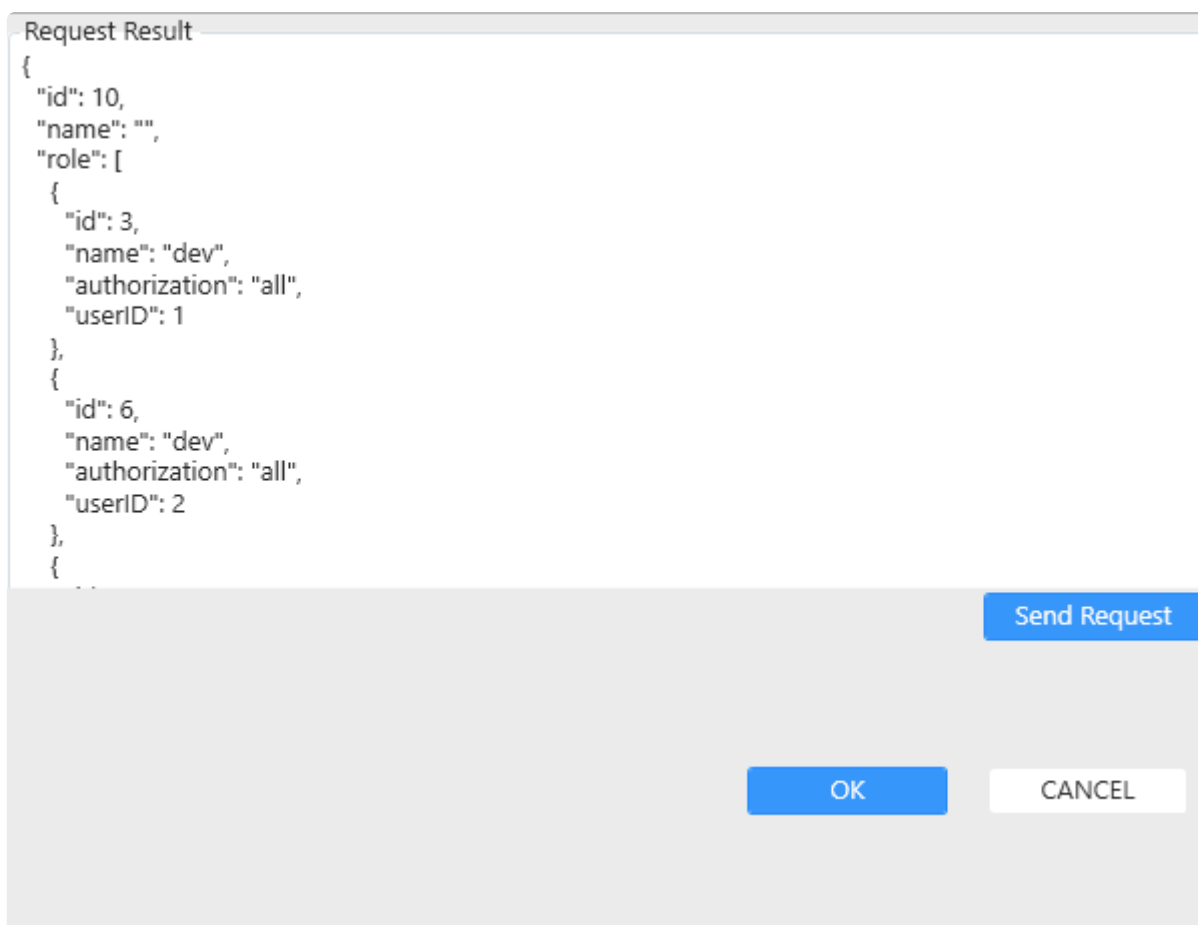
CANCEL

In Request Body tab, enter in json format the search criteria, for example:



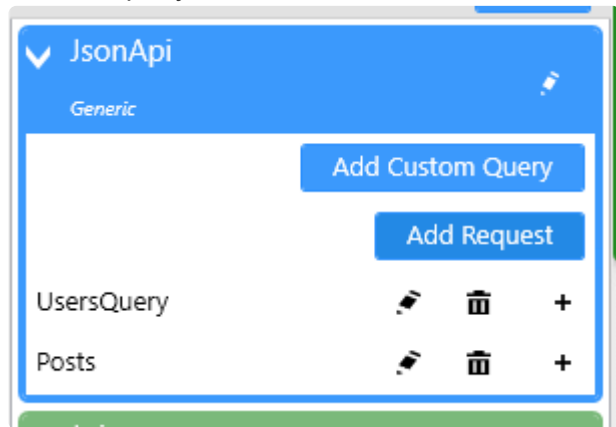
Send Request

By clicking on "Send Request" button, it will show the result of the request to the API:



Custom query

Custom query is available on Web connector



Refer to the [custom query chapter](#) to get more information on how to use it.

Last modified: Mar 31, 2022

2.3.4.6. Oracle

Versions

This connector can be used to get data from local or remote Oracle Database installations with version 12 or above.

Selecting Connection Type

In the “Create Connection” dialog change the Connection “Type” by selecting “*Oracle*” :

Connection Parameters

Host	<input type="text" value="localhost"/>
Port	<input type="text" value="1521"/>
Authentication Mode	<input type="text" value="Oracle Account"/>
User ID	<input type="text" value="system"/>
Password	<input type="password" value="••••••••"/>
Service Name	<input type="text" value="XE"/>

Host

This is the address of the Oracle instance you need to access. Possible values are :

- `localhost` : local server
- `<IPv4Address>` : server accessible through a IP v4 address

Be aware that when searching for a server instance, Alpana waits for a response. If the server instance doesn't respond, there is a rather long timeout.

Authentication Mode

“Oracle Account” : will use Oracle authentication with “User ID” and “Password”.

“Windows” : will use Windows Authentication from the Windows user that generates the query.



Important :

Windows Authentication will use a **different Windows user** when in Designer and when

published in Alpana Server. That Windows user may not have the required access to Oracle.

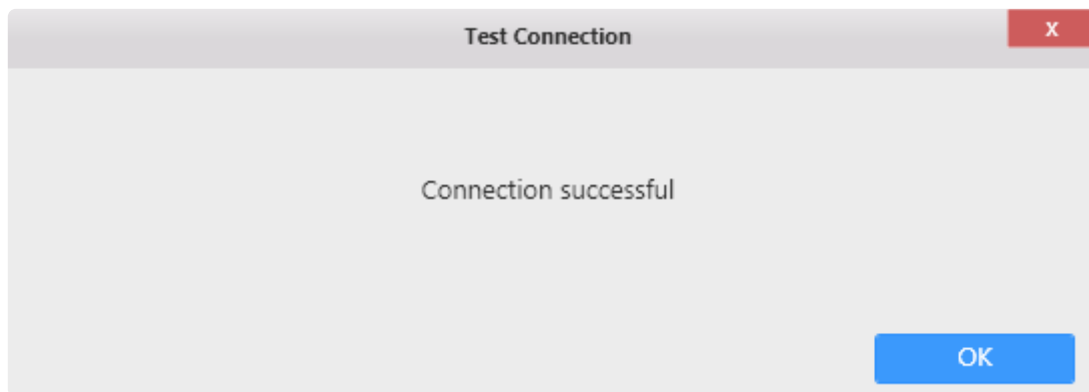
When published in Alpana Server, the Windows user will be that configured in the IIS site `IIS APPPOOL\Alpana3App`.

Service Name

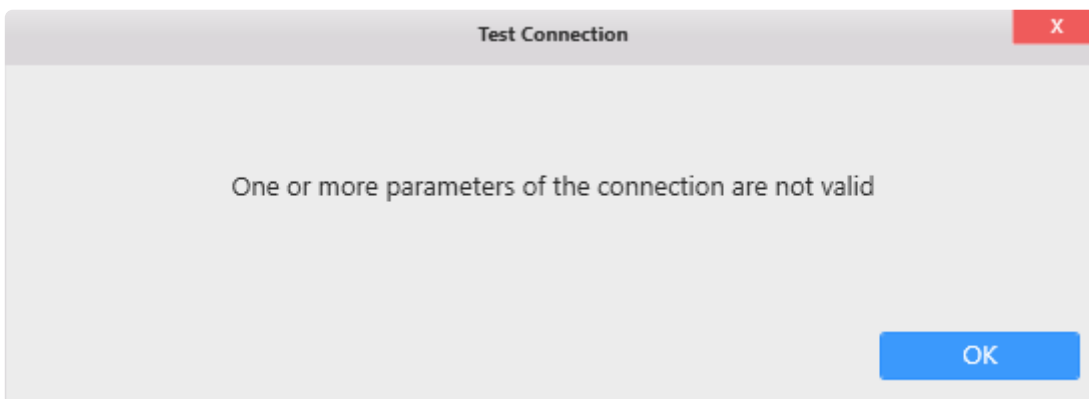
The name of the Service to connect to.

Test Connection

To test the connection for validity, click “Test Connection” button. The following confirmation message will confirm its validity.



If the connection is invalid, the following message appears :



Then you will need to fix the Connection parameters (credentials, server name, ...) or check network connectivity (is the Oracle accessible from here ?)

Connection Schema

The Oracle Connector fetches the following object types in the database schema :

- Tables

- Views
- Stored Procedures

Data refresh and Buffer

The Oracle Connector is not bufferized by default.

However, when data is joined with another Alpana Connection (including another Oracle Connection), data is bufferized.

If you need to get new data, see Chapter [The data Buffer](#)

Last modified: Feb 17, 2022

2.3.4.7. Alpana Runtime

Introduction

The *Alpana Runtime* connection allows to connect to Runtime Connections you created in Alpana Server, see [Runtime Connections](#).

This allows you query this data in a Data Source, and then display it in Widgets like any other data.

Pre-requisite : login

In order to create a Connection from the Designer, you need to be logged-in to the Alpana Server, see [Login to Alpana Server](#)

Selecting a Runtime Connection

Once you are connected to Alpana Server, selecting the *Alpana Runtime* connection type presents the list of all Runtime Connections published on the Server.

Create Connection

Name:

Type:

http://164.132.241.150

- MANAGMENT-INFO
- MANAGMENT-PRODUCTION UNIT
- OperatorLog**
- RC Append
- RC Append modified
- RC limits
- RC Replace
- rc_Mathias
- Scale - unit test - RC Historian thresholds
- Scenario Demo Context
- Sparkline - unit test - RC Historian thresholds
- Sparkline - unit tests - Historian thresholds
- Tarification
- TestConnection

Buffer Refresh Setting: ☒ Enabled Refresh Every:

Select the desired Runtime Connection from the list.

Connection Schema

The Connection presents a single table called `Data`, to be used in a Data Source.
This is the table defined in Alpana Server.

Data refresh and Buffer

The Alpana Runtime Connector is bufferized.

If you need to get new data, see Chapter [The data Buffer](#)

2.4. Wonderware Historian

The Alpana connector for Wonderware Historian allows to get data from the most common query types of Wonderware Historian in a familiar interface.

Getting data is done in two steps :

1. creating the *Connection* : logging into the Wonderware Historian database
2. using the Connection to create *Tables* : create queries to Historian and fetch data into tables

Last modified: Feb 17, 2022

2.4.1. Connecting to Wonderware Historian

As with other *Connection* types, connecting to Wonderware Historian means defining how Alpana will find the data : what is the server address and what is the login.

See the following chapters for detailed information.

Last modified: Feb 17, 2022

2.4.1.1. Version compatibility

Alpana allows to connect natively to the following Wonderware Historian versions :

- 2012 (10.0)
- 2012 R2 (11.0)
- 2014 (11.5)
- 2014 R2 (11.6)
- 2014 R2 SP1 (11.6)
- 2017 Update 3 (17.3)
- 2020 (20.0)

Last modified: Feb 17, 2022

2.4.1.2. Important pre-requisite



Important

If you connect to a fresh install of *Wonderware Historian* Server, tags may not be available for browsing.

Starting Historian clients once

In order to make tags available for browsing, you will have to **startup Wonderware Historian Client Query or Wonderware Historian Client Trend**.

This needs to be done only once. Then the tags will be made available for Alpana.

Enabling SQL login to Historian

Alpana requires SQL authentication to login to Historian.

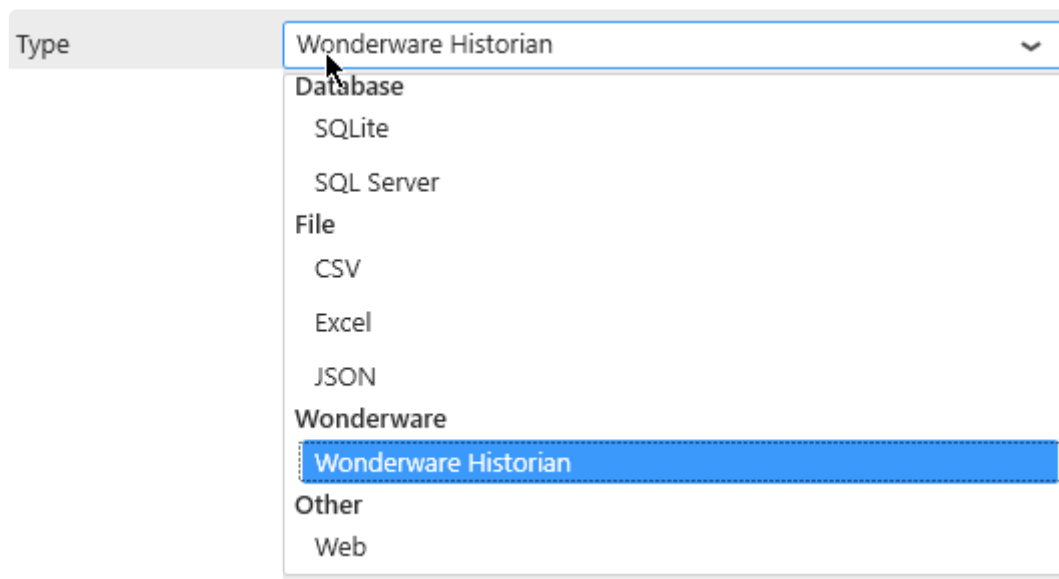
In some versions, those are disabled by default and need to be enabled or created.

See your Wonderware Historian documentation for more details

Last modified: Feb 17, 2022

2.4.1.3. Selecting Connection Type

In the “Create Connection” dialog change the [Connection Type](#) by selecting “*Wonderware Historian*” :



Last modified: Feb 17, 2022

2.4.1.4. Login to a Wonderware Historian server

Connection Parameters

To login to a Wonderware Historian server, fill-in the following fields :

Host	<input type="text" value="localhost"/>
Username	<input type="text" value="dashboards"/>
Password	<input type="password" value="••••••••••"/>

If in the current session you have already connected to a Historian server, you can select it in the combobox below to auto-fill the Host Input.



Important :

Because the Historian Connector can connect to any server regardless if it is a local server or not, you need to specify a **SQL Server account** type to connect to the `Runtime` Database.

Host

This is the address of the SQL Server instance you need to access for the Wonderware Historian “Runtime” database. Possible values are :

- `(local)` or `localhost` : local server
- `<NetBIOSName>` : server named with a NetBIOS name
- `<IPv4Address>` : server accessible through a IP v4 address
- `<IPv6Address>` : server accessible through a IP v6 address
- `<server address>\<instance name>` : connect to a specific instance. For SQL Express, it may be necessary to use `<server address>\SQLEXPRESS`
- `<server address>,1433` : 1433 is the default port for SQL Server, but can be changed like this



Be aware that when searching for a server instance, Alpana waits for a response. If the server instance doesn't respond, there is a rather long timeout.

Username and Password

The Username and Password must be valid SQL credentials configured with Wonderware Historian.

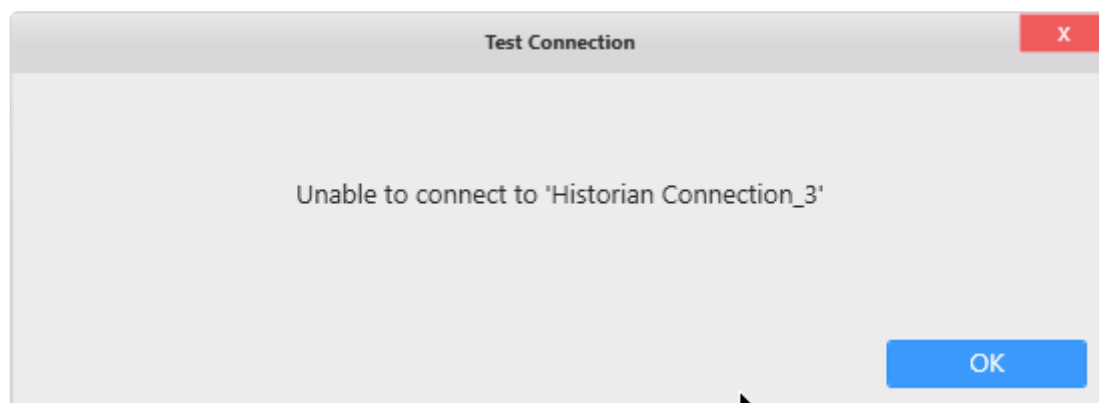
At least, the SQL user must have read permissions to the Historian “`Runtime`” database.

Connecting

When all fields are filled, click OK to create the Connection.

Connection errors

If a connection error happens, a pop-up window appears.



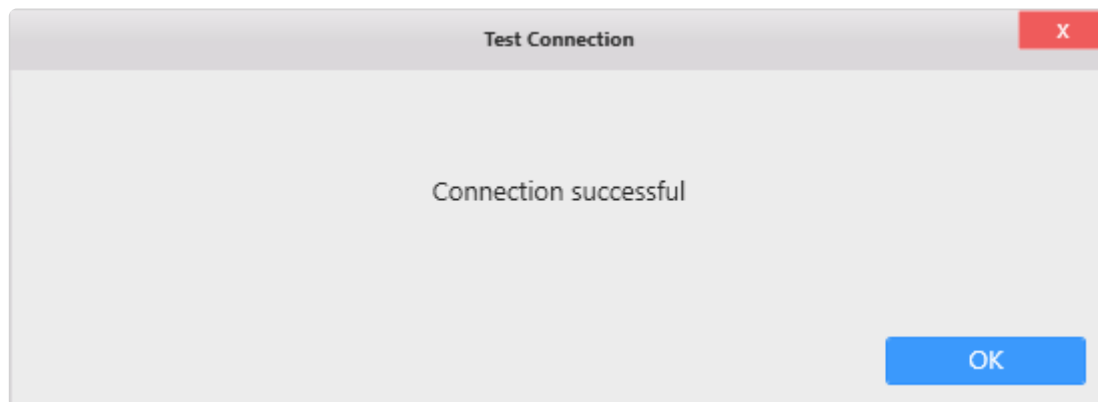
Editing Connection

As with other Connection types, the Historian Connection can be modified later, see [the corresponding chapter](#).

Last modified: Feb 17, 2022

2.4.1.5. Test connection

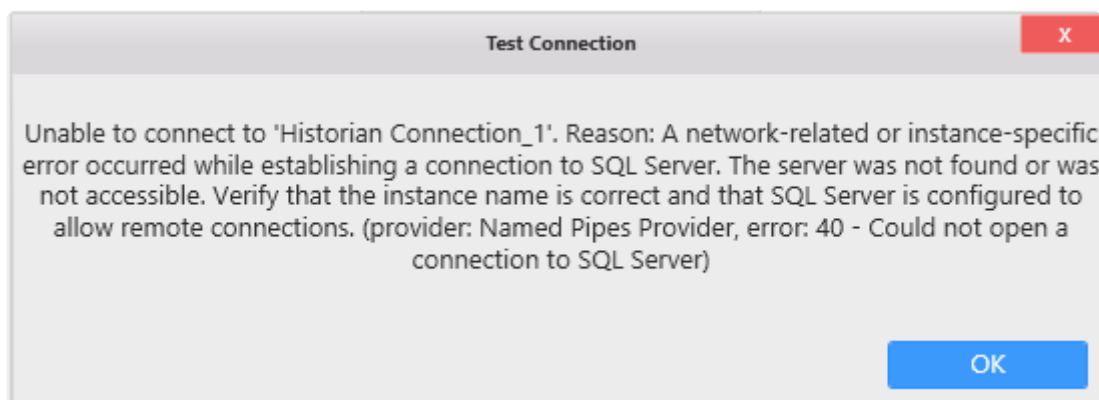
To test the connection for validity, click *Test Connection* button. The following message will confirm its validity.



If the connection is invalid, an appropriate error message will be displayed instead.

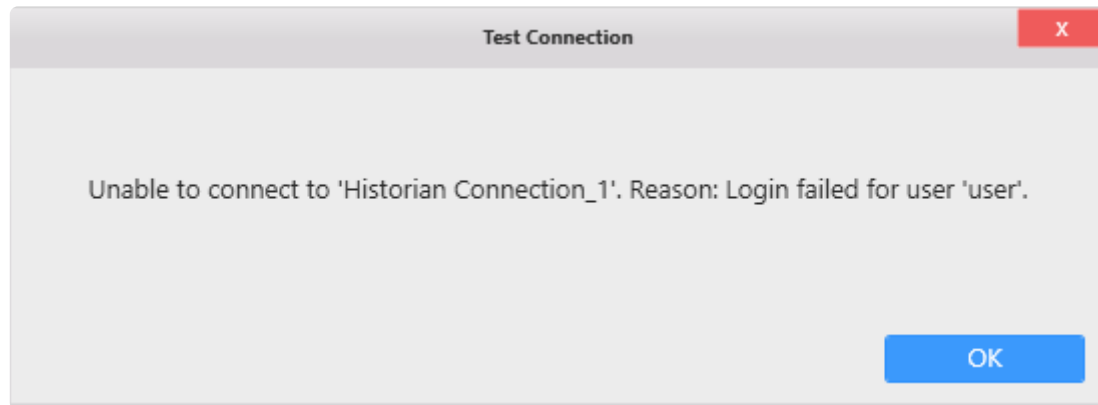
Then you will need to fix the Connection parameters (credentials, server name, ...) or check network connectivity (is the SQL Server accessible from here ?)

The server was not found



Usually after a long timeout, if the error message says "Unable to connect [...] The server was not found or was not accessible", check that the server is accessible from this machine on that port.

Login failed



If the message says “login failed for user”, then Alpana successfully connected to the server, but the credentials were invalid.

Check if that SQL user exist and the password is correct.

Last modified: Feb 17, 2022

2.4.1.6. Data refresh and Buffer

Since Alpana v3.0, the Wonderware Historian Connector is **not bufferized**.

Of course, like other data Connectors, it may become bufferized when used in Multi-Connection Data Sources.

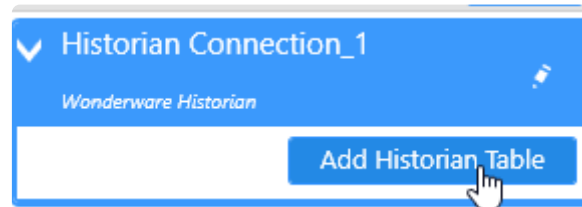
See [the corresponding chapter](#).

Last modified: Feb 17, 2022

2.4.2. Creating Queries to Wonderware Historian

Once the Connection to Wonderware Historian is created, you can re-use it to make several different queries.

Select the desired Historian Connection, and click on *Add Historian Table* :



This will pop-up the *configure Historian Query* dialog.

When the query configuration is complete, a query Table is added to the current Data Source.

Last modified: Feb 17, 2022

2.4.2.1. Picking Tags

The first part of the configuration is selecting Historian tags.

There are 2 way to set tags for the Historian connector :

- Browsing and selecting tags manually
- Using an Alpana datasource as Tag list

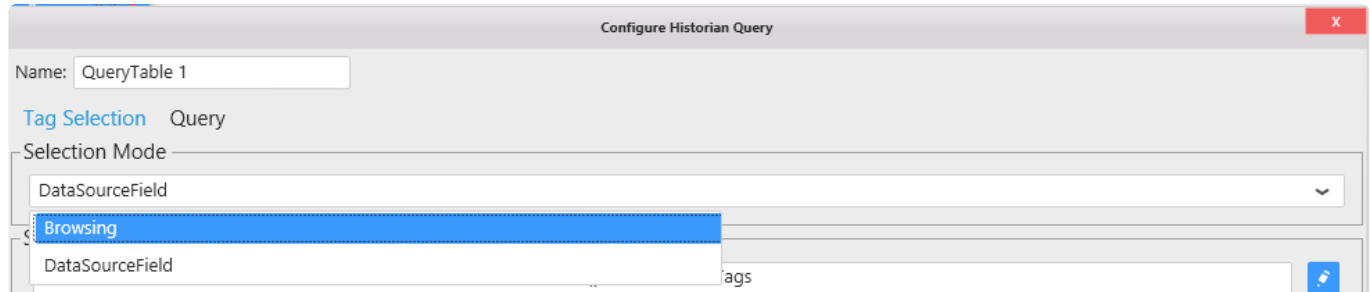
This is documented in the next chapters.

Last modified: Apr 01, 2022

2.4.2.1.1. Browsing for Tags

Start browsing for Tags

In the Tag Selection tab. Select “*Browsing*” in the *Selection Mode* Combo Box :



Navigating the Tag hierarchy

The Historian Tag hierarchy is presented in a tree on the left, with Tag Groups as nodes.

Click on a +/- in the tree to unfold/fold a Tag Group.

Click on Group name to view the list of Tags under that Group.

Last modified: Apr 01, 2022

2.4.2.1.2. Selecting Tags



Important

To make a correct Wonderware Historian Query you have to select one tag at least

Select Tags

To select a Tag, you can click on its checkbox to select it. Once a tag is selected, it appears in the Selected Tags panel like below:

	TagName	Description
<input type="checkbox"/>	FCV002.PV	modulating Control Valve
<input checked="" type="checkbox"/>	FCV101.PV	modulating Control Valve
<input type="checkbox"/>	FCV102.PV	modulating Control Valve
<input type="checkbox"/>	FCV201.PV	modulating Control Valve
<input type="checkbox"/>	FCV202.PV	modulating Control Valve
<input type="checkbox"/>	FCV301.PV	modulating Control Valve
<input type="checkbox"/>	FCV302.PV	modulating Control Valve
<input type="checkbox"/>	FCV401.PV	modulating Control Valve
<input type="checkbox"/>	FCV402.PV	modulating Control Valve

Selected Tags

Unselect Tags

You can unselect a Tag by clicking again on its Selected check box or you can click on the cross button in the Selected Tags panel like below:

TagNames

	TagName	Description
<input type="checkbox"/>	FCV002.PV	modulating Control Valve
<input checked="" type="checkbox"/>	FCV101.PV	modulating Control Valve
<input type="checkbox"/>	FCV102.PV	modulating Control Valve
<input type="checkbox"/>	FCV201.PV	modulating Control Valve
<input type="checkbox"/>	FCV202.PV	modulating Control Valve
<input type="checkbox"/>	FCV301.PV	modulating Control Valve
<input type="checkbox"/>	FCV302.PV	modulating Control Valve
<input type="checkbox"/>	FCV401.PV	modulating Control Valve
<input type="checkbox"/>	FCV402.PV	modulating Control Valve
<input type="checkbox"/>	FCV403.PV	modulating Control Valve

Selected Tags

✖

FCV101.PV

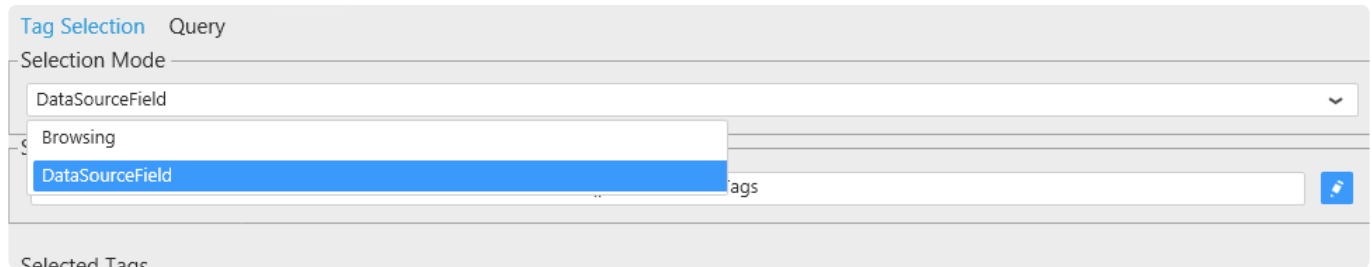
Last modified: Feb 17, 2022

2.4.2.1.3. Using Datasource as Tag list

Using a previously configured datasource with a list of tags can be used in the Historian connector.

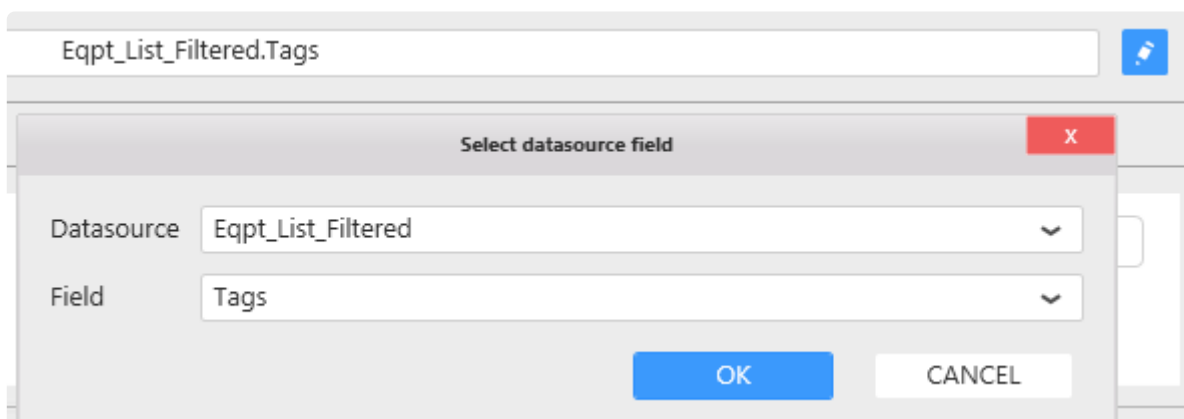
Selecting a Data source

In the Tag Selection tab. Select “*DataSourceField*” in the *Selection Mode* Combo Box :



The screenshot shows the 'Tag Selection' dialog box with the 'Query' tab selected. The 'Selection Mode' dropdown menu is open, displaying three options: 'DataSourceField', 'Browsing', and 'DataSourceField'. The 'DataSourceField' option is highlighted. Below the dropdown, the 'Tags' field contains the text 'tags'. The 'Selected Tags' section is empty.

Once this mode is selected, A datasource and a field can be configured by editing the Select Datasource Field :



The screenshot shows the 'Select datasource field' dialog box. The 'Datasource' field is set to 'Eqpt_List_Filtered' and the 'Field' field is set to 'Tags'. The 'OK' button is highlighted. The dialog box has a title bar with a close button (X) and a blue icon button.

After the Datasource is configured, the Selected Tags zone should list the tag contained in the field :

Configure Historian Query

Name: QueryTable 1

Tag Selection Query

Selection Mode
DataSourceField

Select Datasource Field
Eqpt_List_Filtered.Tags

Selected Tags

FT101.Value FT102.Value FT201.Value FT202.Value FT301.Value
FT302.Value

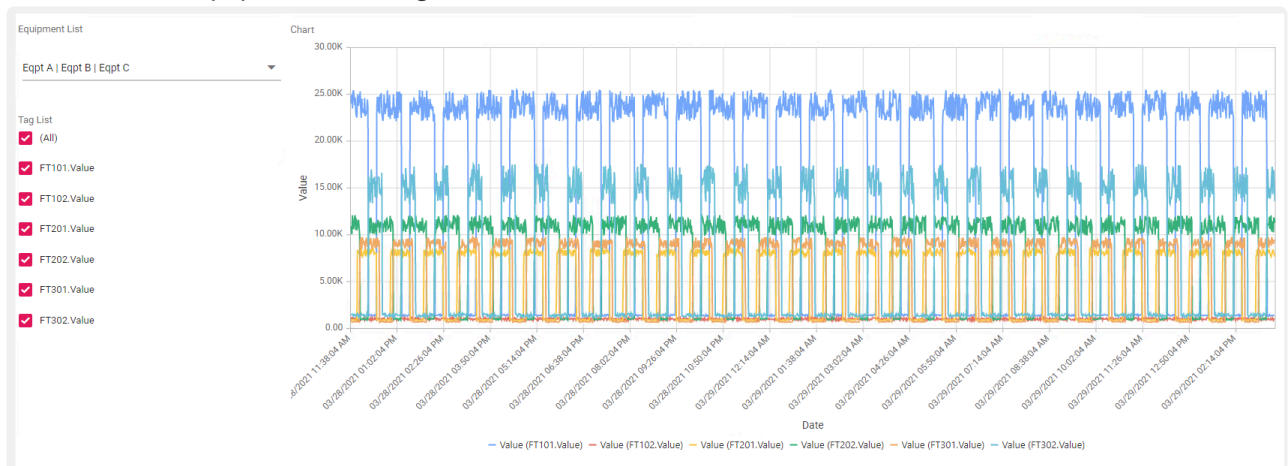
OK CANCEL

Dynamic filtering the tag list

If the Tag list must be updated dynamically by a parameter. It could be better to join the tag list in the datasource and filter both table by the parameter.

An example to filter Tagname from Tags and equipments:

- From a list of equipment with tags for each of them:



- In the Datasource, Adding The Historian connector with the Tag list:

QueryTable 1

- TagName (Filtered)
- Date
- Value
- vValue
- OPCQuality
- QualityDetail
- QualityDescription
- MinEU
- MaxEU

Data_2

- Eqpts (Filtered)
- Tags

Join Editor

First Table: QueryTable 1

Join Type: Inner Join

Right Table: Data_2

Condition: TagName = Tags

Join Conditions for table Data_2:

TagName = Tags

Buttons: Add, OK, CANCEL

Preview

gName	Date	Value	vValue	OPCQuality	QualityDetail	QualityDescription	MinEU	MaxEU
01.Value	3/28/2021 5:35 PM	850.2721205355004	850.27212053550045	192				
02.Value	3/28/2021 5:35 PM	1145.8999808858614	1145.8999808858614	192				

- Filtering the datasource with parameter from Equipment list and tag list:

Filter Editor

Limit result to 10 row(s)

Filter 1: TagName In Tags_Parameter Use Parameter

And

Filter 2: Eqpts In Eqpts_Parameter Use Parameter

Buttons: Add, OK, CANCEL

Last modified: Apr 01, 2022

2.4.2.2. Configuring the Historian Query

Wonderware Historian allows many ways to query the data.

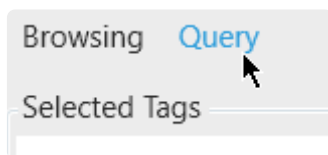
To make users feel at home, Alpana replicates these configuration options in the query configuration.

See the next chapters for details.

Last modified: Feb 17, 2022

2.4.2.2.1. Going to Query Configuration

To set all the main Wonderware Historian query parameters, click on the Query Tab shown below



Note that the list of currently selected tags appear at the top of the panel.

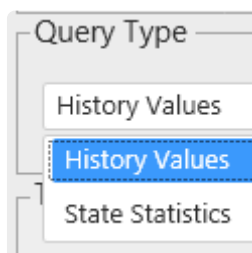
Last modified: Feb 17, 2022

2.4.2.2.2. Query Type

In Alpana, two Query Types are possible for Wonderware Historian :

- History Values
- State Statistics

You can select the Query Type from the listbox at the top of the Query panel :



History Values

This is the classic Historian Query for showing trends.

A history of Tag values is returned.

State Statistics

This query (sometimes called “State Summary Values”) allows to calculate how much time a Tag had value.

This allows to calculate for example, how long an equipment was in each of its states, and calculate performance indicators.

Last modified: Feb 17, 2022

2.4.2.2.3. Time Settings

In the panel on the left, you can configure the Time settings for the query

The screenshot shows a 'Time' settings panel. At the top, 'Time Settings' is set to 'Static Time Settings'. Below this, there are two sections for date and time selection. The first section, 'Link to start date', has an unchecked checkbox and a date picker showing '15'. The second section, 'Link to end date', also has an unchecked checkbox and a date picker showing '15'. Between these sections, there are two time pickers, each showing '00' for hours, minutes, and seconds.

The time interval of the query can be :

- Static : User interaction at runtime cannot change the time interval
 - a [frozen time range](#)
 - a [moving time window](#) always ending **now**
- [Parameter-based](#) : User interaction at runtime can dynamically change the time interval of the query

The screenshot shows the 'Time' settings panel with the 'Time Settings' dropdown menu open. The menu has three options: 'Parameter Based Settings', 'Static Time Settings' (which is highlighted with a blue background and a mouse cursor), and 'Static Time'.

Last modified: Feb 17, 2022

2.4.2.2.3.1. Static Time Settings

What are Static Time settings

When using *Static Time Settings*, the start date and end date of the Historian query cannot be changed by user interaction at runtime.

Note that you can still create a moving time frame (see [below](#)).

This allows to make a pre-defined query to show users precisely the data you want to show. You can still let users filter this data by time, but they cannot explore outside the pre-defined query.

* If you want to let users explore any time frame at runtime, use [Parameter-Based Time Settings](#) instead.

How to configure

Use the panel on the left to configure the Time settings for the query :

The screenshot shows a configuration panel titled "Time". It contains the following elements:

- Time Settings:** A dropdown menu currently set to "Static Time Settings".
- Link to start date:** A checkbox (unchecked) followed by a date selection field labeled "Select a date" with a calendar icon and the number "15".
- Time:** A row of input fields for "00" H, "00" M, and "00" S.
- Interval:** A dropdown menu currently set to "5 Minute".
- Link to end date:** A checkbox (unchecked) followed by a date selection field labeled "Select a date" with a calendar icon and the number "15".
- Time:** A second row of input fields for "00" H, "00" M, and "00" S.

Moving time window

By default, the time range is a moving time window that ends **now** and starts some time ago depending on the *Interval*.

You can set the time Interval by using the corresponding listbox :

Frozen time range

Instead, you can choose to freeze a time range : the data returned will always be between a pre-defined *start date* and *end date*.

You have the possibility to freeze the *start date* or the *end date* here by checking it like below the desired checkbox :

Then you can configure the Datetime from the text box or by clicking on the calendar :

You can set the time by typing it in the following input :



Note :

If you select both, the interval option will be disabled

Last modified: Feb 17, 2022

2.4.2.2.3.2. Parameter Based Settings

What are Parameter-Based Time Settings

With *Parameter-Based Time Settings*, the start date and end date of the Historian query are contained in a [Alpana Parameter](#).

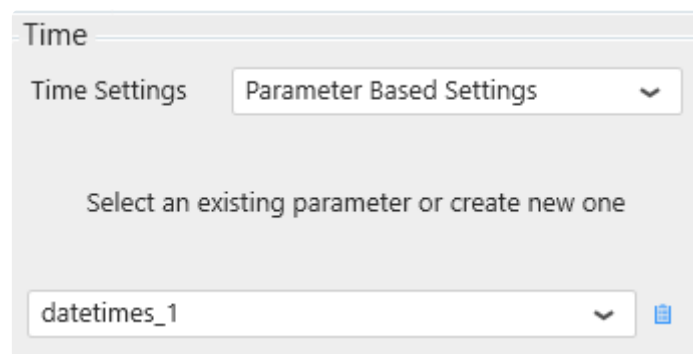
This means that the values can be changed at runtime using User interaction (filters, URL parameters).

✿ This is useful for letting users explore any time range in the Historian data.

How to configure

! To configure a parameter-based Historian query, the [Alpana Parameter](#) containing the values must already exist and have multiple values (exactly 2 values) : the start date and end date.

Use the panel on the left to select an existing Parameter from the dropdown list, or create a new Parameter using the shortcut button :



Hint

A recommended way to proceed is to :

1. have a separate [DataSource](#) with field containing a list of possible dates/times for the user to select from (this is easy to do in Excel, CSV, SQL)
2. create a [Master Widget](#) for the user to select the date/time, and configure it with the above DataSource
3. make a [default selection](#) in the Master Widget, possibly using [relative time default selection](#) (if the Widget type allows it), so that the Parameter always has a value
4. configure the Historian query with Parameter-Based Time Settings, using the Parameter that was automatically generated by the Master Widget

Last modified: Feb 17, 2022

2.4.2.2.4. History Values : query parameters

Introduction

The History Values query has many parameters to configure.

Below is a brief description on how to configure them.

For more information, please see the corresponding help topics in the Wonderware Historian documentation.

In the *Retrieval* part of the window you can set all retrieval parameters :

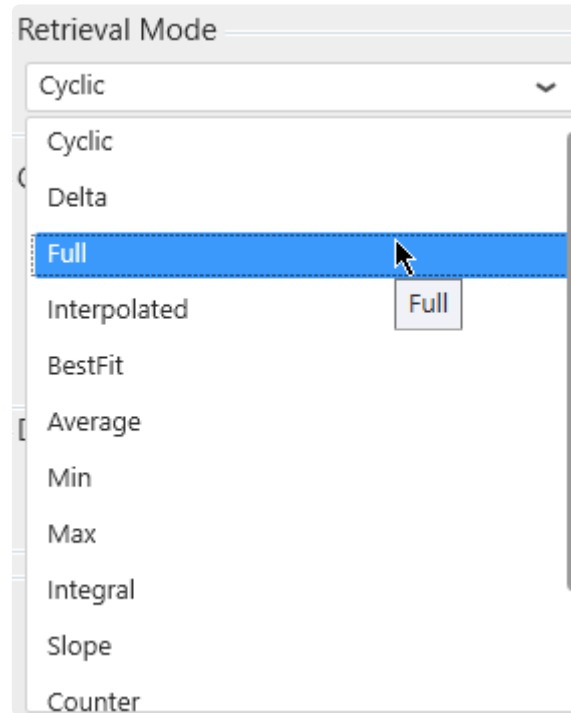
The screenshot shows the 'Retrieval' configuration window. It has two tabs: 'Main Options' (selected) and 'Other'. Under 'Main Options', there are three sections:

- Retrieval Mode:** A dropdown menu set to 'Cyclic'.
- Query Row Limit:** A section with a 'First' label, a text input field containing '0', and a 'rows' label.
- Cyclic Attributes:** A section with two radio buttons:
 - ☒ Values over equal time intervals: A text input field containing '100'.
 - ☐ Values spaced every: A text input field containing '0' followed by a 's' (seconds) label.

Below these are two labels: 'Interpolation Type' and 'Tag Setting', each followed by a dropdown arrow. At the bottom is the **Delta Retrieval Deadband** section, which contains two pairs of controls: 'Time' with a text input '0' and 'ms' label, and 'Value' with a text input '0.00' and '%' label.

Retrieval mode

You can select a *Retrieval Mode* (Cyclic is the default) :

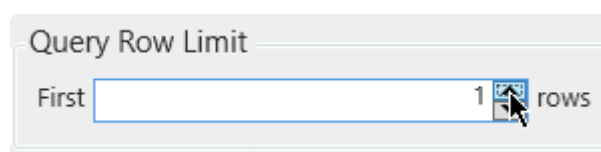


All Wonderware Historian retrieval modes are available :

- Cyclic
- Delta
- Full
- Interpolated
- BestFit
- Average
- Min
- Max
- Integral
- Slope
- Counter
- ValueState
- RoundTrip

Query row limit

A *Query Row Limit* can be set :



This allows to limit the number of data rows returned.

Cyclic Attributes

The *Cyclic Attributes* can be configured :

Cyclic Attributes

☒ Values over equal time intervals

☐ Values spaced every s

Interpolation Type Tag Setting



Note

The Cyclic panel control is accessible only when one of the following Retrieval Modes is selected: Cyclic, BestFit, Average, Min, Max, Integral, slope, Counter, ValueState, Roundtrip

Delta Attributes

The *Delta Retrieval Deadband* can be configured :

Delta Retrieval Deadband

Time ms Value %

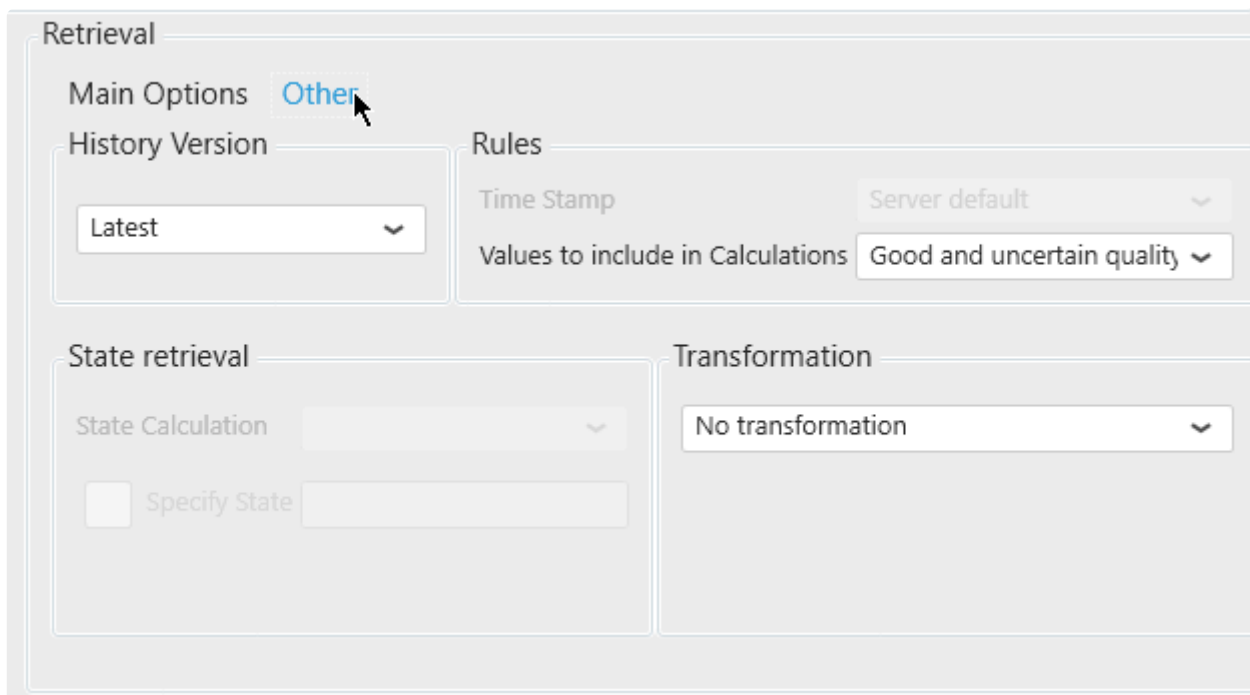


Note

The Delta panel control is accessible only when *Delta Retrieval Mode* is selected.

Other Attributes

To display the other retrieval options click on the *Other* button :



The screenshot shows a 'Retrieval' configuration window. At the top, there are two tabs: 'Main Options' and 'Other', with a mouse cursor pointing at 'Other'. Below the tabs, the window is divided into several sections:

- History Version:** A dropdown menu currently showing 'Latest'.
- Rules:** Contains two settings:
 - Time Stamp:** A dropdown menu showing 'Server default'.
 - Values to include in Calculations:** A dropdown menu showing 'Good and uncertain quality'.
- State retrieval:** Contains:
 - State Calculation:** A dropdown menu.
 - Specify State:** A checkbox that is currently unchecked, followed by an empty text input field.
- Transformation:** A dropdown menu showing 'No transformation'.

Here, you can configure the History Version, the Rules Settings, the State Retrieval (available depending the retrieval mode chosen) and the Transformation options.

Limitation



Note

The Phantom Cycle : Do not include boundary values feature is currently not supported

Last modified: Feb 17, 2022

2.4.2.2.5. History Values: query Format

As with the Wonderware Historian Query client, the Alpana query to Historian is by default in *Narrow* format.

<input checked="" type="radio"/> Narrow query format			<input type="radio"/> Wide query format		
TagName	DateTime	vValue	DateTime	SysCPU0	SysCPU1
SysCPU 0	1/20/2005	2	1/20/2005	0	2
SysCPU 1	1/20/2005	3	1/20/2005	0	5
SysCPU 2	1/20/2005	0	1/20/2005	0	5

Alternately, you can select the **Wide** Query Format by checking the checkbox under *Format* :

Format

☒ Use Wide Query

* Note : This is only available when using the *History Values* Query type.

Instead of the default narrow query, it will act as a pivot table to compare your selected tags into different columns over time.

* This is *very useful* to achieve some widget configurations.
For example, it will allow you to display 2 different tags on 2 different Y Axis on the same Chart.

Last modified: Feb 17, 2022

2.4.2.2.6. State Statistics : query parameters

Parameters

Introduction

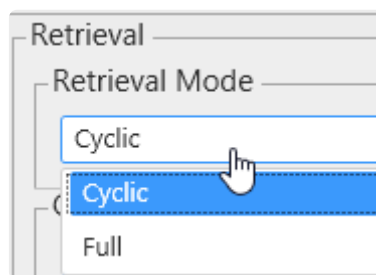
The State Statistics query has a few parameters to configure.

Below is a brief description on how to configure them.

For more information, please see the corresponding help topics in the Wonderware Historian documentation.

Retrieval Mode

The Retrieval Mode can be changed with the corresponding listbox :

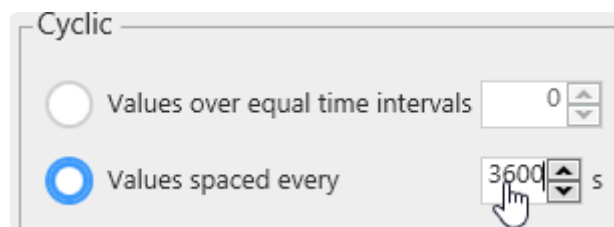


The following Retrieval Modes are available :

- Cyclic
- Full

Cyclic parameters

For Cyclic retrieval, the value spacing can be selected from fixed number or fixed duration :



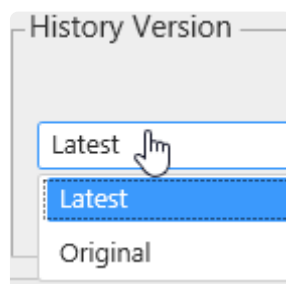
Full parameters

For Full retrieval, a row limit can be set :



History Version

The History Version listbox allows to select “Latest” or “Original” :



Common usage example

A common usage is to set Cyclic retrieval with values spaced over 1h or 1 day, and a start time at a full hour like midnight.

This will return state statistics with hourly (or daily) information of how much time (total, %, ...) was spent in each state.

Last modified: Feb 17, 2022

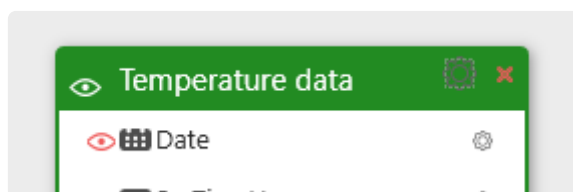
2.4.2.3. Renaming the Query Table

The Query Table can be renamed so that it has a meaningful name inside the Data Source configuration :



Configure Historian Query

Name: Temperature data



Last modified: Feb 17, 2022

2.4.3. Wonderware Historian query result

After configuring the query, Alpana is able to send it to the Wonderware Historian server and get the result.

This result will be modeled as a Table inside the current Data Source.

For details about the schema and data of this query result, see the next chapters.

Last modified: Feb 17, 2022

2.4.3.1. Connection Schema

The Wonderware Historian Connection presents its Result in a table which can be [renamed at the query level](#).

Data Fields

The fields of the Historian table depend on the query Type.

For a detailed description of these fields and their meaning, see the corresponding documentation from Wonderware.

History Values

For a History Values query in [narrow Format](#) (the default), the following fields are returned :

- TagName
- Date
- Value
- vValue
- OPCQuality
- QualityDetail
- QualityDescription
- MinEU
- MaxEU

For a History Values query in [Wide Format](#), the following fields are returned :

- Date
- (first tag)
- (second tag)
- (...)
- wwResolution

State Statistics

For a State Statistics query, the following fields are returned :

- TagName
- StartDateTime
- EndDateTime
- Value
- vValue
- OPCQuality
- StateCount
- StateTimeMin
- StateTimeMax
- StateTimeAvg

- StateTimeTotal
- StateTimePercent

Last modified: Feb 17, 2022

2.4.3.2. Important : data limits



Important

In order to limit performance issues for huge Historian queries, some limitations have been set.

The Wonderware Historian Connector has the following intentional limitations :

- 10000 max data rows per query
- 30s timeout

When a Historian query returns more than 10000 results, it returns the first 10000.

Last modified: Feb 17, 2022

2.5. Aveva Insight

(new in Alpana 2020 R1)

The Alpana connector for Insight allows to get data from the “time series” part of Aveva Cloud Operations (historically Historian Online).

Internally, it uses the Historian Data REST API.

Getting data is done in two steps :

1. creating the *Connection* : logging-in to Aveva Cloud Operations
2. using the Connection to create *Tables* : create queries to time series inside Aveva Cloud Operations and fetch data into tables

Last modified: Feb 17, 2022

2.5.1. Connecting to Insight

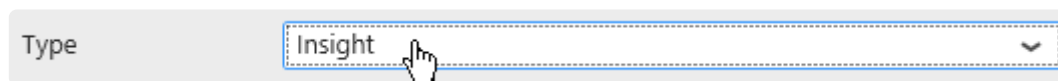
As with other *Connection* types, connecting to Insight means defining how Alpana will find the data : what is the server address and what is the login.

See the following chapters for detailed information.

Last modified: Feb 17, 2022

2.5.1.1. Selecting Connection Type

In the “Create Connection” dialog change the [Connection Type](#) by selecting “*Insight*” :

A screenshot of a software interface showing a 'Type' dropdown menu. The word 'Insight' is selected and displayed within the dropdown box. A mouse cursor is positioned over the dropdown arrow on the right side of the box. The entire dropdown is enclosed in a light gray rounded rectangle.

Last modified: Feb 17, 2022

2.5.1.2. Login to Aveva Cloud Operations

Connection Parameters

To login to Aveva Cloud Operations, there are two main modes :

- *Basic Auth*, or “Basic Authentication” : using login credentials to access Historian Data REST API.
- *Bearer Token* or “API Key Authentication” : using authentication keys to access Historian Data REST API

To connect, fill-in the corresponding fields :

Solution Name and Domain

Solution Name	<input type="text"/>
Domain	<input type="text" value="com"/>

The *Solution Name* is informational only, and doesn't participate in the actual connection.

It will be displayed at the root of the tag selection.

It is preferable to set your actual solution name, so that the tag tree resembles what you're used to.

The *Domain* allows to select the server connection :

- `com` are the U.S. servers, with a URL like `https://online.wonderware.com/`
- `eu` are the Europe servers, with a URL like `https://online.wonderware.eu/`

Basic Auth : Basic Authentication

Select this if you want to authenticate using login credentials (username and password) to connect to Insight.

Fill-in the corresponding fields :

<input checked="" type="radio"/> Basic Auth	<input type="radio"/> Bearer Token
Solution ID	<input type="text"/>
User Name	<input type="text"/>
Password	<input type="password"/>

Solution ID

This is the identifier of your solution found in the API URL's.

To find the value, login to Insight from your web browser, and navigate to *Administration > Integration Settings > REST API*, and open the “Basic Authentication” parameters.

There you will find an *Endpoint* similar to `https://online.wonderware.com/s/a9jers/apis/Historian/v2/` (the actual endpoint will be different in your case).

Your solution ID is that `a9jers` part for example (the actual value is specific to your Solution).

Paste it into the Alpana setting.

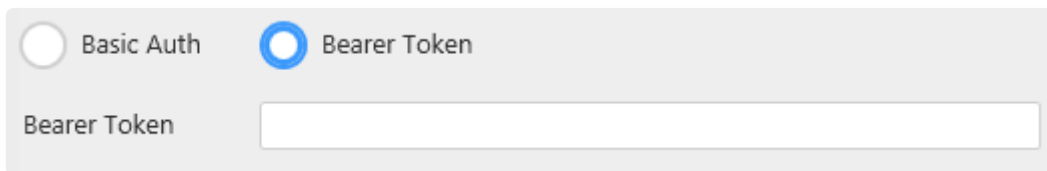
User Name and Password

This is the User Name (Email) and Password you use for connecting to Aveva Cloud Operations.

Bearer Token : API Key Authentication

Select this if you want to authenticate using authentication keys (API Key) to connect to Insight.

Fill-in the corresponding field :



The form contains two radio buttons: 'Basic Auth' (unselected) and 'Bearer Token' (selected). Below the 'Bearer Token' radio button is a text input field with the label 'Bearer Token' to its left.

Bearer Token is the API Key (OData bearer token) used to authenticate.

To find the value, login to Insight from your web browser, and navigate to *Administration > Integration Settings > REST API*, and open the “API Key Authentication” parameters.

This is where you generate an new API Key, or copy the value of an existing key.

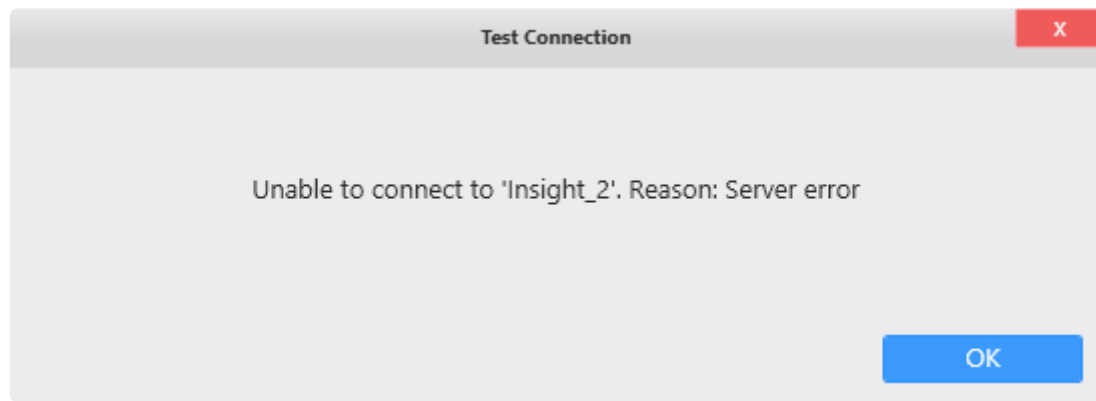
The Bearer Token is this `Bearer ejzuNiz_sl63aOeyI...` value. Paste it into the Alpana setting, including the “@Bearer @” part.

Connecting

When all fields are filled, click OK to create the Connection.

Connection errors

If a connection error happens, a pop-up window appears :



Check the connection settings and try again.

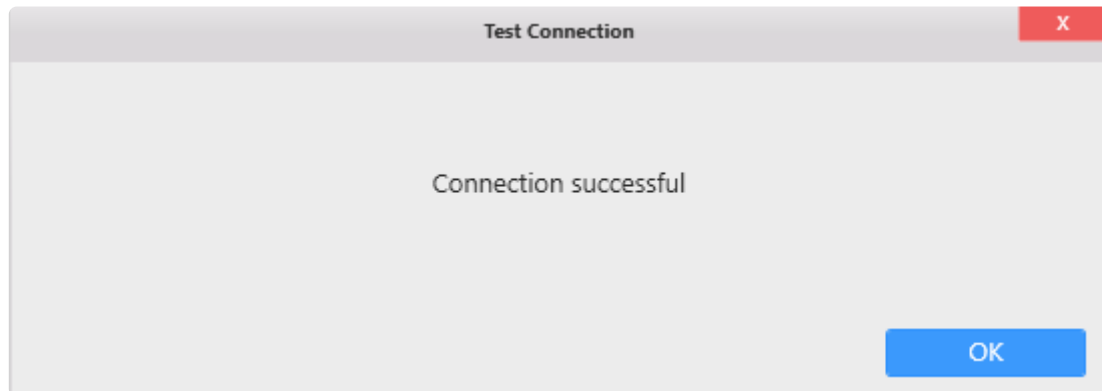
Editing Connection

As with other Connection types, the Insight Connection can be modified later, see [the corresponding chapter](#).

Last modified: Feb 17, 2022

2.5.1.3. Test connection

To test the connection, click *Test Connection* button. The following message will confirm its validity :



If the connection is invalid, an appropriate error message will be displayed instead.

Then you will need to fix the Connection parameters (credentials, ...) or check network connectivity (are the Insight servers accessible from here ?)

Last modified: Feb 17, 2022

2.5.1.4. Data refresh and Buffer

The Insight Connector is bufferized.

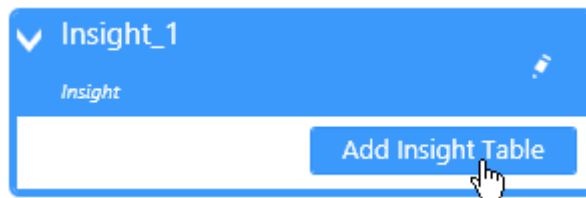
If you need to get new data, see [the corresponding chapter](#).

Last modified: Feb 17, 2022

2.5.2. Querying Insight

Once the Connection to Insight is created, you can re-use it to make several different queries.

Select the desired Insight Connection, and click on *Add Insight Table* :



This will pop-up the *Create Insight Query* dialog.

When the query configuration is complete, a query Table is added to the current Data Source.

Last modified: Feb 17, 2022

2.5.2.1. Picking Tags

The first part of the configuration is selecting Insight tags.
This is documented in the next chapters.

Last modified: Feb 17, 2022

2.5.2.1.1. Browsing for Tags

Start browsing for Tags

Click on the *Browsing* tab (open by default) to start browsing for tags to pick :

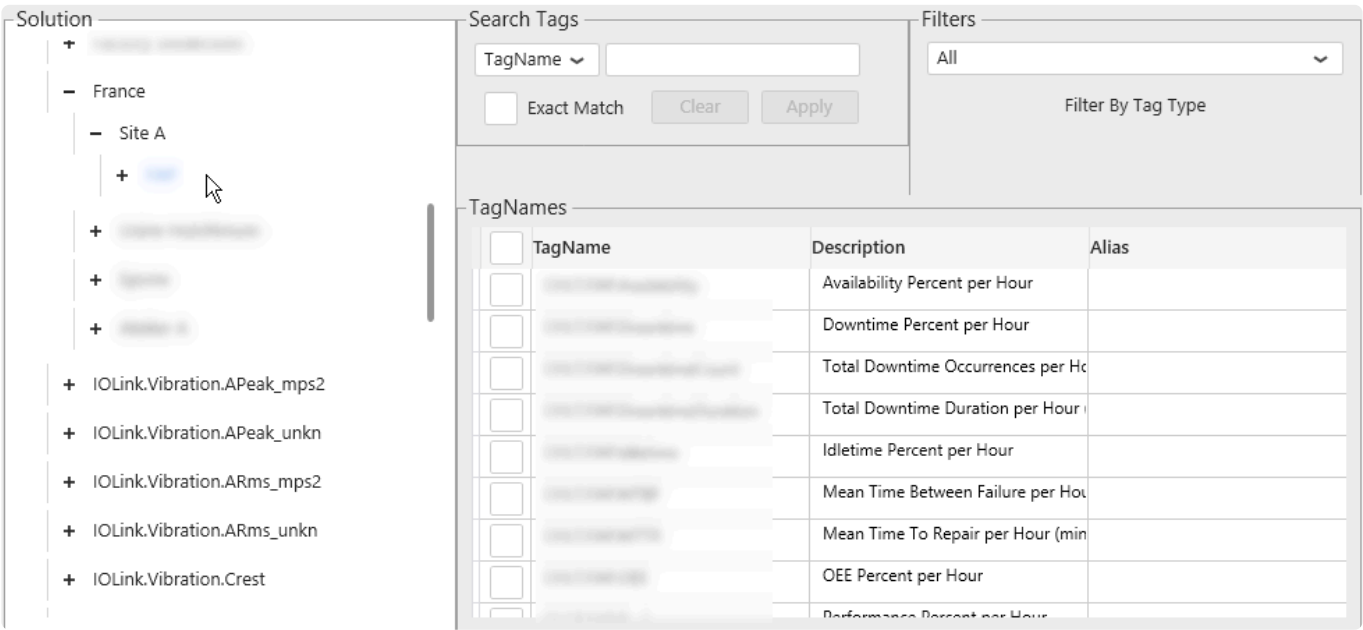


Navigating the Tag hierarchy

The Insight Tag hierarchy is presented in a tree on the left, organized by the *Location* property of the Tag.


Click on a +/- in the tree to unfold/fold a Tag group (grouped by location).

Click on group name to view the list of Tags under that group.



The list of Tags in the currently selected group is presented in a list on the right.

Filtering the Tag list

 Search and Filter only apply to the currently selected Tag group. If no Tag group is selected, then the result is always empty.

Search Tags

Description ▾

☐ Exact Match

Filters

All ▾

Filter By Tag Type

TagNames

	TagName	Description	Alias
<input type="checkbox"/>		Availability Percent per Hour	
<input type="checkbox"/>		Availability Percent per Hour	

Filter by Tag name or property

In “Search tags”, select a property to search :

- FQN : the fully qualified name for the tag
- TagName : the name of the Tag
- Source : the data source
- Description : the Tag description
- Alias : the Tag alias
- TagDataType : the data type

Then enter the desired text to search and click “Apply” to filter Tags whose property contain that text.

You can also check for an “Exact Match” only.

Filter by data type

In “Filters”, you can filter the tag list by data type :

Last modified: Feb 17, 2022

2.5.2.1.2. Selecting Tags



Important

To make a correct Insight query you have to select one tag at least

Select Tags

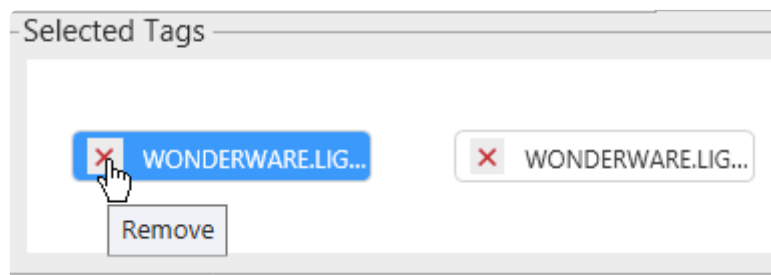
To select a Tag, you can click on its checkbox to select it :

TagNames			
<input type="checkbox"/>	TagName	Description	Alias
<input checked="" type="checkbox"/>	WONDERWARE.LIGNE_1.Availability	Availability Percent per Hour	
<input checked="" type="checkbox"/>	WONDERWARE.LIGNE_1.Downtime	Downtime Percent per Hour	
<input type="checkbox"/>	WONDERWARE.LIGNE_1.Downtime	Total Downtime Occurrences per Hour	

Unselect Tags

Once a tag is selected, it appears in the *Selected Tags* panel.

You can unselect a Tag by clicking again on its Selected check box or you can click on the cross button in the Selected Tags panel like below:



Note : you can hover the tag in the *Selected Tags* panel to see its full name in a tooltip.

Last modified: Feb 17, 2022

2.5.2.2. Configuring the query

Insight allows many ways to query the data.

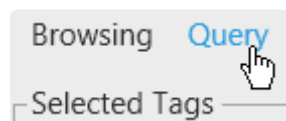
To make users feel at home, Alpana replicates these configuration options in the query configuration.

See the next chapters for details.

Last modified: Feb 17, 2022

2.5.2.2.1. Going to Query Configuration

To set all the main Insight query parameters, click on the *Query* Tab shown below



Note that the list of currently selected tags appear at the top of the panel.

Last modified: Feb 17, 2022

2.5.2.2.2. Query Type

Currently in Alpana, only one Query Types is possible for Insight : *ProcessValues*

Retrieves a set of process value records (where each record includes value + time + quality, or VTQ) for the specified tags.

Last modified: Feb 17, 2022

2.5.2.2.3. Time Settings

In the panel on the left, you can configure the Time settings for the query

Time Settings

Mode Manual

☐ Link To Start Date Select a date 15

Time 00 H 00 M 00 S

☐ Link To End Date Select a date 15

Time 00 H 00 M 00 S

Time Span 3 H

The time interval of the query can be :

- *Manual* : User interaction at runtime cannot change the time interval
 - a frozen time range : the same time interval is always retrieved
 - a time span : data is retrieved in a a moving time window always ending **now**
- *Parameter* based : User interaction at runtime can dynamically change the time interval of the query

Time Settings

Mode Manual

☐ Link Parameter

Manual

Time 00 H 00 M 00 S

Last modified: Feb 17, 2022

2.5.2.2.3.1. Manual Time Settings

What are Manual Time settings

When using *Manual Time Settings*, the start date and end date of the Insight query cannot be changed by user interaction at runtime.

Note that you can still create a moving time frame, see below.

This allows to make a pre-defined query to show users precisely the data you want to show.

You can still let users filter this data by time, but they cannot explore outside the pre-defined query.

* If you want to let users explore any time frame at runtime, use *Parameter-Based Time Settings* instead.

How to configure

Use the panel on the left to configure the Time settings for the query :

Time Settings

Mode Manual

☐ Link To Start Date Select a date 15

Time 00 H 00 M 00 S

☐ Link To End Date Select a date 15

Time 00 H 00 M 00 S

Time Span 3 H

Moving time window

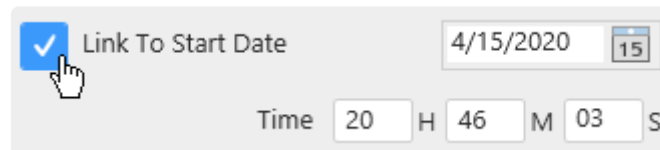
By default, the time range is a moving time window that ends **now** and starts some time ago depending on the *Time Span*.


You can set the *Time Span* by using the corresponding control.

Frozen time range

Instead, you can choose to freeze a time range : the data returned will always be between a pre-defined *start date* and *end date*.

You have the possibility to freeze the *start date* or the *end date* here by checking it like below the desired checkbox :



Link To Start Date ☒ 4/15/2020 

Time 20 H 46 M 03 S

Then you can configure the Datetime from the text box or by clicking on the calendar



Note :

If you select both, the interval option will be disabled

Last modified: Feb 17, 2022

2.5.2.2.3.2. Parameter Based Settings

What are Parameter-Based Time Settings

With *Parameter-Based Time Settings*, the start date and end date of the Insight query are contained in a [Alpana Parameter](#).

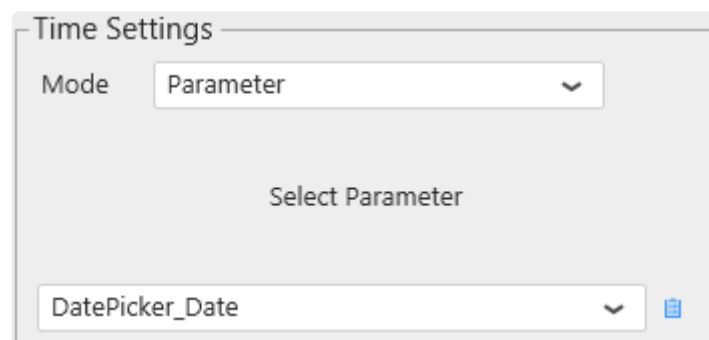
This means that the values can be changed at runtime using User interaction (filters, URL parameters).

✿ This is useful for letting users explore any time range in the Insight data.

How to configure

! To configure a parameter-based Insight query, the [Alpana Parameter](#) containing the values must already exist and have multiple values (exactly 2 values) : the start date and end date.

Use the panel on the left to select an existing Parameter from the dropdown list, or create a new Parameter using the shortcut button :



Hint

A recommended way to proceed is to :

1. have a separate [DataSource](#) with field containing a list of possible dates/times for the user to select from (this is easy to do in Excel, CSV, SQL). Note this is optional with some widgets like Date Picker which support creating a list of dates without a Data Source.
2. create a [Master Widget](#) for the user to select the date/time, and configure it with the above DataSource
3. make a [default selection](#) in the Master Widget, possibly using [relative time default selection](#) (if the Widget type allows it), so that the Parameter always has a value
4. configure the Insight query with Parameter-Based Time Settings, using the Parameter that was automatically generated by the Master Widget

Last modified: Feb 17, 2022

2.5.2.2.4. Process Values : query parameters

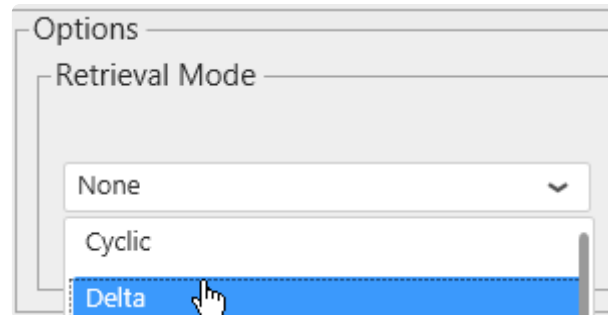
Introduction

The Process Values query exposes some configuration options.

Below is a brief description on how to configure them.

For more information, please see the corresponding help topics in the [Insight](#) documentation.

In the *Retrieval* part of the window you can select the Retrieval Mode :



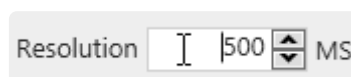
RetrievalMode and *Resolution*

You can use the *RetrievalMode* and *Resolution* parameters in retrieval queries to better control the returned data.

RetrievalMode specifies how the resulting data is calculated for Raw and ProcessValues entities. Valid values are:

- *Cyclic*
- *Delta*
- *Full*
- *Interpolated*
- *BestFit*
- *Average*
- *Minimum*
- *Maximum*
- *Integral*
- *Slope*
- *Counter*

Resolution specifies the granularity of data returned :

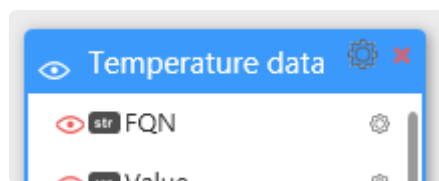


Last modified: Feb 17, 2022

2.5.2.3. Renaming the Query Table

The Query Table can be renamed so that it has a meaningful name inside the Data Source configuration :

Name:



Last modified: Feb 17, 2022

2.5.2.4. Configuring the query result

The Insight Connection presents its Result in a table.

Some default fields are always displayed, and some additional fields can be added, to help add more context to the data.

Data Fields

The following fields are returned by default :

- *FQN* : the fully qualified name for the tag
- *Value* : the process value as a number
- *DateTime* : the process measurement time
- *Text* : the process value as text
- *OPCQuality* : the measurement quality

Additionally, you can select the following fields to add metadata to the result :

- *EngUnit* : the measurement unit
- *EngUnitMax* : the measurement high limit
- *EngUnitMin* : the measurement low limit
- *InterpolationType* : the type of interpolation used when returning data
- *MessageOff* : the text to display when the boolean is false
- *MessageOn* : the text to display when the boolean is true
- *SourceTag* : the TagName of the source Tag
- *Namespace* : the namespace
- *Raw@odata.navigationLink* : a link to more JSON data about the tag, which requires authentication
- *Minutely@odata.navigationLink* : a link to more JSON data about the tag, which requires authentication
- *Hourly@odata.navigationLink* : a link to more JSON data about the tag, which requires authentication
- *Daily@odata.navigationLink* : a link to more JSON data about the tag, which requires authentication
- *Description* : the Tag description
- *TagName* : the name of the Tag
- *TagType* : the type of tag (Analog, etc)
- *Source* : the data source
- *Alias* : the Tag alias
- *TagDataType* : the data type (double, etc)
- *Location* : the *Location* property of the tag

How to select additional fields

The *Extra Fields* presents a list of fields to select. Just check/uncheck the boxes corresponding to the desired fields :

Extra Fields	
	Field Name
<input checked="" type="checkbox"/>	EngUnit
<input type="checkbox"/>	EngUnitMax
<input type="checkbox"/>	EngUnitMin

Query limits

You can apply a limit to the number of records retrieved, by using the *Query Row Limit* field :

Query Row Limit	
First	<input type="text" value="5000"/> Rows

When a Insight query returns more results than this limit, it returns the first X results only.

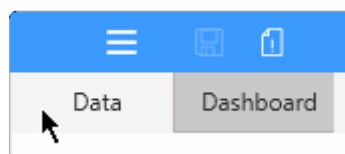
Last modified: Feb 17, 2022

2.6. Transforming Data

This Chapter is a reference on how to create and configure a Data Source to prepare data for your Widgets and Dashboard.

To understand the [Alpana Data Model](#), see the corresponding chapter in this documentation.

Since Alpana Designer v3.0, all data preparation is made inside the *Data* tab.



Last modified: Feb 17, 2022

2.6.1. Introduction

Data Sources in the Dashboard design workflow

You don't need to be able to create a Data Source in order to create a Dashboard : someone may do it for you !

The workflow to design Dashboards is built around the idea that Dashboards should be easy to create and edit. As such, the data preparation steps can be made by another person and shared to you.

Example :

- User1 needs to make a dashboard but doesn't have the skills or credentials to prepare data
- User2 is skilled in IT/SQL/data/... and has the credentials to access the data, but has no process knowledge and won't know how to make the Dashboard. She creates and shares a DataSource.syds file to User1

In this Course, you will learn all about Data Sources and how to share them with your "User1" if needed.

Last modified: Feb 17, 2022

2.6.1.1. Learning Pre-Requisites

To create Data Sources, you will need to connect to your data first. Please see the corresponding chapter : [Connecting to Data](#).

More generally, it is also important to understand the [Alpana data model](#).

Last modified: Feb 17, 2022

2.6.1.2. What are Data Sources

In Alpana, data preparation happens in **Data Sources**.

Each Data Source prepares a query to the original data to be presented inside Widgets.

Data is fetched through the Alpana Connections, see Course [Connecting to Data](#).

Each Widget displays data from a single Data Source (but a Data Source can be re-used in any number of Widgets).

Alpana Designer provides a graphical editor that allows to make this data preparation using simple mouse interaction.



A Dashboard can contain up to 10 Data sources.

Last modified: Feb 17, 2022

2.6.1.3. Content : Data Preparation Activities

The main data preparation activities in Alpana Designer include :

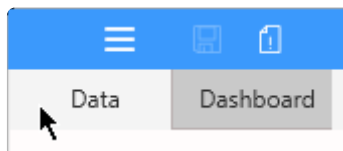
- [Fetch](#) : select an object (table, view, stored procedure, ...) from which to get data
- [Merge](#) : join tables from one or more Connections
- [Filter](#) : remove data based on multiple criteria
- [Calculate](#) : create Expressions to make calculations
- [Format](#) : format, rename and hide fields to make it easier for another user to re-use the Data Source.
- [Share](#) : export/import Data Sources

Last modified: Feb 17, 2022

2.6.2. Creating and Managing Data Sources

This chapter describes how to create and manage Data Sources.

Since Alpana Designer v3.0, all data preparation is made inside the *Data* activity tab.



Last modified: Feb 17, 2022

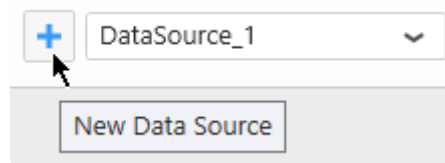
2.6.2.1. Create a Data Source

New Dashboard : first Data Source

When creating a new Dashboard, a new Data Source called “DataSource_1” is created and opened in Alpana Designer.

Creating a Data Source

After creating a Connection, you can create a Data Source by clicking the **+** button next to the Data Sources list in the top bar :



Then, the new Data Source is automatically open for edition.

Data Source storage

A Data Source contains only the information on how to prepare the data. It does not contain the data itself.

When a Dashboard is saved, all the Data Sources are saved inside.

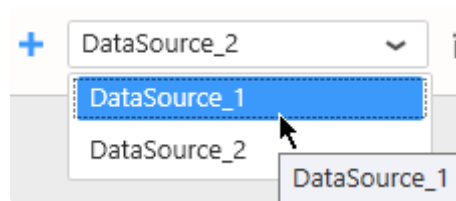
You can create as many Data Sources as needed.

 A Data Source can contain up to 10 connections

Last modified: Feb 17, 2022

2.6.2.2. Browsing Data Sources to Edit

To browse Data Sources, open the Data Sources list in the top bar, and select by name :



All the actions to actually edit the Data Source are explained in the following chapters of this Course.

Last modified: Feb 17, 2022

2.6.2.3. Rename a Data Source

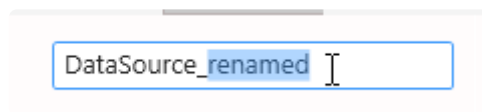
Why rename a Data Source?

The Data Source name will appear in widget data binding.

Giving good names can help the user who will make the Dashboard based on this Data Source.

How

Use the text box on the left of the top bar to rename the currently open Data Source :



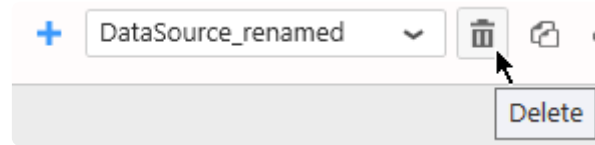
The new name is immediately validated as you type it.

Last modified: Feb 17, 2022

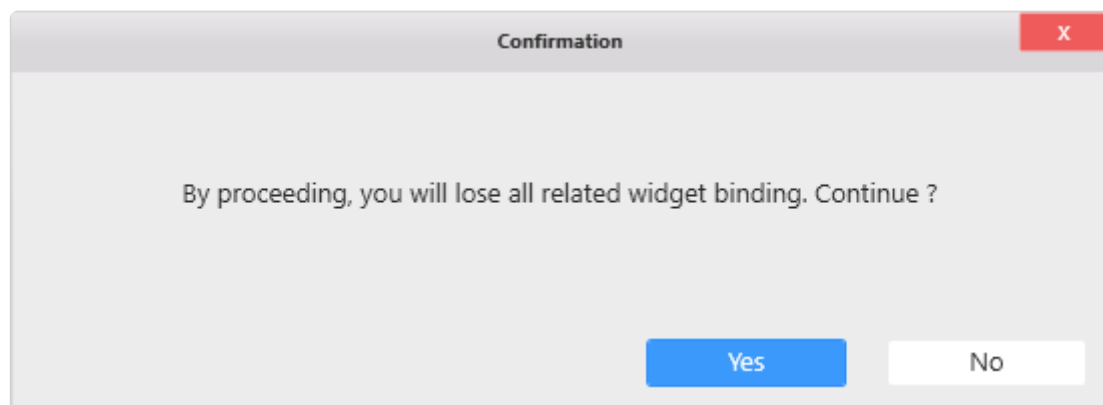
2.6.2.4. Delete a Data Source

How to Delete a Data Source

To Delete an existing Data Source, left click then click on the trash icon in the top bar :



If the Data Source is used by any Widget, the following message will appear :



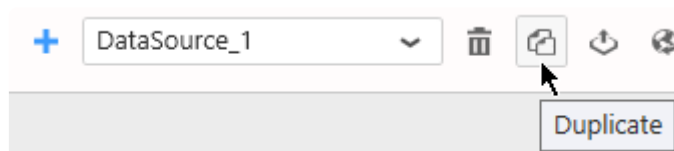
If you choose “Yes”, the Data Source is deleted and all dependent Widgets lose their data binding.

Last modified: Feb 17, 2022

2.6.2.5. Duplicate a Data Source

You can Duplicate an existing Data Source to start working on a copy.

In the top bar, click on the Duplicate_ icon :



A copy of your Data Source is created, and you can start working on it independently.

Last modified: Feb 17, 2022

2.6.3. Export / Import Data Sources

Sharing Data Sources allows to collaborate between users with different skill sets : an IT engineer creates a Data Source, exports it, then a process engineer only has to import it and start creating visualizations.

This chapter describes how to proceed.

Last modified: Feb 17, 2022

2.6.3.1. What is a Data Source Export

A Data Source can be exported to a file with format `*.alps`.

This DataSource.syds file contains the definition of the Data Source and all the dependent Connections, including their credentials.

This is useful for splitting roles in Dashboard creation :

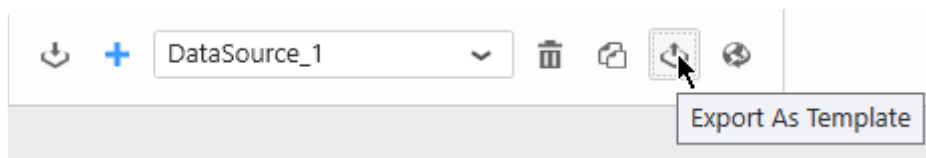
- User1 needs to make a dashboard but doesn't have the skill or credentials to prepare data
- User2 is skilled in IT/SQL/data/... and has the credentials to access the data, but has no process knowledge and won't know how to make the Dashboard. She creates and shares a DataSource.alps file to User1

Last modified: Feb 17, 2022

2.6.3.2. Export a Data Source to a file

How to Export to a file

In the top bar, click the *Export as Template* icon :



Select a file name and save locally.

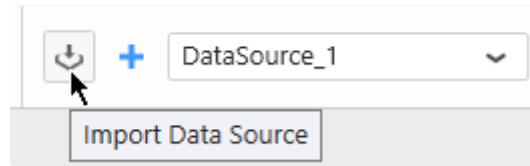
Last modified: Feb 17, 2022

2.6.3.3. Import a Data Source from a file

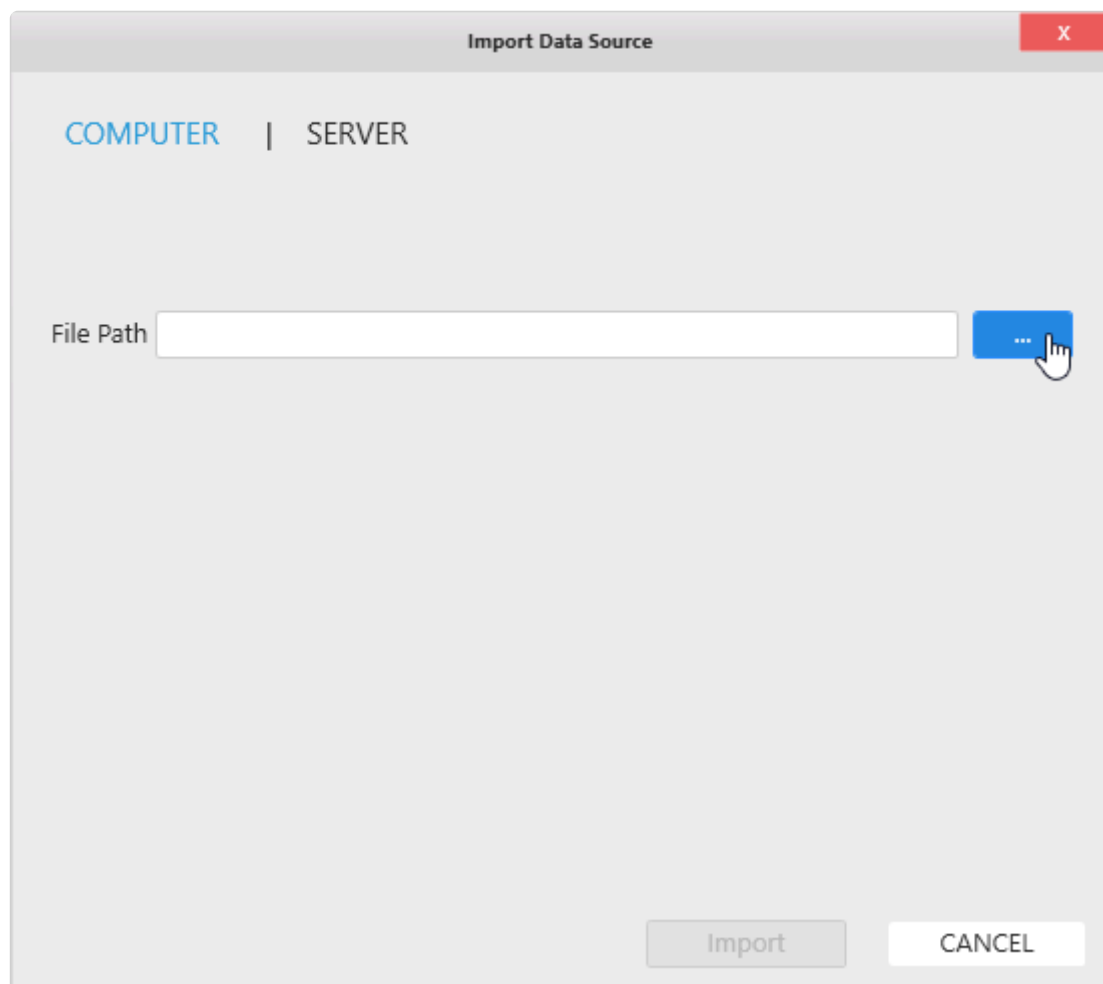
A Data Source can be imported from a file in a few ways :

Import in an existing Dashboard

Click on the “Import” button in the Data Sources list :



In the “Import Data Source” dialog, under “Computer”, click “...” to browse for a DataSource.alps file :



Then click “Import” :



The Data Source is now imported in your current Dashboard.

Create a new Dashboard based on a DataSource file

In Windows Explorer, you can double click or open the DataSource.alps file with Alpana Designer.

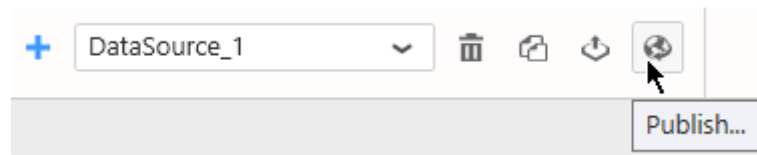
This creates a new Dashboard with the corresponding Data Source imported.

Last modified: Feb 17, 2022

2.6.3.4. Publish a Data Source to Alpana Server

* In order to Publish a Data Source to Alpana Server, you need to be **logged in** from Alpana Designer to that Alpana Server, and have the necessary **permissions** to create Data Sources.

In the top bar, click *Publish* :



In the “Publish” dialog, fill in details and click “Publish” :

A screenshot of the 'Publish' dialog box. It has a title bar with 'Publish' and a close button. The dialog contains three input fields: 'Datasource name' with 'DataSource_1', 'Description', and 'Version Comment'. At the bottom, there are 'Publish' and 'CANCEL' buttons. A mouse cursor is pointing at the 'Publish' button.

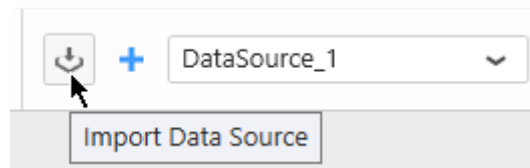
The Data Source is now published to Alpana Server and available to other users depending on permissions.

Last modified: Feb 17, 2022

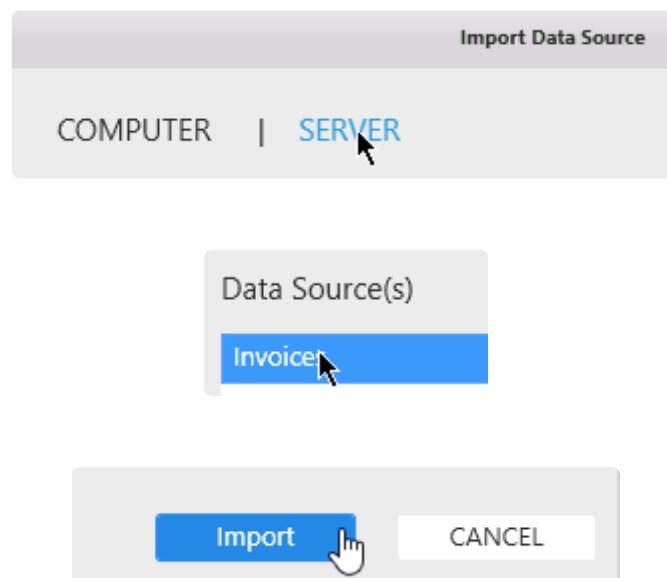
2.6.3.5. Import a Data Source from Alpana Server

* In order to Import a published Data Source from Alpana Server, you need to be logged in from Alpana Designer to that Alpana Server, and have the necessary permissions to access the Data Source.

Click on the “Import” button in the Data Sources list :



In the “Import Data Source” dialog, click “Server”, select a published Data Source, and click Import :



The Data Source is now imported in your current Dashboard.

Last modified: Feb 17, 2022

2.6.4. Fetching Data

Introduction

A Data Source can fetch data from Connections by selecting the corresponding object in the Connection schema :

- a data Table
- a data View
- a Stored Procedure
- a Table-Valued Function
- an Alpana Custom Query Table (see next Chapter [Custom Query Tables](#))

For details on how these elements exist or not based on the Connection type, please see the dedicated Course [Connecting to Data](#).

Pre-requisite

In this Chapter, we will edit a Data Source.

To learn how to create or edit a Data Source, see the previous Chapter [Creating and Managing Data Sources](#).

In this Chapter, it is assumed that you have created a Data Source and that it is open for edition.

Last modified: Feb 17, 2022

2.6.4.1. using the Data Preview

Previewing data

When the Data Source definition is updated, the bottom main area shows a data preview :

Data Preview						Rows Count 100	Load More
Interactions in this grid will only be reflected in the preview and will not affect the underlying data							
continent	Country	FactoryName	FactorySize	ProfitObjective	RatingO		
Europe	Denmark	Viborg	8	6100000	2.4200		
Europe	Denmark	Viborg	8	6100000	2.4200		
Europe	Denmark	Viborg	8	6100000	2.4200		
Europe	Denmark	Viborg	8	6100000	2.4200		

Loading more data rows

In order to improve performance while editing the Data Source, only a few data rows are fetched.

By default, only the first 100 data rows are fetched.

If your data set contains more than 100 rows, you can click the “Load More” button on the top right to get up to 1000 rows.

Then if your data set exceeds 1000 rows, the Data Preview will still limit to 1000 rows :

Data Preview						Rows Count 1000
Interactions in this grid will only be reflected in the preview and will not affect the underlying data						
FactoryName	FactorySize	ProfitObjective	RatingObjective	Enabled	Da	
Beijing	50	17600000	8.19999980926514	True	1/1/20	
Beijing	50	17600000	8.19999980926514	True	1/2/20	
Beijing	50	17600000	8.19999980926514	True	1/3/20	
Beijing	50	17600000	8.19999980926514	True	1/4/20	

Refreshing the Data Preview

You can force to get new data by clicking the Refresh button on the top toolbar :



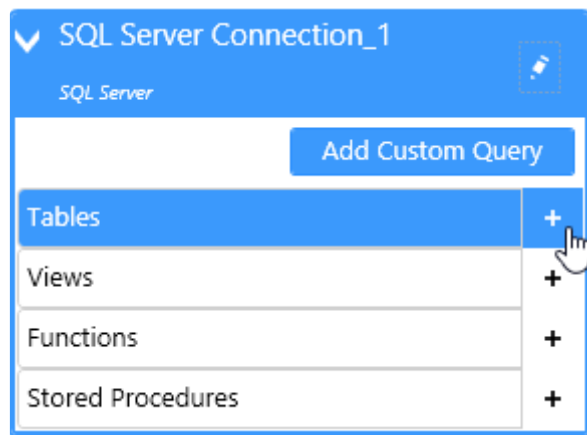
Last modified: Feb 17, 2022

2.6.4.2. getting and browsing the Connection schema

Browsing the Connection schema

In order to get data from an object in the Connection, you will need to browse the Connection schema.

To do so, click on the Connection on the left, and use the + icons to navigate the schema tree :



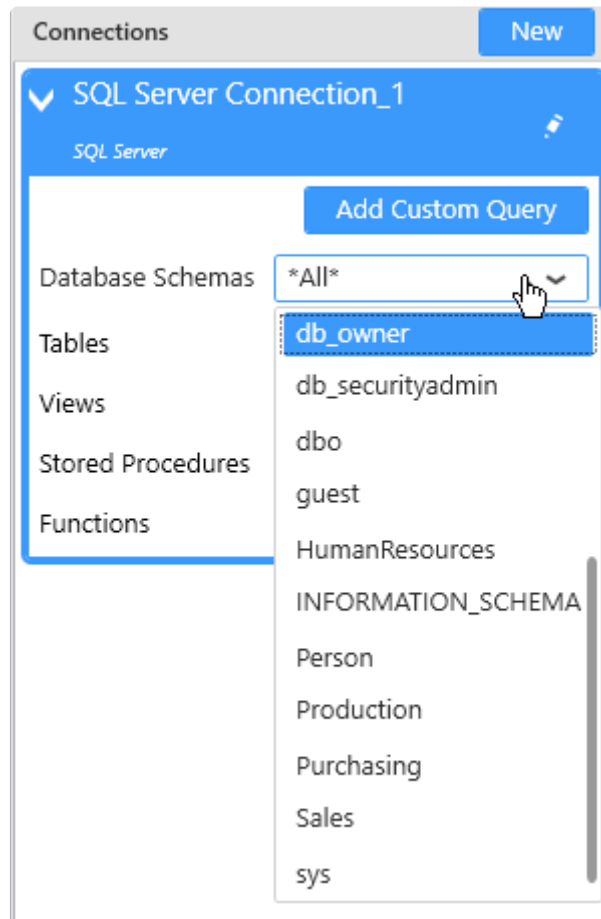
Selecting the database schema

(new in version 2020 R2)

Some Connection types can have multiple database schemas.

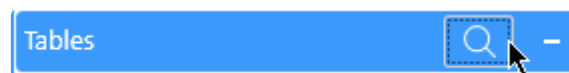
By default, objects from all schemas are listed.

If instead you want to restrict the list to objects from a specific database schema, you can select it from the *Database Schemas* list :

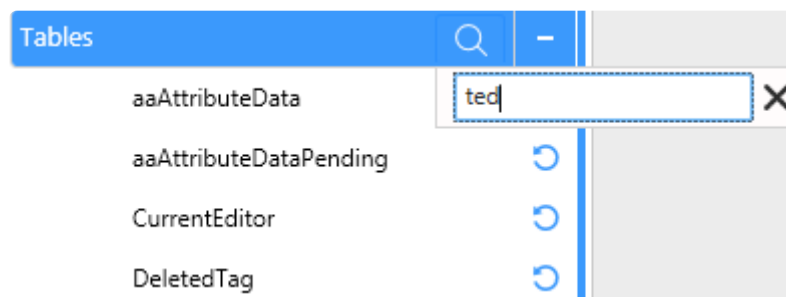


Searching for an object

When the database contains many objects (tables, views, stored procedures, etc...), you can filter the list by clicking the magnifying glass icon :



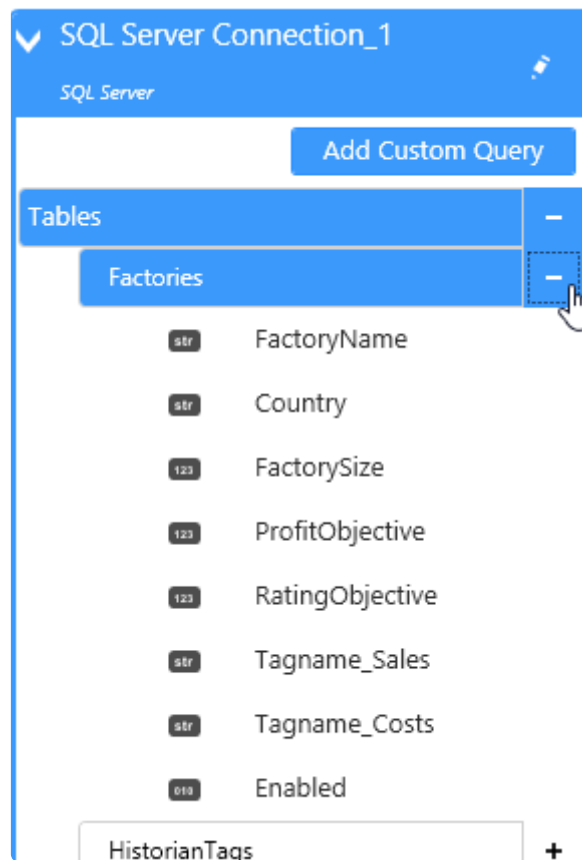
In the text box that pops up, write the text that is contained in the desired object names :



This will filter to display only the objects whose name contain the text (the search is case insensitive). Click the cross button to clear the filter.





Showing the fields of an object

Clicking one last time the + icon will show the list of fields in that object :



Field Type icon

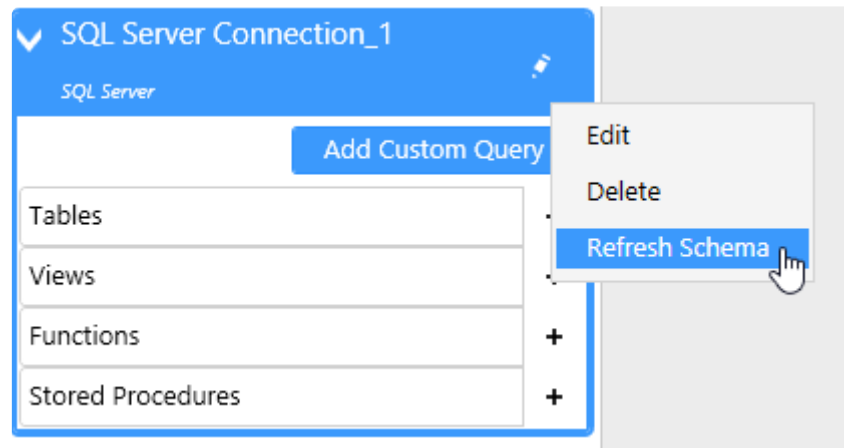
Next to each field is an icon showing the data type of that field :

-  : string
-  : number
-  : date
-  : boolean

Refreshing the Connection schema

If the Connection schema has changed since you started browsing (maybe a table was added or removed, etc...), you will need to refresh it manually.

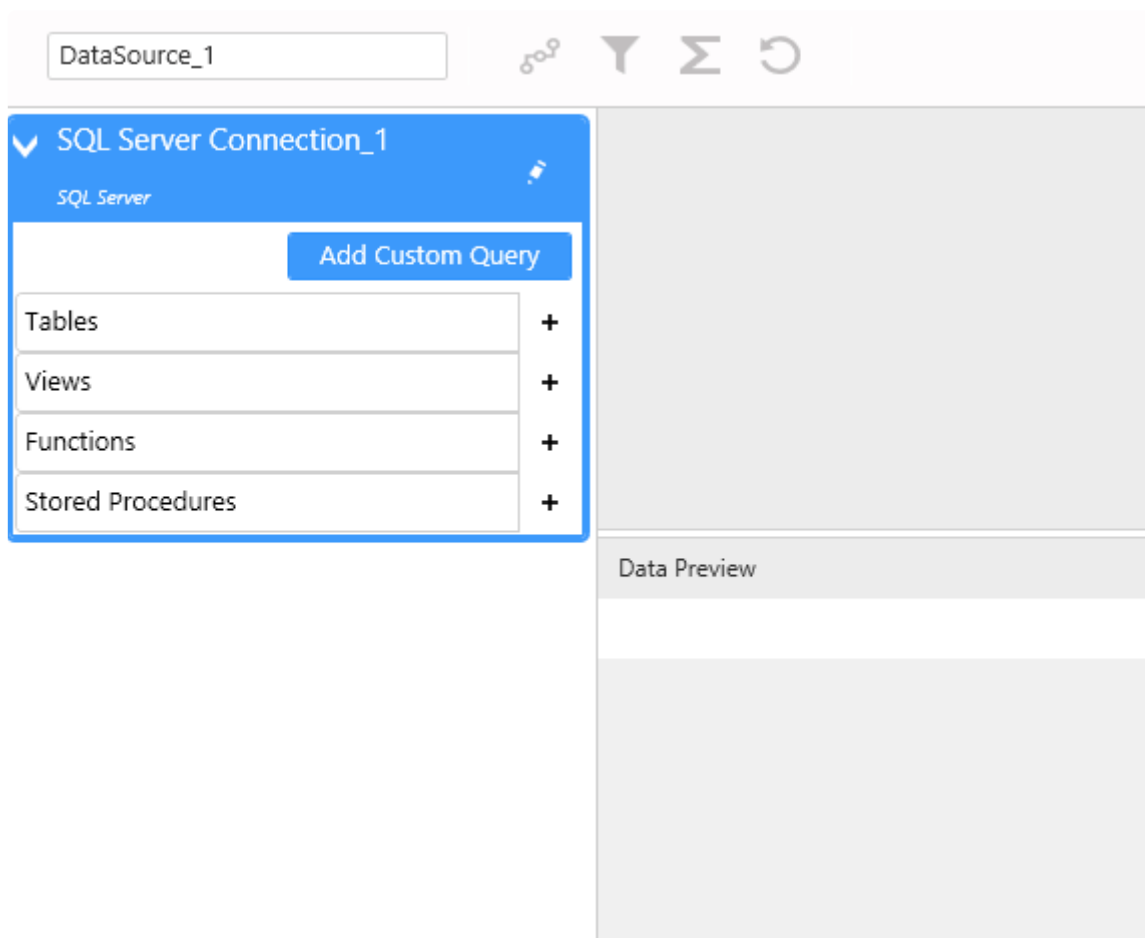
To do so, click on the pen icon on the Connection on the left, and select “Refresh Schema” :



Last modified: Feb 17, 2022

2.6.4.3. fetching data from a data Table

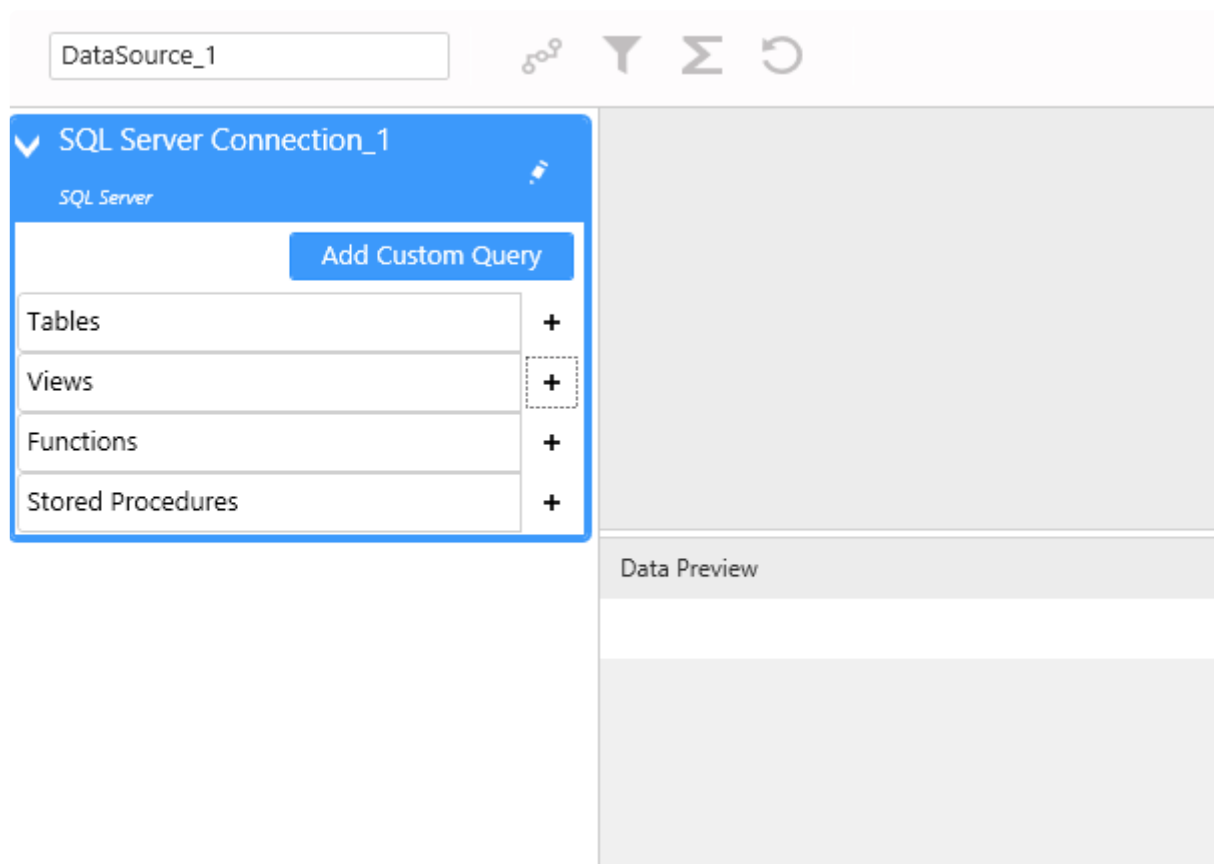
To get data from a data Table, browse to the desired Table in the schema and drag it to the top main area :



Last modified: Feb 17, 2022

2.6.4.4. fetching data from a data View

To get data from a data View, browse to the desired View in the schema and drag it to the top main area :



Last modified: Feb 17, 2022

2.6.4.5. fetching data from a Stored Procedure

Important notice

Stored Procedure can perform destructive actions when called : deleting tables, inserting data, etc...

In Alpana, the Stored Procedure will be called every time data is fetched : every time anyone loads a dashboard or refreshes a filter pointing to such a Data Source, the Stored Procedure will be executed.



Before executing a Stored Procedure, please make sure that it doesn't cause unwanted side effects.

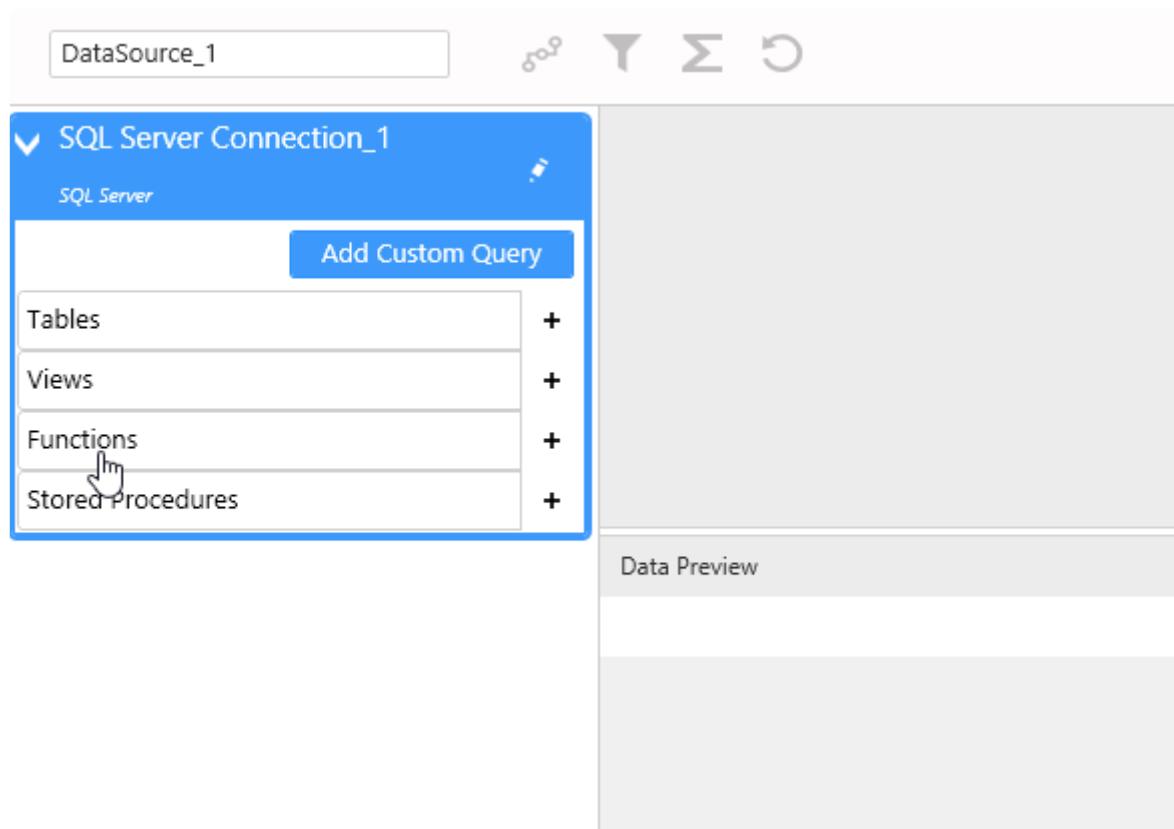
If necessary, instead of calling existing Stored Procedures, you can :

- create Table-Valued Functions or Stored Procedures that only SELECT data and don't make changes to the data.
- create dedicated Stored Procedures for your dashboarding and reporting tools, or Alpana specifically, and make sure that they are safe

Ask your database administrator for advice.

Stored Procedure without parameters

To get data from a Stored Procedure, browse to the desired Stored Procedure in the schema and drag it to the top main area :



If the Stored procedure takes no input parameters, then that's all.

If the Stored procedure does take input parameters, then please proceed below :

Stored Procedure with parameters

If the Stored procedure takes input parameters, a dialog appears to let you set the parameters. It lists the input parameters and their data type :

Parameter	Type	Value	
@year	int	<input type="text"/>	<input type="checkbox"/> Use Parameter
@factory	varchar(50)	<input type="text"/>	<input type="checkbox"/> Use Parameter

OK CANCEL

Stored Procedure with static parameters

To fill in static values for the Stored Procedure parameters, simply fill the text boxes and click “OK” :

Parameter	Type	Value	
@year	int	2018	<input type="checkbox"/> Use Parameter
@factory	varchar(50)	Beijing	<input type="checkbox"/> Use Parameter

OK CANCEL

With a static value, the Stored Procedure will always be called with the value you entered.

Stored Procedure with dynamic parameters

Instead, you can bind a Stored Procedure parameter to an Alpana Dashboard Parameter (see the dedicated Course Chapter on [Parameters](#)).

This will allow you for example to change the Stored Procedure call depending on Master Widget clicks on the dashboard.

To do so, in the “Stored Procedure Parameters Editor” dialog, check “Use Parameter” and select an existing Alpana Dashboard Parameter :

Parameter	Type	Value
@Beginning_Date	datetime	<div>TimeStamp</div> <div>Join separator</div> <div>Use value at 0-based index</div> <div>0</div> <div>Use Parameter</div>
@Ending_Date	datetime	<div>TimeStamp</div> <div>Join separator</div> <div>Use value at 0-based index</div> <div>1</div> <div>Use Parameter</div>

Parameter configuration

If you are using multiple value parameter such as time range, maybe you would like to get only a specific item (i.e. start or end date) in this case, you will have to check the use 0-based value and select the index of the parameter wanted.

The Join separator allows to separate string in multiple element (just like a csv) and select the parameter needed with the index.

You can also create a Parameter directly form this dialog by clicking the parameter list button :



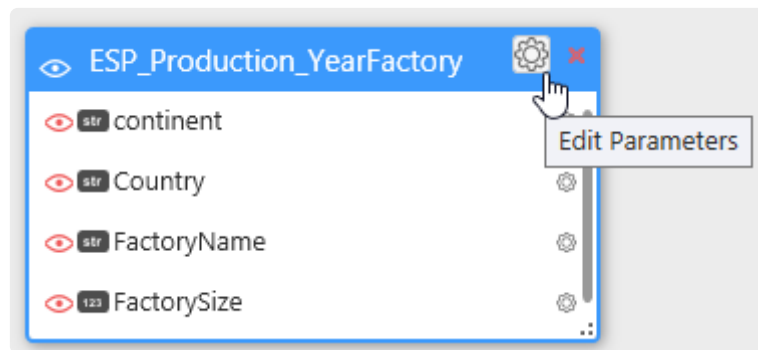
Note :

Be careful that some Stored Procedures require non empty parameters. In order to complete this step, you may have to set a [default value to the Alpana Parameter](#) :

Name	param_Factory	Type	String
Default Value	Paris		Return Multiple Values

Editing existing Stored Procedure parameter binding

Once the Stored Procedure parameters are bound, you can change them at any time by clicking the “Edit Parameters” cog icon on the corresponding table :



Stored procedure limitations

SQL Stored Procedures can do a lot of things, and some of them don't even return data.

Alpana can only deal with certain types of stored procedures :

Single data set

Alpana supports stored procedures that return a single data set.

Stored procedures that return several data sets are not supported. For example :

```
SELECT 123; -- first data set
SELECT 465; -- second data set
```

... is not supported.

No output parameters

Stored procedures that use output parameters are not supported. For example :

```
CREATE PROCEDURE output_param
@outparam INT OUTPUT
AS
BEGIN
SELECT @outparam = 123;
END
```

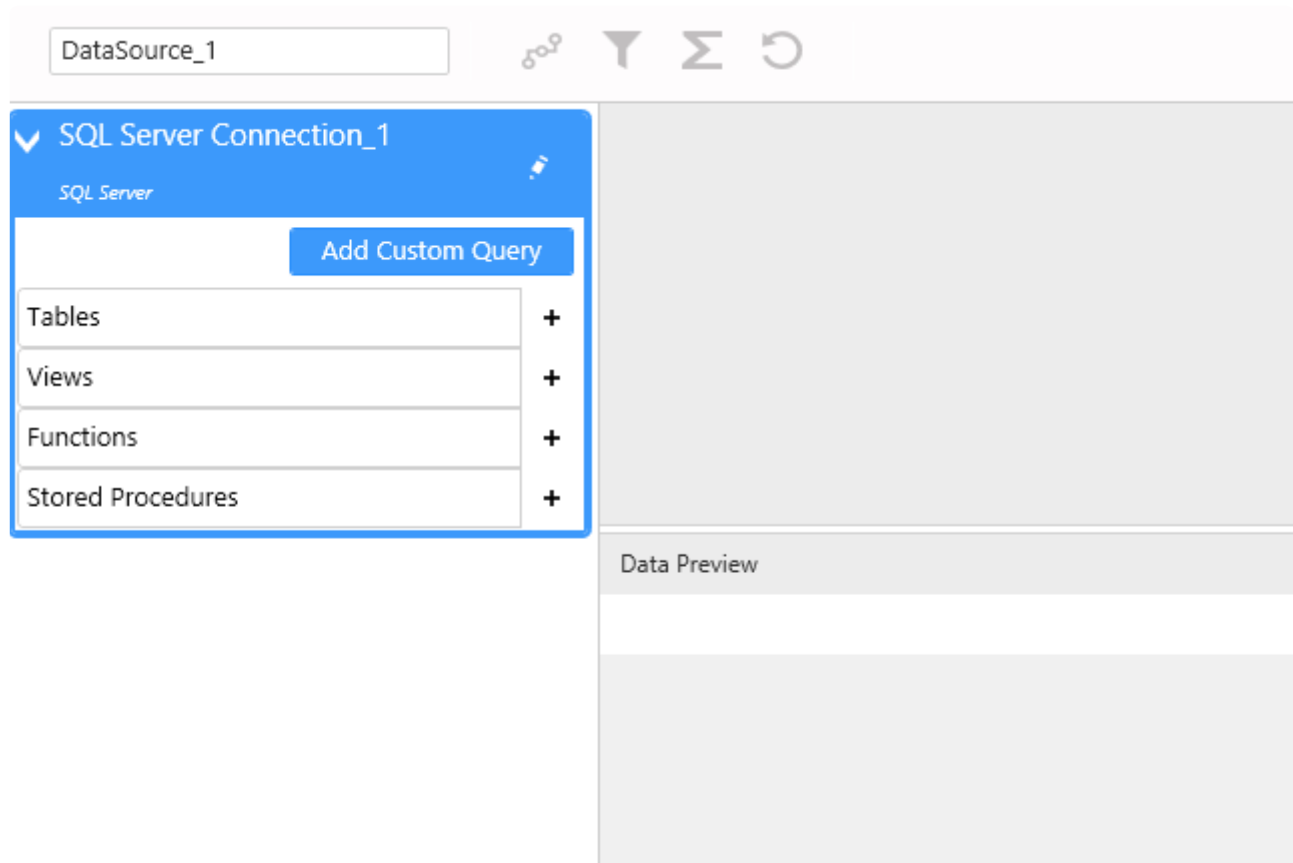
... is not supported.

Last modified: Feb 17, 2022

2.6.4.6. fetching data from a Table-Valued Function

Table-Valued Functions without parameters

To get data from a Table-Valued Function, browse to the desired Table-Valued Function in the schema and drag it to the top main area :



If the Table-Valued Function takes no input parameters, then that's all.

If the Table-Valued Function does take input parameters, then please proceed below :

Table-Valued Function with parameters

If the Table-Valued Function takes input parameters, a dialog appears to let you set the parameters. It lists the input parameters and their data type :

Parameter	Type	Value		
@year	int	<input type="text"/>	<input type="checkbox"/>	Use Parameter
@factory	varchar(50)	<input type="text"/>	<input type="checkbox"/>	Use Parameter

OK CANCEL

Table-Valued Function with static parameters

To fill in static values for the Table-Valued Function parameters, simply fill the text boxes and click “OK” :

Parameter	Type	Value		
@year	int	2018	<input type="checkbox"/>	Use Parameter
@factory	varchar(50)	Beijing	<input type="checkbox"/>	Use Parameter

OK CANCEL

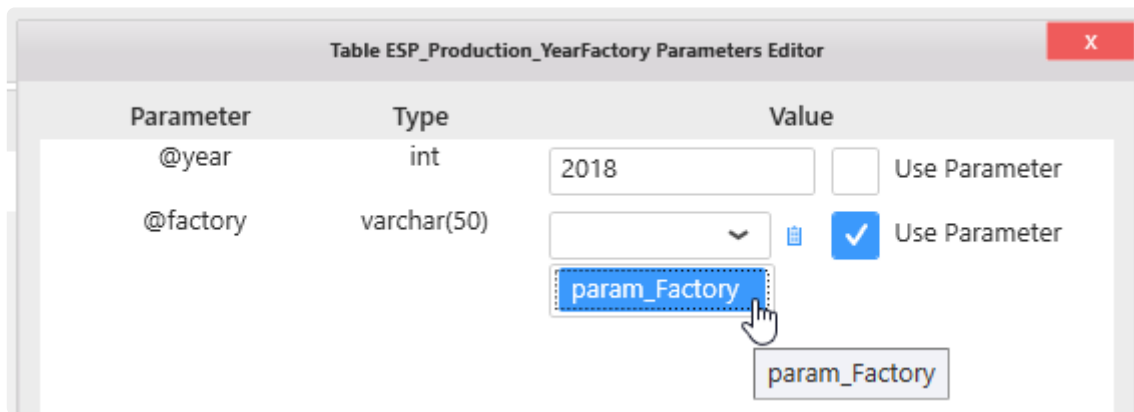
With a static value, the Table-Valued Function will always be called with the value you entered.

Table-Valued Function with dynamic parameters

Instead, you can bind a Table-Valued Function parameter to an Alpana Dashboard Parameter (see the dedicated Course Chapter on [Parameters](#)).

This will allow you for example to change the Table-Valued Function call depending on Master Widget clicks on the dashboard.

To do so, in the “Table-Valued Function Parameters Editor” dialog, check “Use Parameter” and select an existing Alpana Dashboard Parameter :



You can also create a Parameter directly form this dialog by clicking the parameter list button :



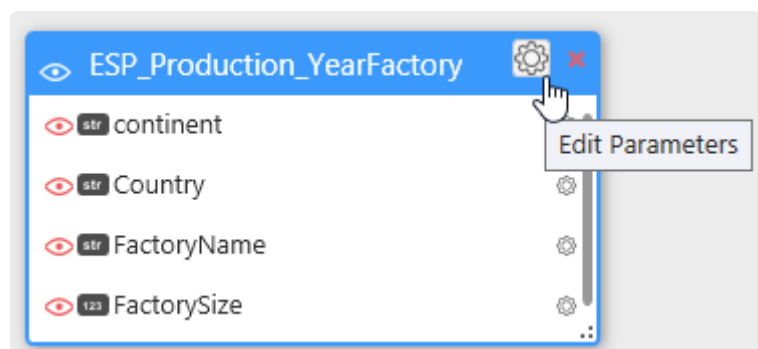
Note :

Be careful that some Table-Valued Function require non empty parameters. In order to complete this step, you may have to set a default value to the Alpana Parameter :

Name	param_Factory	Type	String
Default Value	Paris		<input type="checkbox"/> Return Multiple Values

Editing existing Table-Valued Function parameter binding

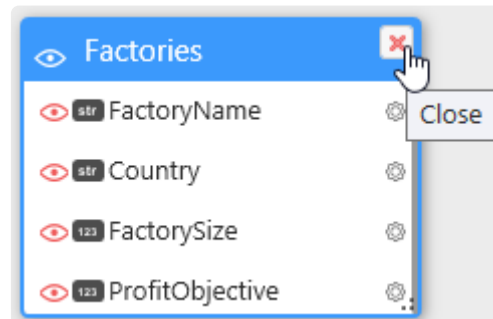
Once the Table-Valued Function parameters are bound, you can change them at any time by clicking the “Edit Parameters” cog icon on the corresponding table :



Last modified: Feb 17, 2022

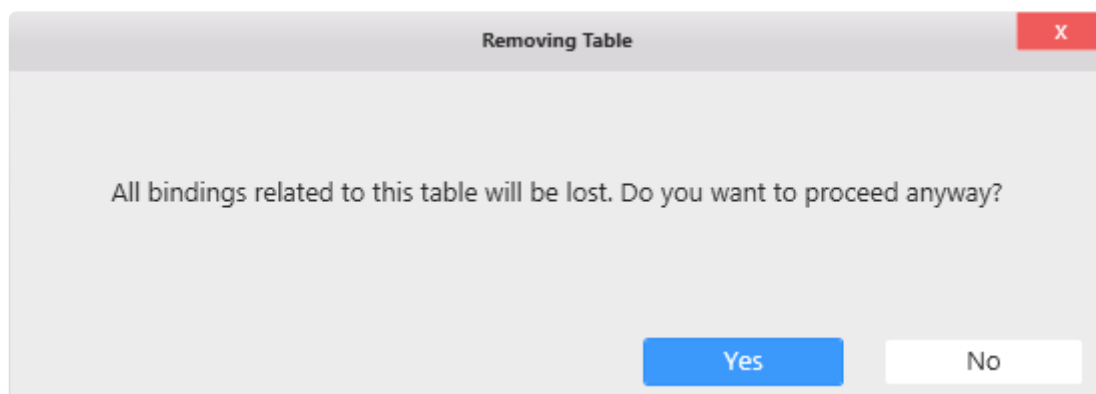
2.6.4.7. Removing a table from the Data Source

You can remove an object (Table, View, etc, ...) from the Data Source by clicking the cross on the top right of the table :



If the table is in a relationship with other tables and removing it breaks Join conditions, a confirmation dialog appears :

All bindings related to this table will be lost. Do you want to proceed anyway ?



If you press OK, the Join Editor dialog appears and lets you fix the missing relationships (see below Chapter "Merging Data").

Last modified: Feb 17, 2022

2.6.5. Custom Query Tables

What is a Custom Query Table ?

When composing a Data Source, you are not limited to using Tables or Views from your Connection.

You can also add a **Custom Query Table** : similarly to a SQL View, you write a SQL query and a Table will be created in the currently opened Data Source.

However, this can be more than a simple way to create a custom View, as we will see further in the Using Parameters chapter.

Pre-requisite

In this Chapter, we will edit a Data Source.

To learn how to create or edit a Data Source, see the previous Chapter “Creating and Managing Data Sources”.

In this Chapter, it is assumed that you have created a Data Source and that it is open for edition.

Last modified: Feb 17, 2022

2.6.5.1. Language

When connecting directly to a database, the language of the Custom Query must be compatible with the database.

When connecting to a bufferized Connection, the Custom Query must be written in the language used by the **Buffer** database.



Important

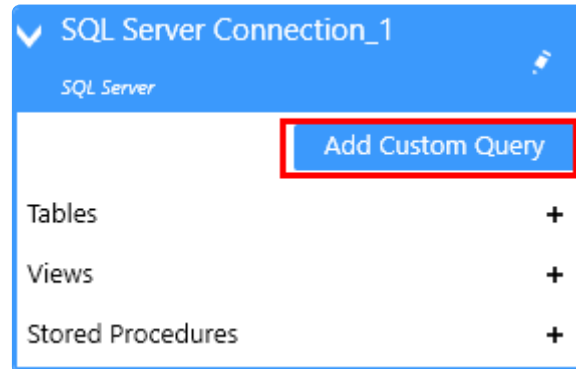
When changing the underlying buffer database technology (for example when switching from SQL Server to Oracle), the Custom Query Table will probably need to be updated accordingly, since there are some differences in their SQL syntaxes.

Last modified: Feb 17, 2022

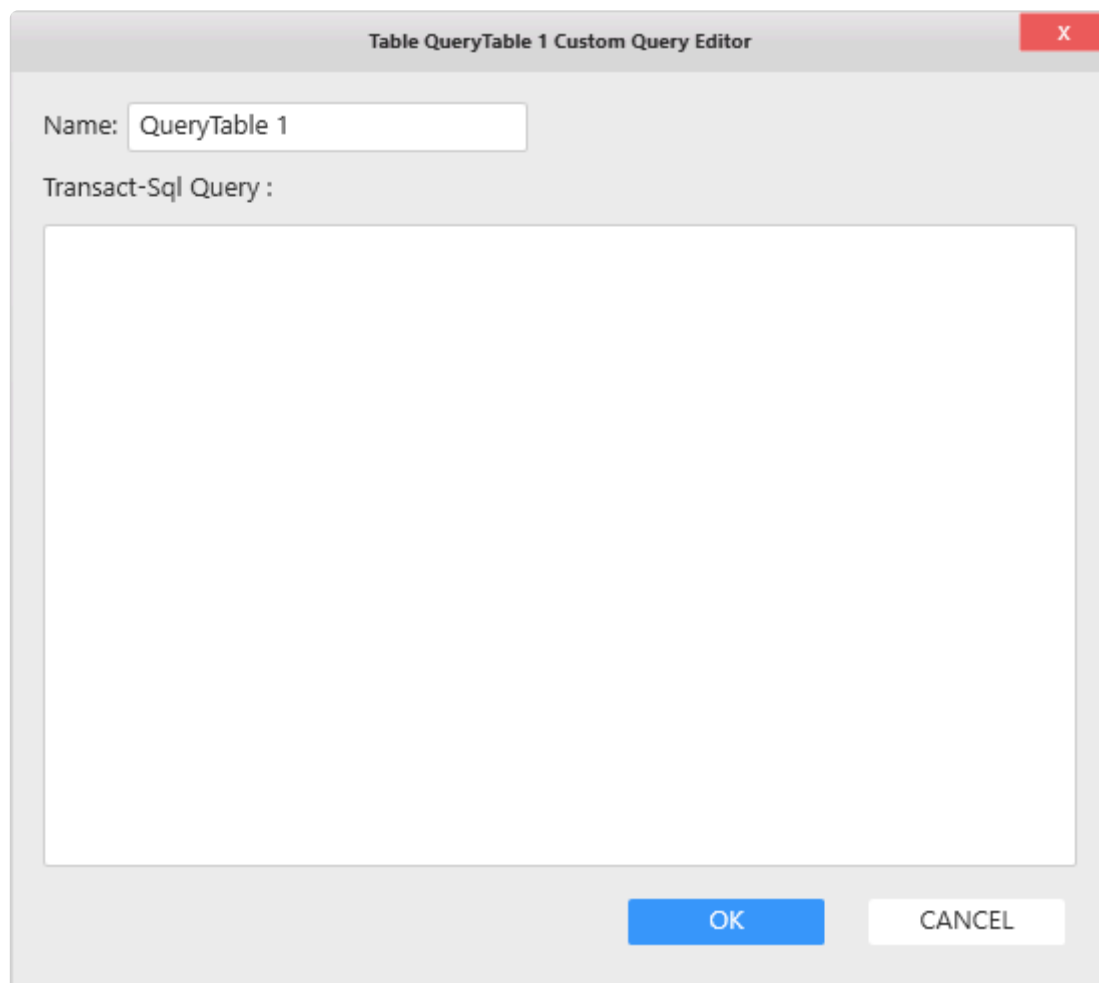
2.6.5.2. Creating a Custom Query Table

To do so, open the Data Source where you need to add a **Custom Query Table**.

From the Connection schema below, click on Add Custom Query.



This will bring up the Custom Query Editor frame.



Write the query in the correct SQL language (see the previous chapter “Language”).

For bufferized Connections, you can use the table names as listed in the schema.



It is not possible to call table from a different connection. All reference must be related to the connection used to create the custom query.

Table QueryTable 1 Custom Query Editor

Name: QueryTable 1

Transact-Sql Query :

```
SELECT *  
FROM Customers  
INNER JOIN Orders ON Customers.CustomerID = Orders.CustomerID
```

OK CANCEL

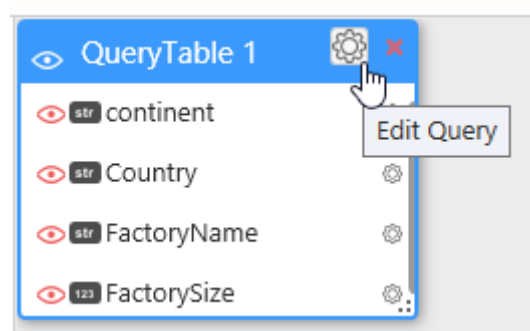
Click OK to create the Custom Query Table. Fix any SQL error if necessary.

Now the Custom Query Table is created in the Data Source currently opened. It can be used like a normal table from the same Connection and, for example, can be used in a Join.

Last modified: Mar 31, 2022

2.6.5.3. Updating a Custom Query Table

To do so, click on the cog icon to view and update the Custom Query.



Important

Be careful that any changes in the schema (column names and types) could impact the items that use this Custom Query Table, such as Widgets or Expressions. Changing the schema of the query could require to re-do some or all of the related data binding.

Click OK to update the Custom Query Table.

Fix any SQL error if necessary.

Last modified: Feb 17, 2022

2.6.5.4. Using Parameters

Parameters can be used to parametrize a Custom Query : the Custom Query changes dynamically.

Syntax

`${parametername}` will be replaced in-place by the values of “*parametername*”.

Example :

```
SELECT *  
FROM MyTable  
WHERE MyColumn = ${parametername}
```

will get replaced at runtime by :

```
SELECT *  
FROM MyTable  
WHERE MyColumn = parametervalue
```

Multiple values

Parameters that return multiple values will return them separated with commas.

So that you can write :

```
SELECT *  
FROM MyTable  
WHERE MyColumn IN( ${multiparameter} )
```

and it will get replaced at runtime by :

```
SELECT *  
FROM MyTable  
WHERE MyColumn IN( Value1,Value2,Value3 )
```



NOTE

In Alpana Designer, the Custom Query will be executed with the default parameter values. This may cause unwanted syntax errors if the default value is empty for example. Setting a default value to the parameter fixes that issue.

Last modified: Feb 17, 2022

2.6.6. Merging Data

Last modified: Feb 17, 2022

2.6.6.1. Creating Joins

Why Join ?

When an object (a Table, a View, etc...) is already present in the Data Source and you want to add another object, you will have to specify how the two objects will be merged together to create a single data query.

In order to do this, a database JOIN operation is used.



What is a join ?

In simple terms, a join between a data Table1 and a Table2 expresses how an entry in Table1 describes the same information as another entry in Table2.

“Joining” comes from SQL terminology. If you know SQL, this editor should expose familiar concepts.

This operation can be very useful for adding context to your data :

- your Table1 contains physical measurements
- your Table2 contains context information like where was data measured, what product you were producing at that time, etc...
⇒ This is all multiple aspects of the same information. By joining, you will be able to present all this data consistently in your visualizations.

What can I join ?

Joins can be created across all Connections, all Connection types (SQL, Excel, Historian, ...), all object types (Tables, Views, Stored Procedures, ...).

Any Number of join conditions can be created.



Note : Multi-Connection

When a Data Source joins tables from at least 2 different Alpana Connections, the Connections become bufferized.

How to Join tables

When an object (a Table, a View, etc...) is already present in the Data Source and you add another object, the Join Editor dialog automatically opens to let you configure the join relationship.

If you cancel this dialog, the new object is not added.

Last modified: Feb 17, 2022

2.6.6.2. Configuring Joins

Configuring a relationship

The Join Editor presents a list of relationships similar to a SQL join :
Data is retrieved from a first table joined with X other tables.

This relationship expresses how an entry in Table1 will be on the same row as another entry in Table2.

Each relationship can be selected by clicking in the list :

The screenshot shows the 'Join Editor' window. At the top, 'First Table' is set to 'DowntimeData'. Below, there is a table with three columns: 'Join Type', 'Right Table', and 'Condition'. The rows are as follows:

Join Type	Right Table	Condition
Inner Join	Equipment	Equipment = aaID
Inner Join	Shift	Shift = aaID
Inner Join	Reasons	Reasons = aaID
Inner Join	State	State = aaID
Inner Join	Locaux	EquipmentName = Equipment

A mouse cursor is pointing at the 'Shift' row. Below the table, it says 'Join Conditions for table Shift'.

* There is 1 relationship for each table added beyond the first. If this is your first join, there is only one relationship.

Selecting the Join Type

A list allows to select the Join Type :

- *Inner Join* : only retrieve data where the join condition is true
- *Left Outer Join* : retrieve all data from the first table ("left table") even if the join condition is not true. If the join condition is false and no data exists in the second table ("right table"), then *NULL* data is retrieved for the second table.

The screenshot shows a dropdown menu for selecting the join type. The selected option is 'Inner Join'. The dropdown list shows 'Inner Join' and 'Left Outer Join'.

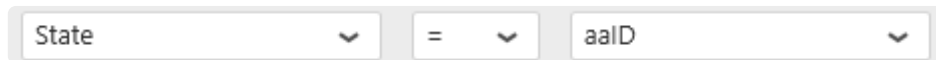
Join Conditions

In order to match data between tables, a condition must be expressed.

For example, if Table1 contains Customer orders and Table2 contains Persons profiles, you may want to join on “CustomerName = PersonsName”.

This means that the resulting dataset will show Persons information on the same row as Customer order information when the Name is the same.

By default a join condition is proposed in the editor.



The image shows a UI element for configuring a join condition. It consists of three parts: a dropdown menu on the left containing the text 'State', an equals sign '=' in the middle, and another dropdown menu on the right containing the text 'aalD'. Each dropdown has a small downward-pointing arrow on its right side.

Configuring a Join Condition

A condition is composed of 3 elements from right to left :

- a right member : a field from the currently selected Right Table. For your first join, this is the table you just added to the Data Source
- an operator : will express the relationship
- a left member : a field from any other table

To configure the Condition :

Select a right member

Select a field from the current table which will have to match the left field :

Join Editor

First Table DowntimeData ▾

Join Type	Right Table	Condition
Inner Join ▾	Equipment ▾	Equipment = aaID
Inner Join ▾	Shift ▾	Shift = aaID
Inner Join ▾	Reasons ▾	Reasons = aaID
Inner Join ▾	State ▾	State = aaID
Inner Join ▾	Locaux ▾	EquipmentName = Equipment

Join Conditions for table State

State ▾

= ▾

aaID ▾

aaID

StateCode
State
aaTimeStamp
aaTimeStamp_UTC
aaTimeStamp_Offset

Add

Select a left member

Select a field from any other table which will have to match the selected right field.

In the list, the fields are grouped by table names :

Join Editor

First Table: DowntimeData

Join Type	Right Table	Condition
Inner Join	Equipment	Equipment = aalID
Inner Join	Shift	Shift = aalID
Inner Join	Reasons	Reasons = aalID
Inner Join	State	State = aalID
Inner Join	Locaux	EquipmentName = Equ

Join Conditions for table State

State = aalID

State

- ^ DowntimeData
- aalID
- DowntimeDuration
- DowntimeCount
- aaValueTimeStamp
- Date**

Add

Select an operator

Select an operator from the list to express the desired relationship between the two selected fields :

=

=

!=

>

>=

<

<=

Multiple join conditions

Sometimes a single condition is insufficient to express the desired relationship.

Adding a condition

It's possible to add as many conditions as desired.

Conditions can be added by clicking the "Add" button :

Join Conditions for table State

×	State	=	aalD
×	aalD	=	aalD
×	aalD	=	aalD
×	aalD	=	aalD

Add

Removing a condition

A minimum of 1 condition is required.

Each condition can be removed from the relationship by clicking on the corresponding red cross :

Join Conditions for table State

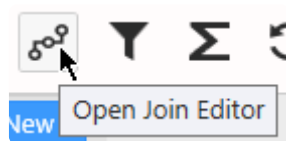
×	State	=	aalD
×	aalD	=	aalD
×	aalD	=	aalD
×	aalD	=	aalD

Add

Last modified: Feb 17, 2022

2.6.6.3. Updating Joins

You can edit existing Join relationships by clicking on the “Open Join Editor” button in the top toolbar :



In the Join Editor, select a relationship, change it, and press OK.

Last modified: Feb 17, 2022

2.6.7. Filtering Data

Data Source Filters

You can apply filters at the Data Source level.

All Widgets that will use this Data Source will only see the data after the filter is applied.

Note : If you wish to apply different filters to each Widget separately, see [the corresponding chapter](#).

Last modified: Feb 17, 2022

2.6.7.1. Opening the Filter Editor

Add or Edit Filters

To add Filters to a Data Source or edit existing filters, press the “Open Filter Editor” funnel icon in the top toolbar :



See the presence of Filters

When a filter is applied on a DataSource, the Filter button is colored :



Each filtered table field appears with a yellow background and the word (Filtered) next to its name :

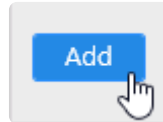


Last modified: Feb 17, 2022

2.6.7.2. Managing Filter Conditions

Adding a condition

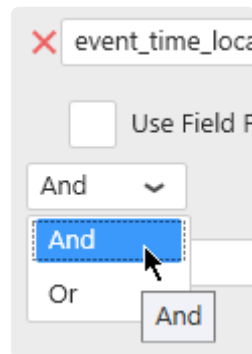
In the Filter Editor, click Add to add a filter condition :



Combining conditions

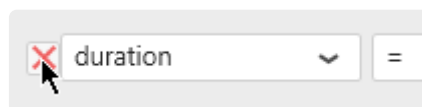
If filter conditions already exist, they will be chained using a logical operator.

By default, the operator is “And”, but it can be changed to “Or” :



Removing Conditions

Click the red cross on the left to remove the corresponding condition :



Last modified: Feb 17, 2022

2.6.7.3. Configuring Filter Conditions

Filter conditions are expressed with :

- a field name from the Data Source. This can also be an [Expression](#).
- a boolean operator
- a value. This can also be a [Parameter](#).

Depending on the Data Source field type, the settings are slightly different, please see for each type in the next pages.

Last modified: Feb 17, 2022

2.6.7.3.1. Filtering string fields

This is the most basic case.

The filter condition will be :

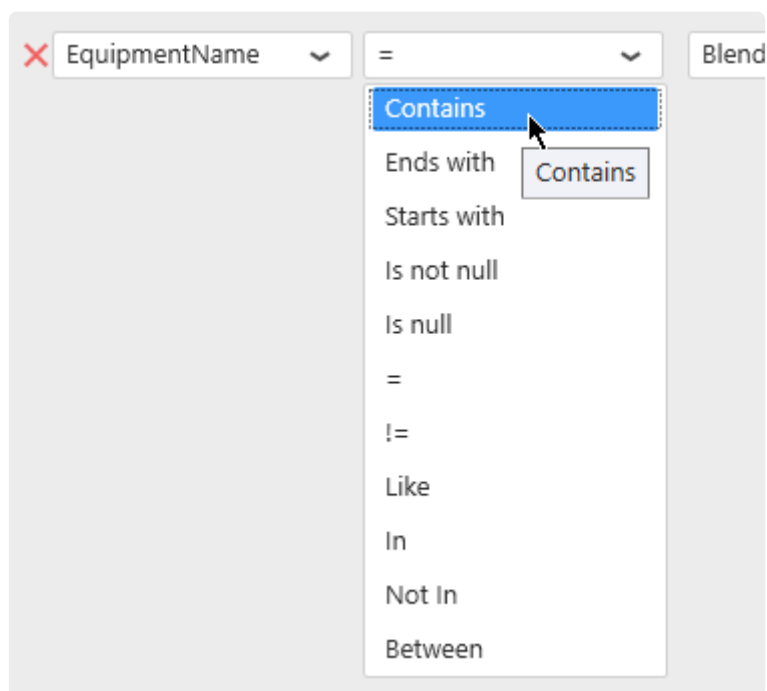
<FieldName> <Operator> <Value>

Example :

EquipmentName StartsWith Blender

Operators

Operators appropriate to Strings can be selected.



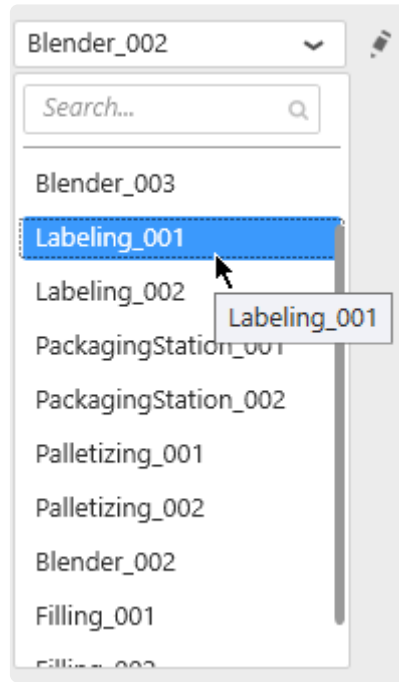
Values

Static values

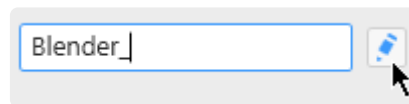
The “Edit values” button can be check/unchecked manually :



When the “Edit values” button is un-checked, a value can be selected from current values in the database :



When the “Edit values” button is checked, a value can also be entered as text :



✿ Depending on the operator selected, some of these options may not be available.

Dynamic filter values using Parameters

Instead of comparing to a static value, it is possible to compare to a dynamic Parameter that will depend on actions inside the Dashboard.

For this, select “Use Parameter” and see the Chapter about [Parameters](#).



Last modified: Feb 17, 2022

2.6.7.3.2. Filtering number fields

In a basic configuration, the condition is expressed as :

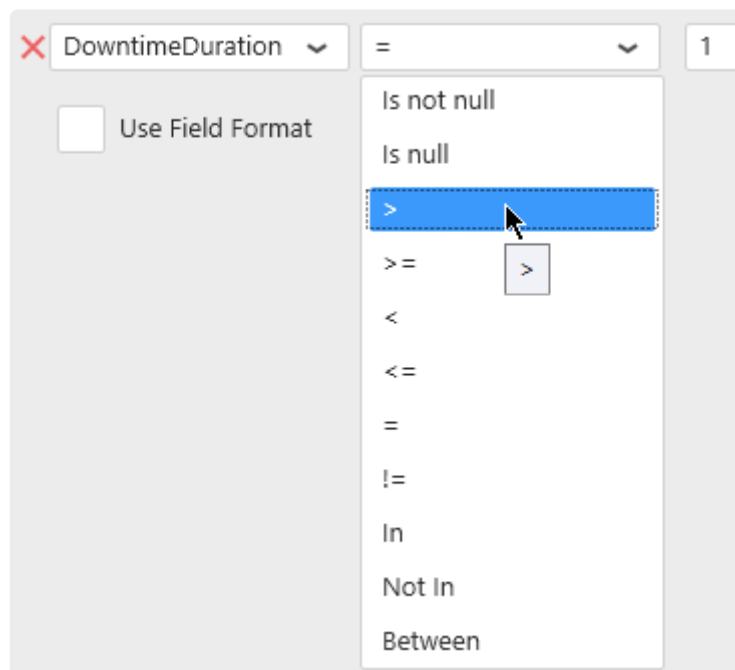
```
<FieldName> <Operator> <Value>
```

For example :

```
DownTimeDuration > 10
```

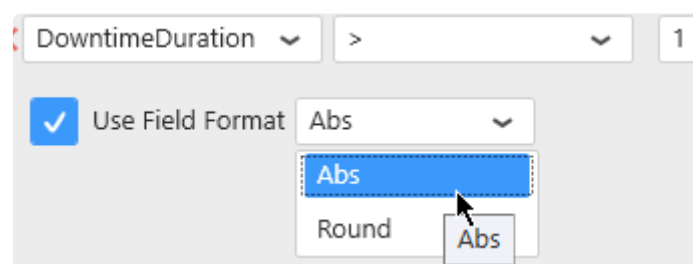
Operators

Operators appropriate to Numbers can be selected :



Field formatting

In addition to the basic configuration, a formatting function can be applied to the numerical field while the comparison is made :



This way, the filter condition will be :

```
<Function>(<FieldName>) <Operator> <Value>
```

For example :

```
Abs(DownTimeDuration) > 10
```

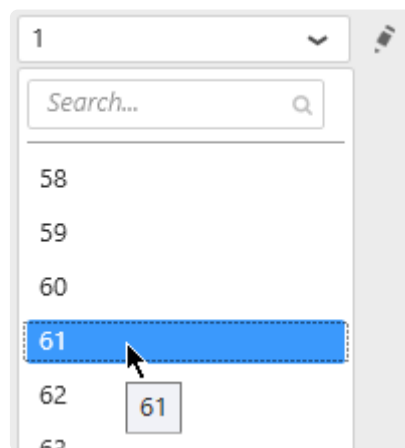
Values

Static values

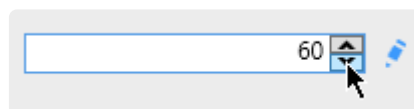
The “Edit values” button can be checked/unchecked manually :



When the “Edit values” button is un-checked, a value can be selected from current values in the database :



When the “Edit values” button is checked, a value can also be entered as text, or using the up/down arrows to increase/decrease :



✳ Depending on the operator selected, some of these options may not be available.

Dynamic filter values using Parameters

Instead of comparing to a static value, it is possible to compare to a dynamic Parameter that will depend

on actions inside the Dashboard.

For this, select “Use Parameter” and see the Chapter about [Parameters](#).



Last modified: Feb 17, 2022

2.6.7.3.3. Filtering date fields

In a basic configuration, the condition is expressed as :

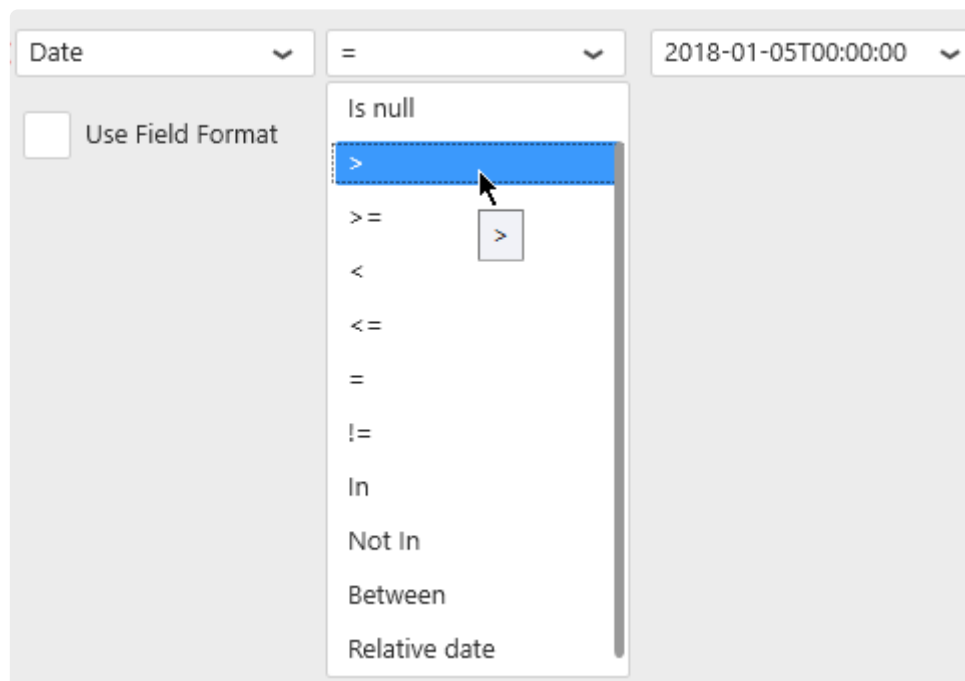
```
<FieldName> <Operator> <Value>
```

For example :

```
aaValueStartTime > 2018-01-05T00:00:00
```

Operators

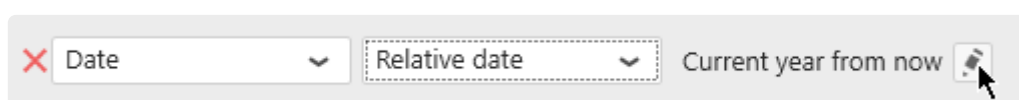
Operators appropriate to Dates and Times can be selected :



Relative date filtering

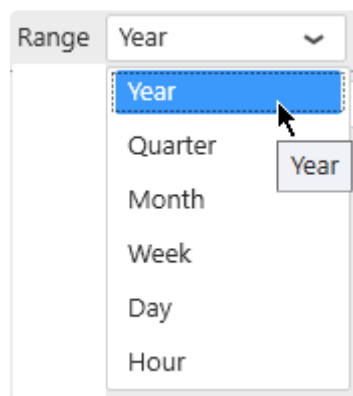
The special operator “Relative date” allows to select a “date window” / “time frame” that is moving over time relative to the current moment.

When selecting this operator, click the edit icon to define the relative date window :



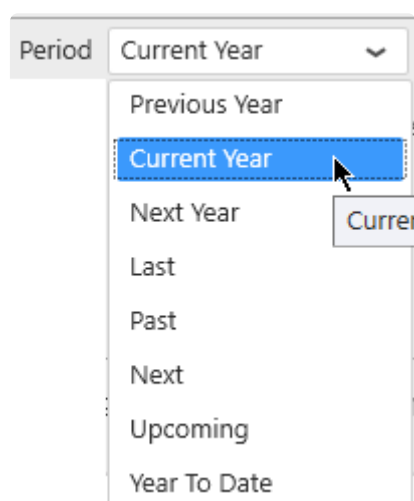
Then for each time range :

Year, Quarter, Month, Week, Day, Hour



... a Period can be selected :

Previous 1, Current, Next 1, Last N, Past N, Next N, Upcoming N, To Date



A preview of the selected date range for the current time appears at the bottom of the window to help you configure :

1/1/2019 12:00:00 AM to 12/31/2019 11:59:59 PM

Field formatting

Similarly to the number fields, a formatting function can be applied to the date field :

This way, the filter condition will be :

```
<Function>(<FieldName>) <Operator> <Value>
```

For example :

```
Year(Date) BETWEEN 2015 AND 2016
```

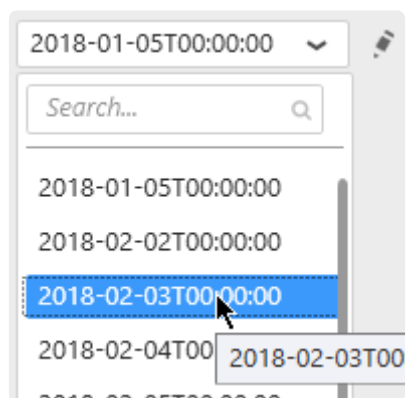
Values

Static values

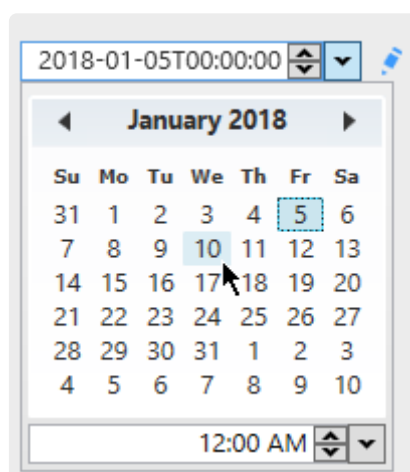
The “Edit values” button can be check/unchecked manually :



When the “Edit values” button is un-checked, a value can be selected from current values in the database :



When the “Edit values” button is checked, a value can also be entered as text :



Depending on the operator and formatting function selected, some of these options may not be available.

Dynamic filter values using Parameters

Instead of comparing to a static value, it is possible to compare to a dynamic Parameter that will depend on actions inside the Dashboard.

For this, select “Use Parameter” and see the Chapter about [Parameters](#).

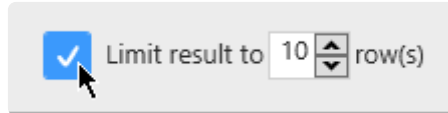


Last modified: Feb 17, 2022

2.6.7.4. Limiting dataset size

How to limit

Check “Limit result to” and select the number of rows you want to keep in the dataset :



Why limit ?

Checking this option with “Limit result to 10 rows” for example will apply a “TOP 10” to the query. When widgets are sorting the data, this can be a useful to display the 10 Items with the worst performance, or the 10 equipments with the highest consumption for example.

Last modified: Feb 17, 2022

2.6.8. Calculating Expressions

Alpana can add any number of calculated fields to a Data Source. These are called *Expressions*.

Expressions are stored inside the Data Source and exported along with it.

Expressions are evaluated when the Widget query is made, and will show accurate result depending on the Widget aggregation.

Because of this, using Expressions can be mandatory for certain types of calculations.

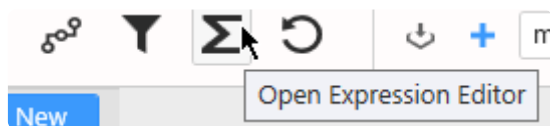


A Dashboard can contain up to 50 expressions per Datasources.

Last modified: Feb 17, 2022

2.6.8.1. Opening Expression Editor

Click on the Sigma Σ icon “Open Expression Editor” button :



The Expression Editor dialog opens to let you create and manage Expressions.

Last modified: Feb 17, 2022

2.6.8.2. Managing Expressions

Adding Expressions

Click the **+** button at the bottom left to add an Expression :



Deleting Expressions

Click the trash icon button at the bottom left to remove the selected Expression :



Hiding Expressions

Click on the eye icon next to an Expression name to hide it :




This can be useful for example when you create an intermediate Expression that will be re-used in other Expressions but not displayed to the end user.

Using Expressions

Expressions can be used in any other place where a data field can be found :

- Widget data binding
- Filter configuration
- ...

In the Data Preview of the Data Source, you can also view a preview of the Expression as if it were another field in the data.

 Please note that this is only a Preview. Since aggregation Expressions are calculated differently depending on aggregation, they will show the expected result in Widgets, which might be different.

Last modified: Feb 17, 2022

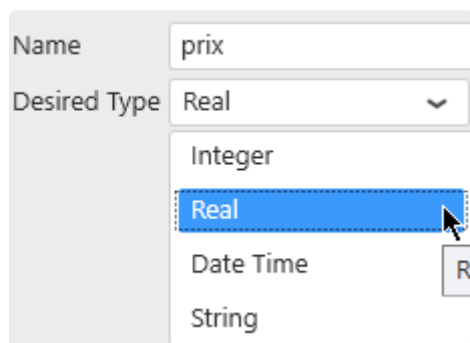
2.6.8.3. Expression properties

Expression Name

You can chose a name for the Expression.

Expression Type

Select a desired type for the Expression :



Name	prix
Desired Type	Real
	Integer
	Real
	Date Time
	String

This will determine how the Expression can be used. For example, what kind of aggregation can be made when it is bound to a Widget.

Last modified: Feb 17, 2022

2.6.8.4. Adding a constant

Constant value

By clicking on a ? question mark, you can input free form text :

- number constant
- string constant

Note on dates

- ✿ To input a constant date, it is strongly advised to use the [ISO](#) date format :
 YYYY-MM-DD for dates, for example 2019-12-25
 YYYY-MM-DDThh:mm:ss.sss for datetimes, for example 2019-12-25T23:59:59.999

When inputting dates, you are actually writing a string that will be converted to date on the target database where the query is made.

Note : in case of a [Bufferized connection](#), it is the Buffer database.

This means that your date string may be interpreted wrong depending on the language of the target database.

A date format that is not ambiguous is advised, for example ISO date format.

Dashboard Parameter

To use an Alpana Parameter instead of a constant value, check *Use Parameter* and select a Parameter (it is also possible to create a new Parameter from here by clicking the list icon) :

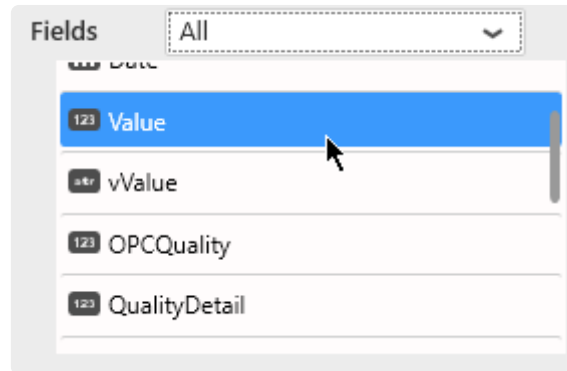
Last modified: Feb 17, 2022

2.6.8.5. Adding a field

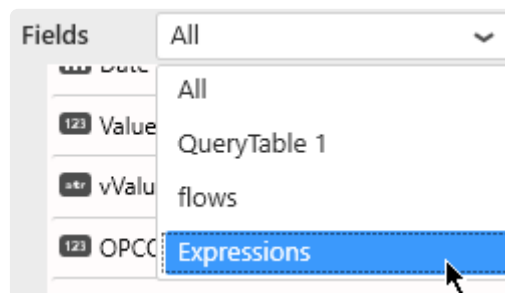
Any field from the Data Source can be used as function argument, including other Expressions

Browsing for a field

Fields can be browsed from the *Fields* container at the bottom :

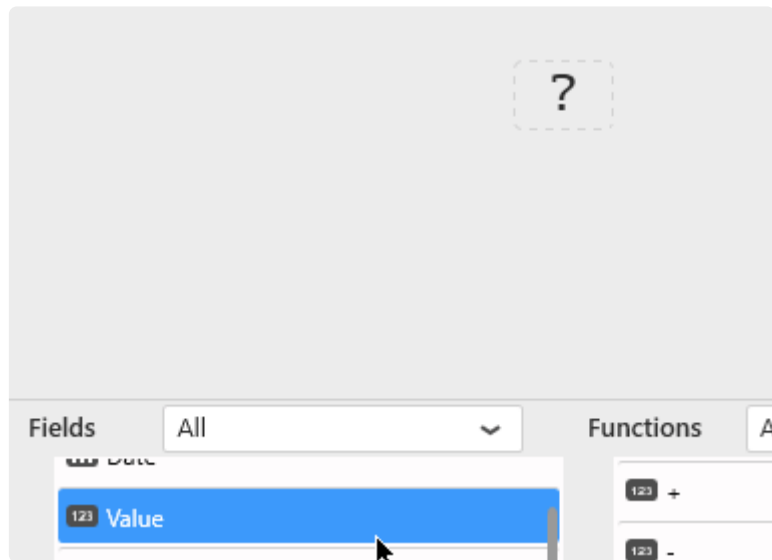


This list can be filtered by table name, or by selecting Expressions to list expressions only :



Adding a field to the Expression

To add a field to the Expression, simply drag it from the list into the Expression :

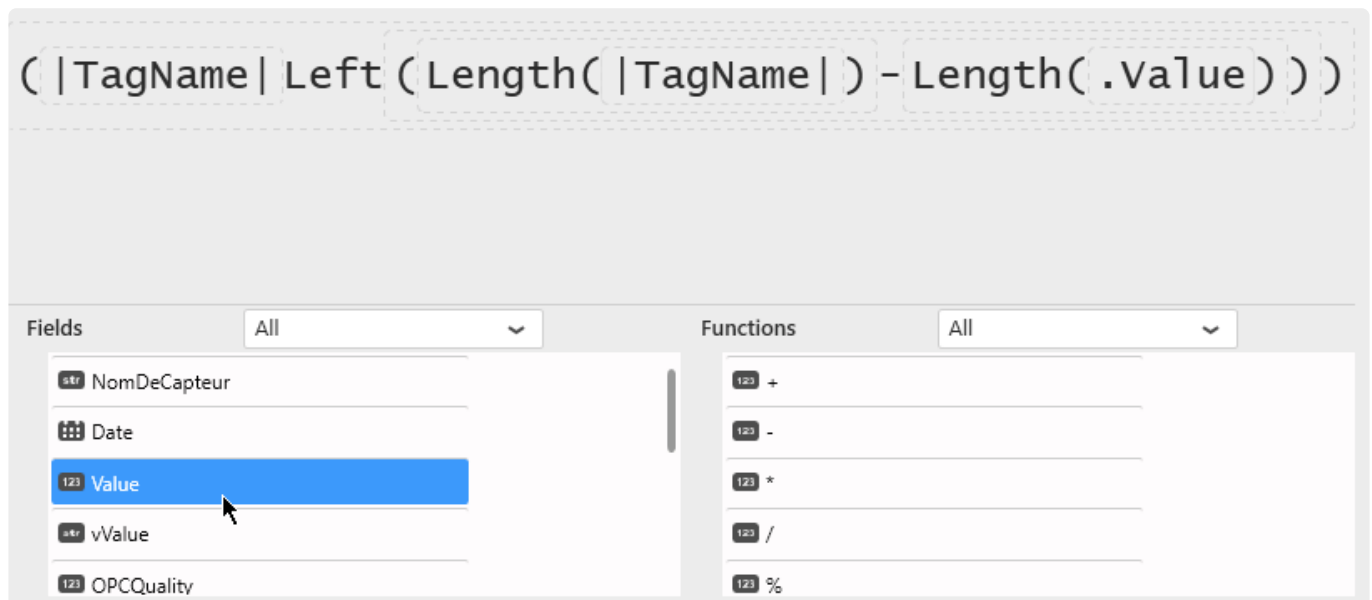


When adding a field on the ? question mark, the field will take this place.

Replacing an existing field

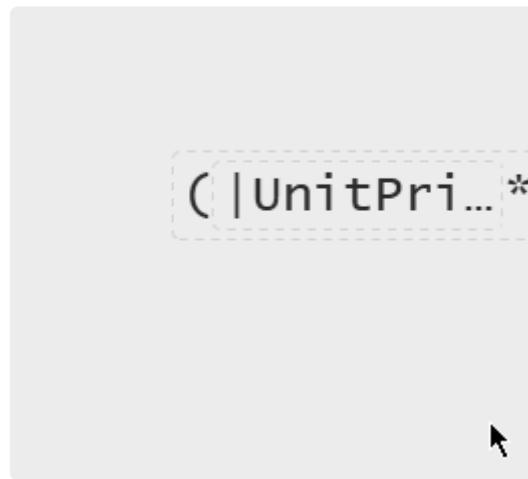
Using drag and drop

To replace part of an Expression by a field, it's possible to drag the field from the list and drop it onto the expression part to be replaced :



Browsing on the field

To replace a field in an Expression, it's possible to click on the field to be replaced, and select a replacement field :



Last modified: Feb 17, 2022

2.6.8.6. Adding a function

Functions take part in the calculation and take other elements as argument.

There are two main types of functions :

- Calculation functions (like Arithmetic functions $*$, $/$, $-$, $+$, Abs, ... or String functions Concat, Left, ...)
- Aggregation functions (SUM, Count, AVG, ...)

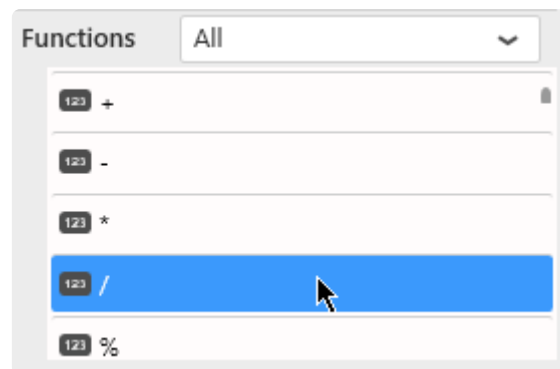
Most functions require arguments. A function argument itself can be anything :

- Function
- Field
- Value

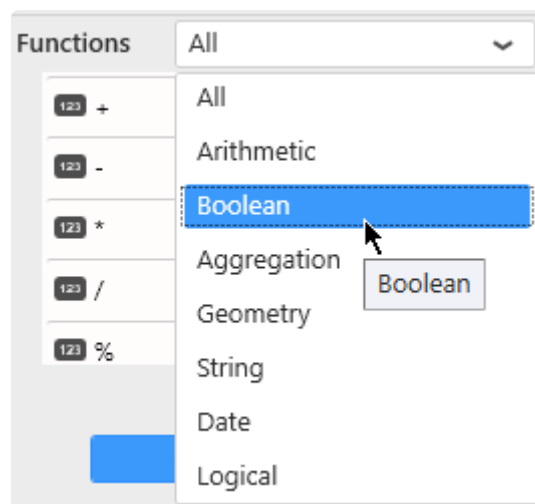
Any missing item will be displayed as a ? question mark.

Browsing for a function

Functions can be browsed from the *Functions* container at the bottom :

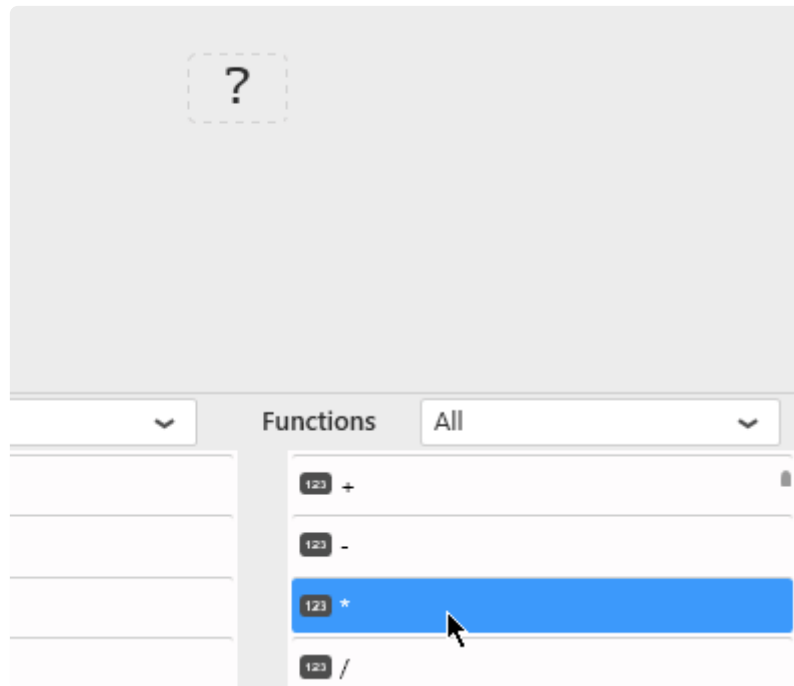


This list can be filtered by function type, or by selecting All functions :



Adding a function to the Expression

To add a function to the Expression, simply drag it from the list into the Expression :



When adding a function on the ? question mark, the function will take this place.

Replacing an existing function

Browsing on the function

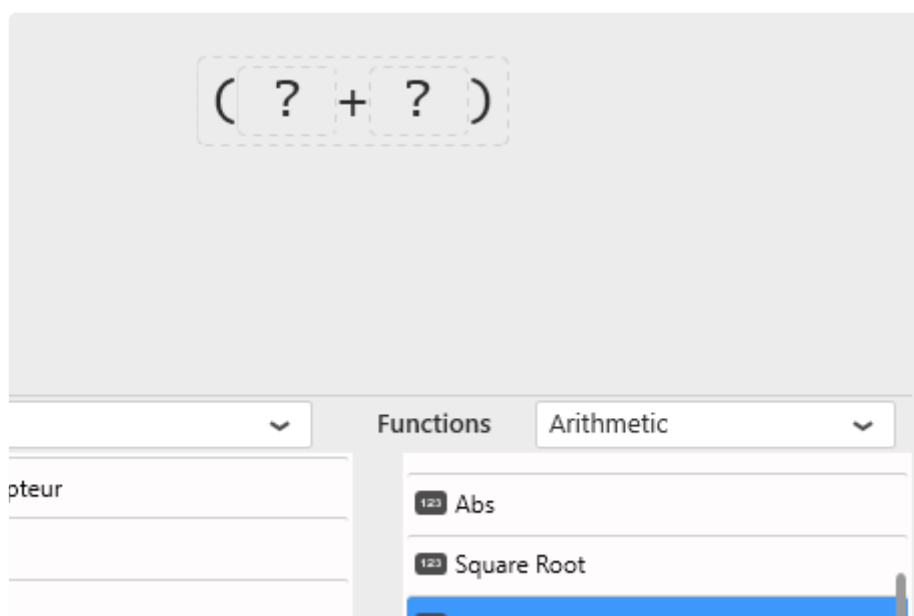
To replace a function in an Expression, it's possible to click on the function to be replaced, and select a replacement function :



Wrapping an Expression into a function

Maybe you have started creating an Expression, but now you want to make it an argument to a new function.

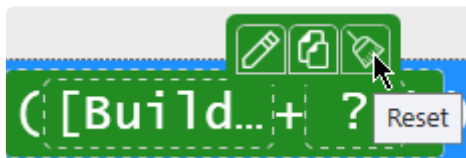
To wrap part of an Expression into a function, it's possible to drag the function from the list and drop it onto the Expression part to be wrapped :



Last modified: Feb 17, 2022

2.6.8.7. Removing an existing item

To remove an item and all the dependent items, click the item and click on the “Reset” button :



The item itself and all items underneath will be removed.

Last modified: Feb 17, 2022

2.6.8.8. Copying and Pasting an existing item

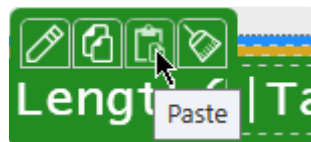
Copy

Click to select any item (function, field, value), then click on the *Copy* icon :



Paste

Click on the target item, then click on the *Paste* icon :



You can paste onto any item :

- to replace a ? question mark as a function argument
- replace a single field
- replace a function and all its dependent items
- into a different Expression

Last modified: Feb 17, 2022

2.6.8.9. Aggregated Expressions

What are Aggregated Expressions

There is a special type of Expressions : *aggregated Expressions*.

An aggregated Expression is simply an Expression that uses a function from the “*Aggregation*” category of functions.

! These types of Expressions are **essential** to solve some common issues.
For example, see [Pitfall : Calculating ratios, averages, ...](#).

Note : Aggregation Functions

Since Alpana v3.0, supported Aggregation Functions are :

- Avg
- Count
- Distinct Count
- Max
- Min
- Sum
- STDev
- STDevP
- Var
- VarP

They are listed in the “*Aggregation*” category of functions in the Expression Editor.

Rules

Note : these rules come from the underlying SQL engine. You will find the same rules in SQL queries.

- Non-aggregated fields cannot be used in the same Expression as aggregated fields. See [this chapter](#).
- Aggregation functions cannot wrap other aggregation functions. [See this chapter](#).

In particular, when binding an aggregated Expression as Measure to a Widget, only the “aggregation” type “*Value of*” can be used.

Usage

Aggregated Expressions will always be calculated correctly, independently of how data is grouped inside the Widget.

Example

Imagine a simple dataset :

TagName	Building	Product	Price
FT101.Value	Building A	Product X	10
FT102.Value	Building A	Product Y	15
FT201.Value	Building B	Product X	20
FT202.Value	Building B	Product Y	25
FT301.Value	Building C	Product X	30
FT302.Value	Building C	Product Y	35

You create the following Expression :

```
ExpressionTotal = SUM(Price)
```

If you display this full dataset in Grid, you get :

TagName	Building	Product	Price	ExpressionTotal
FT101.Value	Building A	Product X	10	10
FT102.Value	Building A	Product Y	15	15
FT201.Value	Building B	Product X	20	20
FT202.Value	Building B	Product Y	25	25
FT301.Value	Building C	Product X	30	30
FT302.Value	Building C	Product Y	35	35

⇒ It seems like the `SUM()` part of the Expression didn't do anything.

Now if you display this same Expression in a Pie Chart grouped by "Product", you get :

Product	ExpressionTotal
Product X	60
Product Y	75

⇒ because **60** is the SUM 10 + 20 + 30 and **75** is the SUM 15 + 25 + 35

Now if you display this same Expression in a Card Widget, grouped across all the dataset, you get :

ExpressionTotal

135

⇒ because **135** is the total SUM $10+15+20+25+30+35$

Last modified: Feb 17, 2022

2.6.8.10. Functions reference



Important : the exact behavior of each function depends on the database engine that is running them.

The same function can have a different behavior depending on whether it is used on an Oracle Connection, or MS SQL, or SQLite (Designer buffer).

Below is a list of functions available to use withing an Expression :

Arithmetic

Those are simple mathematical functions used to make calculations.

Add +

```
(Number1 + Number2)
```

Sum of Number1 and Number2

Subtract -

```
(Number1 - Number2)
```

Subtract Number1 and Number2

Multiply *

```
(Number1 * Number2)
```

Multiply Number1 and Number2

Divide /

```
(Number1 / Number2)
```

Divide Number1 by Number2

Modulo %

```
(Number1 % Number2)
```

Modulo of Number1 and Number2

Absolute value Abs

```
Abs (Number1)
```

Absolute value of Number1

Square Root Square Root

```
Square Root (Number1)
```

Square Root of Number1

Exponential Exp

```
Exp (Number1)
```

Exponential of Number1

Logarithm Log

```
Log (Number1)
```

Natural logarithm of Number1

Power Power

```
(Number1 Power Number2)
```

Number1 raised to power Number2

Rounding Round

```
(Number1 Round Decimals)
```

Number1 rounded to the nearest Decimals

Sign Sign

```
Sign (Number1)
```

Number indicating the sign of Number1 :

- -1 if Number1 < 0

- 0 if Number1 = 0
- +1 if Number1 > 0

Boolean

Those functions are boolean operators used in logical expressions (with the `If` function for example).

Conjunction And

```
(Expression1 And Expression2)
```

Logical conjunction of boolean `Expression1` and `Expression2`

Disjunction Or

```
(Expression1 Or Expression2)
```

Logical disjunction of boolean `Expression1` or `Expression2`

Negation Not

```
Not (Expression1)
```

Logical negation of boolean `Expression1`

Aggregation

These Aggregation functions play a special role in Expressions, please see chapters [Aggregated Expressions](#) and [Expressions Troubleshooting](#)

In particular, they apply differently on each Widget's result set differently, depending on the grouping configured in the Widget.

Average Avg

```
Avg (Field1)
```

Average of all values in `Field1`

Count Count

```
Count (Field1)
```

Count all non- NULL values in `Field1`

Distinct Count **Distinct Count**

```
Distinct Count(Field1)
```

Count all **distinct** and non- NULL values in Field1

Maximum **Max**

```
Max(Field1)
```

Maximum of all values in Field1

Minimum **Min**

```
Min(Field1)
```

Minimum of all values in Field1

Summation **Sum**

```
Sum(Field1)
```

Sum total of all values in Field1

Standard Deviation **STDev**

```
STDev(Field1)
```

Statistical standard deviation of all values in Field1

Standard Deviation for population **STDevP**

```
STDevP(Field1)
```

Statistical standard deviation for the population of all values in Field1

Variance **Var**

```
Var(Field1)
```

Statistical variance of all values in Field1

Variance for population VarP

```
VarP(Field1)
```

Statistical variance for the population of all values in `Field1`

Geometry

Those are simple mathematical functions used to make calculations.

π Pi

```
Pi
```

Mathematical constant `Pi`

Sine Sin

```
Sin(Number1)
```

Sine of `Number1`

Cosine Cos

```
Cos(Number1)
```

Cosine of `Number1`

Tangent Tan

```
Tan(Number1)
```

Tangent of `Number1`

Arc Cosine ACos

```
ACos(Number1)
```

Inverse of Cosine of `Number1`

Arc Sine Asin

```
Asin (Number1)
```

Inverse of Sine of Number1

Arc Tangent ATan

```
ATan (Number1)
```

Inverse of Tangent of Number1

Degrees Degrees

```
Degrees (Number1)
```

Convert Number1 radians to degrees

Radians Radians

```
Radians (Number1)
```

Convert Number1 degrees to radians

String

Those are functions used to manipulate strings and characters.

Character Char

```
Char (Number1)
```

Convert the Number1 integer ASCII code to a character value

Concatenate Concat

```
(String1 Concat String2)
```

Concatenate String1 and String2 to form a single string

Contains Contains

```
(String1 Contains String2)
```

Search String1 for any occurrence of String2 and return :

- true or 1 if String1 contains occurrences of String2
- false or 0 otherwise

Starts with Starts with

```
(String1 Starts with String2)
```

Check if String1 starts with String2 and return :

- true or 1 if String1 starts with String2
- false or 0 otherwise

Ends with Ends with

```
(String1 Ends with String2)
```

Check if String1 ends with String2 and return :

- true or 1 if String1 ends with String2
- false or 0 otherwise

Left Left

```
(String1 Left Number1)
```

Return the Number1 left-most characters of String1

Right Right

```
(String1 Right Number1)
```

Return the Number1 right-most characters of String1

Length Length

```
Length (String1)
```

Return the number of characters for `String1`

Lower Lower

```
Lower (String1)
```

Return `String1` as lower-case

Upper Upper

```
Upper (String1)
```

Return `String1` as lower-case

RTrim RTrim

```
RTrim (String1)
```

removes right trailing spaces from `String1`

LTrim LTrim

```
LTrim (String1)
```

removes left trailing spaces from `String1`

Substring Substring

```
Substring (String1 , Number1 , Number2)
```

Return part of `String1` starting from `Number1` with `Number2` number of character

Date

Now Now

```
Now
```

Return current date and time

Today Today

```
Today
```

Return current date

Hour Hour

```
Hour (Date1)
```

Returns the Hour of the time (from 0 to 23) from Date1.

Minute Minute

```
Minute (Date1)
```

Returns the minute of the time (from 0 to 59) from Date1.

Second Second

```
Second (Date1)
```

Returns the second of the time (from 0 to 59) from Date1.

Month Month

```
Month (Date1)
```

Returns the month of the year (from 1 to 12) from Date1.

Month Year MonthYear

```
Month Year (Date1)
```

Returns the month and the year of the date from Date1.

Year Year

```
Year (Date1)
```

Returns the year of the date from Date1.

Week ~~Week~~

```
Week (Date1)
```

Return the week number (from 1 to 52) from Date1.

Quarter ~~Quarter~~

```
Quarter (Date1)
```

Return the Quarter of the year (from 1 to 4) from Date1.

Quarter Year ~~QuarterYear~~

```
Quarter Year (Date1)
```

Return Year and quarter of the date from Date1.

Day of week ~~Dayofweek~~

```
Day of week (Date1)
```

Return the number of the day during the week (from 1 to 7) from Date1.

Day of year ~~Dayofyear~~

```
Day of year (Date1)
```

Return the number of the day during the year (from 1 to 365) from Date1.

Add Day ~~AddDay~~

```
(Number1 Add day Date1)
```

Add Number1 Days to the Date1

Date difference ~~Datedifference~~

```
(Date1 Date difference Date2)
```

Return Number of day between Date1 and Date2

Date Date

```
Date (String1)
```

Return Date from String1

Datetime Datetime

```
Datetime (String1)
```

Return Date and time from String1

Logical

= equal

```
(Number1 = Number2)
```

Logical check between Number1 and Number2 :

- 0 if numbers are different
- 1 if numbers are equal

!= notequal

```
(Number1 != Number2)
```

Logical check between Number1 and Number2 :

- 0 if numbers are equal
- 1 if numbers are different

if if

```
if(Field1, String1, String2)
```

Logical check if Field1 is true (=1) :

- 0 Return ***String1***
- 1 Return ***String2***

if null ifnull

```
(Field1 if null Field2)
```

Return *****Field2***** if *****Field1***** is null.

It can be used as fallback value

is null isnull

```
is null(Field1)
```

Logical check if **Field1** is null

- Null Return 0
- Not null Return 1

is not null isnull

```
is not null(Field1)
```

Logical check if **Field1** is not null

- Null Return 1
- Not null Return 0

> Upper

```
(Number1 > Number2)
```

Logical check if **Number1** and **Number2** :

- 0 if **Number1** is not upper than **Number2**
- 1 if **Number1** is upper than **Number2**

>= UpperEqual

```
(Number1 >= Number2)
```

Logical check if **Number1** and **Number2** :

- 0 if **Number1** is not upper than **Number2**
- 1 if **Number1** is equal or upper than **Number2**

h3.< Lower

```
(Number1 < Number2)
```

Logical check if Number1 and Number2 :

- 0 if Number1 is not lower than Number2
- 1 if Number1 is lower than Number2

<= LowerEqual

```
(Number1 <= Number2)
```

Logical check if Number1 and Number2 :

- 0 if Number1 is not lower than Number2
- 1 if Number1 is equal or lower than Number2

Like Like

```
(Field1 Like Field2)
```

To be defined

In In

```
(Field1 In Field2)
```

To be defined

.

h3. Not In NotIn

```
(Field1 Not InField2)
```

To be defined

h3.Between Between

```
(Number1 Between Number2 , Number2)
```

Return 1 (true) if Number1 is between Number2 and Number3 else return 0 (false)

Last modified: Feb 17, 2022

2.6.9. Expressions Troubleshooting

Expressions are defined as objects in Alpana v2.0 and translated to SQL expressions when the widget queries are composed.

Some errors may happen from operations that are undefined in SQL, or when the calculation is not well understood.

This Chapter will help you in these cases.

Last modified: Feb 17, 2022

2.6.9.1. Pitfall : Incorrect result in Expression with division

Your issue

In some cases, Expressions with a division will give an unexpected result : 0 everywhere, or imprecise value for example.

Example Expression :

```
Expression1 = 100 * (SUM([isActive]) / COUNT([ID]))
```

In this case I want the % of Active items.

[isActive] is 0 or 1 and ID is some ID for the items.

Why am I getting weird results for this Expression1 ?

(0 everywhere, or imprecise value for example)

Explanation

Expressions are executed as part of the final SQL query.

For buffer-based Connections (Excel, CSV, Historian, Web, ...), the final queries are also **database queries**.

SQL division behaves differently if the two sides are Integer.

Test the following SQL query :

```
SELECT 123/456;
```

The result is 0

Why ?

We are performing an Integer Division (see https://en.wikipedia.org/wiki/Euclidean_division)

The quotient is 0 and the remainder is 123.

More info

To explore further, you can test the following SQL query (paste in SQL Management Studio for example) :

```
SELECT
    29/10 AS quotient, -- 2
    29%10 AS remainder, -- 9
    (29/10) * 10 + 29%10 AS result, -- 29 = 2*10 + 9
    1.0 * (29/10) AS wrong, -- 2.0
    (1.0 * 29)/10 AS real_division; -- 2.9 because 1.0 * 29 = 29.0
```

In my example Expression1 above, SUM, and the result of COUNT is also an Integer.

So I am not going to get the % of Active items I expect

Solution

To fix it, I need to **force the conversion to a Real number** for at least one side of the division.

Example solution :

✿ Multiply one member by 1.0 to force the conversion to a Real number.

```
Expression2 = 100 * (SUM([isActive] * 1.0) /COUNT([ID]))
```

Last modified: Feb 17, 2022

2.6.9.2. Pitfall : Calculating ratios, averages,

...

Introduction

An Expression may seem to perform the correct calculations, but it is important to double-check results during the development process, and question the calculations themselves.

One crucial point to remember is that fields must be aggregated in order to be displayed inside a widget. This performs a second layer of calculation and needs to be thought out carefully.

The easy case : SUM

Sum is easy. Sum of sums gives the expected total.

If you configure an Expression like :

```
ExpressionSUM = [DurationLoading] + [DurationPacking]
```

You can easily use it in a widget with default aggregation SUM, and you should get the total durations as expected result.

The only things to look out for is :

- unit consistence (adding minutes with minutes)
- NULL handling (what happens when [DurationPacking] is NULL)

The general case

Consider the following dataset :

Day	GoodProduction	TotalProduction	ratio
1	8	80	0.1
2	2	2	1
3	3	15	0.2
4	3	3	1
(total)	16	100	should be 16/100 = 0.16



Assignment :

I need to make an Expression for the ratio GoodProduction / TotalProduction.

ratio : First Attempt (*wrong*)

I create :

```
Expression1 = [GoodProduction] / [TotalProduction]
```

It **seems** to give good results in the Data Preview grid in Alpana Designer. But **in the Data Preview, rows are not aggregated !**

When I add the expression to a widget, what aggregation do I choose ?

`SUM([Expression])` will give 2.3 which is **incorrect** ! The reason is that you calculate the sum of ratios $(0.1 + 1 + 0.2 + 1)$ which has no meaning.

`AVG([Expression])` will give 0.575 which is **incorrect** too ! The reason is that you calculate the un-weighted average of ratios $(0.1 + 1 + 0.2 + 1)/4$ which has no meaning also.

ratio : Solution

The Expression must express what you really want to calculate, including aggregation :

```
Expression2 = SUM([GoodProduction]) / SUM([TotalProduction])
```

This will be used as a calculated column in all queries, including widgets and will always make the correct calculation.

For example, in the Total of the data above, you will correctly get : $(8+2+3+3) / (80+2+15+3) = 0.16$

There is only one fix needed :

Since we are making a ratio of integers, we should force to cast as float to make float division :

```
Expression3 = (SUM([GoodProduction]) * 1.0) / SUM([TotalProduction])
```

General case : Averages and other

In many cases, this phenomenon can be hidden.

If your database field is called `[AverageDuration]`, it is probably wrong to make a SUM or AVG of it, for the same reasons as above.

In some cases, you will need to *expose to the dashboard Data Source the fields necessary to re-aggregate the calculation properly.*

Example on adapting your data

Your Data Source points to an SQL View with a calculated column "OEE".

You made the calculation before reaching the dashboard, and you defined it as : $[OEE] = \frac{SUM([Uptime])}{(SUM([Uptime]) + SUM([Downtime]))}$

Now in your Dashboard, how will you aggregate this OEE ? You will run into the issues described above as you will implicitly make wrong calculations.



The solution here can be to expose the fields [Uptime] and [Downtime] inside your SQL View. Like that, in your Data Source, you will be able to recreate this calculation as an Expression, and get correct results in all cases.

see also

[Aggregated Expressions](#)

Last modified: Feb 17, 2022

2.6.9.3. Error when mixing aggregate fields and non-aggregate fields

The Expression engine (SQL) doesn't allow to mix aggregate fields with non-aggregate fields, as it results in undefined behaviour.

Example :

```
Expression = SUM(ValueField_A) + ValueField_B
```

ValueField_A is inside an aggregation expression (SUM) and ValueField_B is not.

This results in an error :

“The following expression(s) contain(s) non aggregate field references and aggregate functions at the same time which is not allowed”

To solve this, think about the calculation you really want to do, and what will happen when it will be included in a GROUP BY operation.

see also

[Aggregated Expressions](#)

Last modified: Feb 17, 2022

2.6.9.4. Error when wrapping aggregate fields inside aggregate functions

The Expression engine (SQL) doesn't allow to apply an aggregation function on top of another aggregation function.

Example :

```
Expression = AVG(SUM(ValueField_A))
```

This results in an error :

“Cannot perform an aggregate function on an expression containing an aggregate or a subquery.”

To solve this, you should leave only 1 level of aggregation functions (think about what you really want to calculate and test on a small dataset).

see also

[Aggregated Expressions](#)

Last modified: Feb 17, 2022

2.6.10. Value-based Settings

In addition to data preparation itself, Data Sources also contain *information that is bound to the data*.

These “*value-based settings*” have a different value based on the value inside a Data Source field.

Since v2.0, the only value-based setting is Value-based Colors.



Note :
This is only available for text type fields.

Last modified: Feb 17, 2022

2.6.10.1. Value-based Colors

Goal

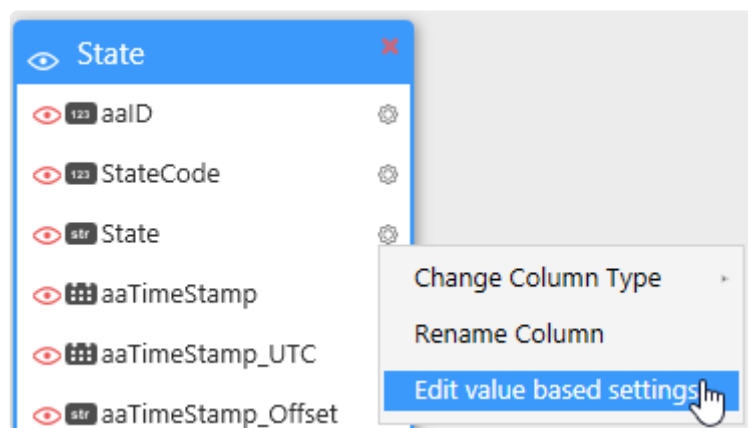
The “Value-based color” mechanism allows to bind a central unique value for a color based on a Data Source field value.

For example, you may want to associate colors to values in the “Machine State” field :

- value “Downtime” is always **red**
- value “Running” is always **green**

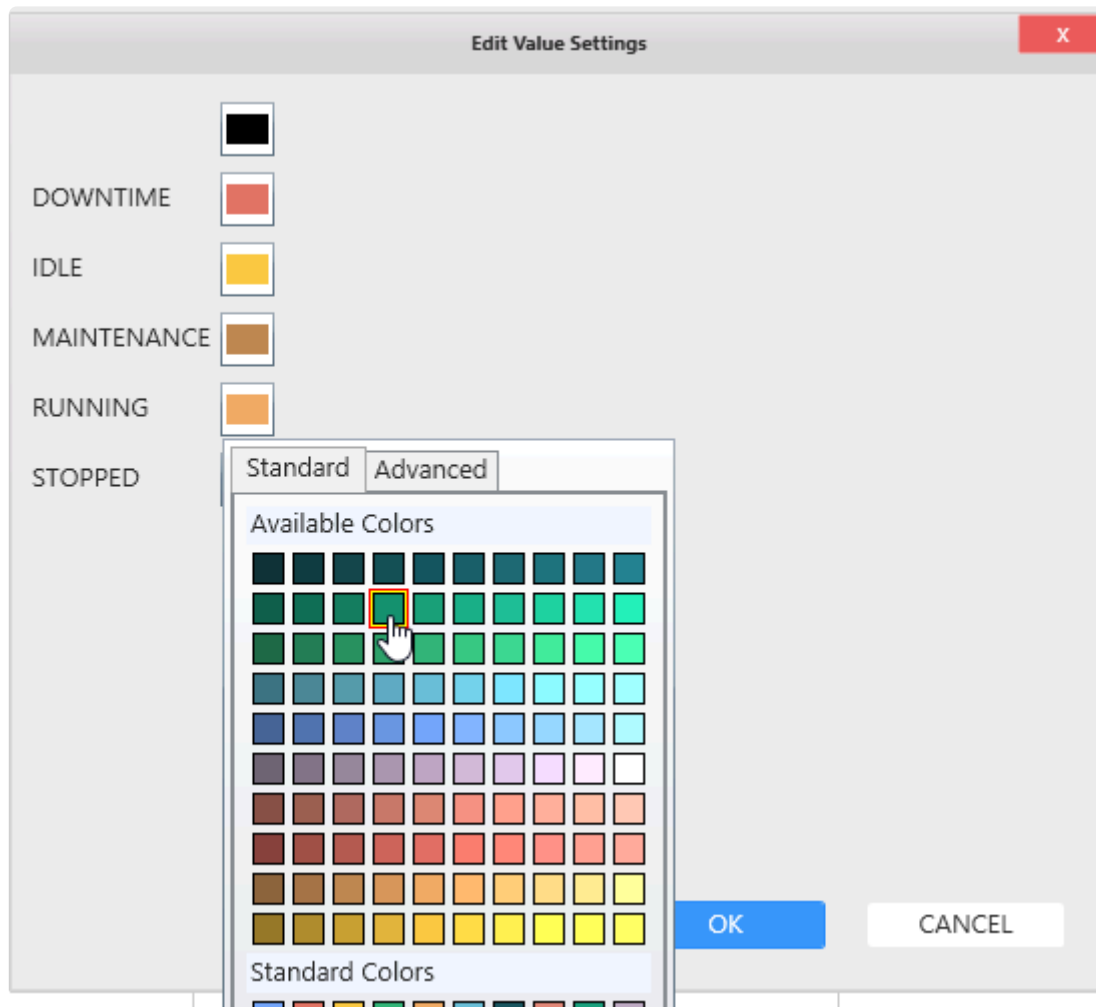
Edit value-based colors on a data field

To edit value-based colors on a data field, find the relevant field and click on the cog icon directly to its right, then select “Edit value based settings” :



Each value currently in the field is listed.

To assign a color, just click on the current color :



Change to your desired color and click OK to validate.

Edit value-based colors on an Expression

To edit value-based colors on an Expression, find the relevant field and click on the cog icon directly to its right, then select “Edit value based settings” :



Then proceed as above to assign colors.

Last modified: Feb 17, 2022

2.6.11. Formatting Columns

Last modified: Feb 17, 2022

2.6.11.1. Renaming Columns

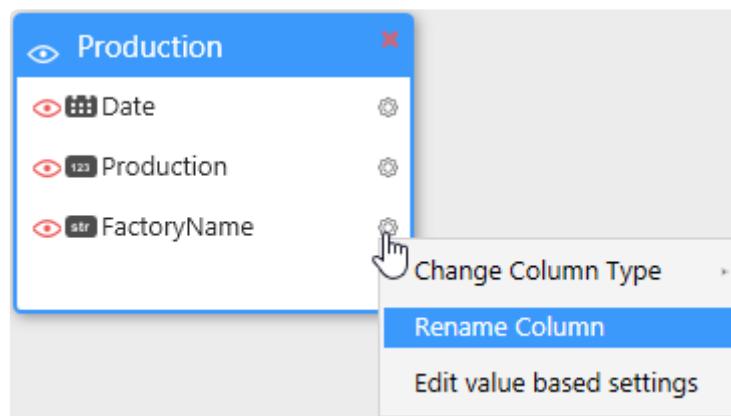
Why rename columns ?

The column names will appear in widget data binding.

Giving good names can help the user who will make the Dashboard based on this Data Source.

How

To rename a column, click on the cog icon and select “Rename Column” to enable the edit mode :

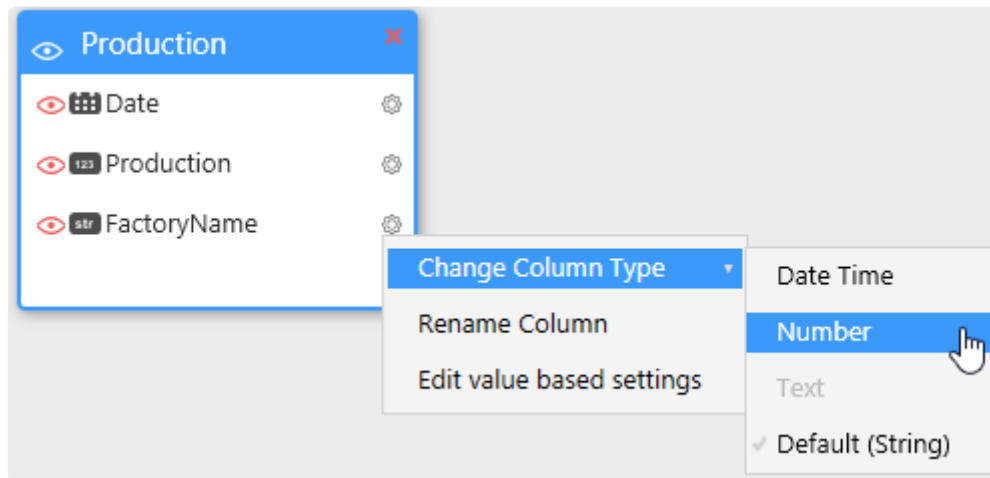


Press Enter to validate the new name.

Last modified: Feb 17, 2022

2.6.11.2. Changing Column Type

To change a column data type, click on the cog icon and select “Change Column Type”, then choose the new type of the column :



✿ On Connections Types that don't explicit types (like CSV), the default selected type may be incorrect. This allows you to select a better data type.

Last modified: Feb 17, 2022

2.6.11.3. Hiding Column

Why hide columns ?

The visible columns will appear in widget data binding.

hiding un-necessary or confusing columns can help the user who will make the Dashboard based on this Data Source.

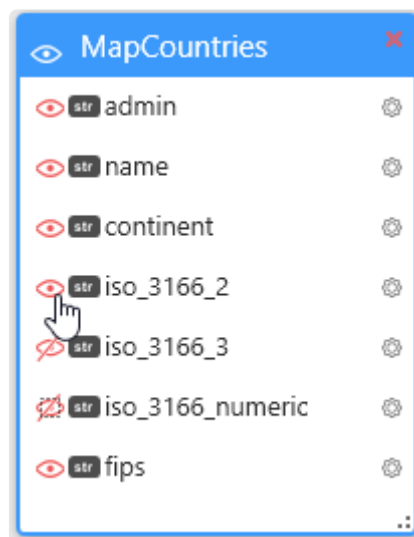


NOTE

If you hide a column, it won't be accessible for Widgets data binding. However, it will still be accessible for making Joins, Expressions and Data Source Filters.

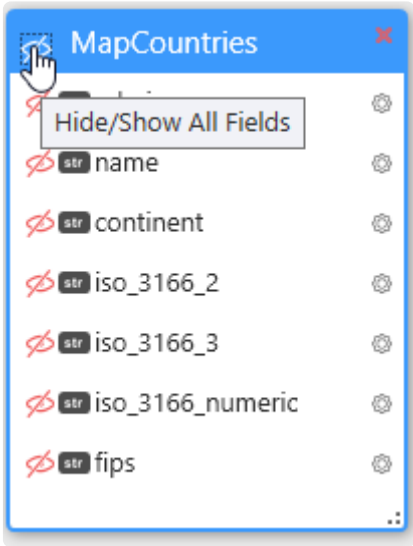
How

To Hide or Unhide a column, click on the red eye, just to the left of the desired column :



Hide all

To Hide or Show all Columns of a table, click on the eye icon just to the left of the table name :



Last modified: Feb 17, 2022

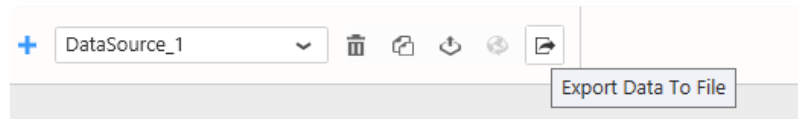
2.6.12. Exporting Datasource content as file

All datasource content can be exported as file in order to reuse them in specific case or for demo purpose.

Exported file can be used in connection to create stand alone dashboard if needed.

Export content as file

In the Datasource, a button is available to open the export as file popup :



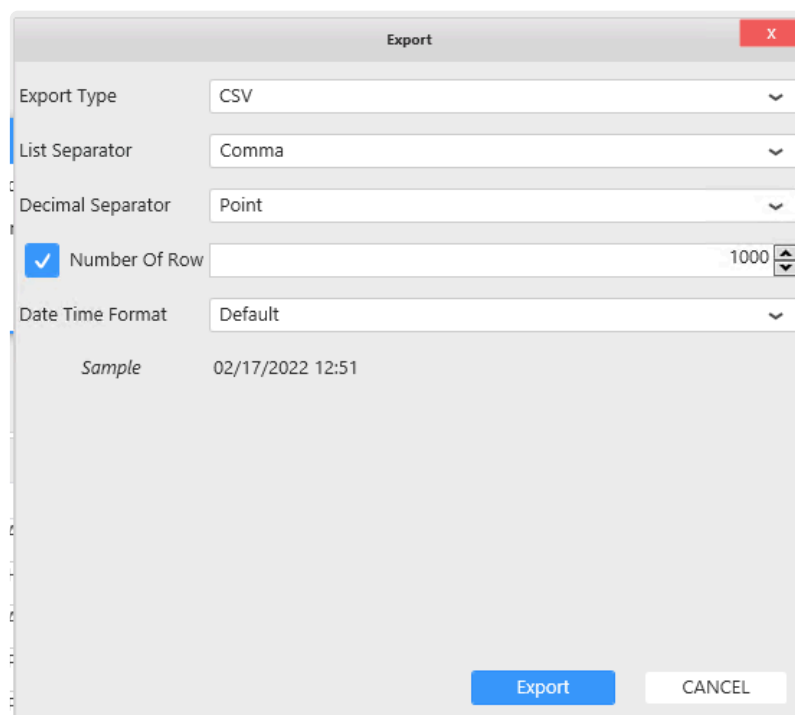
* If the datasource is empty, the export button will be disabled

Opening the popup will allows to export as :

- CSV
- JSON

All export can be limited in number of rows

CSV Export

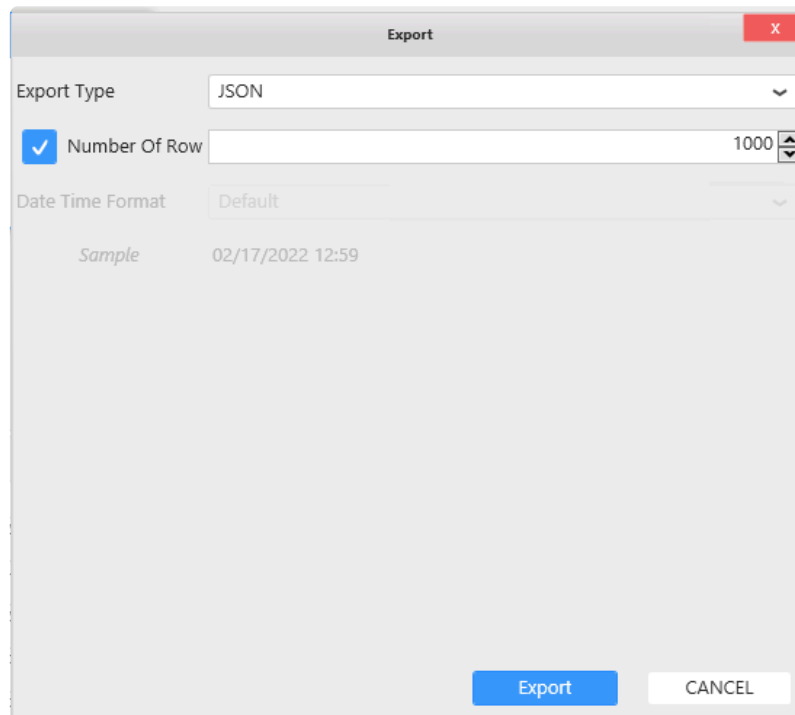


Some configuration is needed to define the format for the exported file :

- List separator : Character used to split all exported field in the file
- Decimal separator : Decimal separator used for float value
- Date time format : Date time format

! Using same character for list and decimal separator will produce an unusable file.

JSON Export



The screenshot shows a dialog box titled "Export" with a red close button in the top right corner. Inside the dialog, there are three main settings: "Export Type" is set to "JSON" in a dropdown menu; "Number Of Row" is checked with a blue checkbox and set to "1000" in a text field with up/down arrows; and "Date Time Format" is set to "Default" in a dropdown menu. Below these settings, there is a preview area with the label "Sample" and the value "02/17/2022 12:59". At the bottom right of the dialog, there are two buttons: "Export" (blue) and "CANCEL" (white).

In Json export, you can set the maximum exported row only since Json file as specific format for float value and date time.

Last modified: Feb 17, 2022

2.7. Configuring a Widget

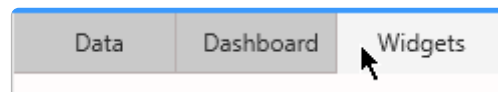
The main Widget configuration activities in Alpana Designer include :

- binding data : what to display
- graphical properties : how to display it
- interactions : how visualizations interact with each other

✿ A Dashboard can contain up to 50 widgets.

✿ To create Widgets, you will need to connect and prepare your data first. Please see the relevant Courses : [Connecting to Data](#) and [Transforming Data](#).

Since Alpana Designer v3.0, all Widget configuration activities are made inside the *Widgets* activity tab.

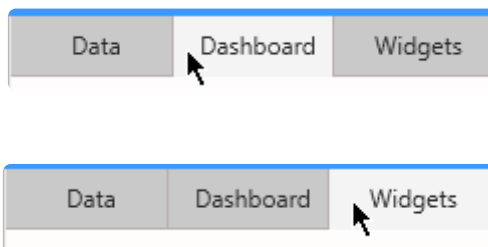


Last modified: Feb 17, 2022

2.7.1. Creating and Managing Widgets

This chapter describes how to create and manage Widgets.

Since Alpana Designer v3.0, Widgets are spawned in the *Dashboard* activity tab, and then configured inside the *Widgets* activity tab :

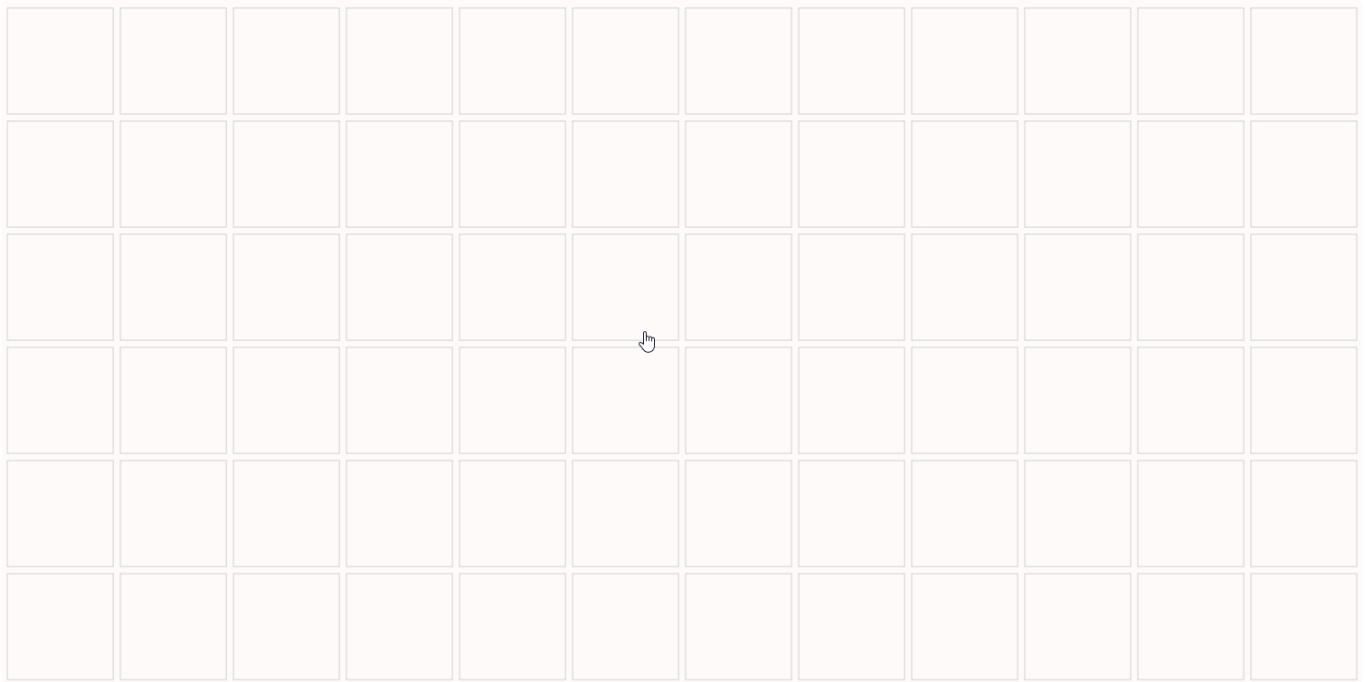


Last modified: Feb 17, 2022

2.7.1.1. Adding a Widget

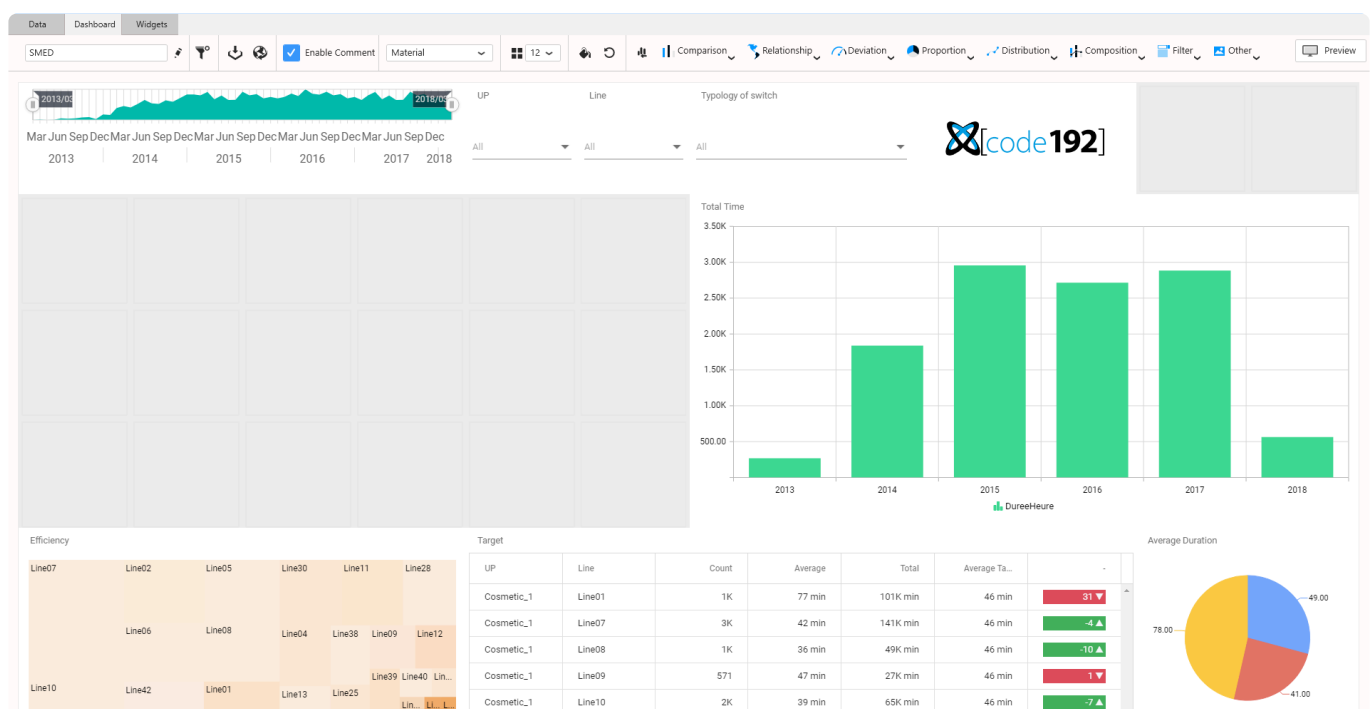
Dashboard Layout

In the *Dashboard* activity tab, the main area shows the Dashboard layout canvas where some square tiles are displayed to guide you.



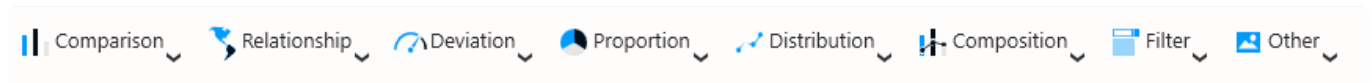
Created Widgets will appear on this layout canvas and can be re-arranged later.

For example, this is what a work in progress Dashboard will look like in this view :

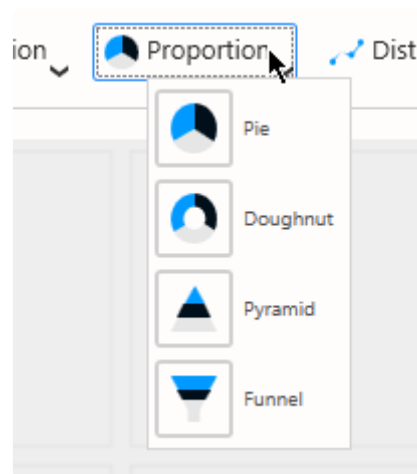


Browsing for available Widget types

In the *Dashboard* activity tab, the top bar displays drawers that contain the Widget library :

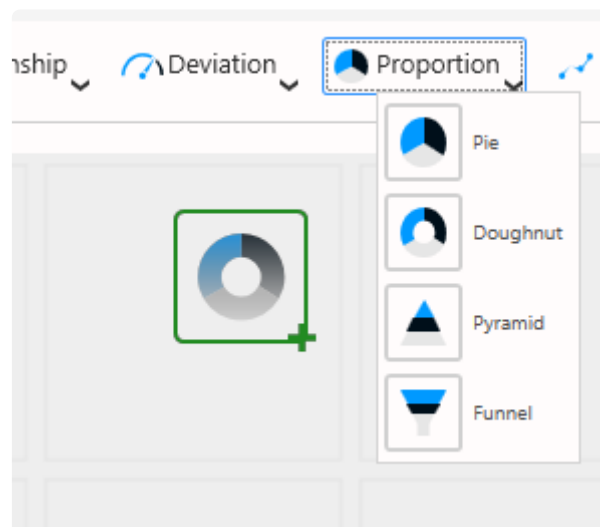


Click on a drawer to open it and list all widget types in this category :

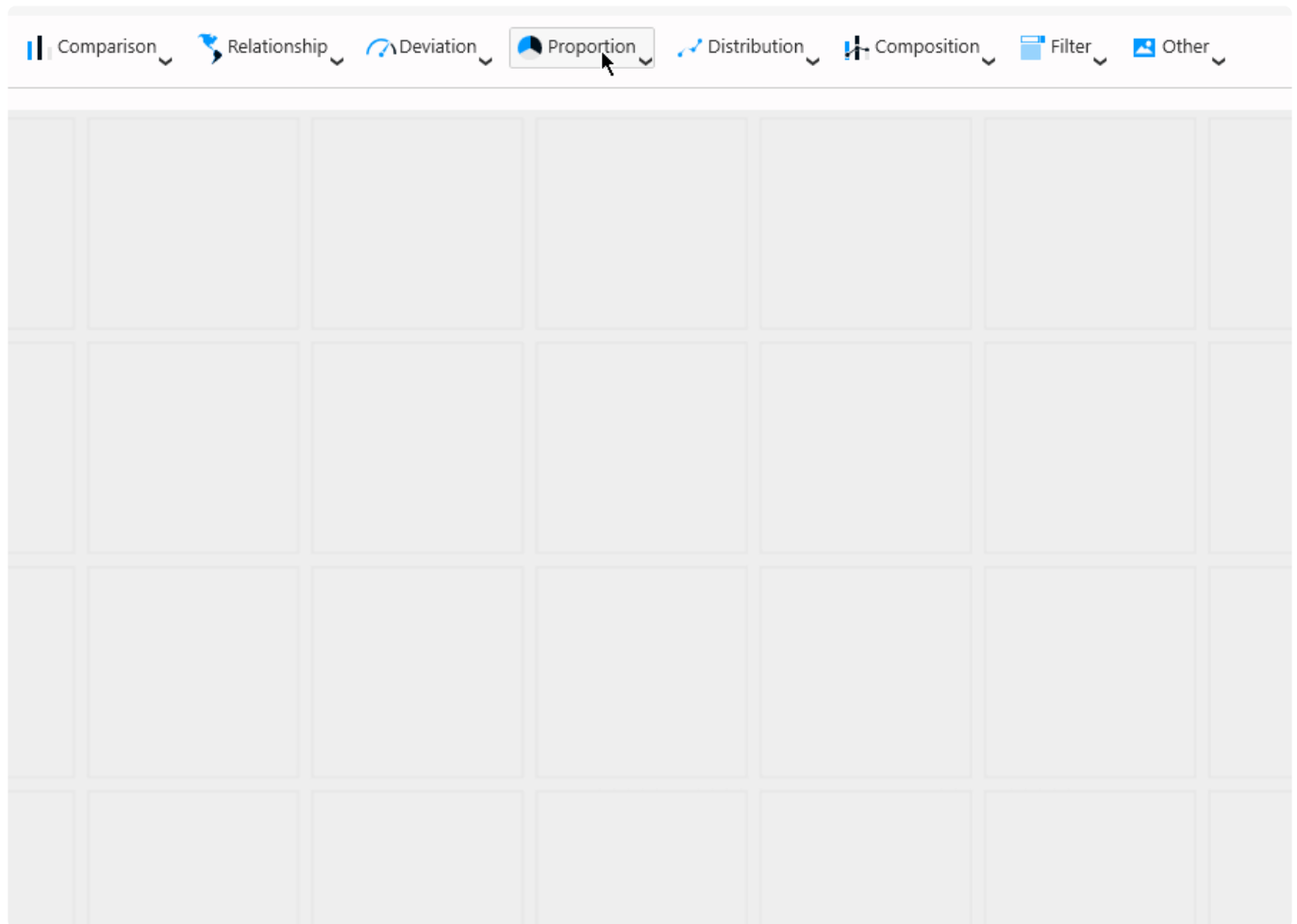


Adding a Widget

To add a Widget to the Dashboard, simply drag it from the drawer into any place in the layout canvas.



See the below animation for the full workflow :



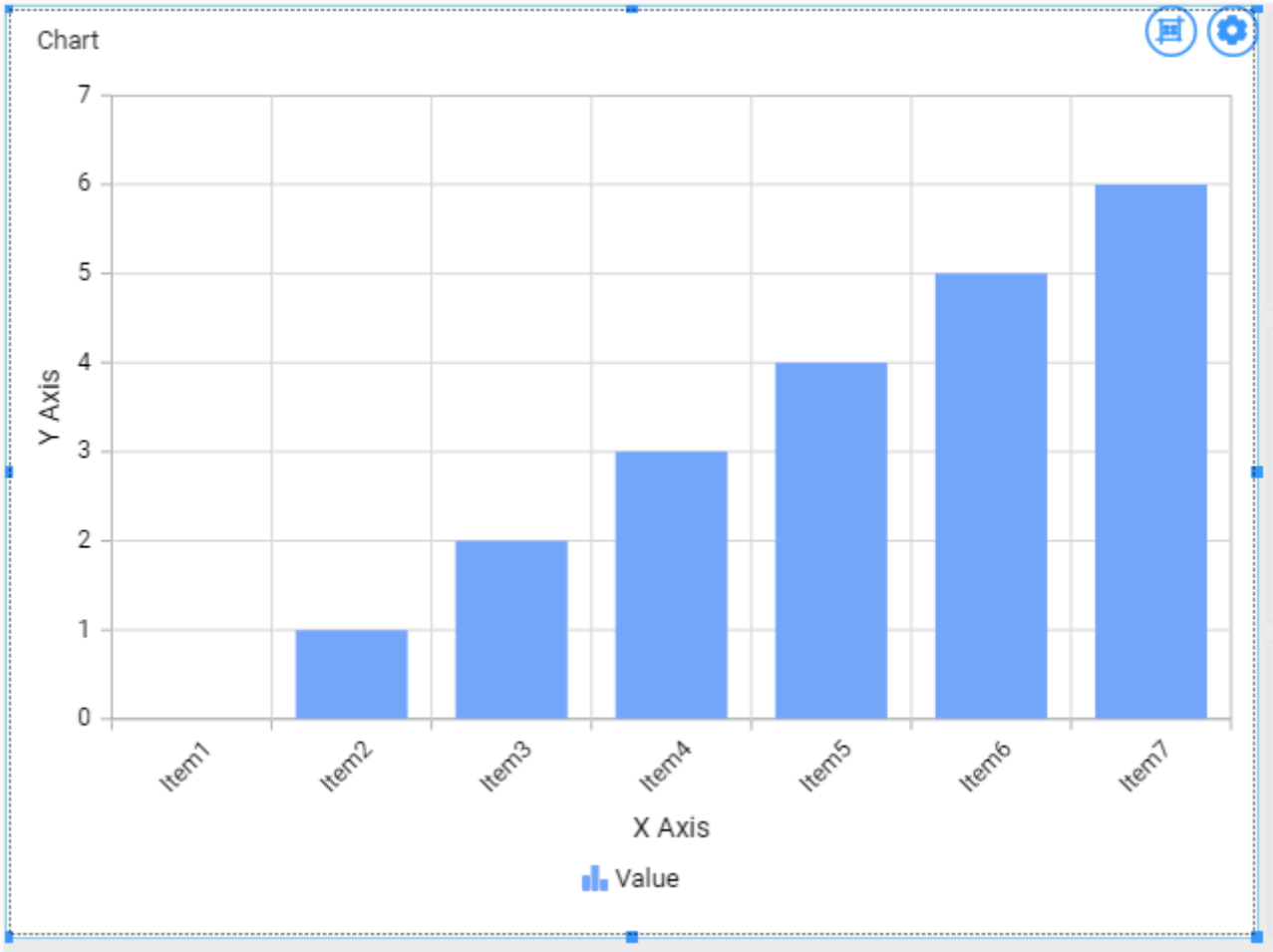
✿ Don't worry, you will be able to move, resize, delete, ... this Widget at any time later.

Note : Sample values

When a Widget is created, it is not configured.

However, in order to help you choose a Widget Type and have an idea of what the Dashboard will look like, some sample data are displayed, like "Item1, Item2, ...".

This data is a placeholder only and is not related to any real data.



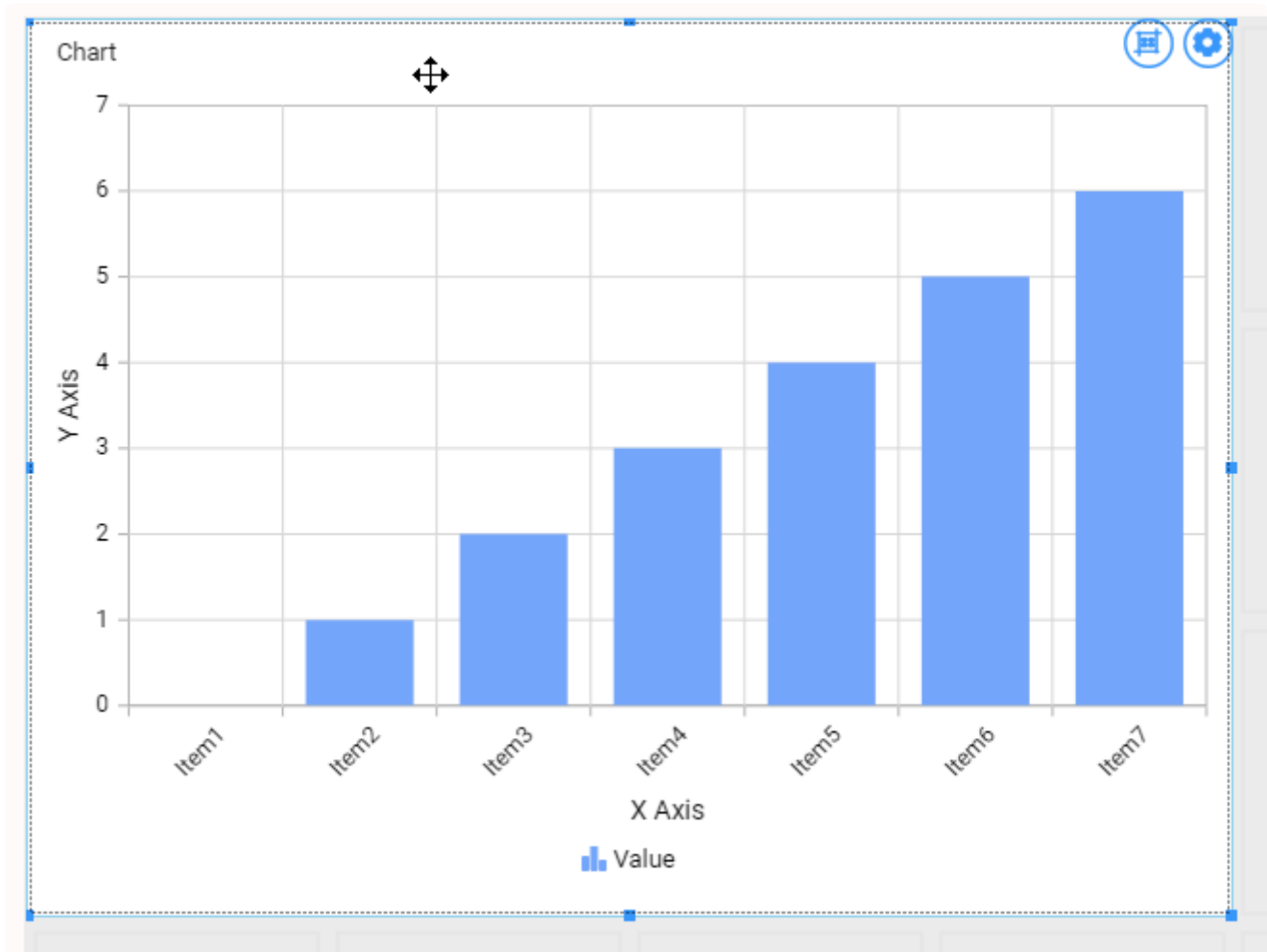
Last modified: Feb 17, 2022

2.7.1.2. Editting a Widget

How to Edit a Widget

From the Dashboard activity tab

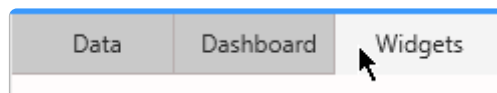
To open an existing Widget to start to Edit it, first left click on the Widget on *Dashboard* activity tab, so that it appears selected :



Then on the cog icon on the top right of the Widget itself :

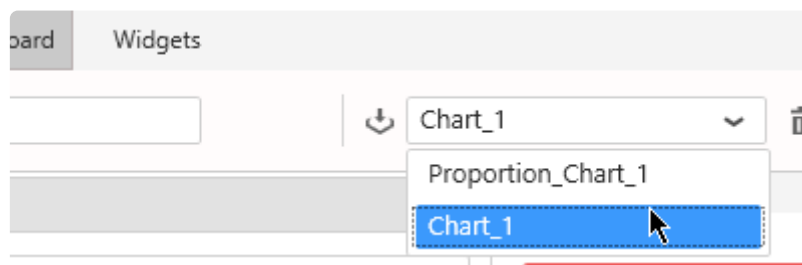


This will take you to the *Widgets* activity tab focused on this Widget



From the Widgets activity tab

When already inside the *Widgets* activity tab, you can select a Widget to edit from the list in the top bar :

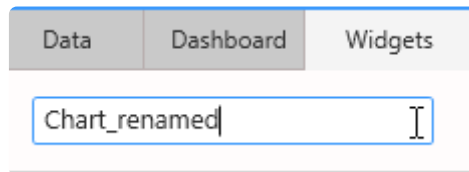


✿ All the actions to actually edit the Widget are explained in the following chapters.

Last modified: Feb 17, 2022

2.7.1.3. Renaming a Widget

When the Widget is already open to Edit, you can use the top bar on the left to change its name :



The screenshot shows a horizontal tab bar with three tabs: 'Data', 'Dashboard', and 'Widgets'. The 'Widgets' tab is currently selected and highlighted. Below the tabs is a text input field with a blue border, containing the text 'Chart_renamed'. A cursor is visible at the end of the text in the input field.

No need to validate, the name is updated live.



Note :

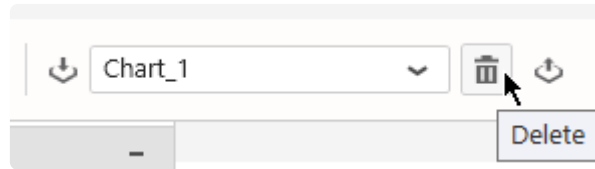
This Widget name is used internally in the widgets list for example. However, this is not the Widget header displayed at runtime. To edit the header displayed at runtime, see the corresponding chapter in [Header and Description](#).

Last modified: Feb 17, 2022

2.7.1.4. Deleting a Widget

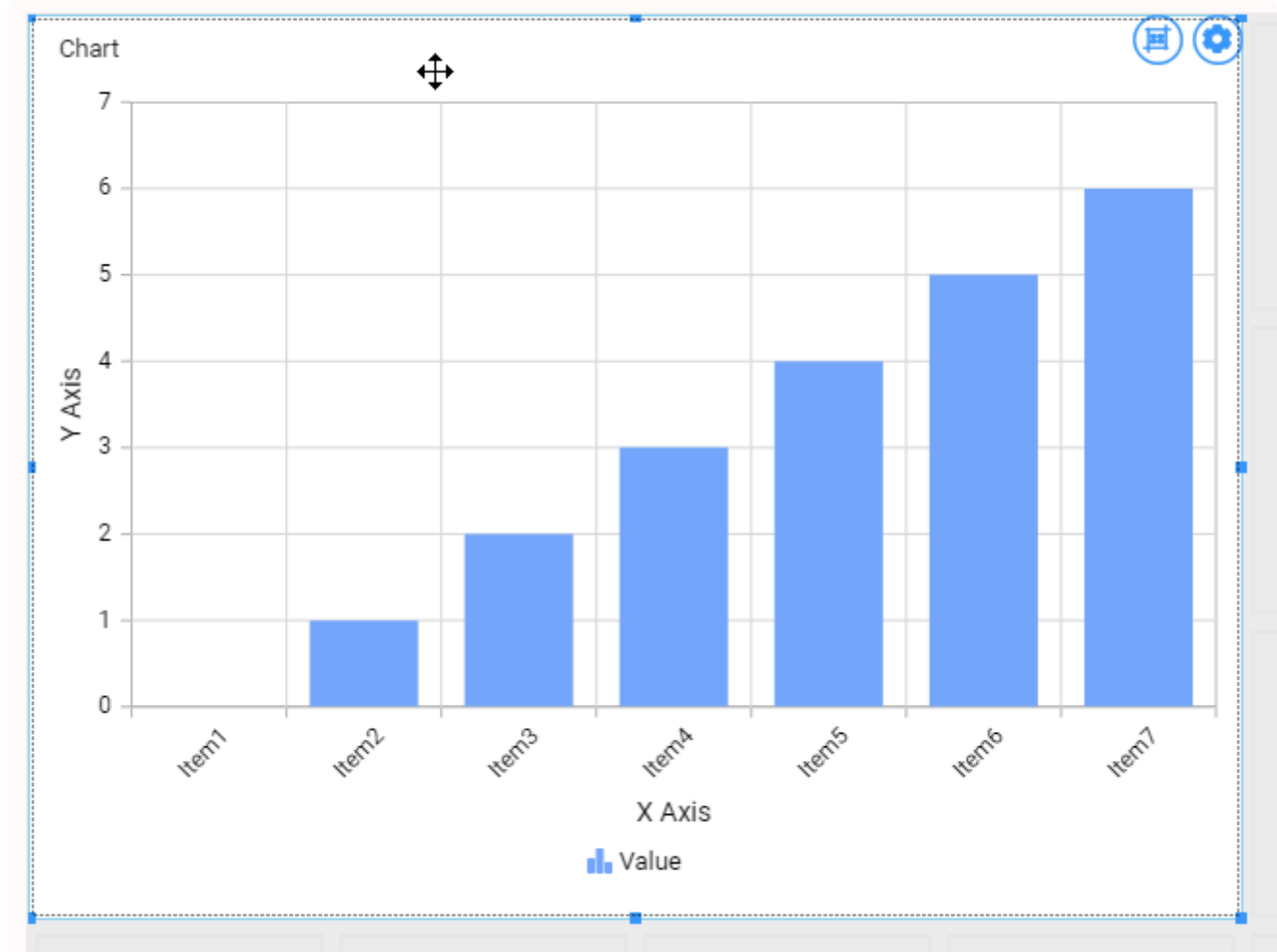
From the Widgets activity tab

To delete a Widget, select it in the *Widgets* activity tab top bar, then click on button “Delete” :



From the Dashboard activity tab

To delete a Widget when you are in the main *Dashboard* activity tab, first left click on the Widget, so that it appears selected :



Then press the “Delete” key on your keyboard.

Last modified: Feb 17, 2022

2.7.1.5. Copying/Pasting a Widget

Instead of creating an empty Widget and configure it from scratch, you may duplicate an existing Widget and edit the copy.

Copy

To copy a Widget, select it on the layout canvas and use the `Ctrl+C` keyboard shortcut, or click the *Copy* button in the top window bar :



The Alpana Designer clipboard will now hold a copy of this widget, and you will now be able to paste it elsewhere on the layout.

Paste

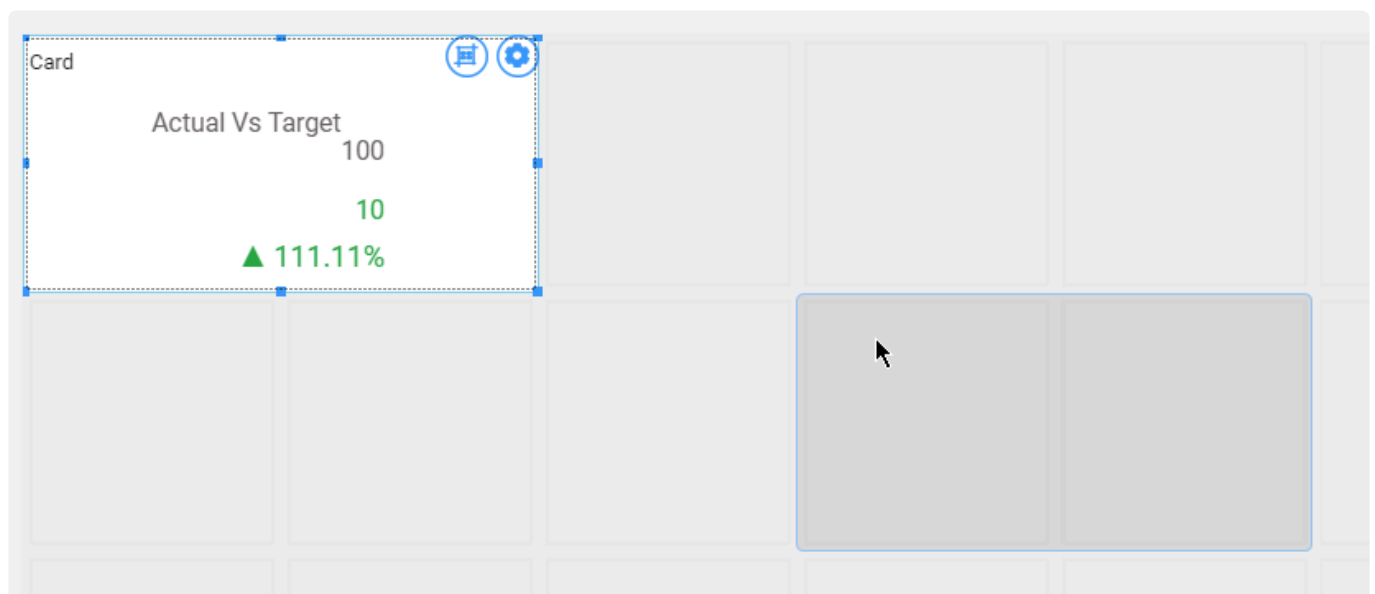
After copying, you can paste the Widget copy somewhere else on the Dashboard layout.

To paste, use the `Ctrl+V` keyboard shortcut, or click the *Paste* button in the top window bar :



Now your mouse cursor will hold the Widget copy, ready to be placed on the layout.

As you move your mouse, you see the outline of the new Widget that will be created :



Click the desired location to paste the Widget.

Last modified: Feb 17, 2022

2.7.2. Export / Import Widgets

Sharing Widgets allows to re-use your work or collaborate between users.

This chapter describes how to proceed.

Last modified: Feb 17, 2022

2.7.2.1. What is a Widget Export

A Widget can be exported to a file with format *.alp_w

This Widget.sydw file contains :

- the configuration of the Widget itself
- its position on the Dashboard canvas
- the dependent Data Source
- all the dependent Connections, including their credentials
- all related Parameter binding (for filters)

Data Sources and Connections use an internal unique identifier.

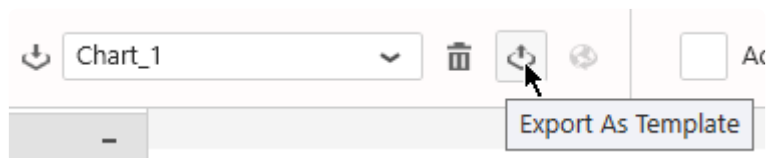
When importing several Widgets that were exported from the same Data Sources or Connections, the common elements are re-used instead of duplicated.

Last modified: Feb 17, 2022

2.7.2.2. Export a Widget to a file

How to Export to a file

In the top bar, click the *Export as Template* icon :



Select a file name and save locally.

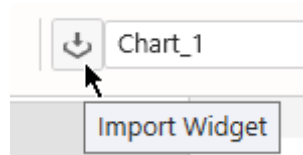
Last modified: Feb 17, 2022

2.7.2.3. Import a Widget from a file

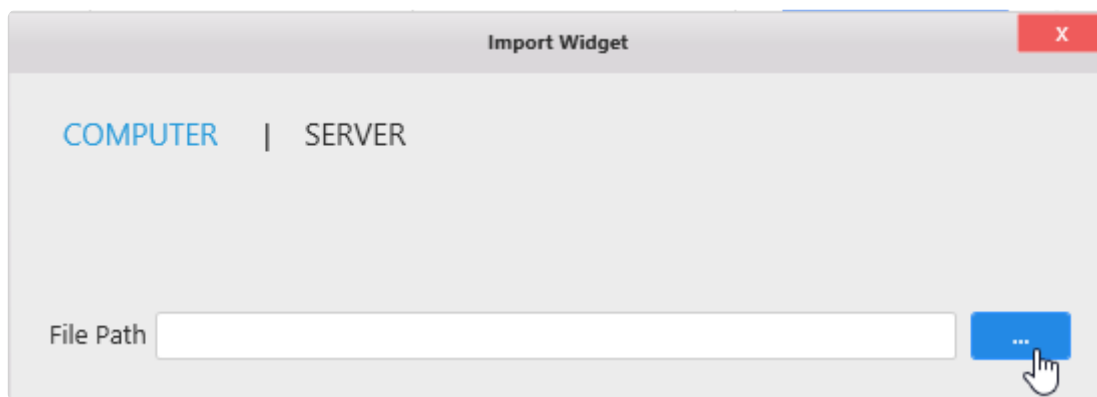
A Widget can be imported from a file in a few ways :

Import in an existing Dashboard

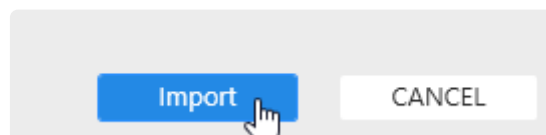
Click on the “Import” button in the Widgets list :



In the “Import Widget” dialog, under “Computer”, click “...” to browse for a Widget.alpw file :



Then click “Import” :



The Widget is now imported in your current Dashboard.

Create a new Dashboard based on a Widget file

In Windows Explorer, you can double click or open the Widget.alpw file with Alpana Designer.

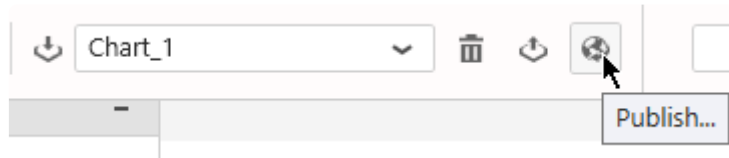
This creates a new Dashboard with the corresponding Widget imported.

Last modified: Feb 17, 2022

2.7.2.4. Publish a Widget to Alpana Server

* In order to Publish a Widget to Alpana Server, you need to be **logged in** from Alpana Designer to that Alpana Server, and have the necessary **permissions** to create Widgets.

In the top bar, click *Publish* :



In the “Publish” dialog, fill in details and click “Publish” :

A screenshot of the 'Publish' dialog box. The dialog has a title bar with 'Publish' and a close button. It contains three text input fields: 'Widget name' (with 'Chart_1' entered), 'Description', and 'Version Comment'. Below these fields is a checkbox labeled 'Mark As Public'. At the bottom right, there are two buttons: 'Publish' (highlighted with a mouse cursor) and 'CANCEL'.

The Widget is now published to Alpana Server and available to other users depending on permissions.

Last modified: Feb 17, 2022

2.7.2.5. Import a Widget from Alpana Server

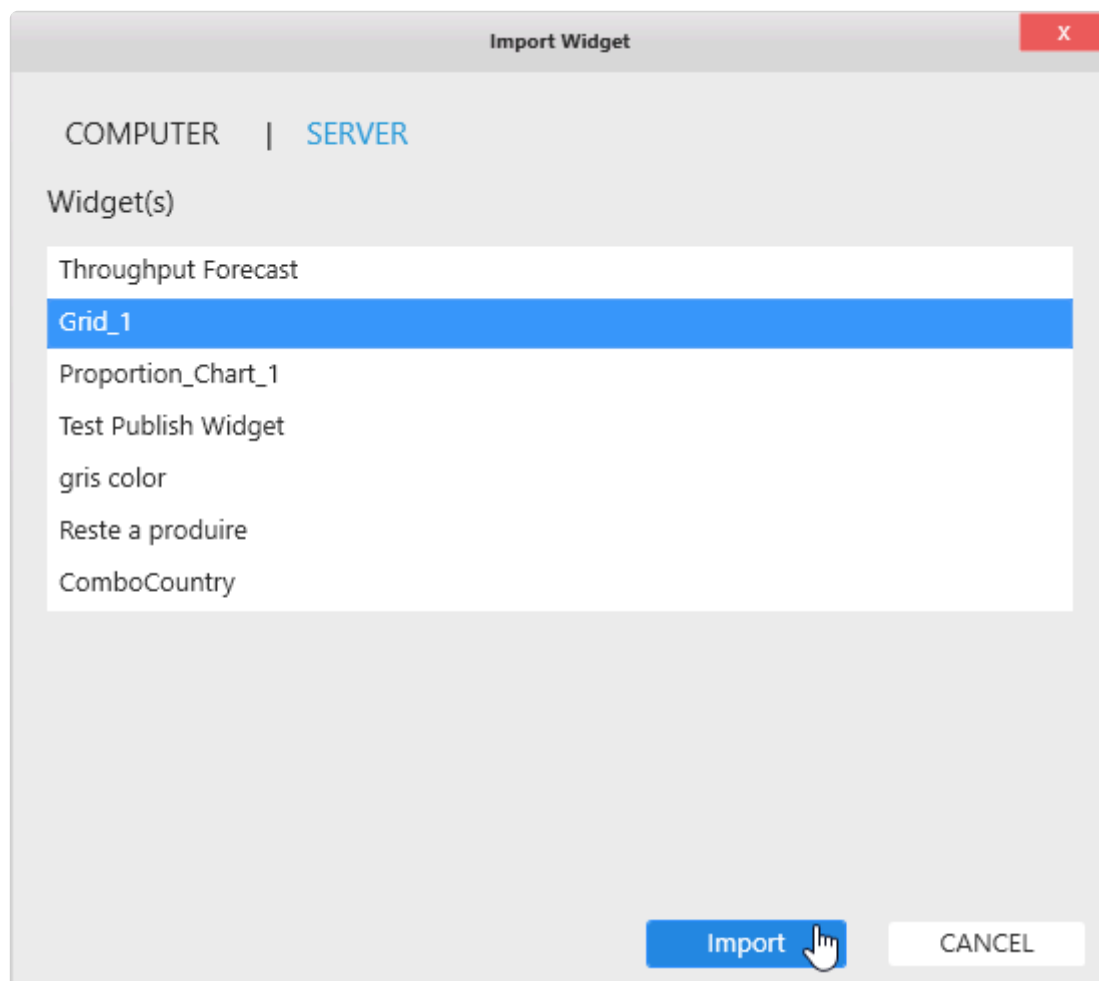
* In order to Import a published Widget from Alpana Server, you need to be **logged in** from Alpana Designer to that Alpana Server, and have the necessary **permissions** to access the Widget.

From the Dashboard activity

Click on the “Import Widget” button in the top bar :



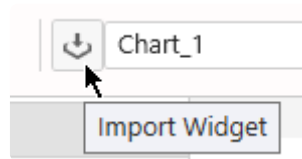
In the “Import Widget” dialog, click “Server”, select a published Widget, and click Import :



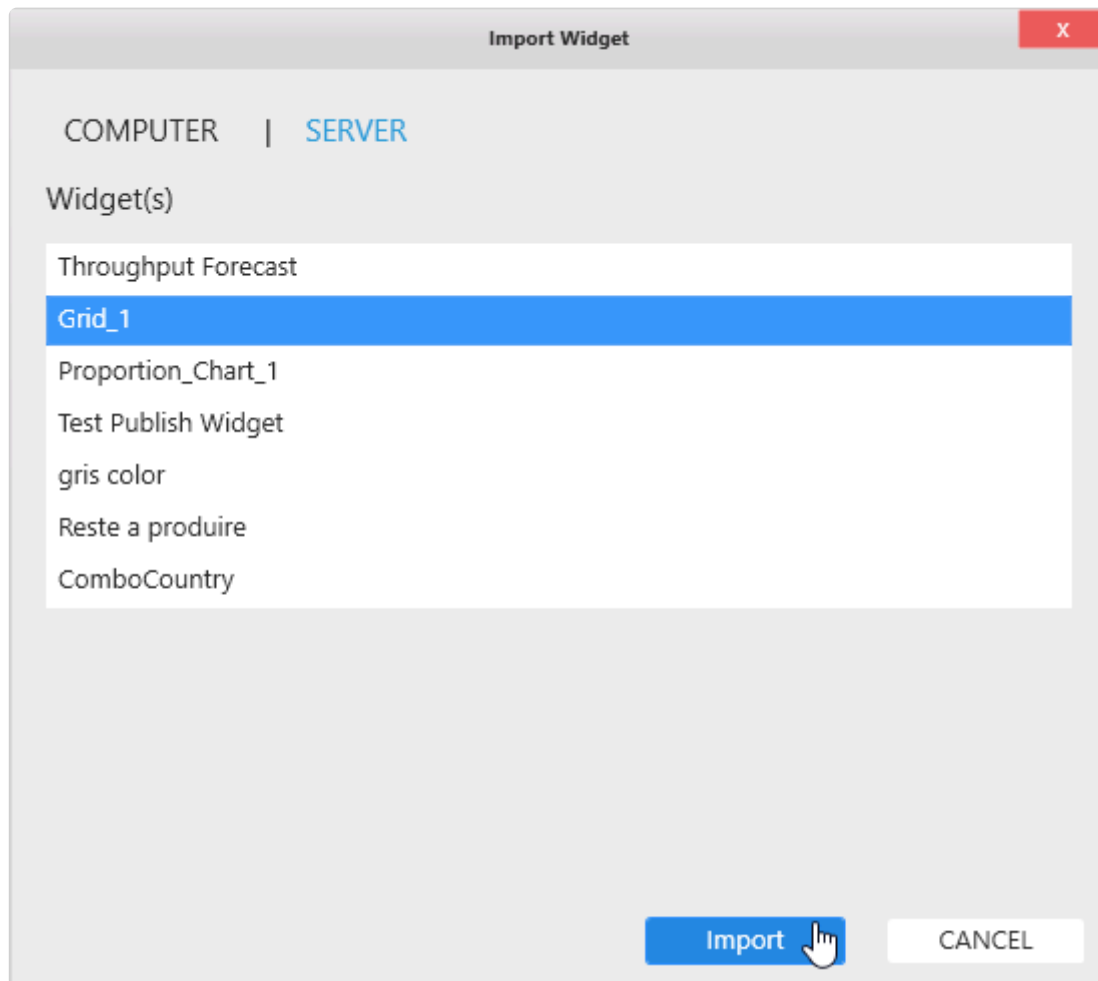
The Widget is now imported in your current Dashboard.

From the Widgets activity

Click on the “Import” button in the top bar :



In the “Import Widget” dialog, click “Server”, select a published Widget, and click Import :



The Widget is now imported in your current Dashboard.

Last modified: Feb 17, 2022

2.7.3. Widget Data Binding

Introduction

Each Widget displays data from a single Data Source.

Some Widget graphical properties are automatically generated from the values in the data.
As a result, it is preferable to start Widget configuration by binding data.



In addition, data binding in Alpana Designer is very interactive and is a nice way to start exploring your data.

What is data binding ?

When binding data, you are in fact configuring a query to the Data Source.
Internally to Alpana, the result of this query is a table of values which will be used to dynamically change some graphical properties of the Widget.

For example, when you want to see the average temperature by Equipment on a Column Chart, the Widget will draw as many rectangles (columns) as there are Equipments, and the height of the rectangles (Y position) will be a number of pixels proportionate to the average temperature.

Why aggregate Quantities ?

In Dashboard visualization, we want to turn many data points into few simple indicators that allow to take a decision efficiently.

Several data rows will turn into a single shape (this is called “*grouping*”), and a single data value will be associated to this shape (this is called “*aggregating*”).

Even if you “know” that for each group your data contains only a single data row right now, your KPI definition needs to account for the fact that there could be many.

Example

You are trending the temperature from a sensor. Right now you know you only have 1 data point at each instant.

So why would you need to choose an aggregation for the Temperature ?

Well, tomorrow you will need to integrate the temperature measurements from 3 sensors.
Then, at each instant you will have 3 data points, but your chart is configured to show only 1 trend.

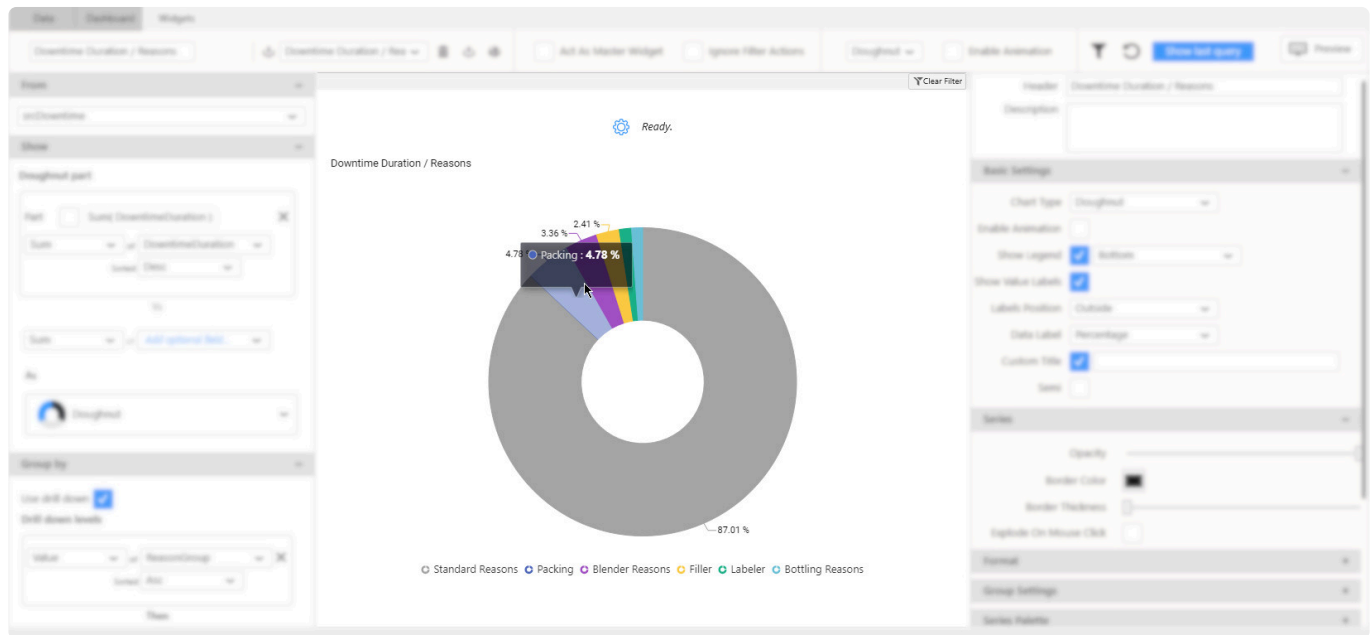
To solve this, you will need to create an aggregation expression.
Maybe a simple `AVG(Temperature)`, or maybe something more complex involving Alpana Expressions.

2.7.3.1. using the Widget Preview

Widget Preview

When editing a Widget, the middle part of the window contains a live Widget preview.

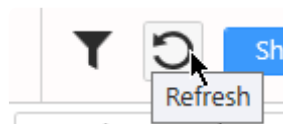
Every time you make a change to the Widget configuration, the Widget Preview is refreshed to reflect that change.



This preview is interactive and can be used to show tooltips, click to drill-down, or scroll to zoom on maps.

Refreshing the Widget Preview

This Widget Preview can be manually refreshed using the refresh button in the top bar :



This makes a new query to the data, and refreshes the preview.

Last modified: Feb 17, 2022

2.7.3.2. Troubleshooting Widget data

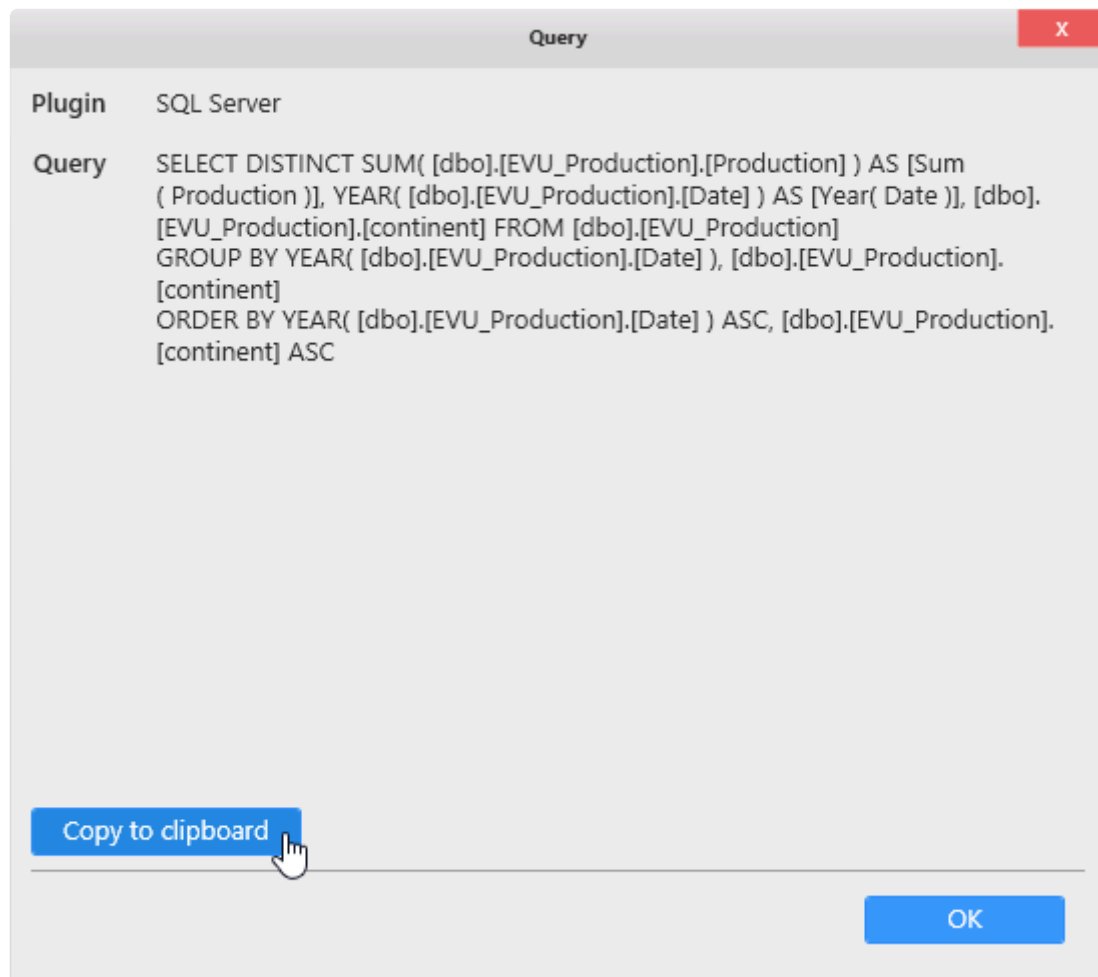
Show last query

In order to troubleshoot widget data, it is possible to get the last data query that was successfully composed for this Widget.

Select the desired Widget, and click the “Show last query” button on the top :



A dialog pops up and lets you see the last successful query for this Widget. You can also press “Copy to clipboard” in order to paste this query in your source data tool and investigate the query’s results manually :

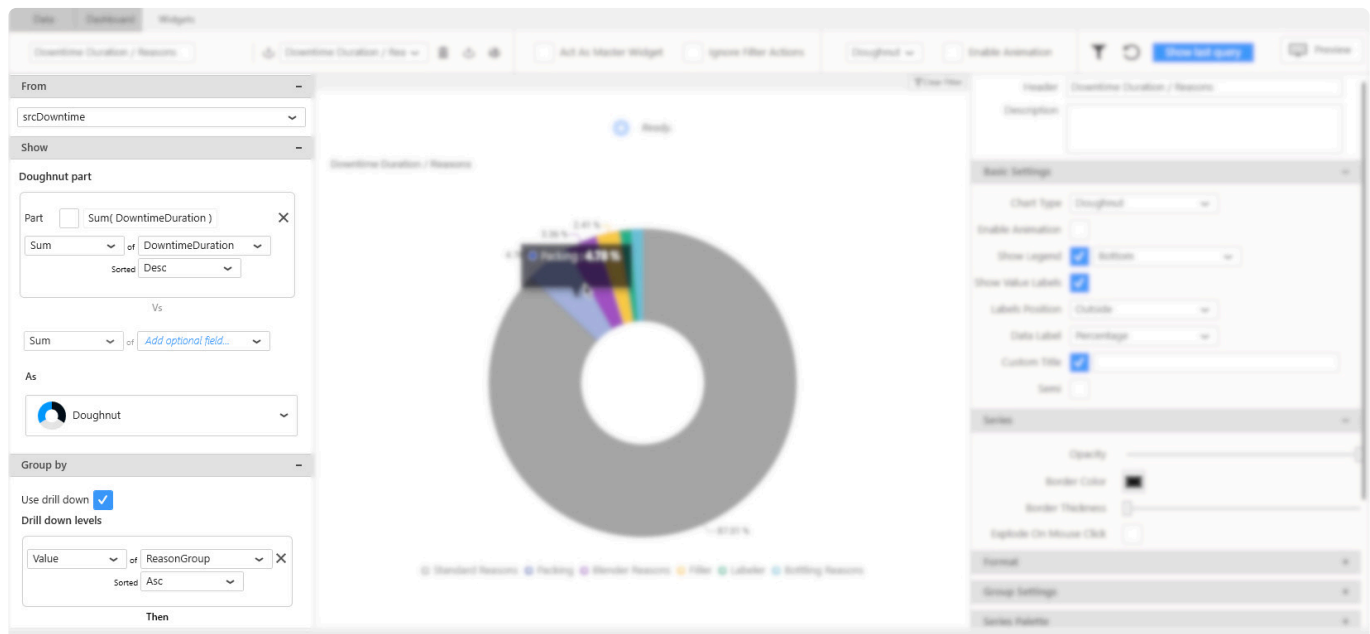


Last modified: Feb 17, 2022

2.7.3.3. Editing Widget data binding

Accessing the data binding

Starting with Alpana v3.0.0, all Widget data binding happens in the data panel on the left of the Widgets activity :



Folding / Unfolding sections

Different parts of the data binding interface are grouped into sections.

For better readability, each section can be :

... folded ...



... and un-folded :



Data binding workflow

The data binding should read like a sentence :

> From *My Data Source*, Show *My Aggregated Measure Field* Group By *My Dimension Field*.

From : Data Source selector

This is where you will select the Data Source to bind to this Widget.

(see chapter [Selecting a Data Source](#))

Show : Quantities

This is where you will configure the KPI : what **quantity** you want to visualize.

This will be an **aggregated Measure**.

(see chapter [Configuring the aggregation of number fields](#) and chapter [Binding a data field](#))

Group : Context

This is where you will define what **context** you will use to group data together.

This will be an un-aggregated **Dimension** with unique separate values.

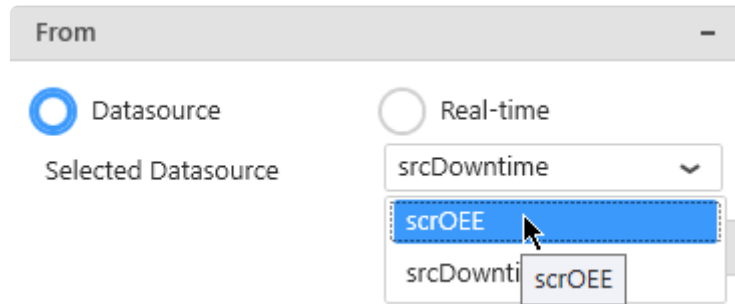
(see chapter [Configure the grouping of category fields](#) and chapter [Binding a data field](#))

Last modified: Feb 17, 2022

2.7.3.4. Selecting a Data Source

* Each Widget binds data from a single Data Source.

In order to select a Data Source for this Widget, open the Data Source listbox on the top of the Data panel, under the **From** title :



Warning

If the Widget had any data binding from another Data Source, it will be lost !

Last modified: Feb 17, 2022

2.7.3.5. Configuring the aggregation of number fields

Introduction

Most Widgets have configuration fields that require to generate a single number for each corresponding shape in the Widget.

Examples :

- Chart : the chart line Y position of each point
- TreeMap : the rectangle relative size for each rectangle
- ...

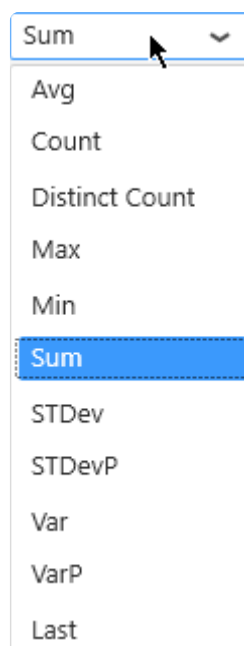
Since data is grouped in a Widget query (“for each point”, “for each rectangle”, ...), numerical fields must be aggregated in order to give a single number for each Widget “shape”.

This operation is done with an aggregation function.

✿ *An Aggregation Function* is a function that can take any number of values and turn them into a single number.

For Measure fields

For Measure fields (numbers), the following aggregation functions are available : Avg, Count, Distinct Count, Max, Min, Sum, STDev, STDevP, Var, VarP, Last.



These functions absolutely require a number (except `Count` and `Distinct Count`, see below).

They translate to the corresponding functions in your source data engine (SQL, Oracle, ... depending on your Data Source). Please refer to the corresponding documentation if you need to understand better these functions.

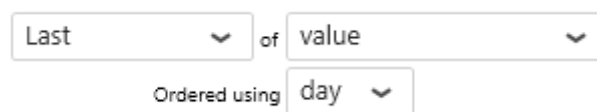
Using function `Last`

(new in Alpana 2020 R1)

The `Last` aggregation function allows to select the last value of the Measure field, according to an ordering based on a secondary field.

Typically, if a value changes over time, “`@Last@ of value field ordered using date field`” will select the last value of `value field` when ordered according to the `date field`.

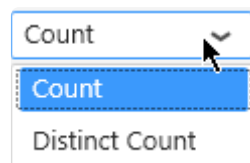
In some typical dashboards, this can be considered the “current value”.



For Dimension fields

Dimension fields (strings, dates, booleans) can also be used to generate numbers for Widget queries.

The following aggregation functions are available : `Count`, `Distinct Count`.



These functions accept all data types.

They translate to the corresponding functions in your source data engine (SQL, Oracle, ... depending on your Data Source). Please refer to the corresponding documentation if you need to understand better these functions.

For Aggregated Expressions

(see [corresponding chapter](#))

Aggregated Expressions already guarantee they provide a single number, and no aggregation function can be used on top of them.

In order to use an Aggregated Expression as a number field, select `Value` instead of an aggregation function :

Value

Value

of

ed

Last modified: Feb 17, 2022

2.7.3.6. Configure the grouping of category fields

Introduction

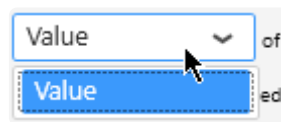
Most Widgets have configuration fields that are used to generate separate shapes. These fields are used to group numerical fields together and generate a single shape for each context combination.

Examples :

- Chart : the chart column category (x position) of each point ; the creation of each trend series
- TreeMap : the creation of each rectangle
- ...

Grouping function

There is no particular grouping function.
Only “Value of” is available.



It creates a group for each distinct value of the selected field.

For string, number and boolean fields

There is no particular configuration for the following types of fields :

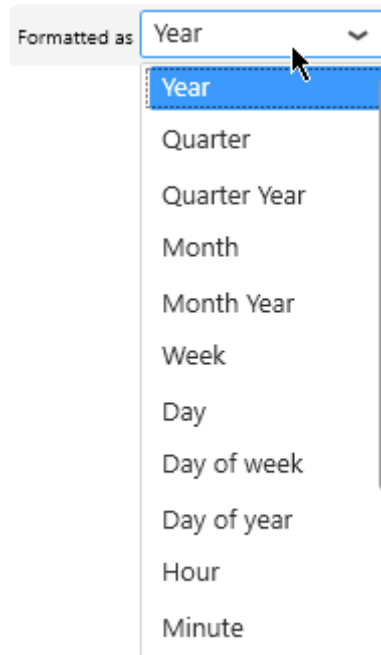
- string
- number
- boolean

When they are added to a category configuration, they group the query without any formatting : each separate value creates a separate group.

* **Note :** [Aggregated Expressions](#) cannot be used as category fields because they only generate a single value, which is not desirable.

For date fields

Date fields can be formatted to create different groups :



- Year (default when adding a field)
- Quarter
- Quarter Year
- Month
- Month Year
- Week
- Day Of Week
- Day Of Year
- Day
- Hours
- Minutes
- Seconds
- Date
- Date Time : the full datetime detail (no formatting happens, each different value is a different category)
- Time

Last modified: Feb 17, 2022

2.7.3.7. Binding a data field

Mandatory fields, optional fields

In order to complete the Widget configuration, some Widget properties **must** be configured : the Widget will not work without this field bound.

The corresponding field selector is marked with “*Select required field...*”

Select required field... ▼

Some fields are optional : you may need to configure them in order to get what you want, but the Widget will still work without this field bound.

The corresponding field selector is marked with “*Select optional field...*”

Add optional field... ▼

When you want to configure a field, just use those field selectors to select the desired field.

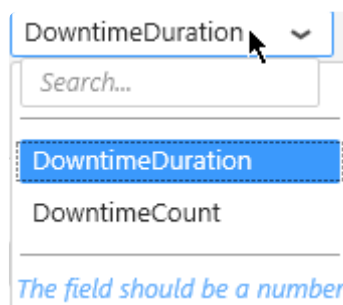
Selecting a field to bind

Depending on the aggregation function selected and the property you are trying to configure, not all field types may be available.

For example, if the aggregation function `Sum` is selected, then only the numerical fields and numerical Expressions are listed.

Number fields

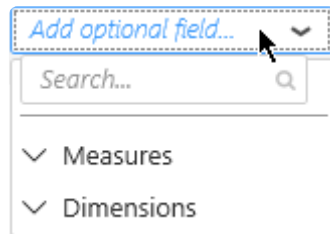
If the configuration only accepts numbers, all number fields are listed in a single flat selector :



“Any” fields

If the configuration accepts any type of fields, they are organized in 2 categories :

- *Measures* : the numerical fields from your data.
- *Dimensions* : the non-numerical fields from your data.

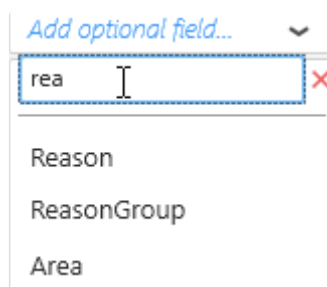


Just click a category to unfold it and list all fields of that type :



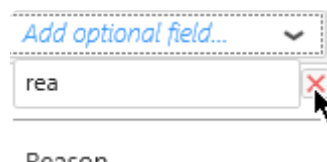
Searching for a field

Instead of browsing for a field, you can use the search box to start typing part of the field name :



This will incrementally list all fields partially matching the search pattern.

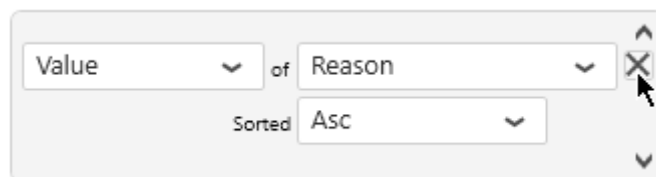
To clear the search, simply click the cross button next to the search box :



Last modified: Feb 17, 2022

2.7.3.8. Un-binding a data field

To remove a field binding from a Widget, click the cross inside the field container :



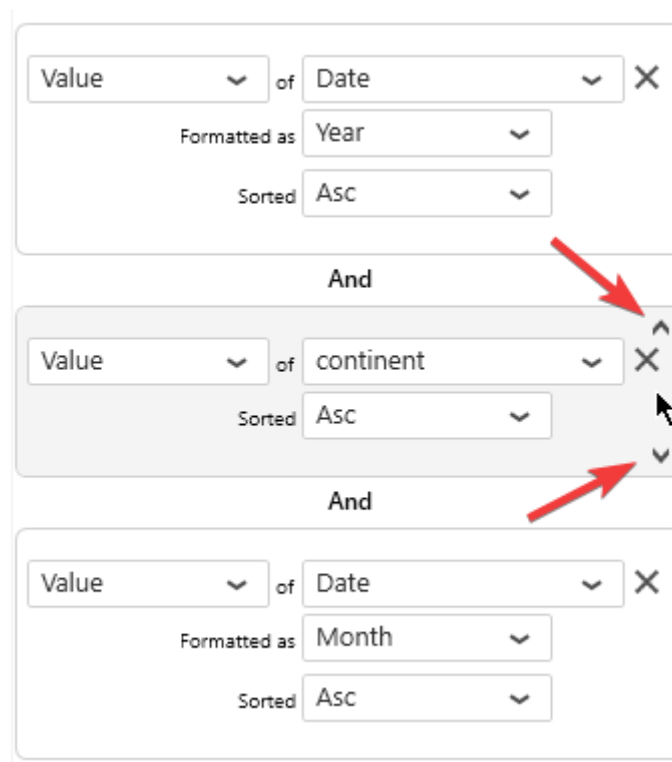
! All related configuration will be lost.

Last modified: Feb 17, 2022

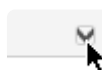
2.7.3.9. Re-Ordering data fields

Some Widget configurations rely on the order of the list of bound fields.

In order to change the order of a field, hover it, and see small *up* and *down* arrows appear :



Click the *down* arrow to move the field down :



As a result, the field is swapped with the below field :

Value

▼

of

Date

▼

×

Formatted as

Year

▼

Sorted

Asc

▼

And

Value

▼

of

Date

▼

×

Formatted as

Month

▼

Sorted

Asc

▼

And

Value

▼

of

continent

▼

×

Sorted

Asc

▼

Click the *up* arrow to move the field up :



Last modified: Feb 17, 2022

2.7.3.10. Binding to Real-Time Data

Introduction

Instead of binding Widget data to a Alpana [Data Source](#), you can configure it to accept Real-Time Data. Instead, it lets you create a Widget with no Data Source, and then you can push data directly into the Widget, using the Alpana web [API](#).

The general process is :

1. From Alpana Designer, no need to create a Data Source for this Widget
2. Configure the Widget for Real-Time Data
3. Publish the Dashboard on Alpana Server
4. From an external tool (another web page, ArchestrA scripts, your own .NET application, etc), connect to the Alpana Server web API and push data into this Connector
5. ⇒ Your Widget displays the data live, instantaneously.

Configuring a Widget for Real-Time

Select Real-Time

In order to this Widget to have Real-Time Data, select *Real-Time* on the top of the Data panel, under the **From** title :



Define fields

You need to define some fields for the widget to later accept data from the API. The required fields depend on the widget type.



For each field, choose a type and a field name :

Show

Actual Value

temperature

Real

Sorted by default

×

Start Value

Select type, then
enter name here

End Value

Last modified: Feb 17, 2022

2.7.3.11. Additional fields

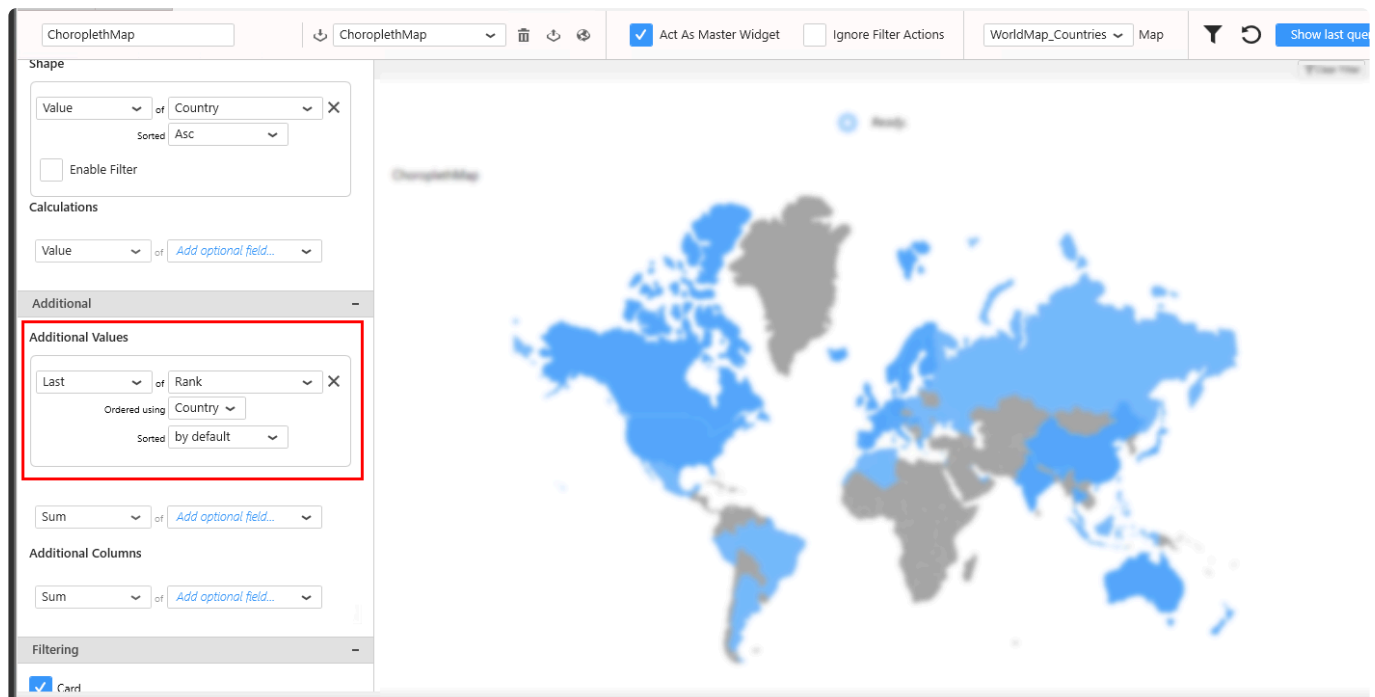
Introduction

standard data binding is used to render the widget information.
But in some case, it will be useful to get more data than the standard one.

The Additional fields are made for that :

- Adding more fields in the tooltip
- Binding linked data to parameters
- More filtering capabilities

In order to use additional fields, you will have to configure a data source to your widget



Using Additional fields

Additional fields works the same way as standard data binding, you will select fields from your data source with an aggregation.

If the widget acts as master widget, the Additional Fields will be visible in the parameter view.

Example

Using a combo box to select batch order will let you filter other data with 1 parameter (the selected data) but if you want to get Start and End Date from your data source, you can add additional fields with start and end date and bind them to parameters. These parameters will be use to filter other data sources or widgets.



Some widgets, such as Gantt, doesn't have filtering capabilities, so the additional fields will be used for [tooltip configuration](#)

Last modified: Feb 17, 2022

2.7.4. Configure a sorting order

Introduction

Most Widgets will present data differently depending on how it is sorted in the query.

Example : a Chart is by default sorted by ascending X Axis values. It can instead be sorted by descending Y Axis values.

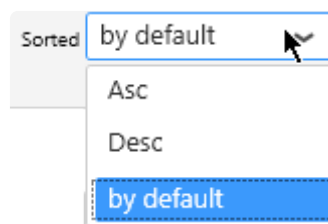
Sorting Priority

As a rule, the fields at the top of the Data binding panel will have sorting priority over the fields below.

Example : if you set a Chart Y Value field sorted descending, it will override the X Axis sorting because it is located above in the Data binding panel.

Configure sorting

On each bound data field, you can configure sorting :



- *by default* : do not take part in query sorting
- *Asc* : sorted in Ascending order
- *Desc* : sorted in Descending order

Last modified: Feb 17, 2022

2.7.5. Widget-level Filtering

Filtering data at the Widget level

You can apply filters at the Widget level.

The current Widget will only see the data after the filter is applied.

Those **Widget-level filters** are applied on top of any [Data Source filters](#) (if any) and apply only to the current Widget.



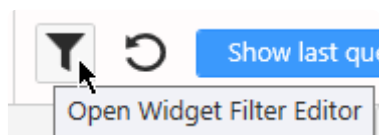
If a parameter is used in the Widget data filtering, please check the link after deleting datasource that fill the default value of the parameter, otherwise it may end as a data error message.

Last modified: Feb 17, 2022

2.7.5.1. Opening the Filter Editor

Add or Edit Filters

To add Filters to a Widget or edit existing filters, press the “Open Widget Filter Editor” funnel icon in the top toolbar :



See the presence of Filters

When a filter is applied on a Widget, the Filter button is colored :

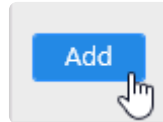


Last modified: Feb 17, 2022

2.7.5.2. Managing Filter Conditions

Adding a condition

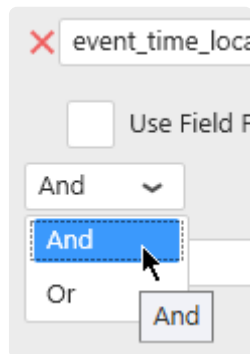
In the Filter Editor, click Add to add a filter condition :



Combining conditions

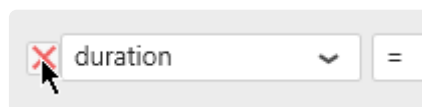
If filter conditions already exist, they will be chained using a logical operator.

By default, the operator is “And”, but it can be changed to “Or” :



Removing Conditions

Click the red cross on the left to remove the corresponding condition :



Last modified: Feb 17, 2022

2.7.5.3. Filtering aggregated values

Introduction

There are 2 ways to apply a widget filter :

- on the **raw** values : each row in the raw dataset is evaluated against the filter condition
- on the **aggregated** values : the raw dataset is first aggregated by the Widget, and only *then* the filter condition is applied

Example

The Data Source

Imagine a simple dataset :

TagName	Building	Product	Price
FT101.Value	Building A	Product X	10
FT102.Value	Building A	Product Y	15
FT201.Value	Building B	Product X	20
FT202.Value	Building B	Product Y	25
FT301.Value	Building C	Product X	30
FT302.Value	Building C	Product Y	35

The Widget

You are displaying this data in a Pie Chart with `Sum(Price)` grouped by “Product”, you get :

Product	Sum(Price)
Product X	60
Product Y	75

Filtering raw values

You apply a filter on the **raw** value to see only data where :

`Price > 20`

The raw dataset will be filtered like this :

TagName	Building	Product	Price
FT202.Value	Building B	Product Y	25

FT301.Value	Building C	Product X	30
FT302.Value	Building C	Product Y	35

And the Widget will display the following :

Product	Sum(Price)
Product X	30
Product Y	60

(because $60 = 25 + 35$)

Filtering aggregated values

You apply a filter on the **aggregated** value to see only data where :

`Sum(Price) > 70`

It is not the raw dataset that will be filtered.

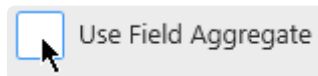
The Widget will display the following :

Product	Sum(Price)
Product Y	75

(Product X was filtered because its Sum(Price) was $60 \leq 70$)

How to filter by aggregated values

For each filter condition, you can check *Use Field Aggregate* :



Then select the desired aggregation function :

A screenshot of a software interface showing a dropdown menu for field aggregation. The menu is titled 'Use Field Aggregate' with a blue checkmark icon. The dropdown list includes the following options: Avg, Count, Distinct Count, Max, Min, Sum, STDev, STDevP, Var, and VarP. The 'Avg' option is currently selected and highlighted in blue.

Note on non-numerical fields

On fields where the data type is not number (string, date, boolean), the aggregation functions will return a number, so the condition becomes a number condition.

For those fields, the list of available aggregation functions is also different :

A screenshot of a software interface showing a dropdown menu for field aggregation. The menu is titled 'Use Field Aggregate' with a blue checkmark icon. The dropdown list includes the following options: Count and Distinct Count. The 'Count' option is currently selected and highlighted in blue.

For example, the resulting filter condition below reads as :

Distinct Count of EquipmentName < 3

A screenshot of a filter condition interface. It shows a red 'X' icon followed by a dropdown menu containing 'EquipmentName'. To the right is a comparison operator dropdown showing '<'. Further right is a text input field containing the number '3'. Below this, there is a blue checkmark icon followed by the text 'Use Field Aggregate' and a dropdown menu showing 'Distinct Count'.

Last modified: Feb 17, 2022

2.7.5.4. Configuring Filter Conditions

Filter conditions are expressed with :

- a field name from the Data Source. This can also be an [Expression](#).
- a boolean operator
- a value. This can also be a [Parameter](#).

Depending on the Data Source field type, the settings are slightly different, please see for each type in the next pages.

Last modified: Feb 17, 2022

2.7.5.4.1. Filtering string fields

This is the most basic case.

The filter condition will be :

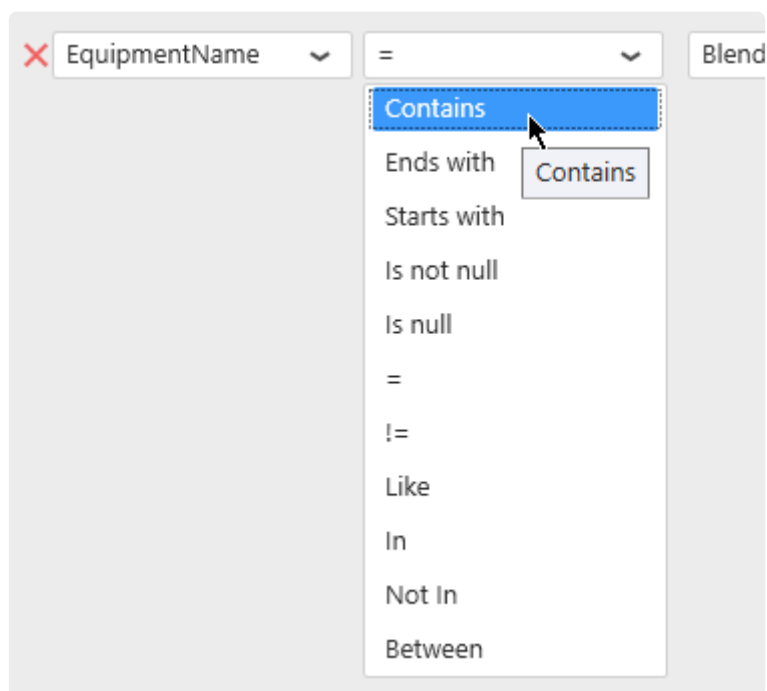
<FieldName> <Operator> <Value>

Example :

EquipmentName StartsWith Blender

Operators

Operators appropriate to Strings can be selected.



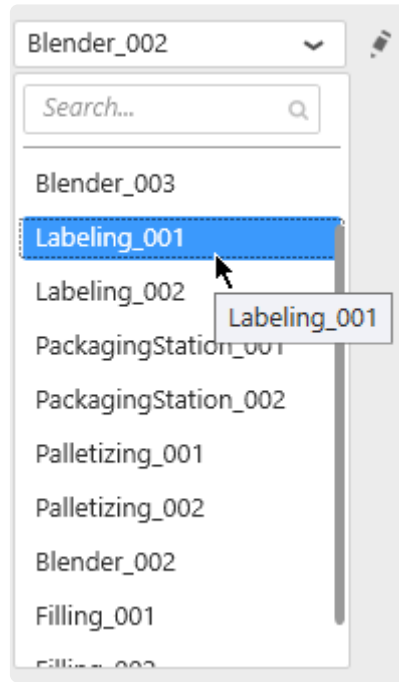
Values

Static values

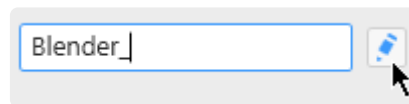
The “Edit values” button can be check/unchecked manually :



When the “Edit values” button is un-checked, a value can be selected from current values in the database :



When the “Edit values” button is checked, a value can also be entered as text :



✿ Depending on the operator selected, some of these options may not be available.

Dynamic filter values using Parameters

Instead of comparing to a static value, it is possible to compare to a dynamic Parameter that will depend on actions inside the Dashboard.

For this, select “Use Parameter” and see the Chapter about [Parameters](#).



Last modified: Feb 17, 2022

2.7.5.4.2. Filtering number fields

In a basic configuration, the condition is expressed as :

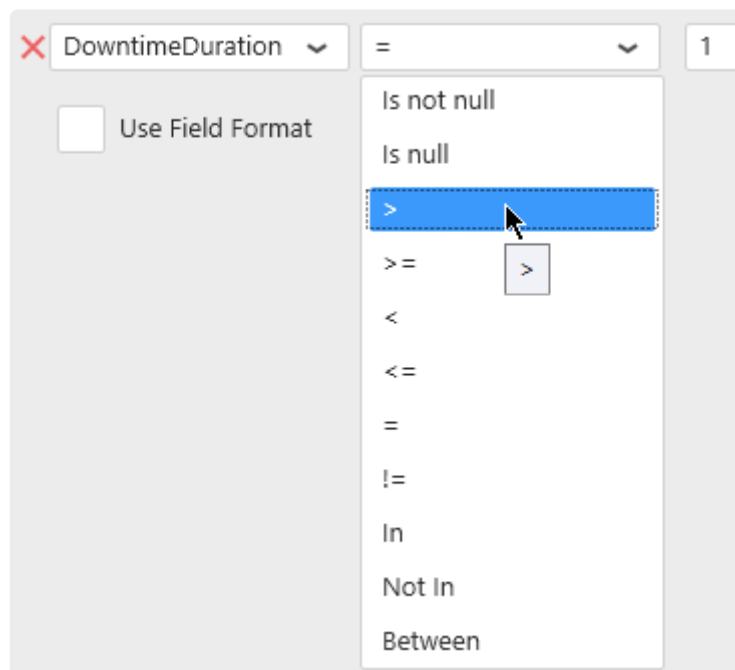
```
<FieldName> <Operator> <Value>
```

For example :

```
DownTimeDuration > 10
```

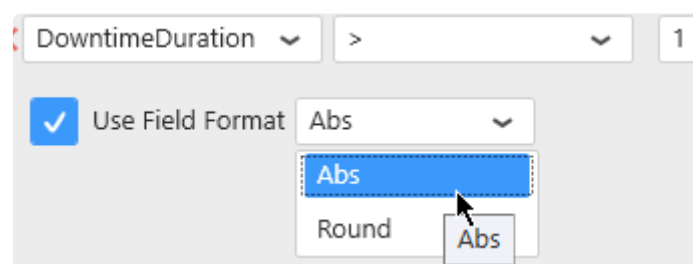
Operators

Operators appropriate to Numbers can be selected :



Field formatting

In addition to the basic configuration, a formatting function can be applied to the numerical field while the comparison is made :



This way, the filter condition will be :

```
<Function>(<FieldName>) <Operator> <Value>
```

For example :

```
Abs(DownTimeDuration) > 10
```

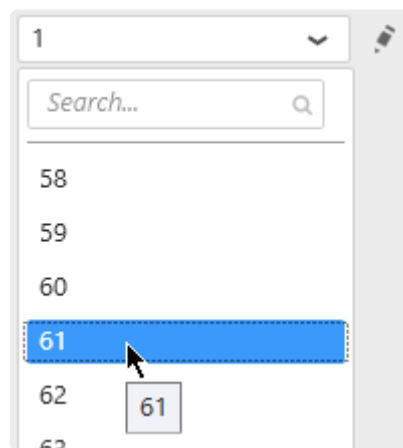
Values

Static values

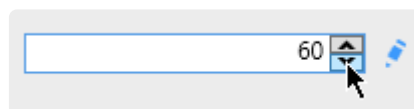
The “Edit values” button can be checked/unchecked manually :



When the “Edit values” button is un-checked, a value can be selected from current values in the database :



When the “Edit values” button is checked, a value can also be entered as text, or using the up/down arrows to increase/decrease :



✿ Depending on the operator selected, some of these options may not be available.

Dynamic filter values using Parameters

Instead of comparing to a static value, it is possible to compare to a dynamic Parameter that will depend

on actions inside the Dashboard.

For this, select “Use Parameter” and see the Chapter about [Parameters](#).



Last modified: Feb 17, 2022

2.7.5.4.3. Filtering date fields

In a basic configuration, the condition is expressed as :

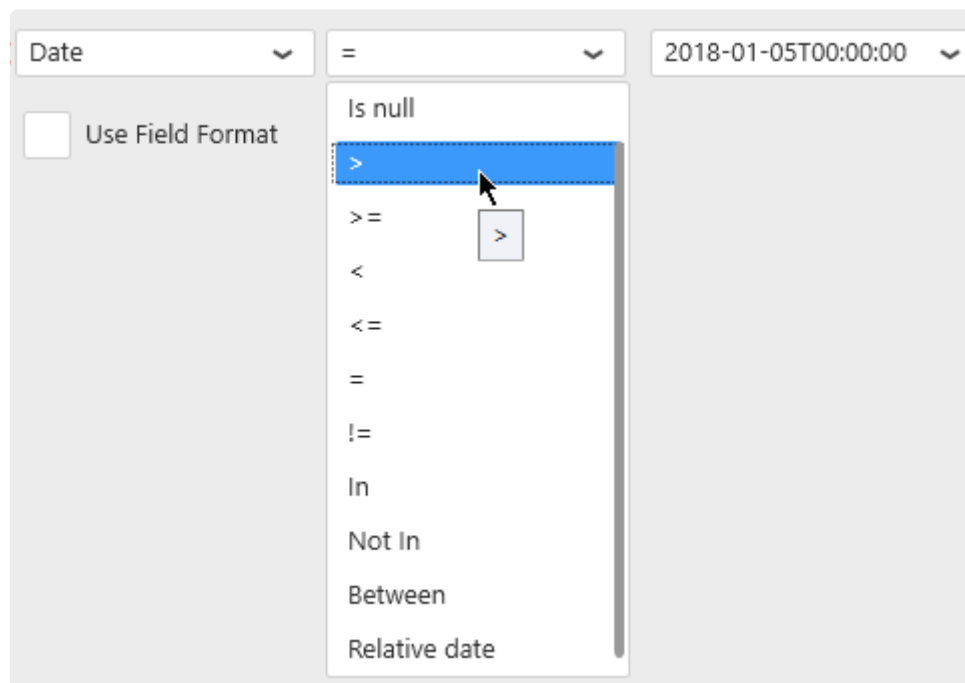
```
<FieldName> <Operator> <Value>
```

For example :

```
aaValueStartTime > 2018-01-05T00:00:00
```

Operators

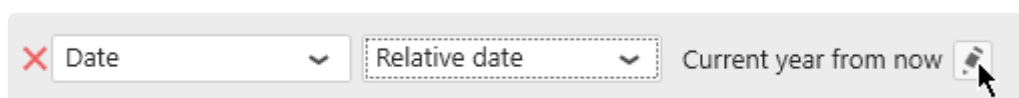
Operators appropriate to Dates and Times can be selected :



Relative date filtering

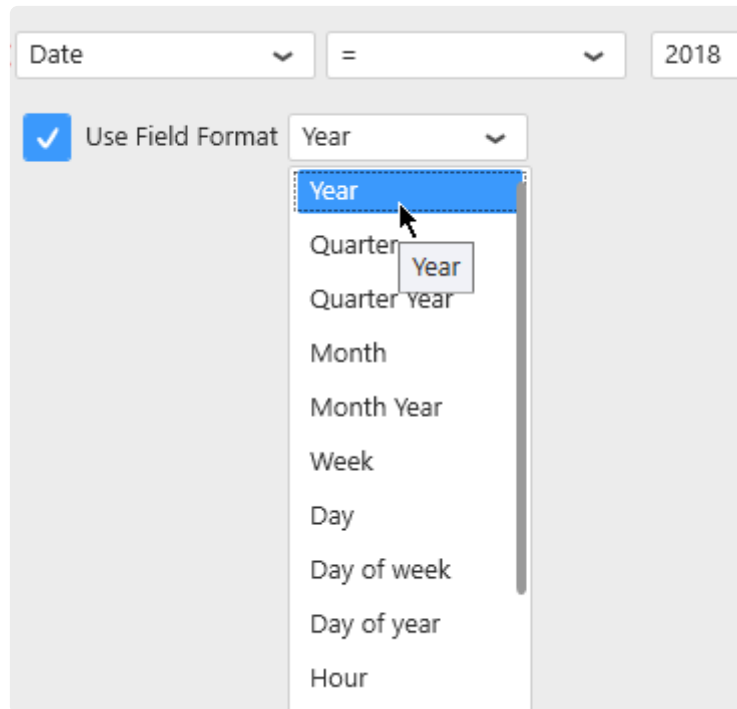
The special operator “Relative date” allows to select a “date window” / “time frame” that is moving over time relative to the current moment.

When selecting this operator, click the edit icon to define the relative date window :



Field formatting

Similarly to the number fields, a formatting function can be applied to the date field :



This way, the filter condition will be :

```
<Function>(<FieldName>) <Operator> <Value>
```

For example :

```
Year(Date) BETWEEN 2015 AND 2016
```

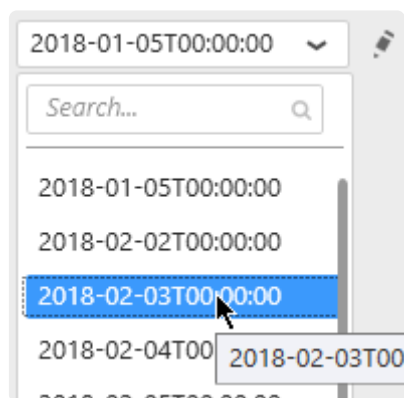
Values

Static values

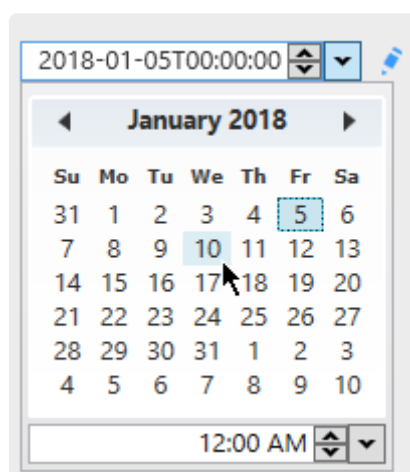
The “Edit values” button can be check/unchecked manually :



When the “Edit values” button is un-checked, a value can be selected from current values in the database :



When the “Edit values” button is checked, a value can also be entered as text :



Depending on the operator and formatting function selected, some of these options may not be available.

Dynamic filter values using Parameters

Instead of comparing to a static value, it is possible to compare to a dynamic Parameter that will depend on actions inside the Dashboard.

For this, select “Use Parameter” and see the Chapter about [Parameters](#).

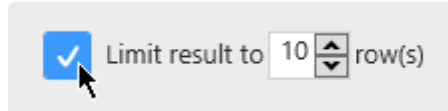


Last modified: Feb 17, 2022

2.7.5.5. Limiting dataset size

How to limit

Check “Limit result to” and select the number of rows you want to keep in the dataset :



Why limit ?

Checking this option with “Limit result to 10 rows” for example will apply a “TOP 10” to the query. When widgets are sorting the data, this can be a useful to display the 10 Items with the worst performance, or the 10 equipments with the highest consumption for example.

Last modified: Feb 17, 2022

2.7.5.6. Getting Distinct Values

(new in Alpana 2020 R1)

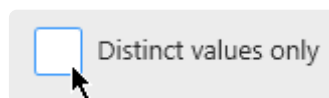
Most Widgets show aggregated data, and so they necessarily display distinct values.

For example, in Charts, data queries are **grouped** in order to have a single Y value for each separate point on the X Axis.

However, some widgets allow to meaningfully display redundant values.

For example, in a Grid, you may want to list all values of “produced diameter”, displaying multiple rows even if there is the same value multiple times.

This is possible by un-checking *Distinct Values Only* :



Example with *Distinct Values Only* enabled (default) :

Produced Diameter
1.25
2.25
2.50

Only distinct values are displayed.

Example with *Distinct Values Only* disabled :

Produced Diameter
2.50
2.50
2.25
1.25
2.25
2.25
2.25

Now all values are displayed, including several times the same value (if the data contains such occurrences).

Last modified: Feb 17, 2022

2.7.6. General Widget Properties

All Widget types have specific Properties that are documented in [the corresponding chapter](#).

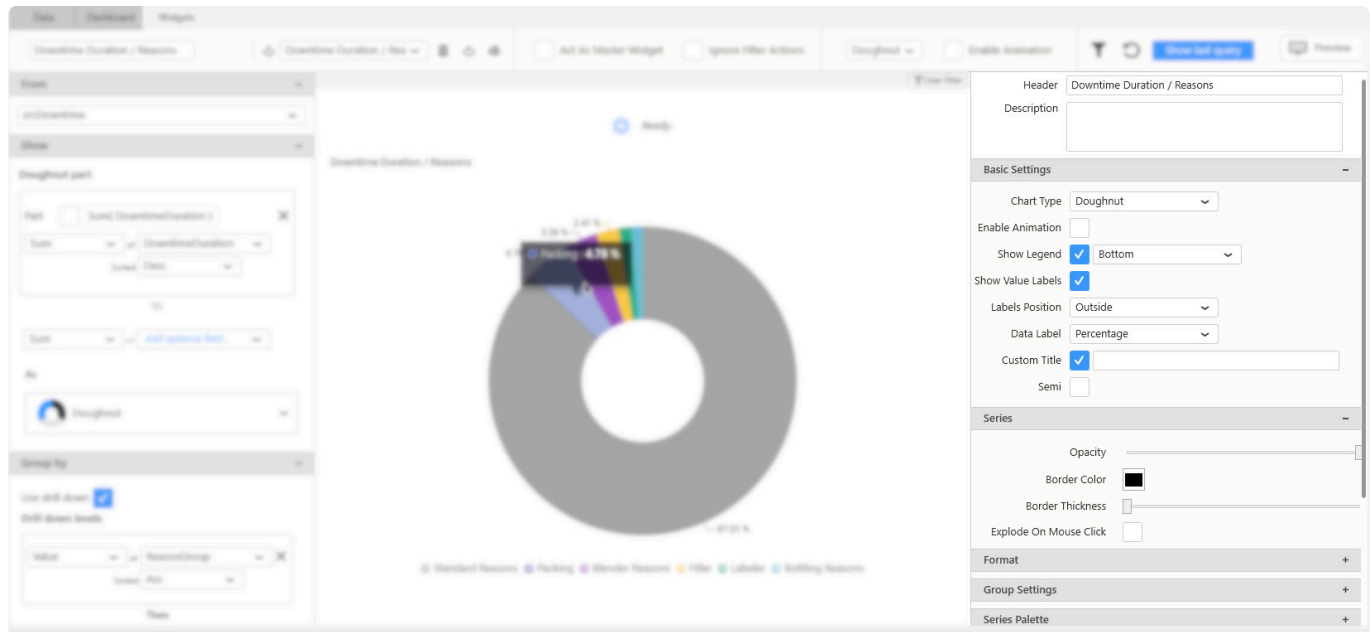
However, some Properties are common to several Widget types and listed in the current Chapter.

Last modified: Feb 17, 2022

2.7.6.1. Editing Widget Properties

Accessing the properties

Starting with Alpana v3.0.0, almost all Widget properties configuration happens in the properties panel on the right of the Widgets activity :



However, some properties are also located in the top bar for quick access.

Folding / Unfolding categories

Different parts of the properties configuration interface are grouped into categories.

For better readability, each category can be :

... folded ...



... and un-folded :



Last modified: Feb 17, 2022

2.7.6.2. Name, Header and Description

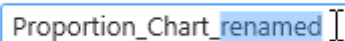
Widget Name

Each Widget has an internal Name used only at design-time, for example in the Widgets list.

This Name is not visible to the end user when the Widget is published.

It allows to have a clear useful name for the developer while the end user will want to see a different custom header, or even no header.

The Widget Name can be configured from the left of the top bar :

A screenshot of a text input field with a light blue border. The text inside the field is "Proportion_Chart_renamed" and a cursor is visible at the end of the text.

Header

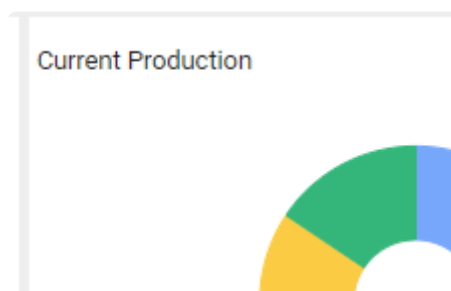
Widgets can also have a Header visible to the end user.

This can be used to display a title that can be a short description of the Widget's purpose.

The Header can be configured from the top of the properties panel :

A screenshot of a text input field with a light blue border. The text inside the field is "Current Production" and a cursor is visible at the end of the text. To the right of the field is a green circular refresh icon. The word "Header" is visible to the left of the field.

At runtime, this will be displayed at the top of the Widget container :



Header options

Some Header options are available in the *Container appearance* section :

Container Appearance

Show Border

☐

Override Border Color

☐

Border Thickness

1

Rounded Corners

☐

Show Header

☒

Header Size (px) :

13

Header Bold

☐

Header Italic

☐

Header Underline

☐

Header Font

Roboto

Header Alignment

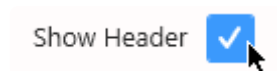
Left

Override Header Color

☐

Show / Hide Header

The *Show Header* option (check by default) allows to display the Header at runtime :



When the option is un-checked, the Header is invisible at runtime.

Header Size

The *Header Size* option allows to override for this Widget the Header Size set [at the Dashboard level](#).

Header Bold

The *Header Bold* option allows to override for this Widget the Header font weight

Header Italic

The *Header Italic* option allows to override for this Widget the Header font style

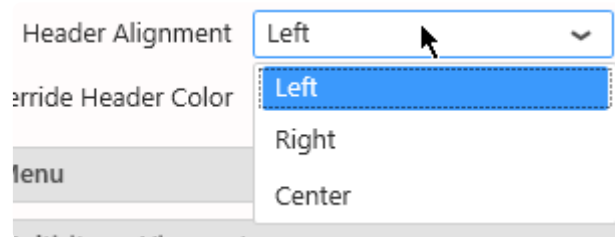
Header Underline

The *Header Underline* option allows to add an underline to the Header text

Header Alignment

Allows to align the Header :

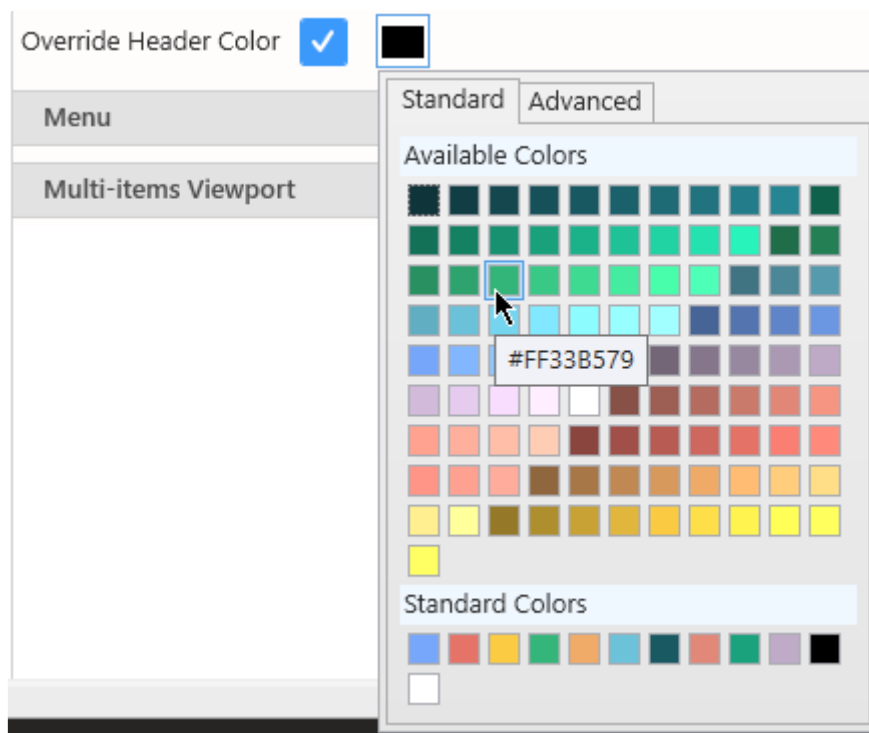
- Left
- Right
- Center



Header Color

By default, Header Color is managed by the currently applied Theme.

However, you can override the Theme color for the Header by checking *Override Header Color* and selecting the desired color :



If you want to set an header style to all your widget, you can use the Additional menu in the dashboard view.

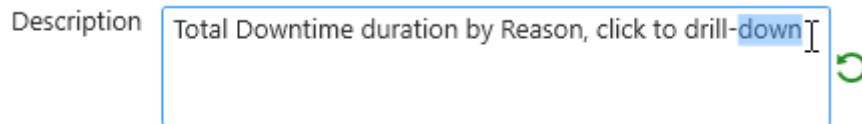
Label Parameters

The text content of the Header can include placeholders that will be replaced by Parameter values, see [Label Parameters](#)

Description

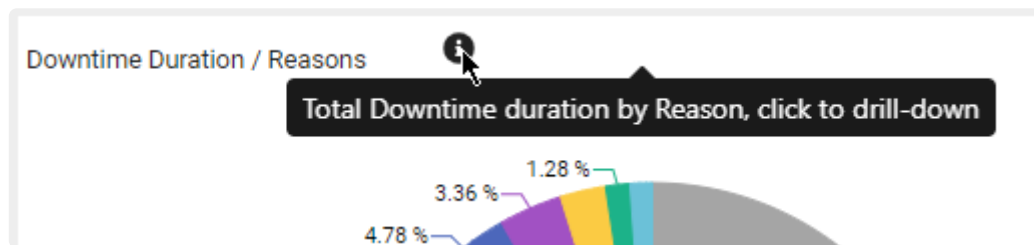
The Description can be used to display a longer text describing the Widget's purpose, its data, how to use it, ...

The Description can be configured from the top of the properties panel :



At runtime, the Description is hidden and a **i** icon appears near the Widget title to indicate the presence of a Description :

Hovering the **i** icon shows the description :



Last modified: Feb 17, 2022

2.7.6.3. Container Appearance

Container Appearance

These properties rule the appearance of the *container* that contains the Widget within the Dashboard.

Example :



Container Appearance

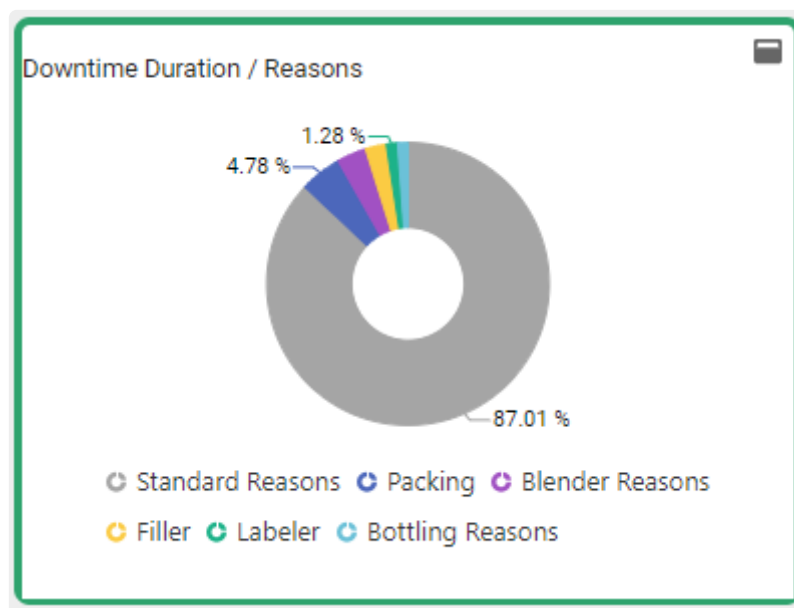
Show Border ☒

Override Border Color ☒

Border Thickness

Rounded Corners ☒

results in :



Border

Show border

Show a border line around the Widget.

Border Color

By default, Border Color is managed by the currently applied Theme.

However, you can override the Theme color for the Border Color by checking *Override Border Color* and selecting the desired color.

Border Thickness

Define the thickness of the line defining the border color, in pixels.

Rounded Corners

Round the corners of the Widget container, to turn it into a rounded rectangle.

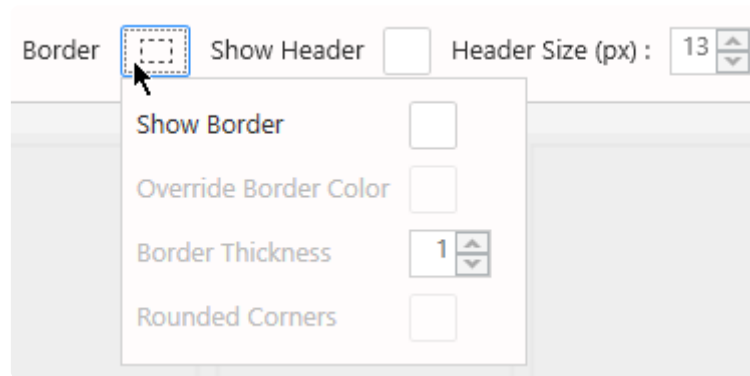
Header

Header settings : see [previous chapter about Header and Description](#).

Note : accessing Border options on other Widgets

Some Widget types are not edited through the Widget activity tab, and don't have a "Container Appearance" section : Image, Label, Embed, ...

For those Widgets, the Border options can be accessed in the top bar when the Widget is selected :



Last modified: Feb 17, 2022

2.7.6.4. Widget Menu items

Menu

At runtime, the top of the Widget Container will include buttons to run some actions on the Widget.



The *Menu* section allows to configure those buttons.

Menu

Enable Comment	<input type="checkbox"/>
Show Maximize	<input checked="" type="checkbox"/>
CSV Export	<input checked="" type="checkbox"/>
Excel Export	<input checked="" type="checkbox"/>
Image Export	<input checked="" type="checkbox"/>
PDF Export	<input checked="" type="checkbox"/>
Show Pin Widget	<input checked="" type="checkbox"/>

✿ Note : Some of those properties are only visible when the Dashboard is published.

Enable Comment

Shows a control at runtime that allows to create comments at the Widget level.

Show Maximize

Shows a control at runtime that lets the user maximize the Widget full page.

Exports

Each options will allow at runtime the user to export the Widget in the selected format(s).

If none is selected, the *Export* button disappears at runtime.

- CSV
- Excel
- image

- PDF

Pin Widget

Shows a control at runtime that lets the user pin the Widget to a Homepage.

Last modified: Feb 17, 2022

2.7.6.5. Measure Formatting and Date Formatting

Introduction

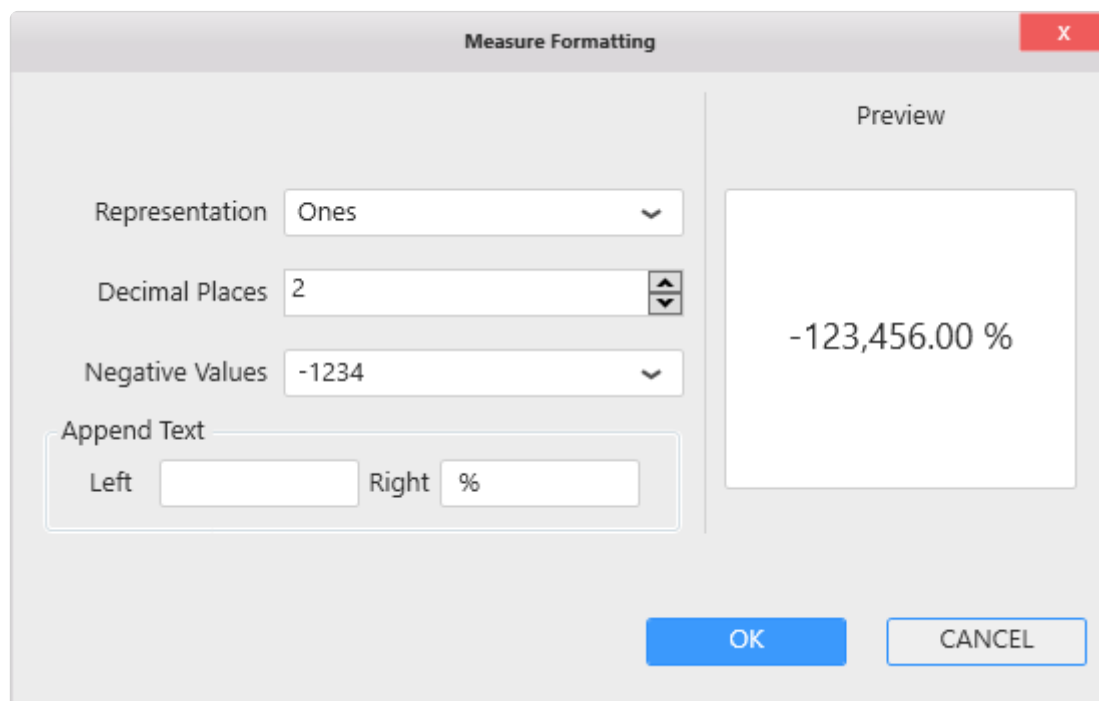
Most Widgets show data labels for values and dates, which may depend on user culture and personal choices.

The properties panel has a “*Format*” section which allows to configure these labels. All number and date fields are listed there, and labels can be configured by clicking on the cog icon :



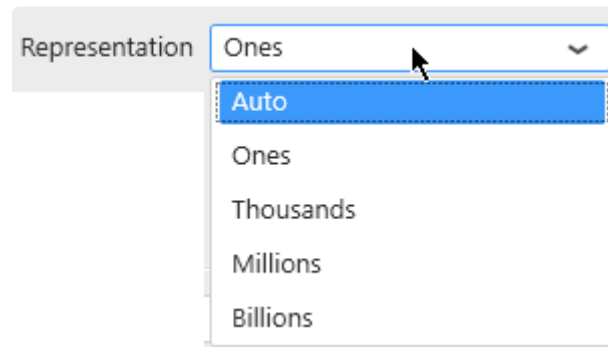
Measure Formatting

The Measure Formatting dialog allows to configure the label formatting for number fields :



Number Representation

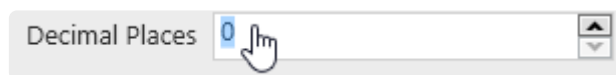
Numbers can be shortened in several ways :



- Auto (default) : depending on how large the number is, a multiplicator symbol can be added : “K” for thousand, “M” for million, “B” for billion
- Ones : the full number is displayed without multiplicator symbol
- Thousands
- Millions
- Billions

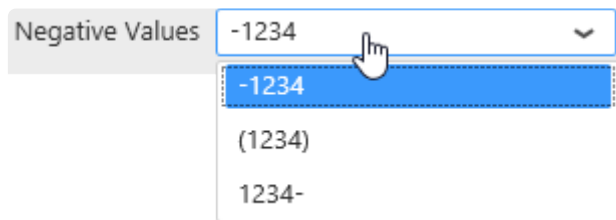
Decimal Places

The Decimal Places selector allows to force how many decimal places should be displayed for numbers :



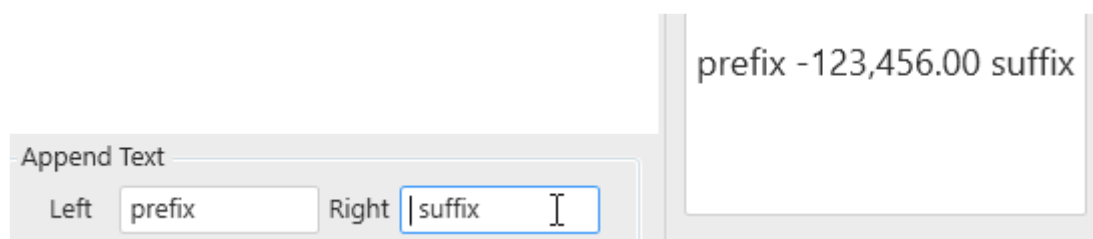
Negative Values

Alternate symbols can be used to represent negative values :



Prefix / Suffix

Prefix (before the number) and/or Suffix (after the number) text can be used :



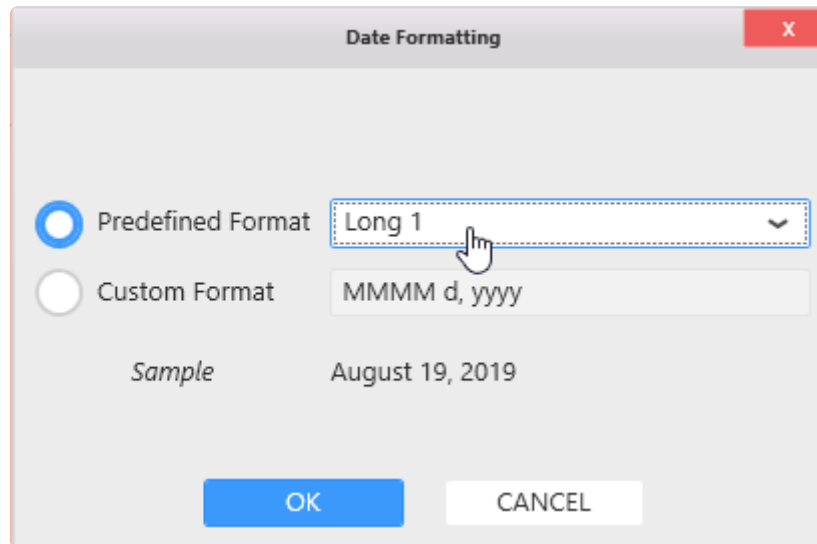
✿ Hint : This is useful for example for showing units of measurement.

No space is added by default between the number and the prefix/suffix.

Date Formatting

The Date Formatting dialog allows to configure the label formatting for `Date` or `DateTime` fields :

Pre-defined formats



A selection of date format types is available, and a preview is shown at the bottom of the window as “Sample”.

Date format localization

Only the *type* of date format can be configured (short, long, etc...).

At runtime, the date localization will depend on localization choices of the user.

In order of decreasing priority :

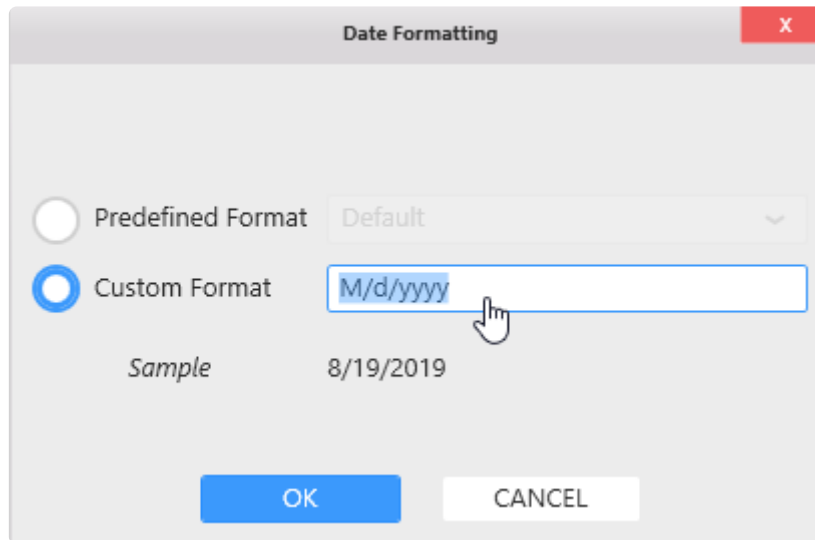
1. The Language selected by the user on **Alpana Server** contains culture information that will be used to localize the dates. Note : this is not available during Dashboard Preview from Alpana Designer.
2. The culture selected by the user as preferred language in the **web browser** will be used.
3. The culture of the display language of the **web browser** will be used.



In the Widget Preview, no locale is applied, and only the default EN-US English locale is applied.

Custom formats

Custom formats can also be configured, and a preview is shown at the bottom of the window as “Sample”. :



This allows to use text placeholders to define the custom date string.

There are 2 ways to configure a date format string :

- from a standard date format
- compose a custom string

Standard date formats

If the custom string is a single character, then you can use with one of the placeholders defined [here](#) as part of the .NET framework, and you will end up with one of the standard date formats that will adapt to your culture :

- d : Short date pattern
- D : Long date pattern
- f : Full date/time pattern (short time)
- F : Full date/time pattern (long time)
- g : General date/time pattern (short time)
- G : General date/time pattern (long time)
- M, m : Month/day pattern
- O, o : Round-trip date/time pattern
- R, r : RFC1123 pattern
- s : Sortable date/time pattern.
- t : Short time pattern
- T : Long time pattern
- u : Universal sortable date/time pattern
- U : Universal full date/time pattern
- Y, y : Year month pattern

Custom date strings

This allows to configure any date part in any order and use that as a label.

Use any text and include special placeholders to compose the date format.

The placeholders are defined [here](#) as part of the .NET framework, and a summary is below :

- d, dd : the day of the month
- ddd, dddd : the day of the week
- f, ff, fff, ffff, fffff, fffffff, ffffffff, ffffffff : decimals of the second
- h, hh : the hour, using a 12-hour clock
- H, HH : the hour, using a 24-hour clock
- m, mm : the minute
- M, MM, MMM, MMMM : the month
- s, ss : the second
- t, tt : AM/PM
- y, yy, yyyy : the year
- : : the time separator
- / : the date separator
- \ : the escape character allows to write a character without interpreting as a placeholder
- "my text", 'my text' : the escape quotes allow to write a text without interpreting as a placeholder

Last modified: Feb 17, 2022

2.7.6.6. Multi-items Viewport

Introduction

Some Widgets can be turned into a container for many Widgets.

These Widgets are displayed in a grid showing a certain number of Widgets horizontally (Columns) and vertically (Rows).

These many Widgets are generated automatically based on a data field, and their number may not be known in advance.

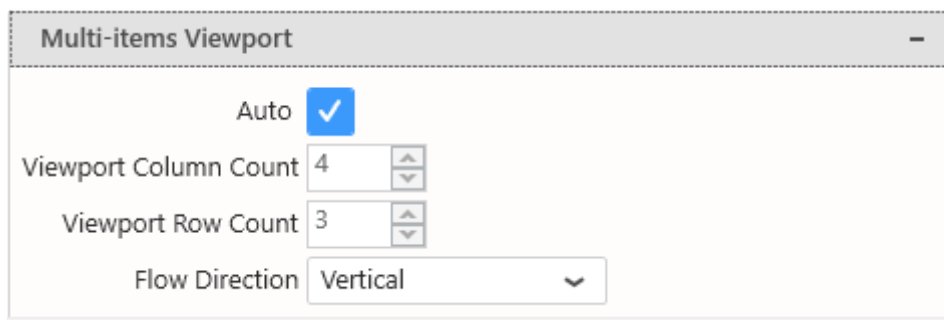
If there are too many Widgets contained, Alpana allows to view only some of them, and then use a scrollbar to see the others.

The properties sections “*Multi-items Viewport*” allows to configure how many Widgets can be displayed at the same time inside the Widget container.

Setting Multi-items Viewport

From the Widget properties

In the Widget properties, the section *Multi-items Viewport* allows to configure this setting :

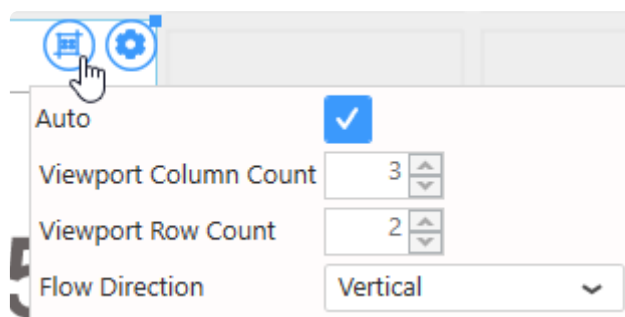


The screenshot shows a settings panel titled "Multi-items Viewport". It contains the following controls:

- An "Auto" checkbox that is checked with a blue checkmark.
- A "Viewport Column Count" spinner set to the value 4.
- A "Viewport Row Count" spinner set to the value 3.
- A "Flow Direction" dropdown menu currently set to "Vertical".

From the Dashboard layout

In the *Dashboard* activity, each Widget has a shortcut to this setting :



The screenshot shows a dashboard layout with a widget. A hand cursor is clicking on a gear icon (settings) next to the widget. A settings panel is open, showing the same "Multi-items Viewport" settings as the previous image, but with different values:

- "Auto" is checked.
- "Viewport Column Count" is set to 3.
- "Viewport Row Count" is set to 2.
- "Flow Direction" is set to "Vertical".

Auto Mode

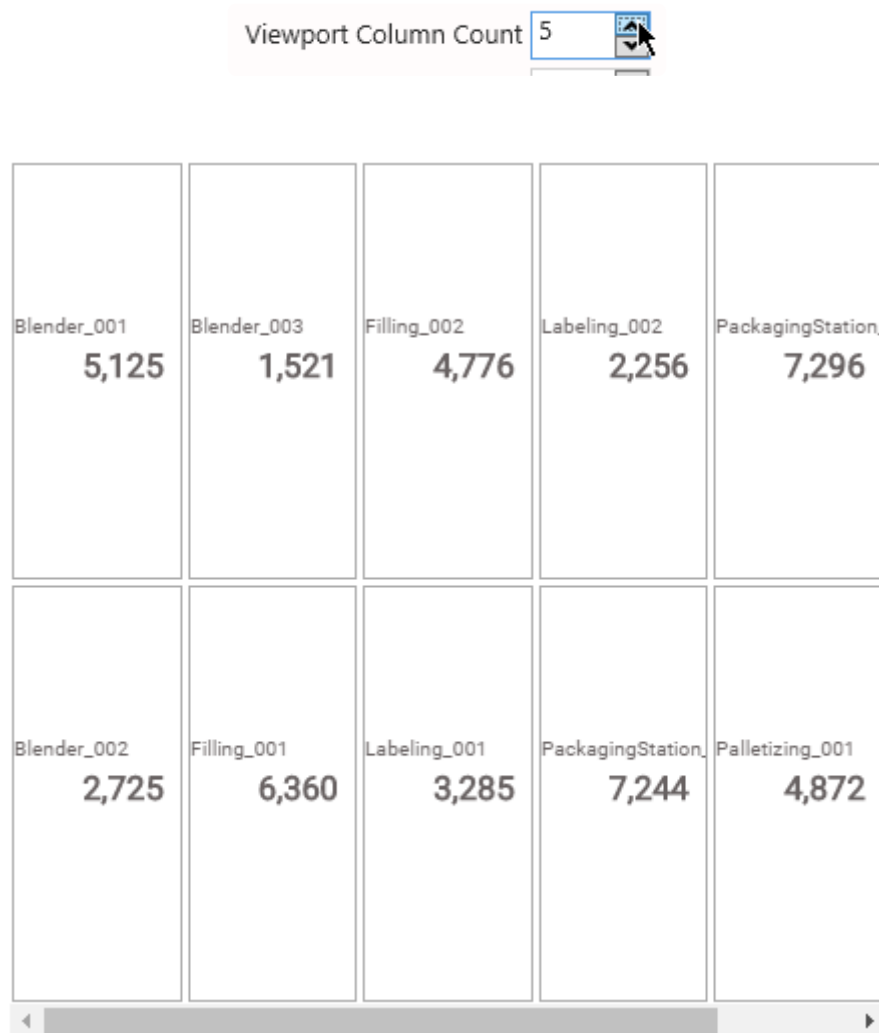
By default, *Auto* is checked and the Viewport is calculated automatically.

Manual Mode

By un-checking *Auto*, you can configure manually the Viewport.

Columns

Viewport Column Count allows to configure how many Widgets are displayed horizontally (the number of columns in the grid) :



Rows

Viewport Row Count allows to configure how many Widgets are displayed vertically (the number of rows in the grid) :



Blender_001 5,125	Labeling_001 3,285
Blender_002 2,725	Labeling_002 2,256
Blender_003 1,521	PackagingStation_001 7,244
Filling_001 6,360	PackagingStation_002 7,296
Filling_002 4,776	Palletizing_001 4,872

Flow direction

Flow direction allows to configure how Widgets are placed in the grid :

- *Vertical* : Widgets are placed from top to bottom, and then left to right. If there are too many Widgets to display, the next pages are on the right.
- *Horizontal* : Widgets are placed from left to right, then top to bottom (english reading direction). If there are too many Widgets to display, the next pages are at the bottom.

Flow Direction Horizontal

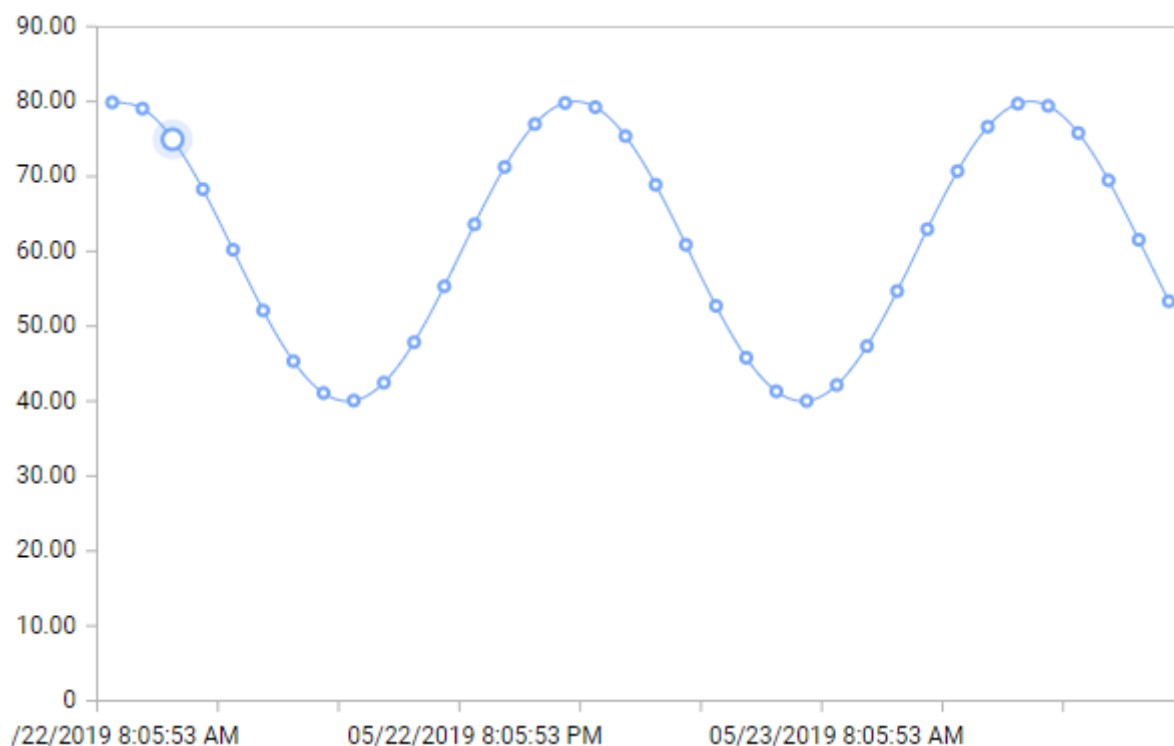
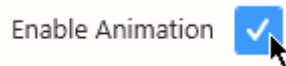
Blender_001 5,125	Blender_002 2,725
Blender_003 1,521	Filling_001 6,360
Filling_002 4,776	Labeling_001 3,285
Labeling_002 2,256	PackagingStation_001 7,244
PackagingStation_002 7,296	Palletizing_001 4,872

Last modified: Feb 17, 2022

2.7.6.7. Animation

Some Widget types can be configured to show an animation when displayed.

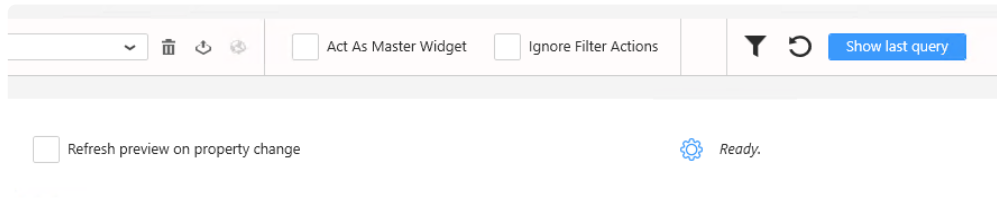
Under *Basic Settings*, check *Enable Animation* :



Last modified: Feb 17, 2022

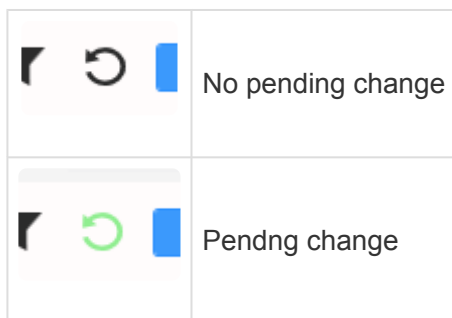
2.7.6.8. Widget preview refresh

It is possible to stop the automatic visualization refresh of widget when configuring them. It could be useful if the datasource has huge amount of data and rendering the widget is long (i.e. a Chart with hundreds thousand point in it)



To disable the auto refresh, the Refresh preview on property change must be unchecked.

The refresh button in the toolbar will show if the widget has pending change :



By clicking on the Refresh button, the widget will be updated.

Last modified: Mar 31, 2022

2.7.7. Interactions

At runtime, users can click on widgets in order to perform an action depending on what data item is clicked.

In Alpana, three types of actions can be defined on widgets :

- Drill-Down (for the Widget types that support it)
- Link To URL
- Filter

When several of these actions are configured, only one is performed.

The order of precedence is the order in the list above.

Last modified: Feb 17, 2022

2.7.7.1. Drill-Down

Some Widgets define a Drill-Down action : when the user clicks on a data item, the Widget shows the underlying data as if the user were digging into it :

- all types of Cartesian Charts
- all types of Proportion Charts
- TreeMap

To learn to configure Drill-Down, see for each Widget in the [Widget Reference](#).

Last modified: Feb 17, 2022

2.7.7.2. Link To URL

Introduction

Most Widgets can be configured as a link to a URL : when the user clicks on the Widget, the URL is opened.

It is possible to configure the URL to be generated dynamically : when the user clicks on different parts of the Widget, different URLs are open.

Use cases

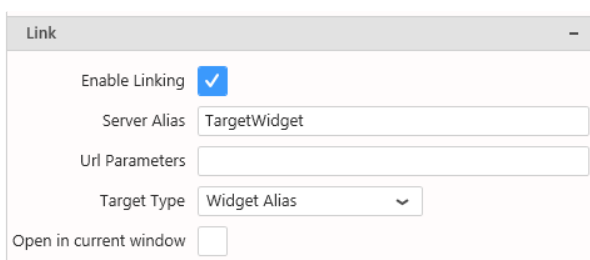
This can be used to :

- open another Dashboard with different context (different URL Parameters values) depending on where the user clicked.
- open a different Dashboard depending on where the user clicked
- open a different website depending on where the user clicked
- open another website (for example a reporting solution) with different URL Parameters depending on where the user clicked

Configuring a Link To URL

The Properties panel has a “Link” section. Check the “Enable Linking” checkbox and choose a target type :

- Dashboard Alias : Link to an Alias configured in the dashboard settings
- Widget Alias : Link to a Alias configured in the widget settings
- Web Url : Open the URL



Link

Enable Linking ☒

Server Alias

Url Parameters

Target Type

Open in current window ☐

The URL parameter field will let you configure the parameter passed to the target.

Syntax for dynamically generated URLs

In the URL string, the special syntaxes below will be replaced by a value dynamically depending on the context on the widget at runtime.

Un-formatted field value

```
{{!MyFieldName}}
```

will be replaced by the corresponding field value depending on where the user clicked on the widget at runtime.

If the field is formatted (for example, a *MyDate* field formatted as *Month Year(MyDate)*), then the replaced value will be the raw value (un-formatted).

For example : 201702



This is the value that can be used as input to a [URL Parameter](#).

Example

If the Widget category field is *Month Year(MyDate)*, then you can send its value to another Dashboard with :

```
https://aveva.alpana.io/viewer/dashboard/MyDashboard?MyTargetParameter={{!MyDate}}
```

Setting the link to URL will be :

- Target Type : Web Url
- Url : <https://aveva.alpana.io/viewer/dashboard/MyDashboard>
- URL Parameter : MyTargetParameter=***{{!MyDate}}***

At runtime, when the user clicks on the part of the Widget where the value corresponds to *February 2017*, then the link opened will be :

```
https://aveva.alpana.io/viewer/dashboard/MyDashboard?MyTargetParameter=201702
```

Formatted field value

```
{{:MyFieldName}}
```

will be replaced by the corresponding field value depending on where the user clicked on the widget at runtime.

If the field is formatted (for example, a *MyDate* field formatted as *Month Year(MyDate)*), then the replaced value will contain the format.

For example : February 2017

This is a value that can be used for display.

Example

If the Widget category field is `Month (MyDate)`, then you can send its value to Wikipedia with :

```
https://en.wikipedia.org/wiki/{{:MyDate}}
```

At runtime, when the user clicks on the part of the Widget where the value corresponds to *February*, then the link opened will be :

```
https://en.wikipedia.org/wiki/February
```

Parameter value

```
${MyParameterName}
```

will be replaced by the current value of the [Parameter](#).

If the Parameter contains multiple values, they are separated by commas ,

Example

If your dashboard contains a Parameter called `MySourceParameter`, then you can send its value to another Dashboard with the field Url Parameter:

```
https://aveva.alpana.io/viewer/dashboard/MyDashboard?MyTargetParameter=${MySourceParameter}
```

At runtime, when the user clicks the Widget, if the value of `MySourceParameter` is currently `Buildin g_A`, then the link opened will be :

```
https://aveva.alpana.io/viewer/dashboard/MyDashboard?MyTargetParameter=Buildin g_A
```

With the URL parameter, you can set all parameter needed in the target dashboard.

Examples and tips

Dynamic e-mail creation

In this example, you have a Grid displaying current maintenance issues.
You want to let users click an item in the Grid to open an e-mail to support.

The solution is to use `mailto:` links, with the following syntax :

```
mailto:someone@yoursite.com?cc=someoneelse@theirsite.com, another@thatsite.co
```

```
m, me@mysite.com&bcc=lastperson@theirsite.com&subject=Need%20help%20with%20...&body=Hello...
```

Except the recipient, all parts are optional.

Of course, with Alpana you can now generate a link like this dynamically from fields in your data !

In the Grid Widget, those fields can even be hidden.

Example :

```
mailto:{{:support_email}}?subject=Issue%20with%20{{:equipment}}&body={{:Downtime_cause}}%20is%20happening
```

Opening PDF at the desired page

In this example, you have a Grid displaying current maintenance issues.

You want to let users click an item in the Grid to open the correct maintenance document opened at the correct page.

On hosted PDF documents, the syntax is :

```
http://your-site.com/your-document-location.pdf#page=123
```

Of course, with alpana you can now generate a link like this dynamically from fields in your data !

In the Grid Widget, those fields can even be hidden.

Example :

```
http://your-site.com/{{:manual_name}}.pdf#page={{:manual_page}}
```

Last modified: Feb 17, 2022


2.7.7.3. Master Filter

Widgets can be configured as Filter : when a data item in the widget is clicked, other Widgets only show the corresponding data.

This behaviour is closely related to the notion of Dashboard Parameters and is documented in [the corresponding Chapter](#).

Last modified: Feb 17, 2022

Show Tolerance In Tooltip	<input checked="" type="checkbox"/>
Show Variation In Tooltip	<input checked="" type="checkbox"/>
Show Percent Of Target In Tooltip	<input checked="" type="checkbox"/>

 Additional fields can be used to bind other data than the one used to render the widget

Last modified: Feb 17, 2022

2.8. Widget Properties Reference

Each Widget type has specific properties and configuration options.
This chapter is a reference of all Widget properties.

A Widget is a visualization entity that uses data from a single Data Source and displays it in an interactive way.

Widgets are assembled to create a Dashboard.



To learn about Widgets and their generic settings, see the corresponding generic chapter : [Configuring a Widget](#).

Last modified: Feb 17, 2022

2.8.1. Cartesian Chart

Cartesian Charts allow to view data on a 2D plane using perpendicular X-Y axes.

They are split into several types, but any type of chart can be changed to any other type of chart, and almost all types can be combined together.

Last modified: Feb 17, 2022

2.8.1.1. Binding Data

Introduction

The following fields are available for configuring data binding on a Cartesian Chart :

Show

Y Value(s)

Value Sum(price)

Line Field

Sum

of

price

Sorted by default

Vs

Sum

of

Add optional field...

As

Line

Group by

Use drill down ☐

X Axis

Value

of

Date

Formatted as Datetime

Sorted Asc

Split

Value

of

Product

Sorted Asc

Split into many charts

Value

of

Building

Sorted Asc

Split into the same chart

- *Y Value(s)* : the height of the chart line along the Y Axis
- *X Axis* : how we group values together on the X Axis to create points on the line
- *Split into the same chart* : how we split each series into different lines on the same chart

- *Split into many charts* : how we split series of different charts in the same container

Show : *Y Value(s)*

This represents the *quantity* we want to display on the Chart, and will bind for example to the height of the line (Line chart) or the height of the column (Column chart).



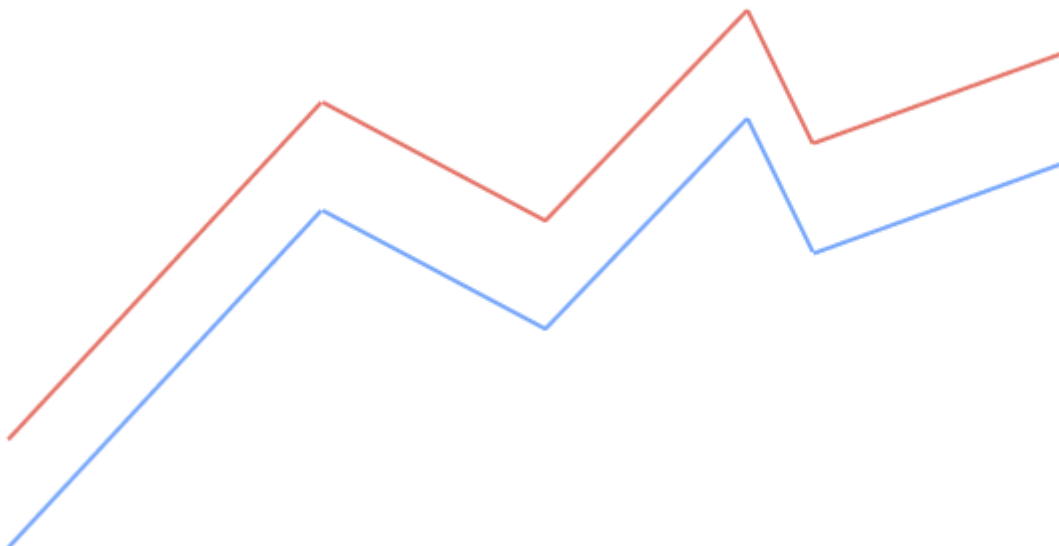
These fields **must be aggregated** : you must choose an aggregation function (SUM, AVG, ...)
At least one field must be bound.



Some Chart Types require more than one field to define a point.
For example the Range Area requires to define one field for each side of the area : Low and High.

Multiple fields : multiple Series

When binding multiple fields at the same time, each field will generate a separate Series.



This way, each Series can have its own graphical properties, its own Y axis, etc... and even different Chart Types.

To change the order of fields, see [the corresponding chapter](#).



Note :

This only works if your series are already into separate data fields. For example, with a [Historian Wide Query](#).

If you want to create series based on different values/names from a single data field, see below the “*Split into the same chart*” configuration.

Example

With a field called “Price” and a field called “Target”, you will chart 2 separate series, one for each field.

Y Value(s)

Value Sum(price)







Line Field

Sum of price

Sorted by default

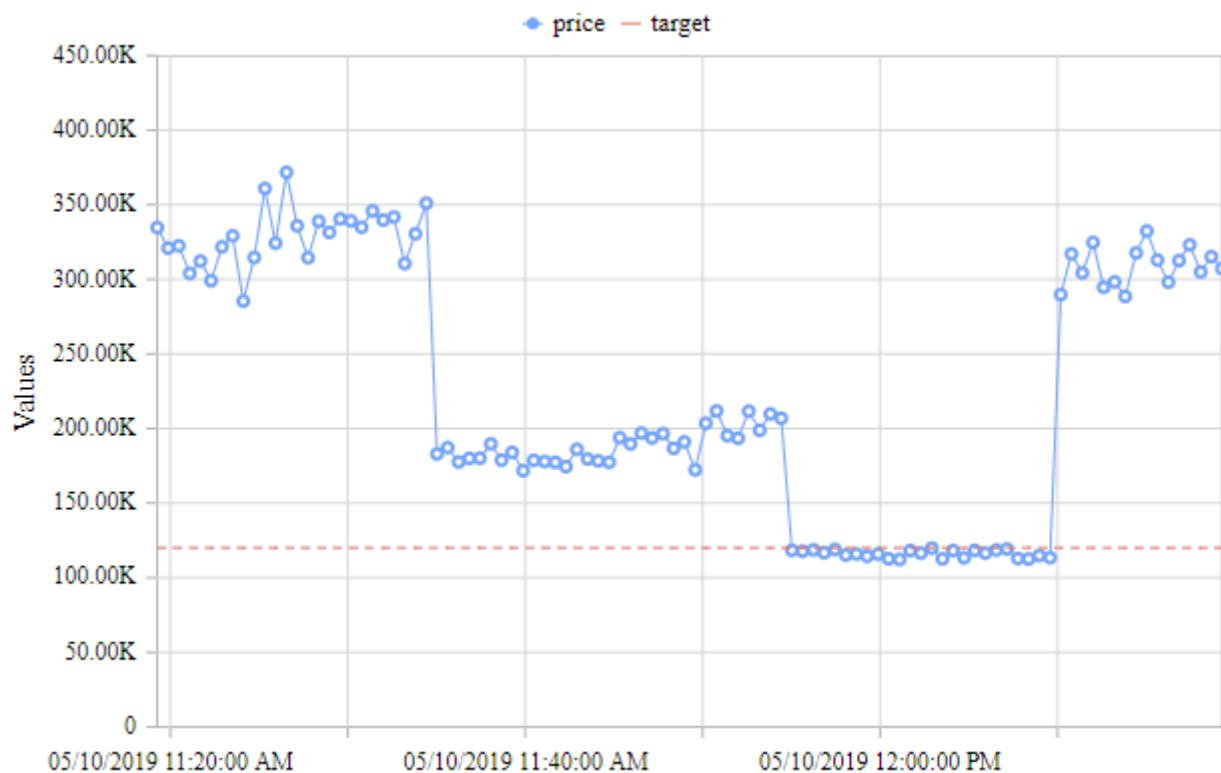
Vs

Value Avg(target)




Line Field

Avg of target

Sorted by default



Group by : *X Axis*

This represents the *category* we want to use to separate data points.

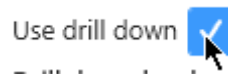


These fields **cannot be aggregated** : they must have several separate values in order to group the “Values” aggregation.

At least one field must be bound.

Multiple X Axis fields : Drill-Down

To enable Drill-Down, you can check the box *Use drill down* :



This allows to bind any number of fields to drill-down levels, in the same order as they are in the list. To change the order of fields, see [the corresponding chapter](#).

Example

With fields called “continent”, “country”, and “Date”, the following configuration will configure the corresponding drill-down :

Group by

Use drill down

Drill down levels

Value of continent X
Sorted ASC

Then

Value of Country X
Sorted ASC

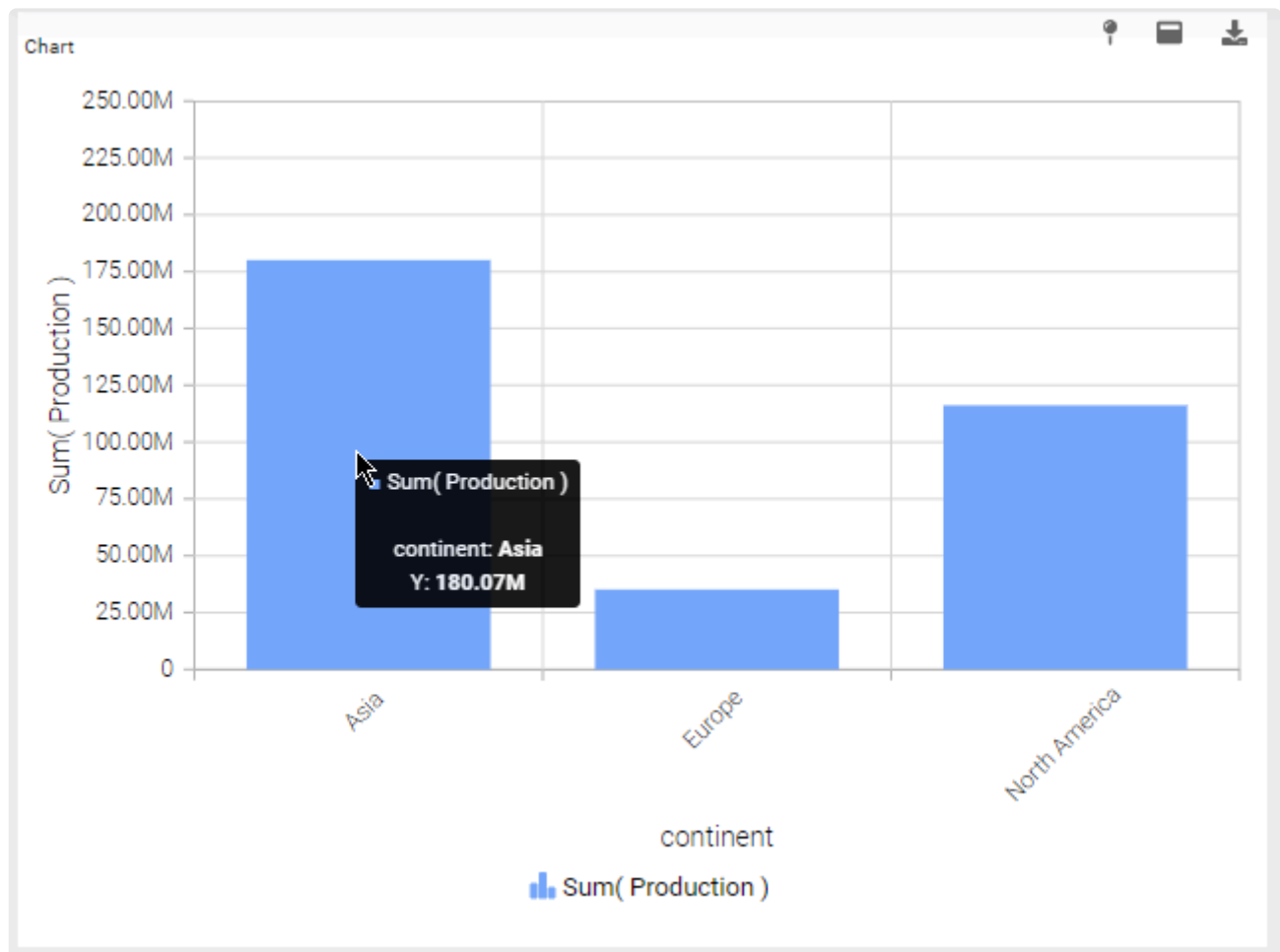
Then

Value of Date X
Formatted as Year
Sorted ASC

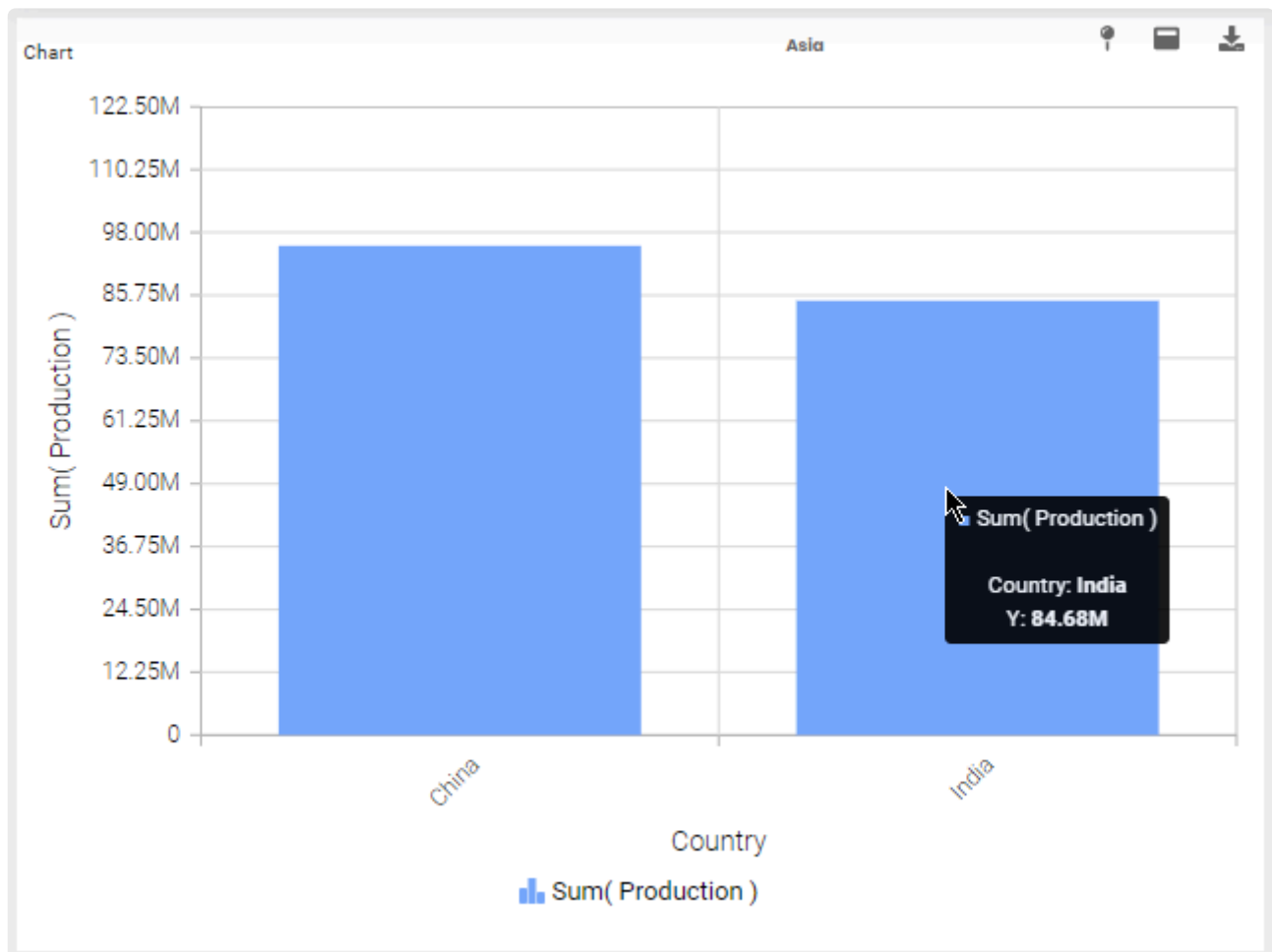
Then

Value of Date X
Formatted as Month
Sorted ASC

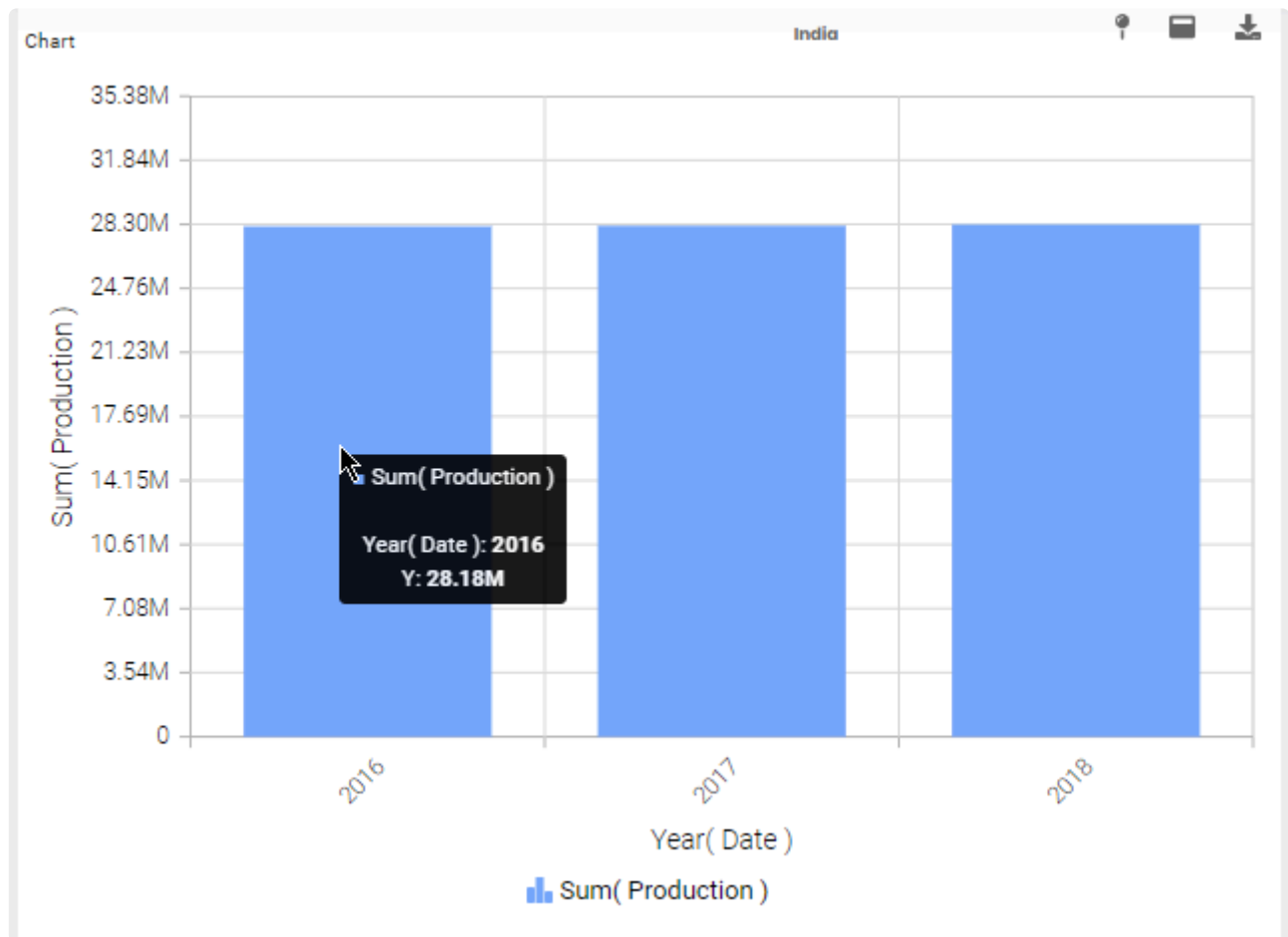
First, the data will be grouped by “continent” :



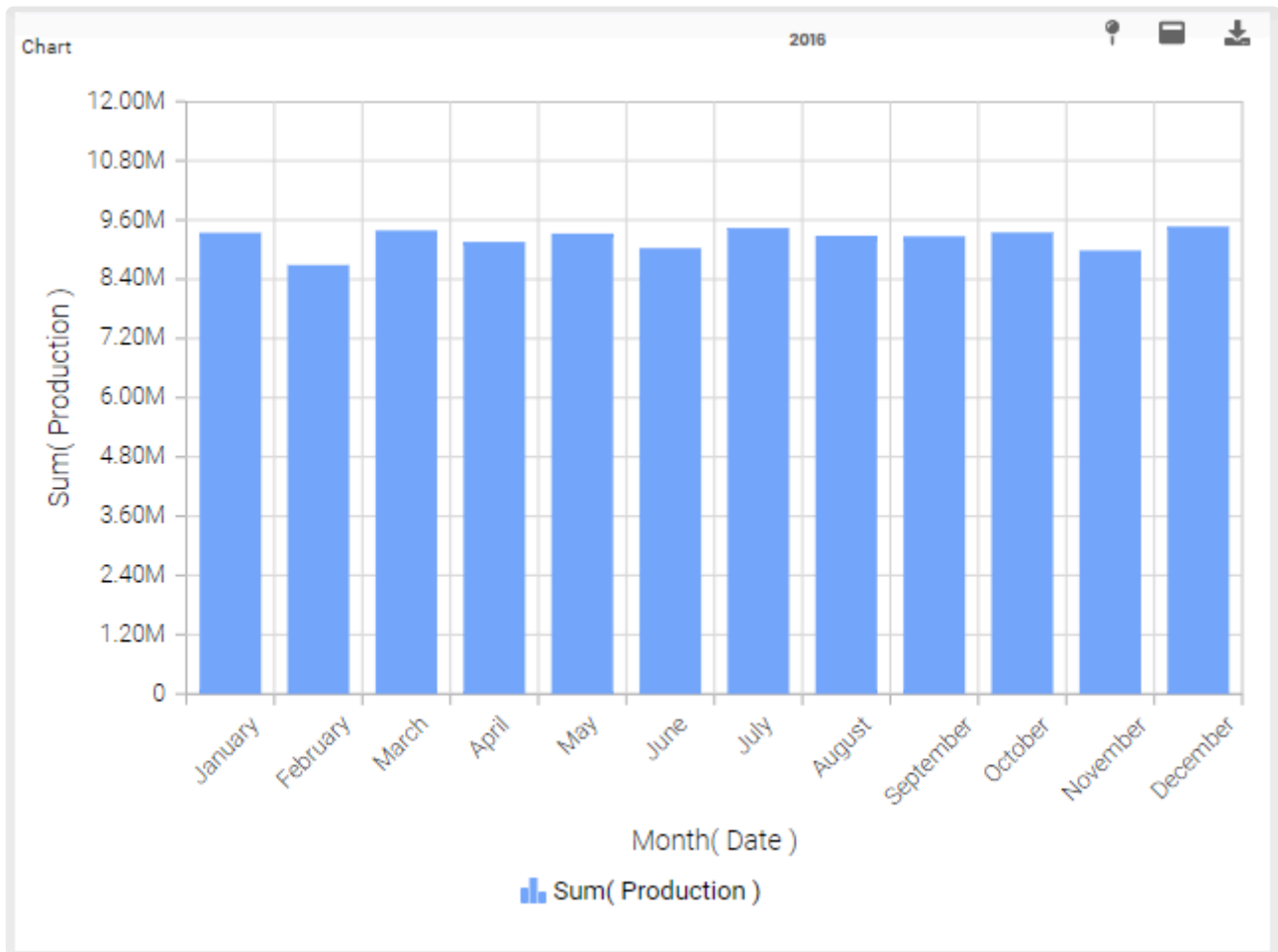
When the user clicks a continent (example : Asia), the Chart is drilled-down to the next level : the Countries of Asia :



Next, when the user clicks a Country (example : India), the Chart is drilled-down to the next level : the Years of India :



Next, when the user clicks a year (example : 2016), the Chart is drilled-down to the last level : the Months of 2016 of India :



Meanwhile, the Drill-Down navigation at the top shows the value of the current level. When clicking it, you can drill back up to any level, or directly to the top by selecting *Close* :



Group by : *Split into the same chart*

This represents the series field to generate a different chart series for each different value in this *Split into the same chart* field.



This field is optional.

It can be combined with *Split into many charts*.



Note :

This only works if your series are values into a single data field. For example, with a [Historian Narrow Query](#).

If you want to create series based on separate data fields, see above the “multiple Series” configuration.

Example

If you have Historian Narrow Query with a field called “TagName”, you may want to plot a separate Line chart for each value of TagName :

Show -

Y Value(s)

Value

Value

Line Field

Sum

of

Value

Sorted

by default

Vs

Sum

of

Add optional field...

As

Line

Group by -

Use drill down ☐

X Axis

Value

of

Date

Formatted as

Datetime

Sorted

ASC

Split

Value

of

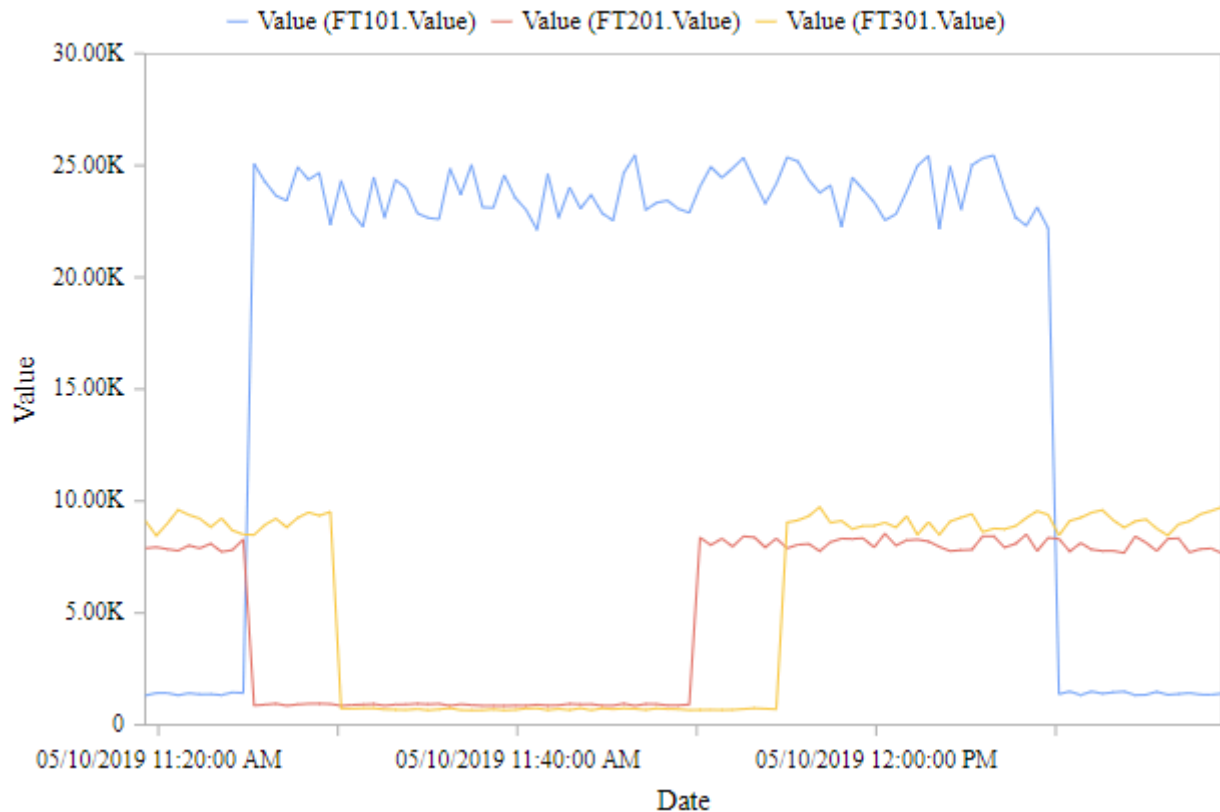
TagName

Sorted

ASC

Split into

the same chart



Group by : *Split into many charts*

This represents the series field to generate a different contained Chart for each different value in this *Split into many charts* field.

This will turn the widget into a container, and generate a complete different chart for each value in the series field, contained in the Widget.

The layout of the charts inside the container is configurable.

Please see [the corresponding chapter to configure the view of the Widget container](#).

This field is optional.

It can be combined with *Split into the same chart*.




✿ Note : This only works if your series are values into a single data field.

Example



If you have a field called “continent”, you may want to plot a completely separate chart for each value of continent :


Show —

Y Value(s)



Value Value   

Line Field



Sum  of Value 

Sorted by default 

Vs

Sum  of [Add optional field...](#) 




As


 Line 


Group by —

Use drill down ☐




X Axis


Value  of Date  


Formatted as Datetime 

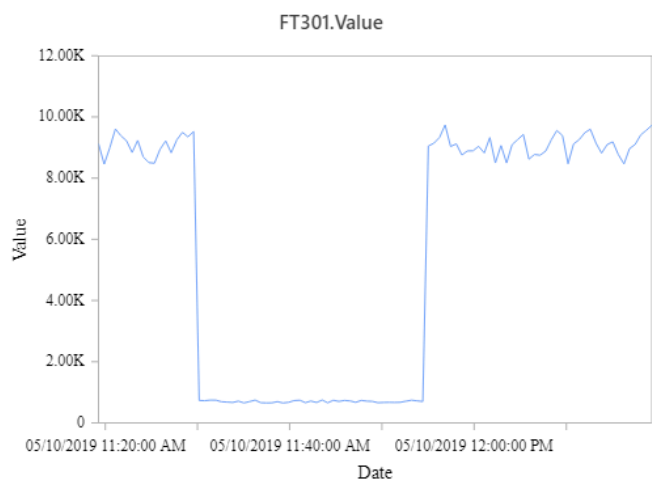
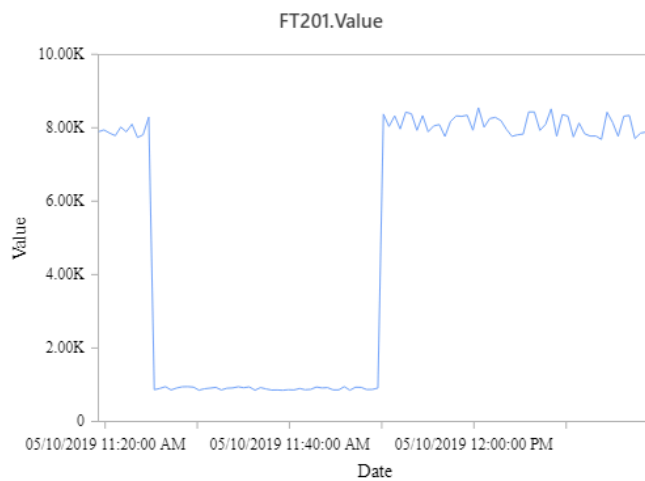
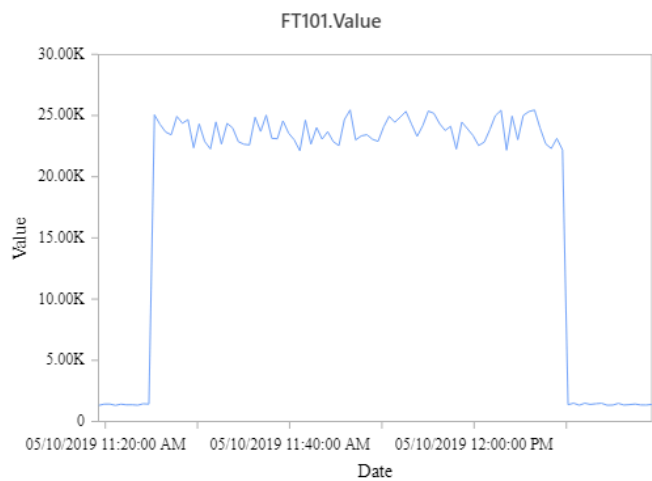
Sorted Asc 

Split

Value  of TagName  

Sorted Asc 

Split into many charts 



Last modified: Feb 17, 2022

2.8.1.2. Chart Types

Categories

There are two main categories of Chart types :

- Horizontal X Axis : the grouping axis (X) is displayed from left to right
- Vertical X Axis : the grouping axis (Y) is displayed from bottom to top

Types

Cartesian Charts are split into several Widget types, listed below.













In addition, a special shortcut exists for combining different chart types :



Combo





Horizontal X Axis

1 Value Field

-  Column
-  Stacked Column
-  100% Stacked Column
-  Area
-  Stacked Area
-  100% Stacked Area
-  Line
-  Spline
-  Spline Area
-  Step Line
-  Step Area
-  Scatter

-  Waterfall

2 Value Fields




-  Bubble
-  Range Area
-  Range Column
-  Hi/Lo

4 Value Fields

-  Hi/Lo Open/Close
-  Candle

Vertical X Axis

1 Value Field

-  Bar
-  Stacked Bar
-  100% Stacked Bar

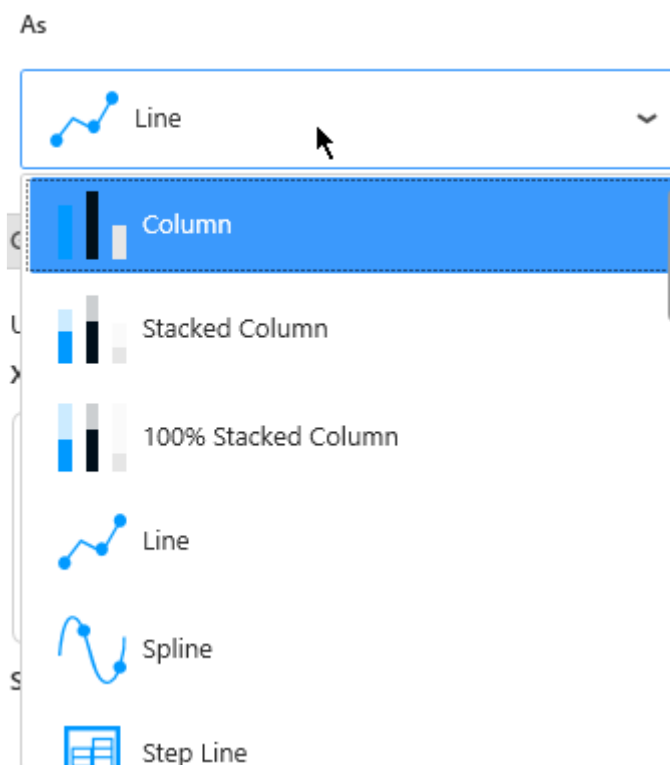
Last modified: Feb 17, 2022

2.8.1.3. Switching Chart Types

When adding a Widget, the Chart will have a single type globally : all series will have the same type.

Chart type can be changed on the fly while keeping the widget configuration.

To change the Chart type, use the selector under *As* in the data configuration :



Last modified: Feb 17, 2022

2.8.1.4. Combining Chart Types

Enabling Combo Chart

Any Chart can be turned into a Combo Chart.

This allows to combine multiple Chart Types into the same widget.

! *Horizontal X Axis* types of Charts cannot be combined with *Vertical X Axis* types.
Example : a Bar and a Column cannot be combined together since they don't have the same orientation of the X Axis.

Click *Enable Combo Chart* under *Series* :



The *Default Chart Type* can be selected under *Series* also.

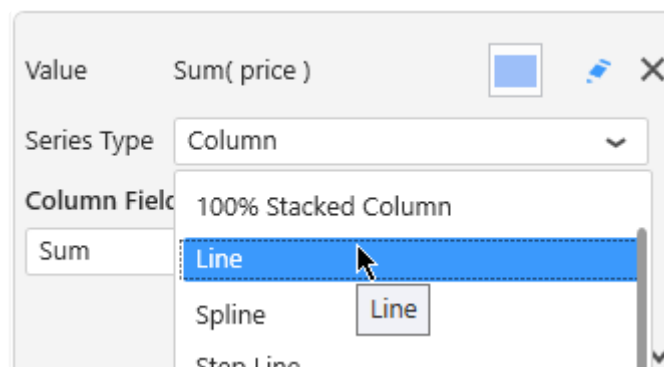
This will be the Chart type used by default when adding new *Y Value* Series to the data configuration.

In addition, a shortcut exists to create a Combo Chart immediately : the widget type  Combo.

Selecting Types

When Combo Chart is enabled, the Chart Type is no longer a global setting to the widget.

Instead, each *Y Value* Series has a new setting called *Series Type* :



Last modified: Feb 17, 2022

2.8.1.5. Series Settings

Each *Y Value* Series can be configured individually by clicking the pen icon next to its name :



This allows to fine-tune your chart by configuring exactly what you want on each series inside the widget.

✿ Keep in mind that some configuration options are not available for all chart types.

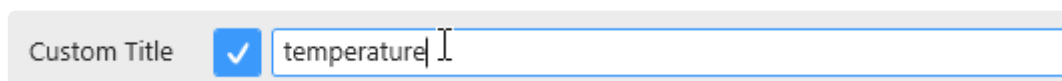
Last modified: Feb 17, 2022

2.8.1.5.1. Series Name

Each Series has a name displayed in various places.

By default, this name is automatically generated from the data field bound to the Series.

To configure this name, edit the Series Settings, in tab *Main*, check *Custom title* and write the desired name :



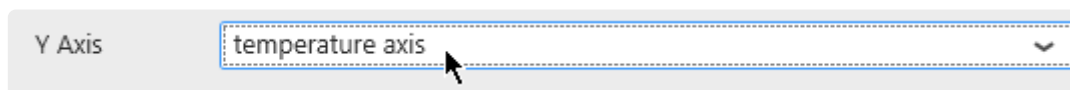
Custom Title ☒ temperature

Last modified: Feb 17, 2022

2.8.1.5.2. Axis binding

Each Series can be bound to a different Y Axis.

Edit the Series Settings, in tab *Main*, select the desired *Y Axis*:

A screenshot of a software interface showing a dropdown menu for selecting a Y Axis. The dropdown is open, displaying the text "temperature axis" and a small downward arrow icon on the right. The dropdown is highlighted with a blue dashed border. To the left of the dropdown, the text "Y Axis" is visible.

Listed are all the available [Y axes](#).

Last modified: Feb 17, 2022

2.8.1.5.3. Data Point information

Value Labels

Text labels can be used to display the value next to each data point.

Edit the Series Settings, in tab *Advanced*, check *Value Labels* :

Value Labels	<input checked="" type="checkbox"/>
Value Labels Rotation	-45°

With the following result for example :



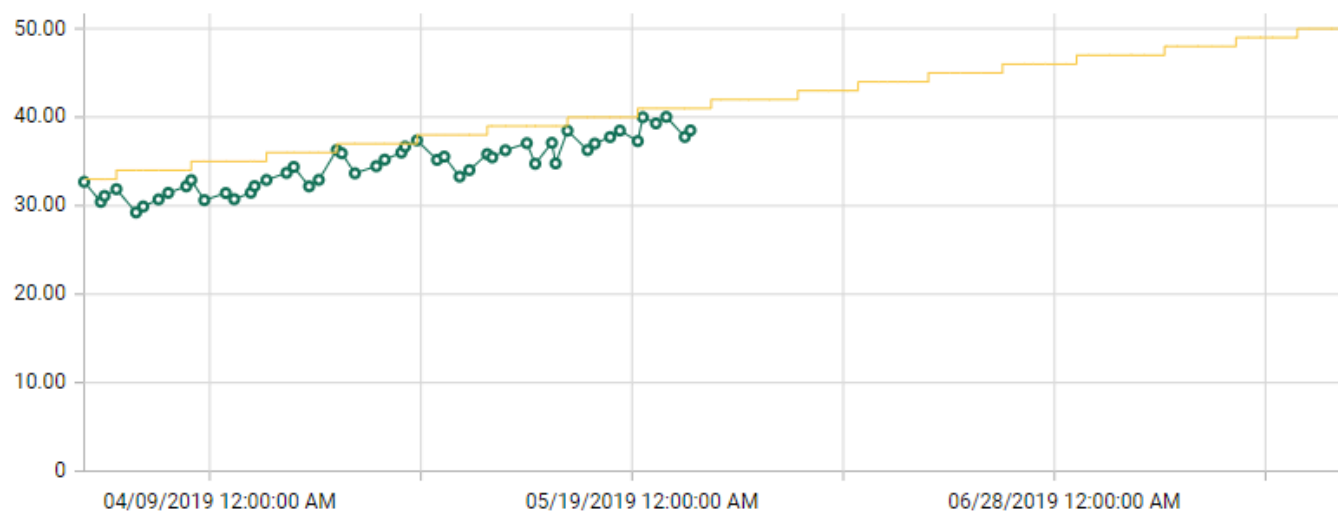
Null values

By default, when the *Y Value* is NULL, the chart doesn't display any shape. Instead, you can force to display a point with a predefined value for NULL values.

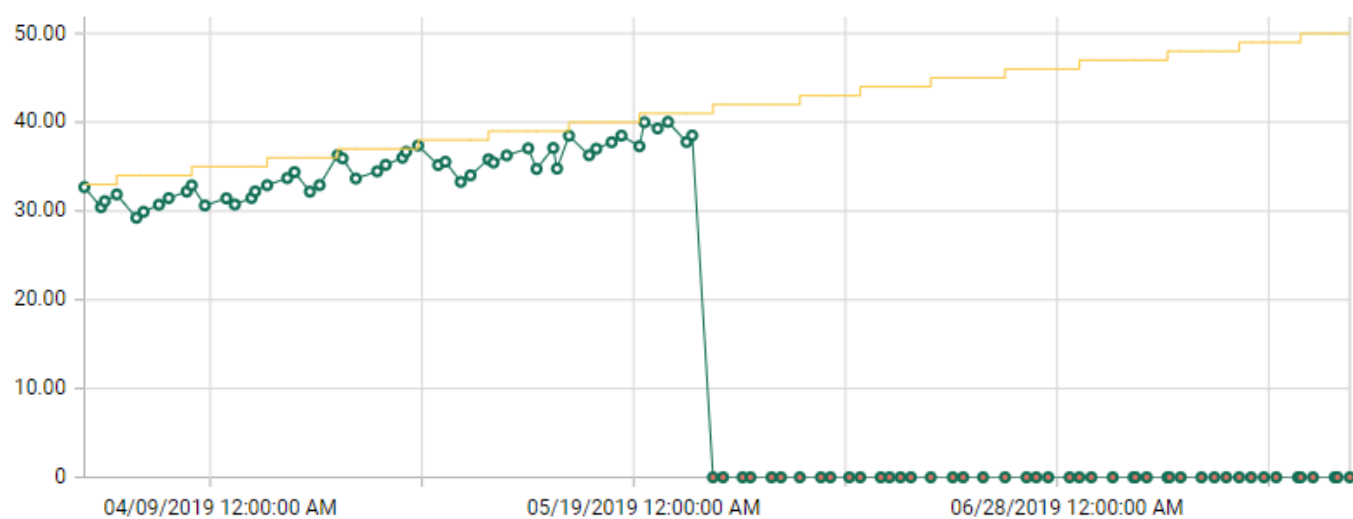
Edit the Series Settings, in tab *Advanced*, check *Plot Null Values* :

Plot Null Values	<input checked="" type="checkbox"/>
Fallback Value	<input type="text" value="0"/>
Color	<input checked="" type="checkbox"/>

For example, in the following chart, there are NULL values after a certain date (data unknown) :



Instead of a broken line, you may choose to display those unknown values as 0 with a red point :

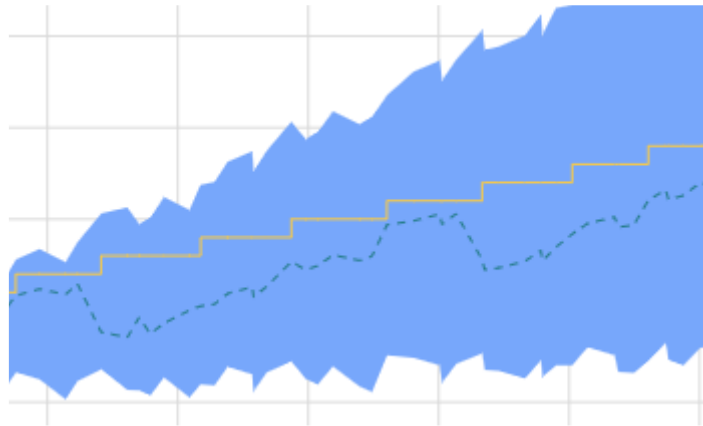
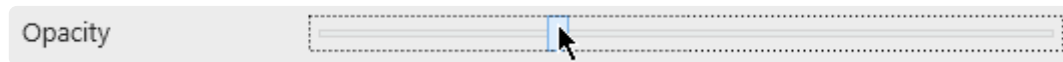


Last modified: Feb 17, 2022

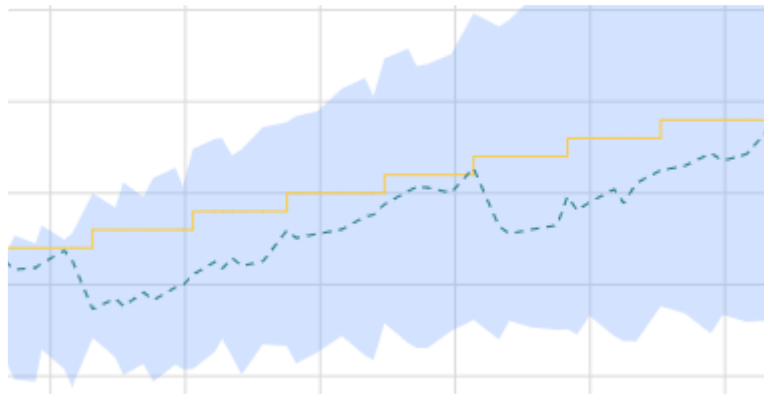
2.8.1.5.4. Style and Appearance

Opacity

Each chart series can be made semi-transparent to allow to see the other series behind it.
The *Opacity* of the Series can be configured in tab *Advanced* :



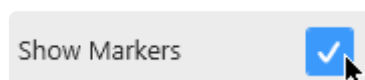
... will turn into :



Markers

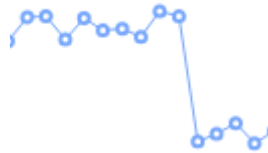
Some Chart types can display markers on the series.

Edit the Series Settings, in tab *Advanced*, check *Show Markers* :



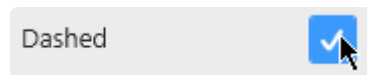


... will turn into :

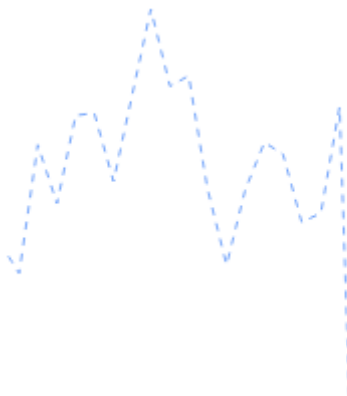


Dashed

Some Chart types can display a dashed line instead of a continuous line :



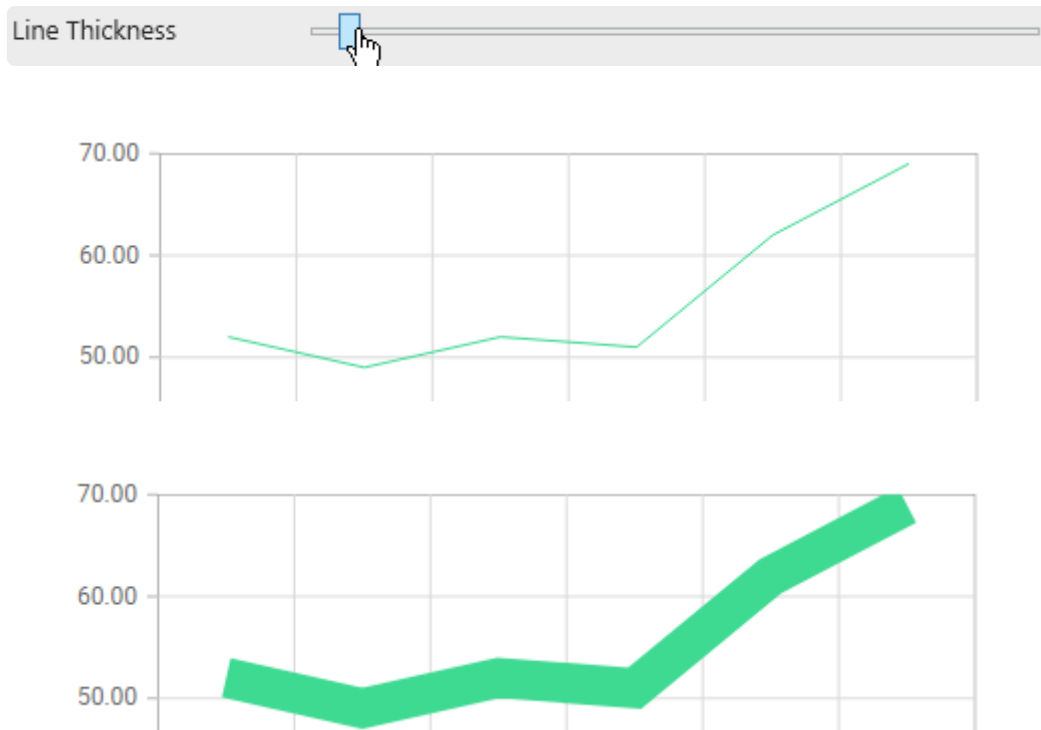
... will turn into :



Line Thickness

(new in 2020 R2)

Some Chart types draw a line. The Thickness of this line can be configured :



Border

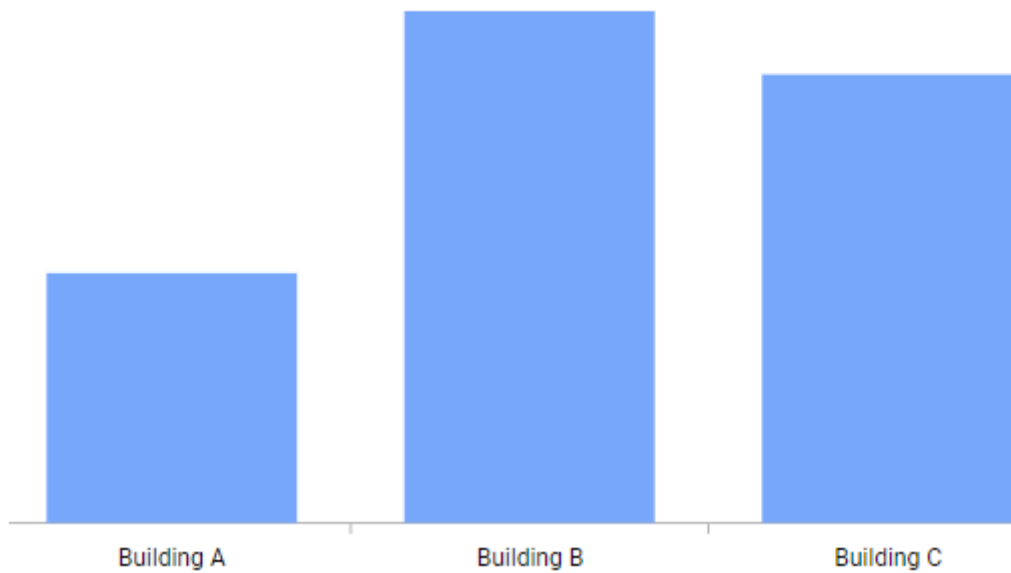
Some Chart types can have a border around the shapes :

The configuration panel for chart borders includes three options: 'Border Color' (a color picker showing black), 'Border Thickness' (a slider set to a low value), and 'Border Dashed' (a checkbox that is checked).

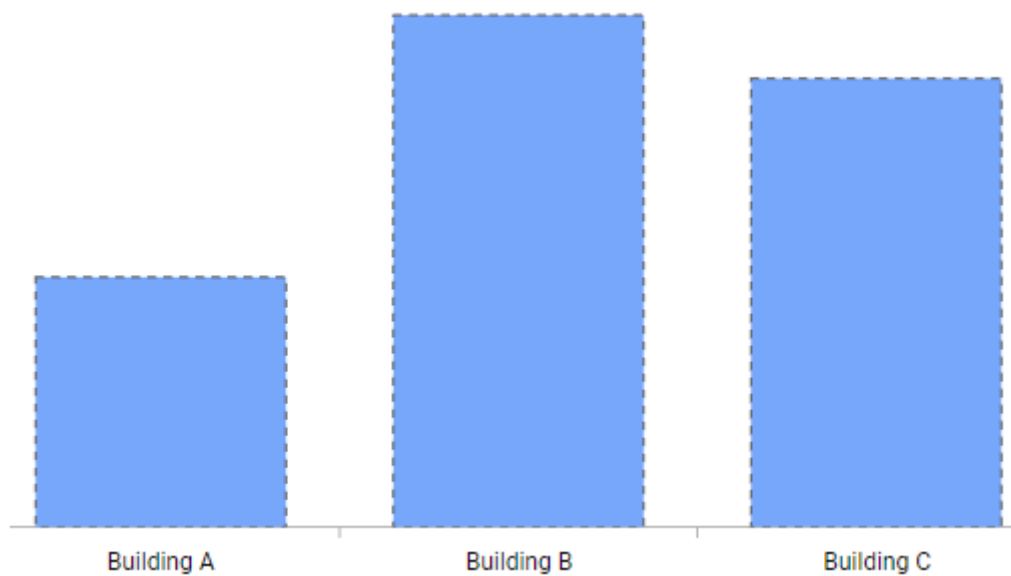
Border Color : select a color from the color picker

Border Thickness : give a value greater than zero to see the border, increase to have a thicker border

Border Dashed : if the border exists (Thickness > 0), you can display it as a dashed line instead of continuous



... will turn into :



Spline Type

Some Chart types are based on a Spline, which display an interpolated line.

The *Spline Type* controls the interpolation type depending on the calculation made :

- *Natural*
- *Monotonic* (Note : this style doesn't overshoot : it doesn't go over or under the actual values)
- *Cardinal*
- *Clamped*

Last modified: Feb 17, 2022

2.8.1.6. Axes

Since Alpana v3.0, Charts have 2 types of axes :

- one X Axis : for displaying values in the *X Axis* field. It's the grouping axis : grouping categories are displayed along this axis.
- one or more Y Axis : for displaying values in the *Y Values* Series fields. It's the value axis : aggregated values are displayed along this axis.

Each axis type has different configurations described next.

Last modified: Feb 17, 2022

2.8.1.6.1. X Axis

X Axis configuration is located in the right side in the properties, under section *X Axis* :

X Axis
—

Custom Title

☐ Date

Show Title

☒

Override Theme Color

☐

Show Grid Lines

☐

Labels Overflow

Hide

▼

Labels Rotation

0°

▼

Value Type

Date / Time

▼

Position

Bottom

▼

Field

Date

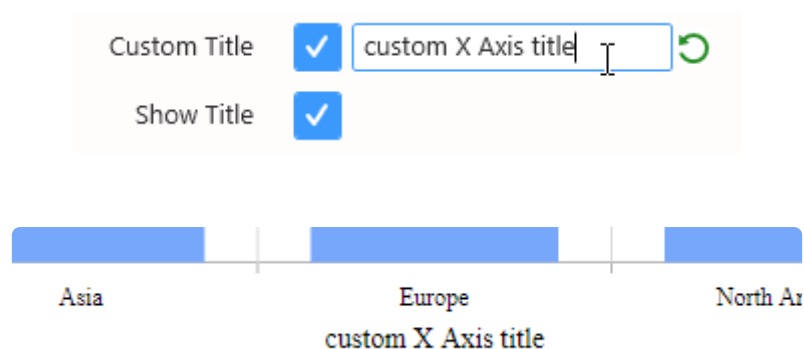
▼

Strip Line...

Title

X Axis has a default title generated from the name of the currently displayed data field.

If you wish to customize this title, check the box *Custom Title*, and write a new title :



When using Drill-down, the X Axis Title changes dynamically at each drill-down level to display the current X Axis field name.
If you set a *Custom Title*, it will be the same at all Drill-down levels.

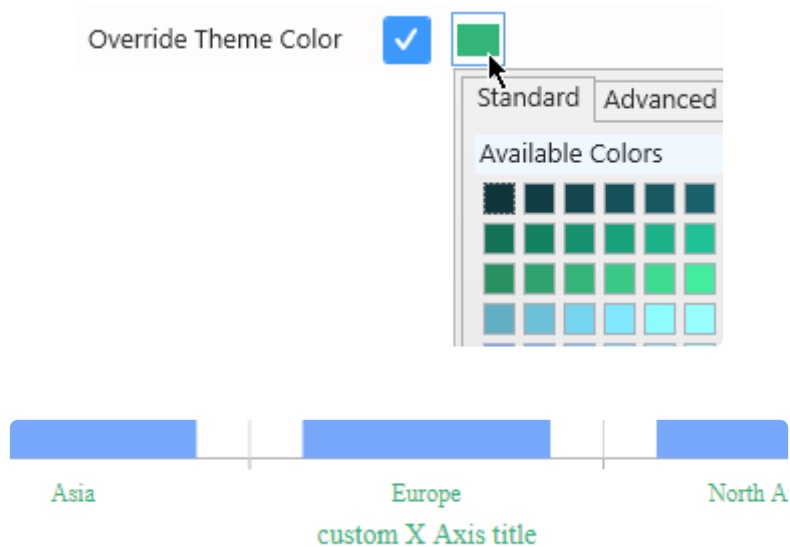
Hiding Axis Title

Use the *Show Title* check box to hide or show the title on the axis.

Color

By default, the Labels and Title colors are based on the Theme.

If you want to set a specific different color, check *Override Theme Color* and set the desired color :



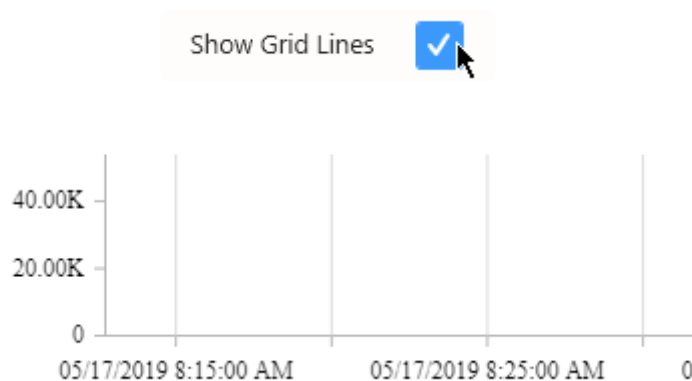
Axis Ticks and Labels

The Axis displays ticks at regular intervals with the X value of the corresponding position displayed as a text label.

Grid Lines

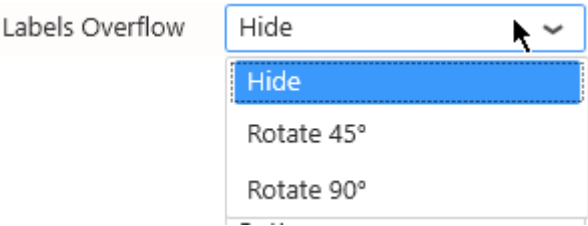
The Axis can display “Grid Lines” aligned with the Ticks, to let users have visual marks of what is the X value at this position.

Grid lines can be hidden or displayed with *Show Grid Lines* :



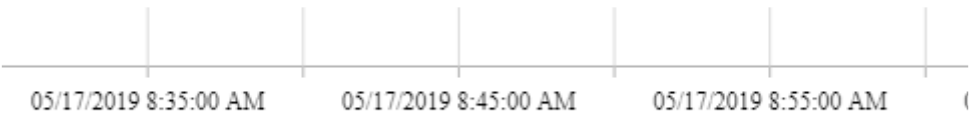
Labels Overflow

When Axis Labels are too long to be displayed, the following behaviors can be configured using *Labels Overflow* :



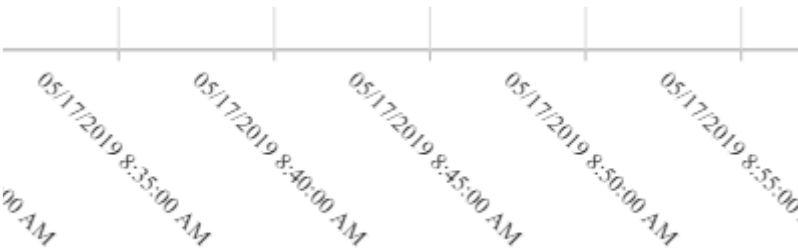
Hide

Labels are displayed entirely in their original orientation, but the labels that overlap are hidden :



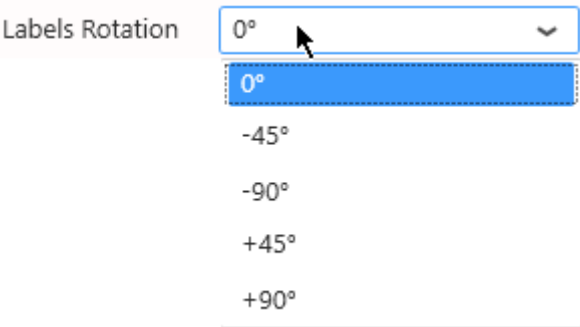
Rotate

Labels are displayed entirely, but if the labels overlap they are rotated to give more space :

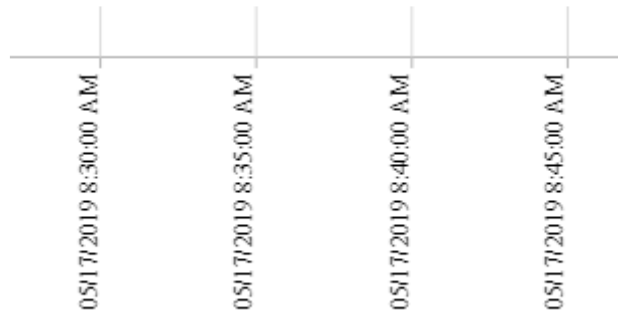


Labels Rotation

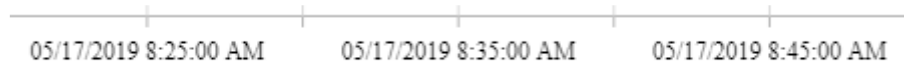
The Axis Labels orientation can also be rotated for better readability, by setting *Labels Rotation* :



It can allow for example to fit more labels when using the “Hide” Overflow Mode :



Or alternately to take less space vertically :



Ticks interval

On *Date / Time* type of Axis, by default, the interval between Ticks on the Axis is calculated automatically (depending on the widget size, value range, labels size, etc)

This allows to have a responsive behavior : the ticks will always fit nicely.

Instead of letting the interval be calculated automatically, you can input a *Custom Interval* :

Custom Interval ☒ 12

This will force the the Tick interval to the value selected.

* Note : this is only possible on a *Date / Time* type of Axis (see below)

* Note : this means of course that the interval is no longer calculated automatically.
As a consequence, on some screens the labels will overlap or otherwise be hard to read.

Value Type

Sometimes you want to compare groups of values side by side, and the distance on the X Axis doesn't matter.

Other times, the distances on the X Axis are meaningful and you want to show how close or far the points are horizontally.

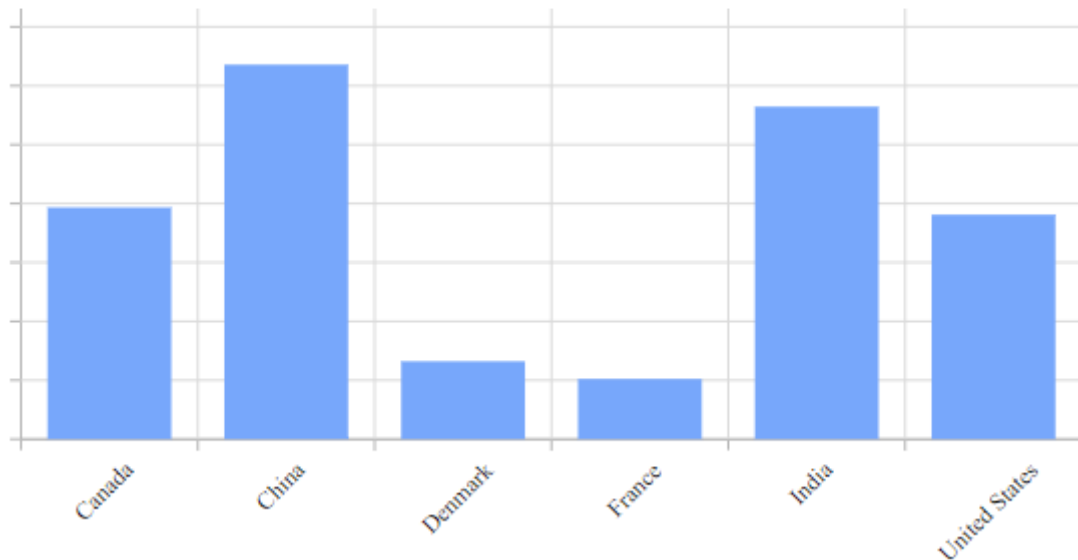
This is what the X Axis *Value Type* setting is for :

Value Type

Category

Category

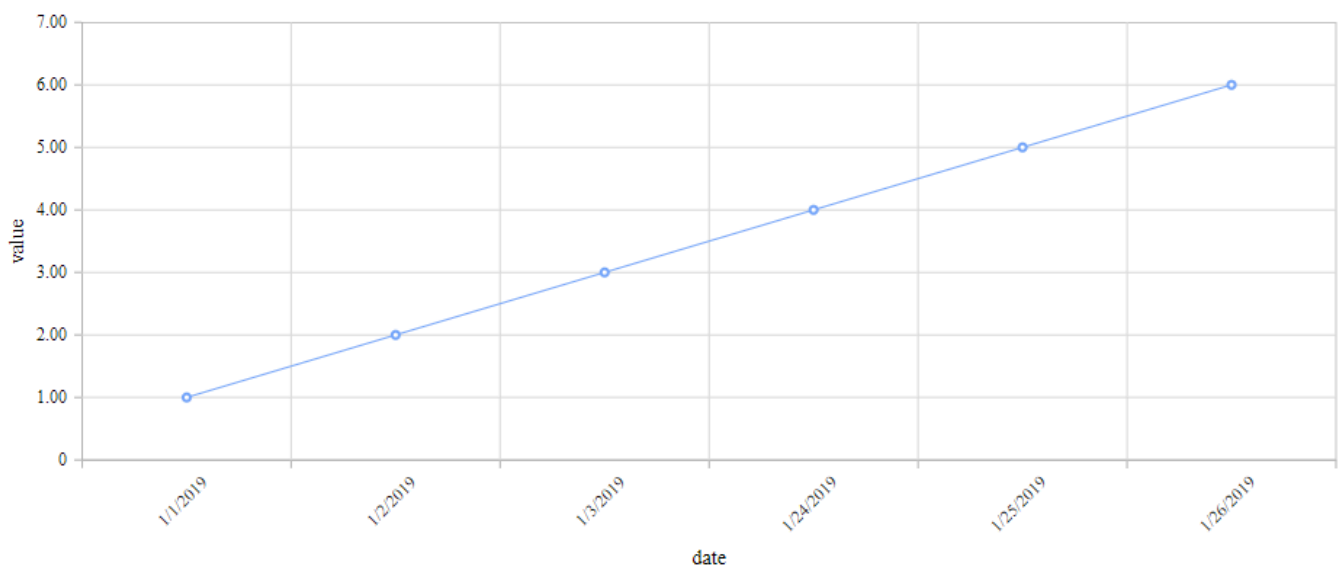
This is the default, and the only option available for text type of fields.
With *Category* X Axis type, all items on the X Axis are equally spaced.



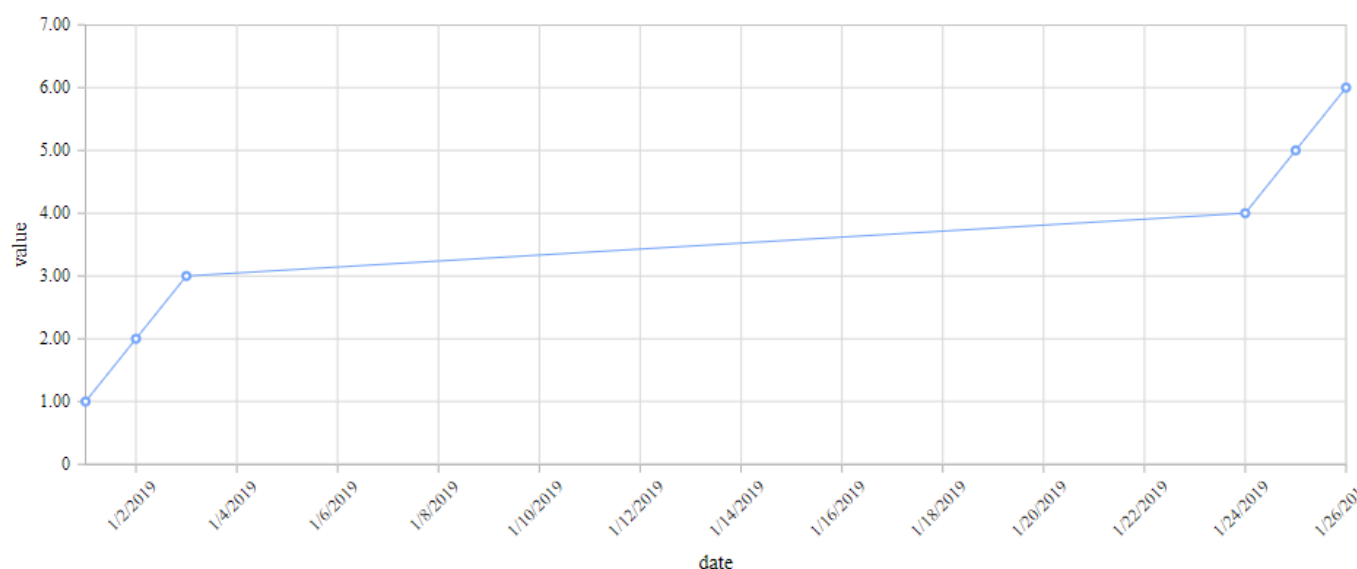
Date / Time

When the data field is of type Date, DateTime or Time, the *Date / Time* option is available.
The X position of points depends on the time difference in the data.

For example, the following data has missing points between day 3 and day 24 but this is not clearly visible and the progression looks linear :



With *Date / Time* type, the real trend is visible :

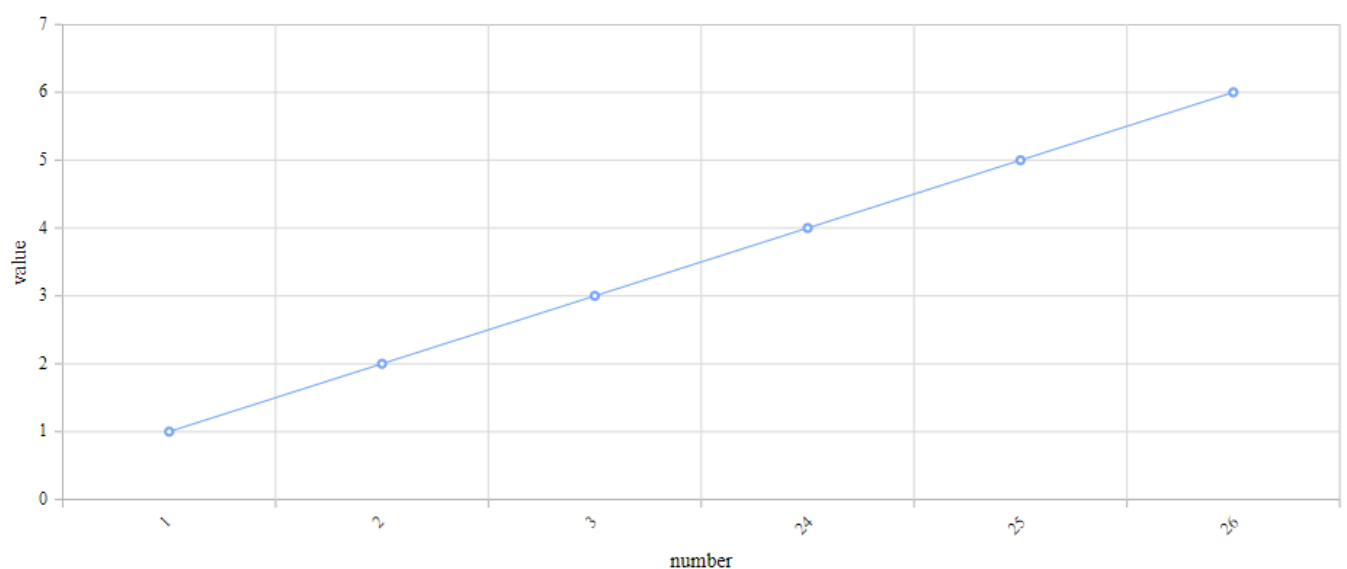


Numeric

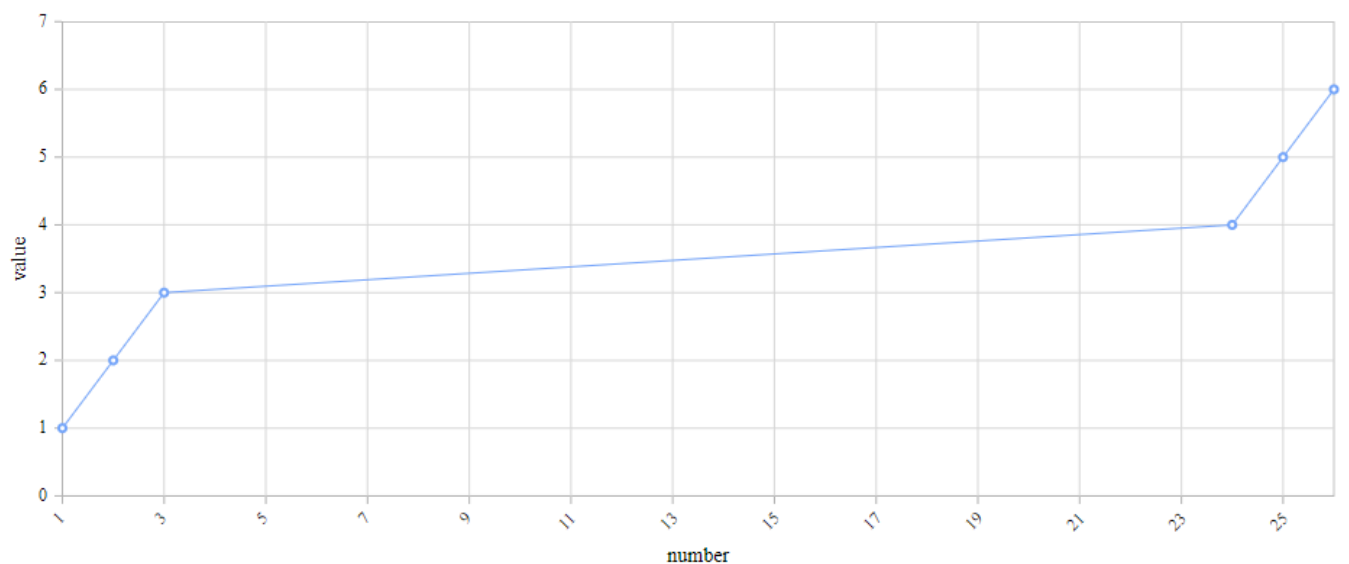
When the data field is of type Number, the *Numeric* option is available.

The X position of points depends on the number difference in the data.

For example, the following data has missing points between X value 3 and X value 24 but this is not clearly visible and the progression looks linear :



With *Numeric* type, the real trend is visible :

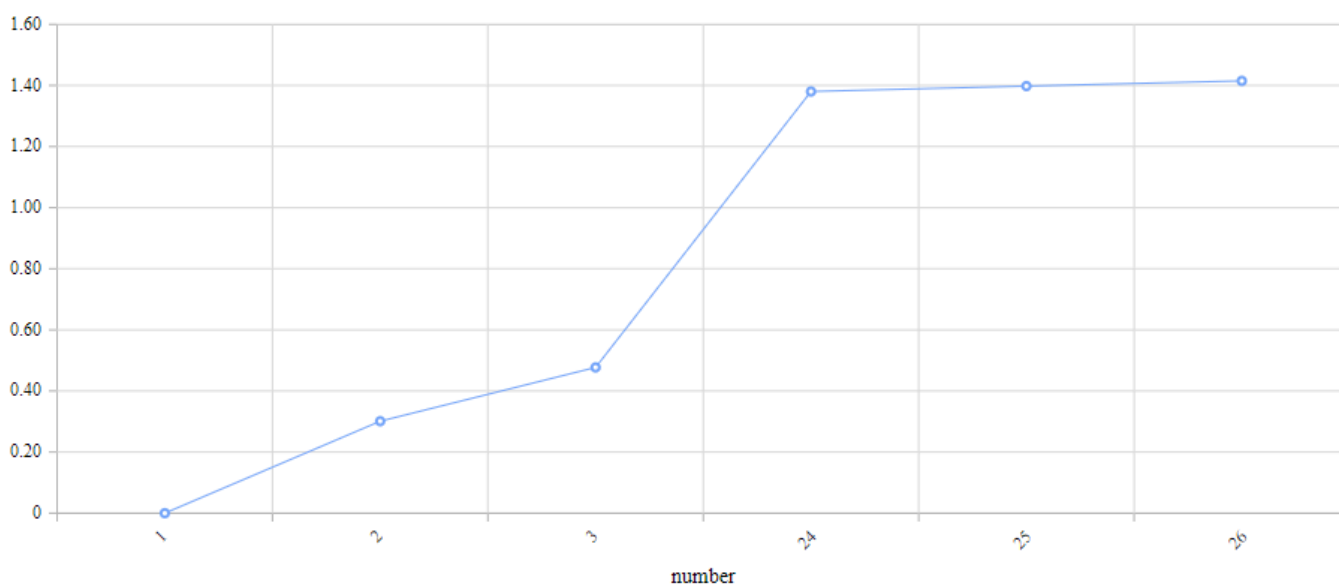


Logarithmic

When the data field is of type Number, the *Logarithmic* option is available.

The X position of points depends on the number difference in the data.

For example, the following data has missing points between X value 3 and X value 24 but this is not clearly visible and the progression looks random :



With *Logarithmic* type, the real trend is visible :



Position Top



2.8.1.6.1.1. Strip Line

Strip Lines allow to change the background color of the full chart between a minimum and maximum X value.

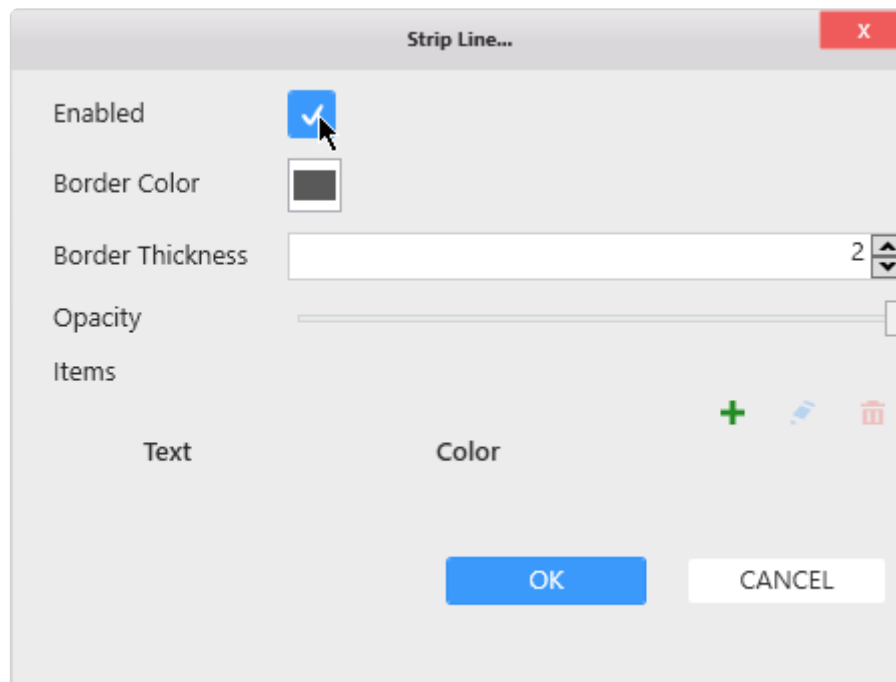
This can be useful for adding context information to a chart, for example the states of an equipment.

To open the Strip Line editor, click on *Strip Line...* :



Global Properties

In the *Strip Line...* pop up window, the top part lists some global properties of the Strip Line :



Enable

Check the *Enabled* box to enable to Strip Line and start configuring.

Border

The Strip Line can have a border to better show where it starts and ends.

Use *Border Color* to set the color.

Use *Border Thickness* to set the thickness. A thickness of 0 means no border.

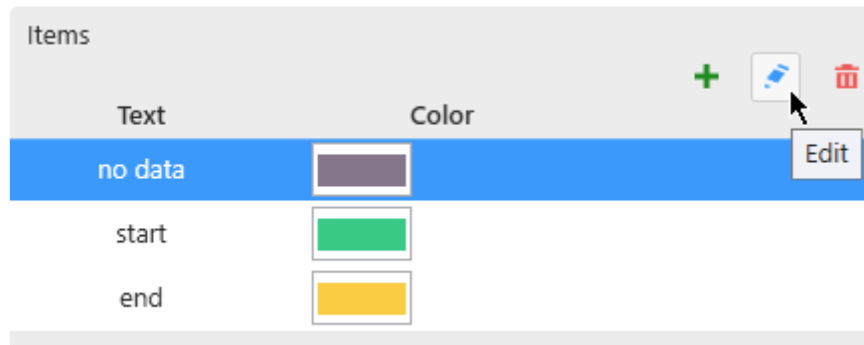
Opacity

The Strip Line can be made semi-transparent using the *Opacity* control.

This allows to integrate better with the background color of the theme and the rest of the chart.

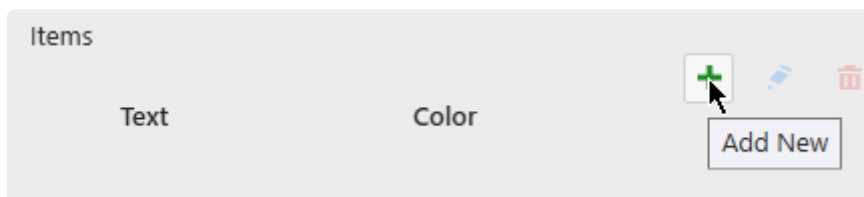
Items

There can be several X Axis Strip Lines, and they are all listed under *Items*.



Adding a Strip Line

To create a first Strip Line, click the + icon :



This opens the *Items* configuration pop-up window to let you configure this Strip Line. See below for *Configuring*.

Later, to add more, use the + button again.

Editing a Strip Line

When Strip Lines exist, you can edit one by selecting it in the list and clicking the pen icon.

This opens the *Items* configuration pop-up window to let you configure this Strip Line. See below for *Configuring*.

Removing a Strip Line

When Strip Lines exist, you can remove one by selecting it in the list and clicking the trash icon.

Configuring

Style and Appearance

The Style following options are available for each Strip Line :

Color	<input type="color" value="#4b4b8b"/>
Text	<input type="text" value="no data"/>
Foreground	<input type="color" value="white"/>
Text Alignment	<input type="text" value="Middle"/>

Color : Fill color of the Strip Line.

Text : Text label displayed on the Strip Line. Leave empty to hide text.

Foreground : Text color

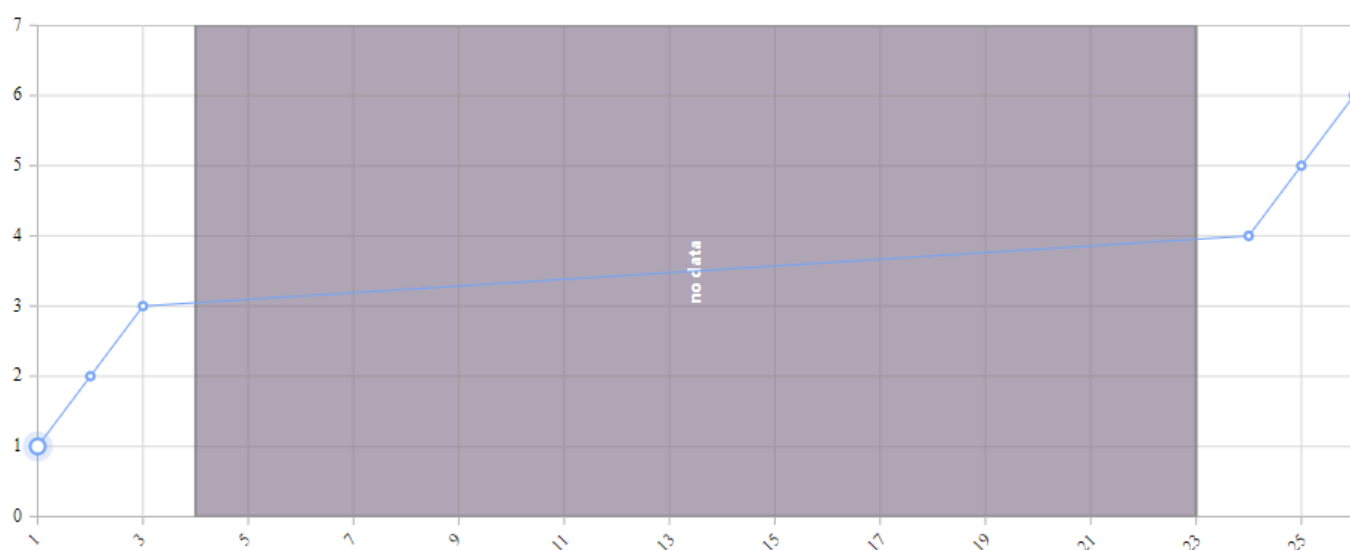
Text Alignment : Text position : at the start, end or middle of the Strip Line.

Manual mode

The Start and End value can be configured statically by using “Manual” Mode :

Mode	<input type="text" value="Manual"/>
Start	<input type="text" value="4"/>
End	<input type="text" value="23"/>

In this example, it means the Strip Line will start on X Value = 4 and end on X Value = 23 :



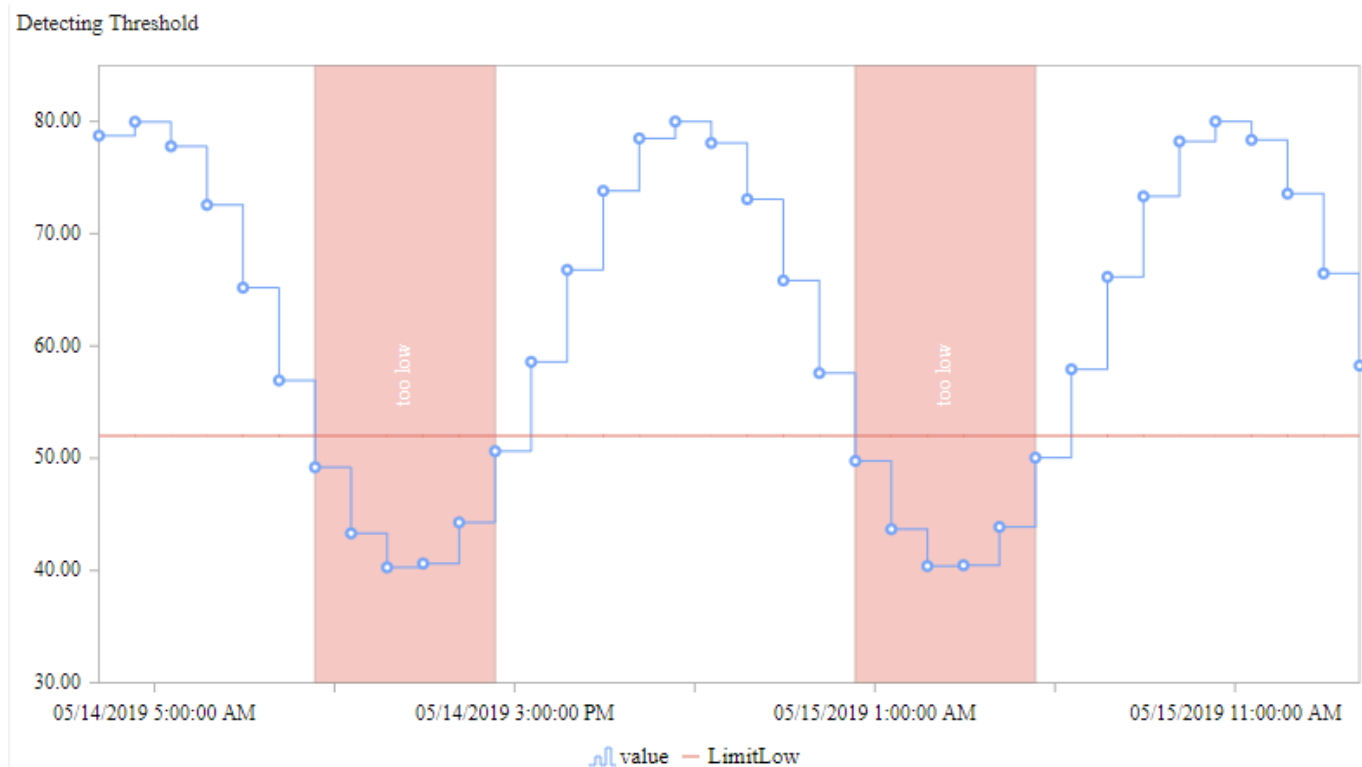
- ✿ If the X Axis Value Type is “Category”, then the Strip Line *Start* and *End* values are the indexes of the points on the X Axis. The indexes start at 0.
 Example : You have 6 X values : A, B, C, D, E, F in order
 A Manual Strip Line starting at 1 and ending at 4 means that the first X value to start the Strip Line is B (zero-based index) and the End is at E.

Field Value Mode

! The *Field Value Mode* is only valid if the X Axis Value Type is not “Category”.

Instead of static values, the Strip Line can be displayed depending on a condition based on the data. With *Field Value Mode*, you configure a condition, so that when `Field = Value` then the strip line is displayed.

Mode	Field Value	
Field	isDanger	+ -
Value	1	



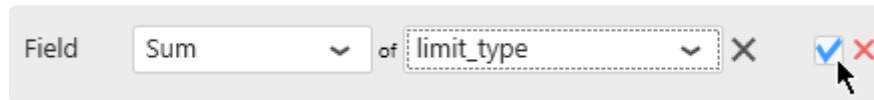
Field

A list of fields is available to select from.

If your field is not available, click the + icon on the right to add a new field to the widget query :



Select the desired aggregation and field, and **click the check icon to validate** :



Value

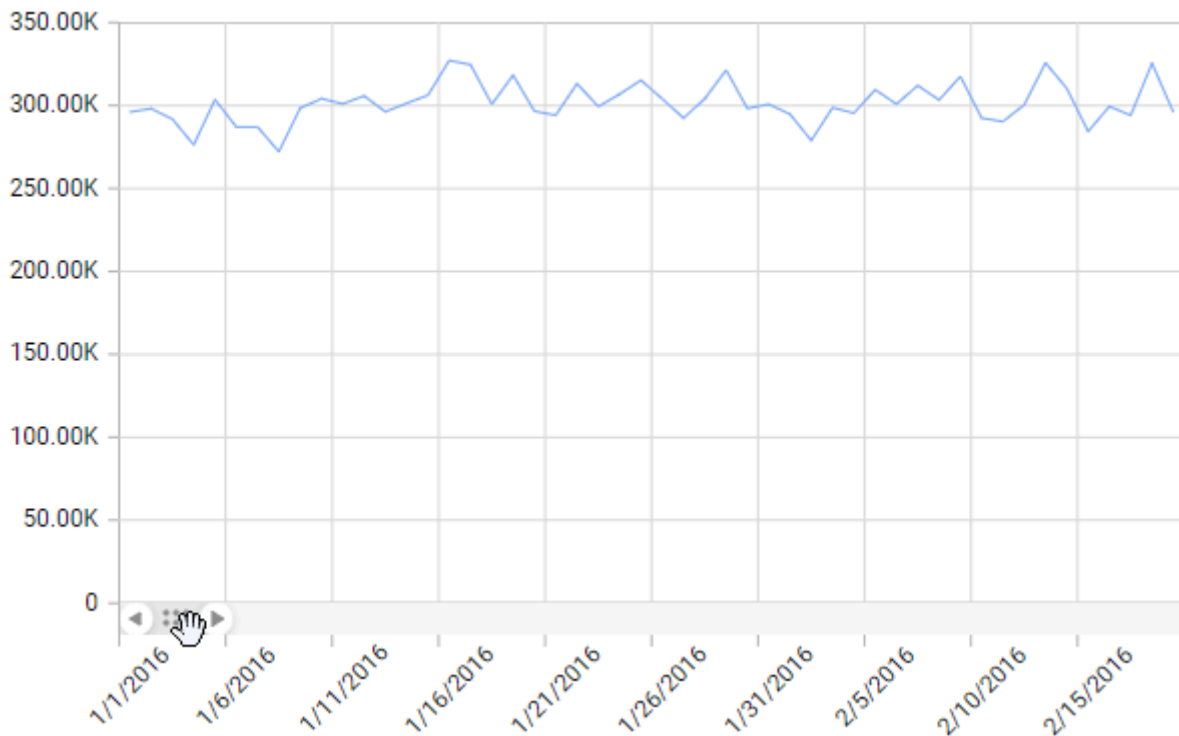
As a Value you can enter any number.

Last modified: Feb 17, 2022

2.8.1.6.1.2. Paging / Scrolling

When too many data points are displayed in a chart, performance may be affected.

That's why a paging mechanism has been set up to limit how many data points are loaded at a time. When this is active, a horizontal scrollbar is displayed on the X Axis to let you scroll to the rest of the data :



This default behavior can be configured under *Basic Settings* :

Enable Scrolling ☒

Page Size

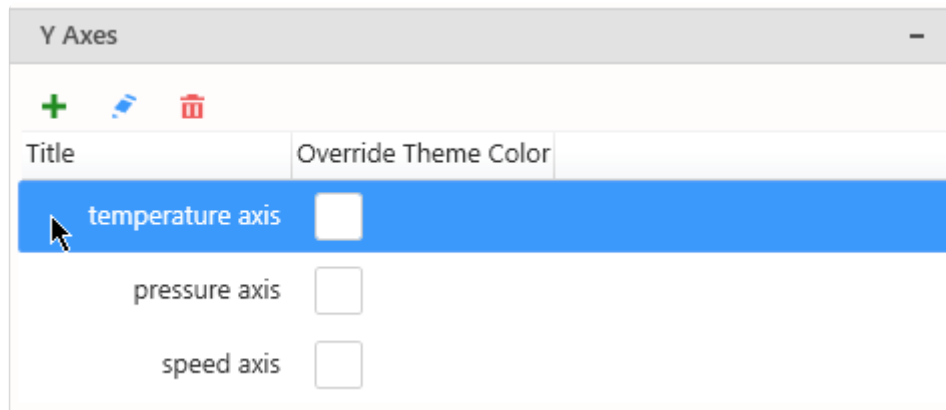
Enable Scrolling : enable / disable this behaviour. When disabled, all the data points are always loaded.

Page Size : the maximum number data points displayed per page

Last modified: Feb 17, 2022

2.8.1.6.2. Y Axes

All Y Axes are listed in the right side in the properties, under section *Y Axes* :



Managing the list of Axes

Adding

By default, only one Y Axis exists, named after the first *Y Value Series* field.

Click the + icon to add a new Y Axis.

This opens the *Edit Axis* configuration pop-up window to let you configure this new Y Axis. See below for *Configuring*.

Editing

Click the pen icon to edit the currently selected Y Axis.

This opens the *Edit Axis* configuration pop-up window to let you configure this Y Axis. See below for *Configuring*.

Removing

Click the trash icon to remove the currently selected Y Axis.

Binding a Series to a Y Axis

When a new Y Axis is created, no Series are bound to it.

To bind a *Y Value Series* to a specific Y Axis, see [Series Settings](#).

Y Axes Properties

Title

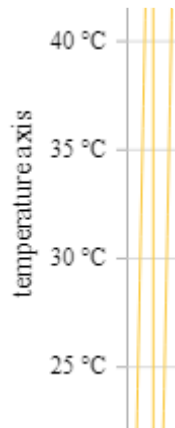
The Y Axis Title can be customized or hidden :

Custom Title

☒

Show Title

☒

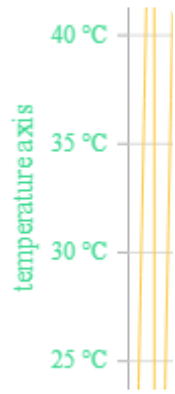


Color

By default, the Labels and Title colors are based on the Theme.
If you want to set a specific different color, check *Override Theme Color* and set the desired color :

Override Theme Color

☒



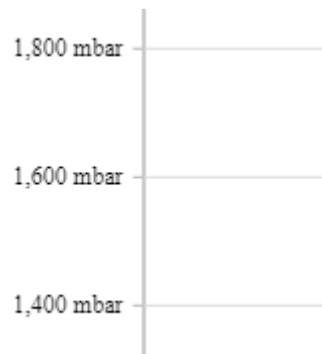
There is also a shortcut in the list of Y Axes :

Title	Override Theme Color
temperature axis	<input checked="" type="checkbox"/>

Grid Lines

Grid lines can be hidden or displayed with *Show Grid Lines* :

Show Grid Lines

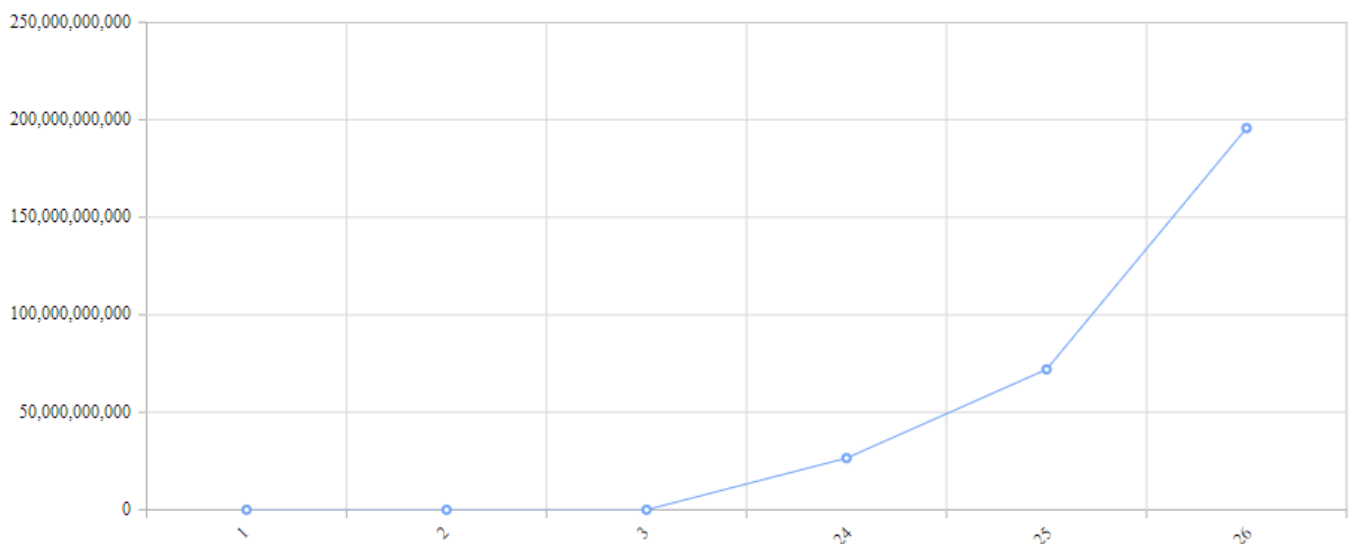


Value Type

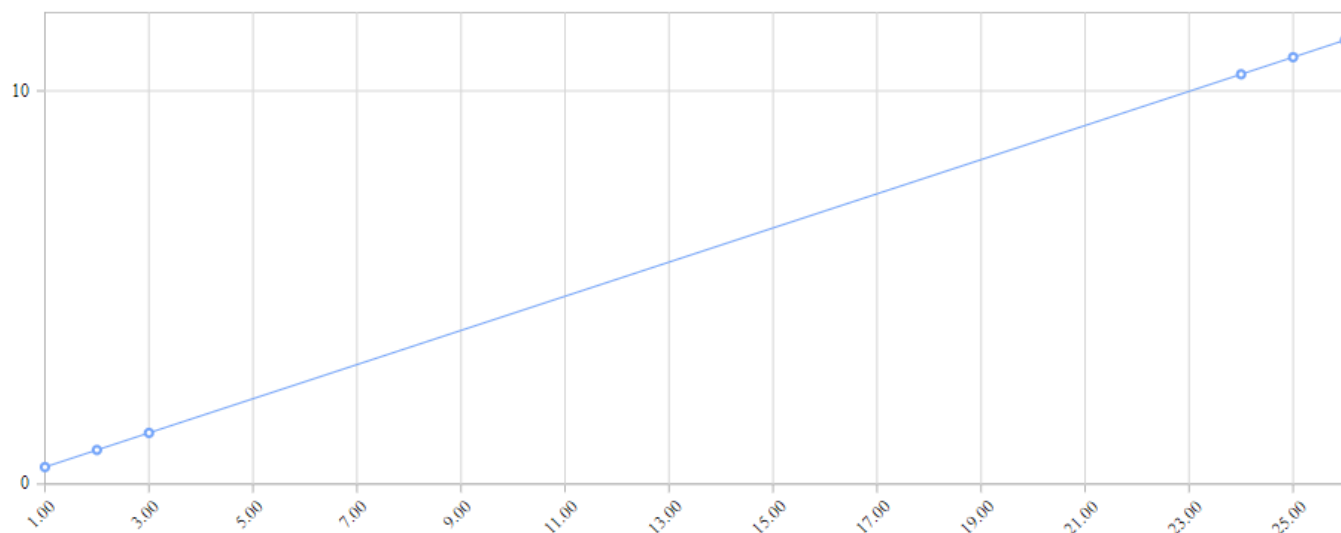
By default, the Y Axis *Type* is “Numeric” : this means that the Y position of points directly maps to the numeric value of the *Y Value Series* data field.

The *Type* “Logarithmic” can also be selected : this means that the Y position maps to the logarithm of the *Y Value Series* data field.

For example, here is a simple chart with Y Axis as “Numeric” (default) and X Axis as “Category” (default) :



The variations happen on many orders of magnitude, and it’s difficult to track what is the real trend. With a “Logarithmic” *Value Type* of the Y Axis, and Numeric for the X Axis, we see that the trend is exactly exponential :



Force Axis To Start at 0

By default, the minimum and maximum value of the Y Axis is automatically calculated to scale to the data displayed.

Instead, you can force the zero to always be included on the Y Axis.

This is useful for example if you want to display absolute variations compared to the total value.

To enable this behavior, check *Force Axis To Start at 0* :

Force Axis To Start at 0



Custom Range

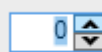
By default, the minimum and maximum value of the Y Axis is automatically calculated to scale to the data displayed.

Instead, you can force a *Custom Range* :

Custom Range



Min



Max



Position

Each Y Axis can be positionned to the *Left* or *Right* :

Position

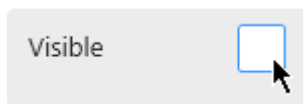
Left





Hiding the Axis

All the Y Axes can be hidden by un-checking the *Visible* box.



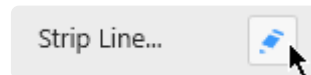
Last modified: Feb 17, 2022

2.8.1.6.2.1. Strip Line

Strip Lines allow to change the background color of the full chart between a minimum and maximum Y value.

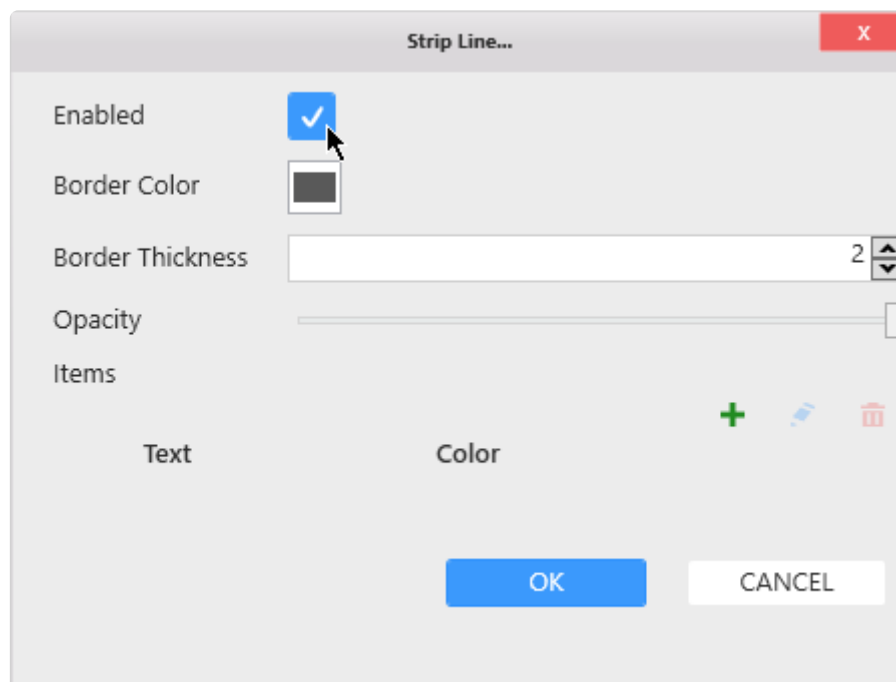
This can be useful for adding context information to a chart, for example the limit values of a measurement.

To open the Strip Line editor, click on *Strip Line...* :



Global Properties

In the *Strip Line...* pop up window, the top part lists some global properties of the Strip Line :



Enable

Check the *Enabled* box to enable to Strip Line and start configuring.

Border

The Strip Line can have a border to better show where it starts and ends.

Use *Border Color* to set the color.

Use *Border Thickness* to set the thickness. A thickness of 0 means no border.

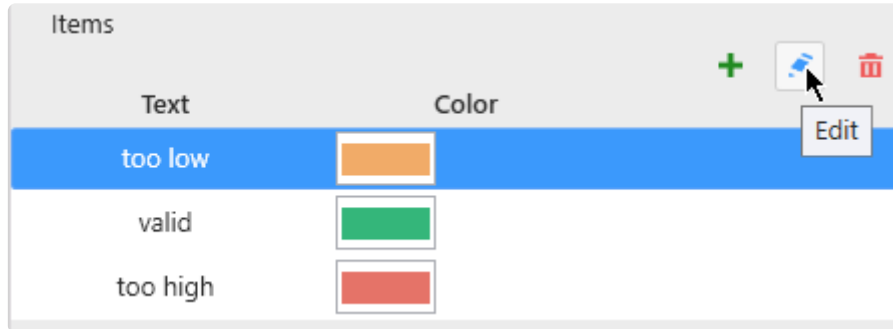
Opacity

The Strip Line can be made semi-transparent using the *Opacity* control.

This allows to integrate better with the background color of the theme and the rest of the chart.

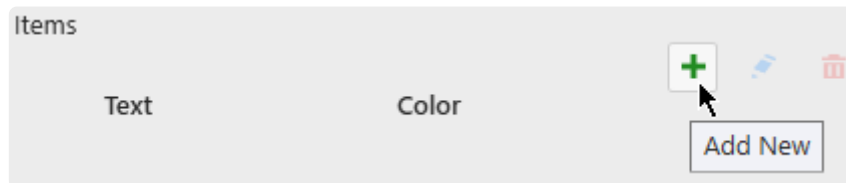
Items

There can be several Y Axis Strip Lines, and they are all listed under *Items*.



Adding a Strip Line

To create a first Strip Line, click the + icon :



This opens the *Items* configuration pop-up window to let you configure this Strip Line.
See below for *Configuring*.

Later, to add more, use the + button again.

Editing a Strip Line

When Strip Lines exist, you can edit one by selecting it in the list and clicking the pen icon.

This opens the *Items* configuration pop-up window to let you configure this Strip Line.
See below for *Configuring*.

Removing a Strip Line

When Strip Lines exist, you can remove one by selecting it in the list and clicking the trash icon.

Configuring

Style and Appearance

The Style following options are available for each Strip Line :

Color	<input type="color" value="#FFA500"/>
Text	<input type="text" value="too low"/>
Foreground	<input type="color" value="white"/>
Text Alignment	<input type="text" value="Middle"/> ▼

Color : Fill color of the Strip Line.

Text : Text label displayed on the Strip Line. Leave empty to hide text.

Foreground : Text color

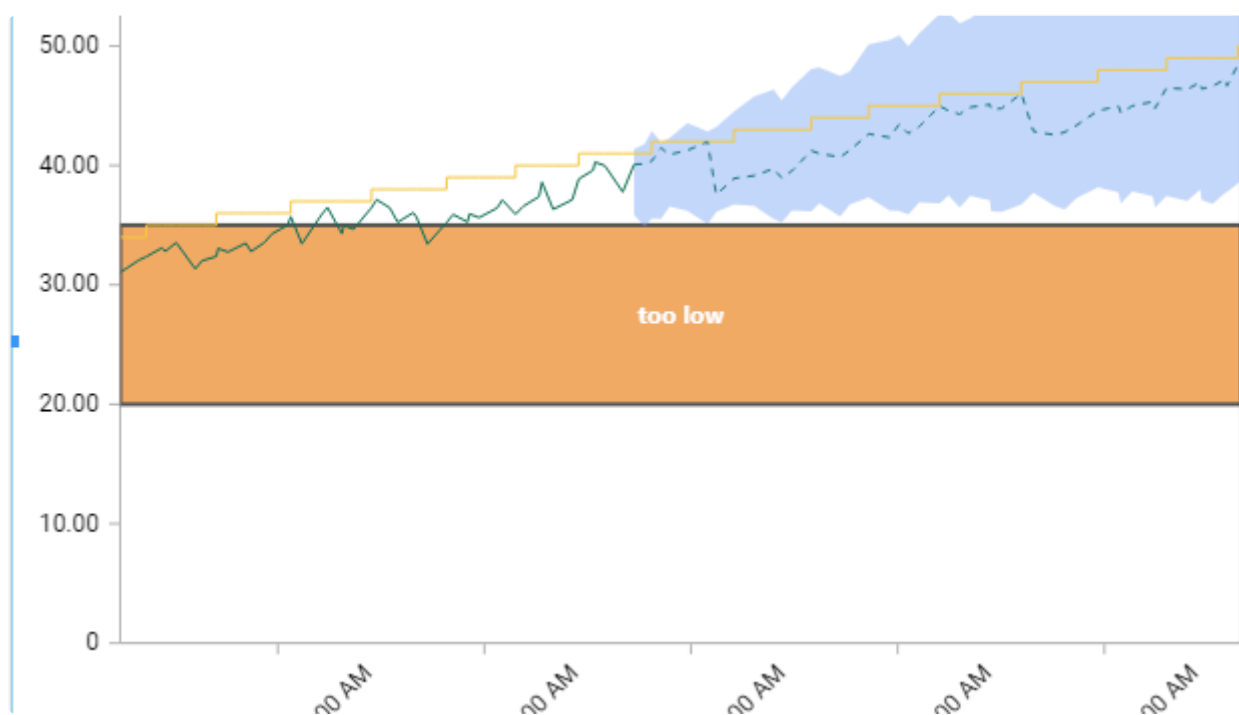
Text Alignment : Text position : at the start, end or middle of the Strip Line.

Start / End

The *Start* and *End* value can be configured statically :

Start	<input type="text" value="20"/>
End	<input type="text" value="35"/>

In this example, it means the Strip Line will start on Y Value = 20 and end on Y Value = 35 :



2.8.1.7. Legend

Series Legend

The Legend shows the meaning of each series :

 predicted range — value  set_point — predicted_value

Hide/Show Legend

The chart Legend can be hidden or displayed using *Show Legend* under *Basic Settings* :

Show Legend ☒ Bottom

Legend position

The chart Legend can be positioned on any side of the widget :

Show Legend ☒ Bottom

Bottom
Top
Left
Right

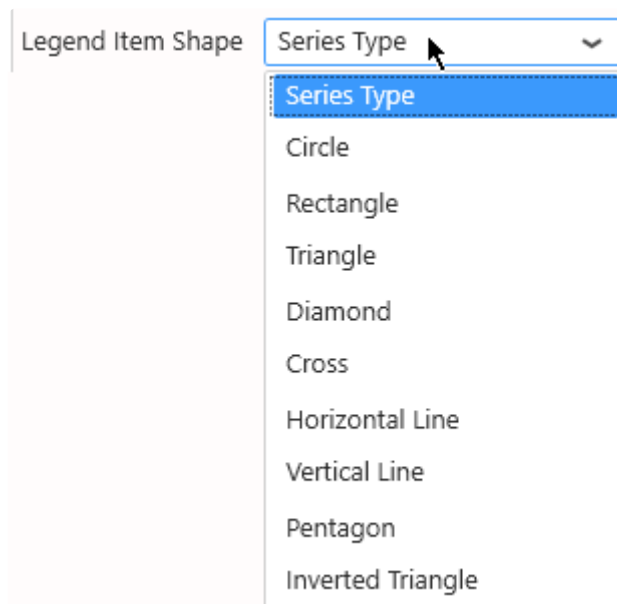
Top

Custom Legend Item shape

For each item in the Legend, its name and icon is displayed, with the Series color displayed on the icon. By default, the icon shape depends on each Series' Chart type.

You can select a different shape that will apply to all Series in the Chart.

Select the desired shape from the *Legend Item Shape* list :

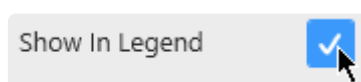


* Note : *Series Type* means that the shape will depend on each Serie's Chart type (this is the default).
This is convenient for a Combo chart where you can combine different chart types.

Hide items from the Legend

Any series can be hidden from the Legend.

Edit the Series Settings, in tab *Advanced*, un-check *Show In Legend* :



Customize Legend

Legend items are automatically generated from the field names and values, but you can customize how they are generated under *Group Settings* :

Group Settings

Split into many charts

Title Format {{:Row}}

Split into the same chart

Title Format {{:Value}} {{{:Row}}}

With *Split into the same chart*, you can use the placeholder `{{:Row}}` to be replaced by the field value :

Title Format

total {{:Value}} of country {{:Row}}



total Production of country Canada
 total Production of country China
 total Production of country India
 total Production of country United States



The {{:Value}} placeholder gets replaced by the [Series Title](#).

Customize Titles of contained charts

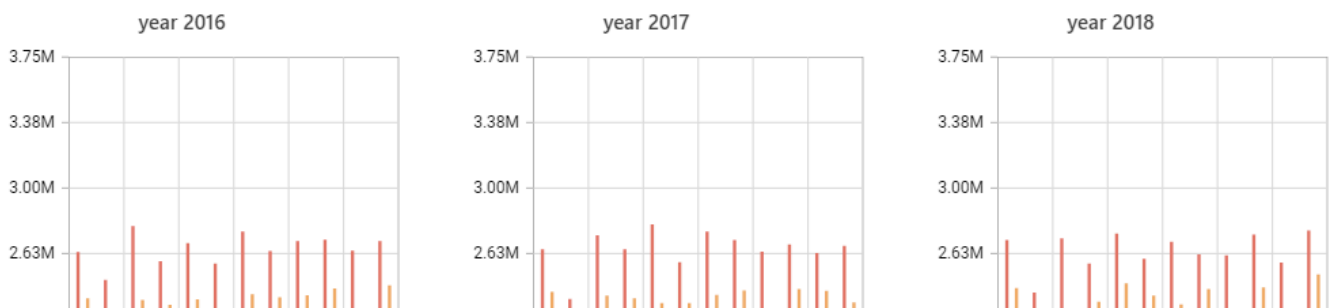
Group Settings also allows to configure the series titles when the Chart has a field bound to *Split into many charts*.

Depending on your data configuration, not all configurations may be available because they wouldn't have meaning.

With *Split into many charts*, you can use the placeholder {{:Row}} to be replaced by the field value :

Title Format

year {{:Row}}



Last modified: Feb 17, 2022

2.8.1.8. Managing Series Color

Indexed Colors

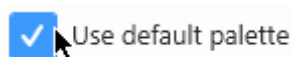
By default, Series are assigned a color based on their index in the ordered list in which they appear (usually alphabetical order).

Item1 is assigned Color1, Item2 is assigned Color2, etc...


The palette has 15 colors. When there are more series items than 15, the colors assigned loop back to Color 1.

Default Palette (default)

To enable the Default Palette (it is enabled by default), check *Use Default Palette* under *Series Palette* :



The list of colors in the default palette is below :

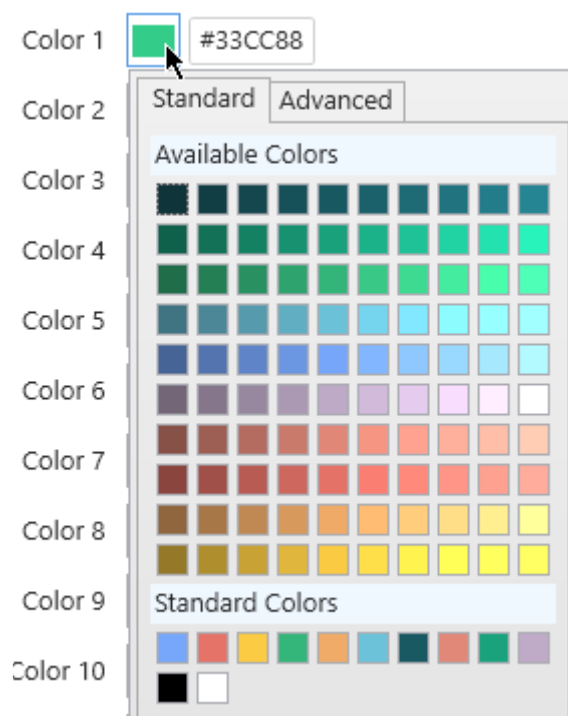
Color 1		#77A7FB
Color 2		#E57368
Color 3		#FBCB43
Color 4		#34B67A
Color 5		#F1AB68
Color 6		#6CC2D9
Color 7		#195962
Color 8		#E18878
Color 9		#1AA27D
Color 10		#BFAAC7
Color 11		#89695E
Color 12		#A5C77F
Color 13		#F48FB1
Color 14		#90CAF9
Color 15		#CC4452

Custom Palette

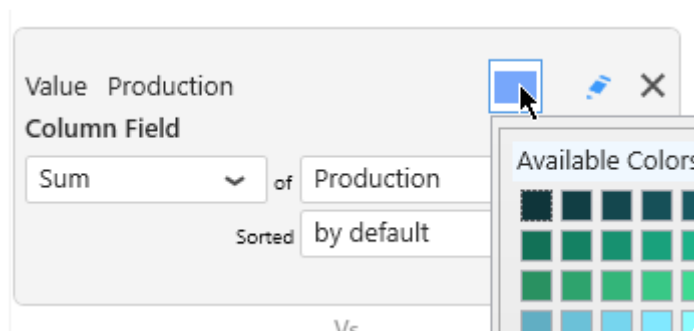
To start customizing the Default Palette, un-check *Use Default Palette* under *Series Palette*. Then you can customize colors either by entering their hexadecimal code (#RRGGBB) :



... or by clicking the color and using the graphical color picker :



When there is no data field bound to *Split into same chart*, there is also a shortcut to each serie's color next to the series settings :



✿ If *Use Default Palette* is checked, then this setting is disabled.

Value-based Colors

What are Value-based colors ?

But what if your series changes over time ?

For example, when binding a field as *Split into the same chart*, the items are generated dynamically from values in that field. Their index cannot be known in advance.

When items are renamed, added, or deleted from the data, the index of existing items will change, and their color will change !

This could happen simply during filtering at runtime for example.

Instead of index-based, you may then choose **Value-based** colors : the same value in the Series field will always have the same color in the Chart.

For this, simply check *Use value-based colors* under *Series Palette* :



Customizing Value-based colors

Value-based colors are defined **at the Data Source level**.

This is in order to allow re-use of the colors everywhere the same data is used.

To configure value-based colors, see the corresponding chapter [Value-based Settings](#), under [Transforming Data](#).

Last modified: Feb 17, 2022

2.8.1.8.1. Chart value color binding

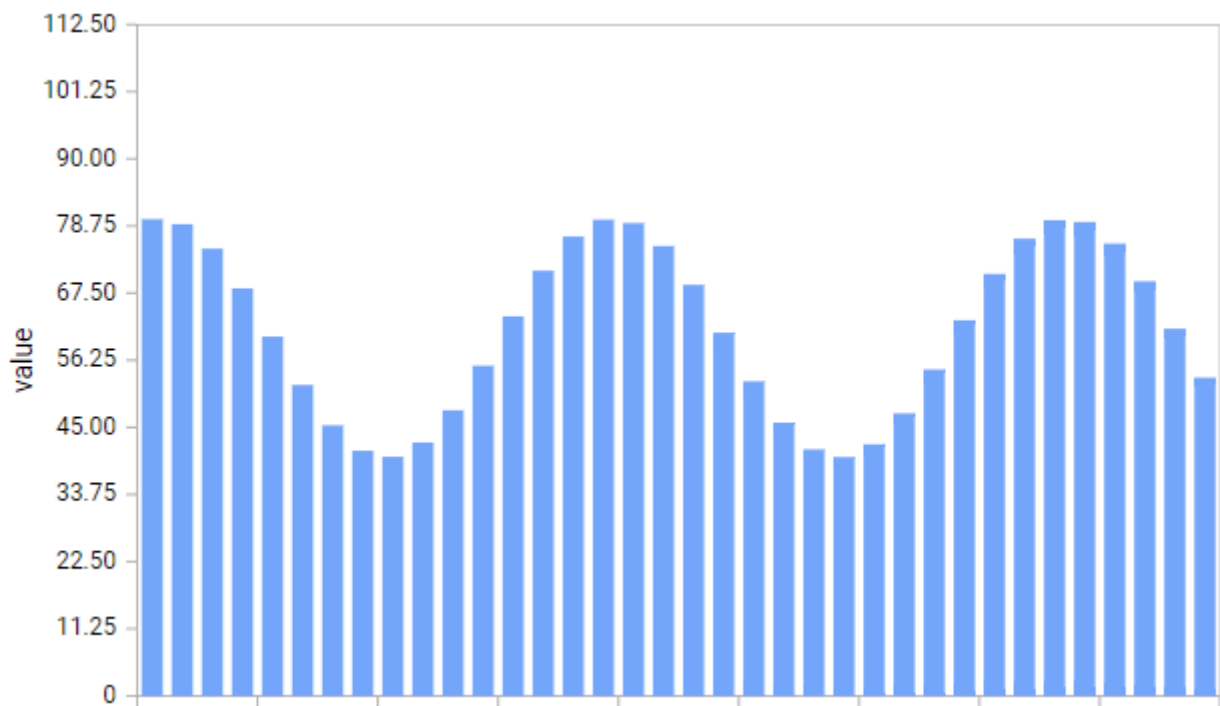
What is Color Binding

Instead of static colors, a series color can be calculated using a condition based on the data.

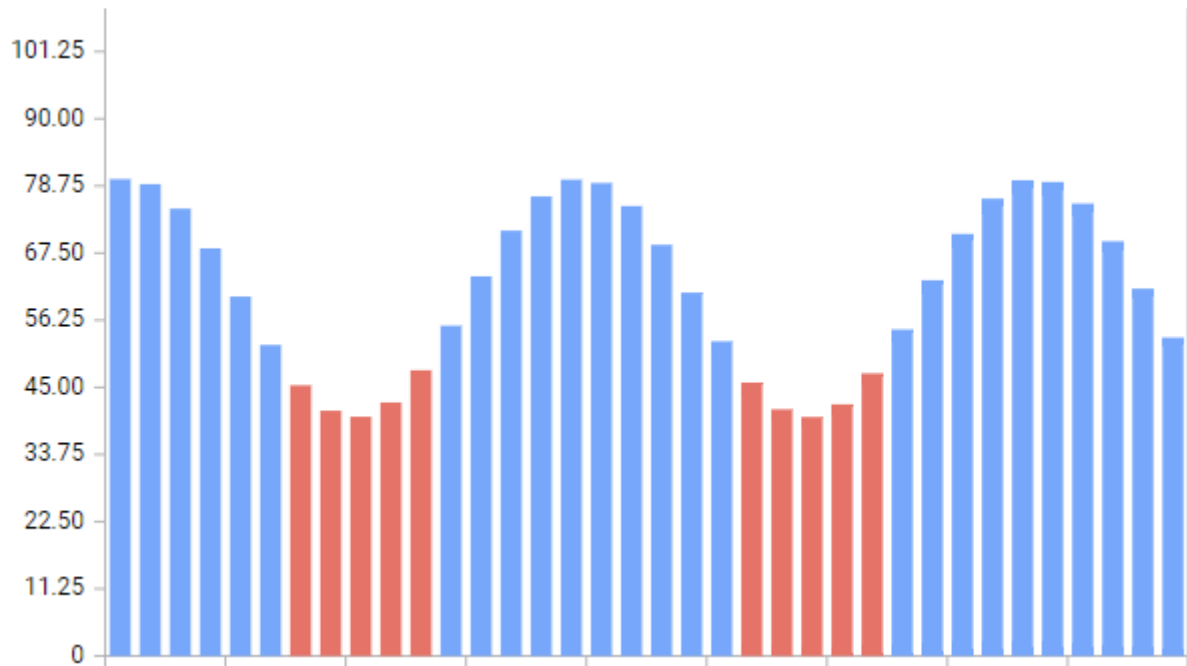
With *Color Bindings*, you configure a condition, so that when `Field = Value` then the color is applied.

Example

On a Column Chart with a blue series :



... you want the color to become red in some conditions :



Enabling Color Binding

Edit the Series Settings, in tab *Advanced*, check *Color Bindings* to enable the feature :

Colors Bindings ☒

Color Field value + -

+ 🗑️

Data Value Target Color

Selecting a field

Select a *Color Field* from the existing fields in the chart query, or click the + icon to add a new aggregated field to the query :

Color Field value + -

Select the desired aggregation and field, and **click the check icon to validate** :

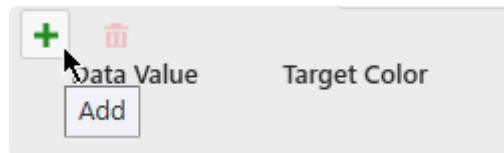
Color Field Sum or limit_type ✓ ✗

Managing conditions

Based on the selected field, several conditions can be configured : `Field = Value1`, `Field = Value 2`, ...

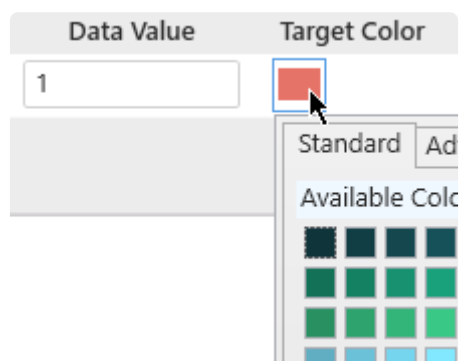
Adding a condition

Click the **+** icon on top of the list to add a condition :



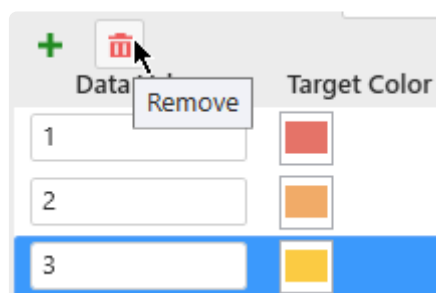
Configuring a condition

Configure a *Data Value* and a *Target Color* so that when `Field = DataValue`, then the color of the series turns into *Target Color* :



Removing a condition

If you wish to remove a condition from the list, select it by clicking it, then remove it using the trash icon :



Supported Chart Types

Some Chart Types like *Line* only show this value color when [Show Marker](#) is configured.

The following chart types don't support value color binding :

- Spline
- Step Line
- Area, Stacked Area, 100% Stacked Area
- Spline Area
- Step Area
- Bubble
- Scatter
- Range Area
- Hi Lo
- Hi Lo Open Close
- Candle
- Waterfall

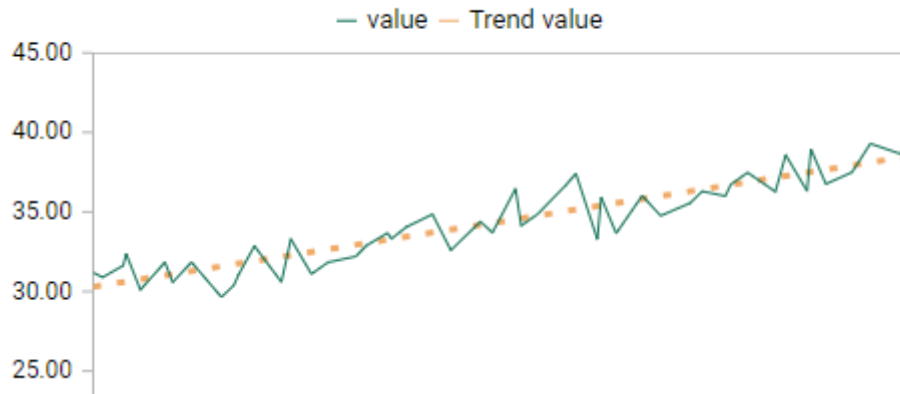
Last modified: Feb 17, 2022

2.8.1.9. Trend Lines

Introduction

In addition to displaying the data itself, each series can be configured to display a *Trend Line*. This can be useful for displaying a linear regression or an average on the data points.

Example



Enabling the Trend Line

To enable a Trend Line on a series, go to the Series Settings, in tab *Advanced*, check *Trend Line* :

Trend Line	<input checked="" type="checkbox"/>
Legend Text	<input type="text" value="Trend value"/>
Line Type	<input type="text" value="Linear"/>
Line Color	<input type="color" value="#FFA500"/>
Line Style	<input type="text" value="Dashed"/>

Configuring the Trend Line

Legend Text : label of the Trend Line withing the [Legend](#)

Line Type : type of regression used to match the data values

Line Color : the Trend Line can have a different color from the series color

Line Style : the Trend Line can be displayed as a continuous line or as a variety of dashed lines

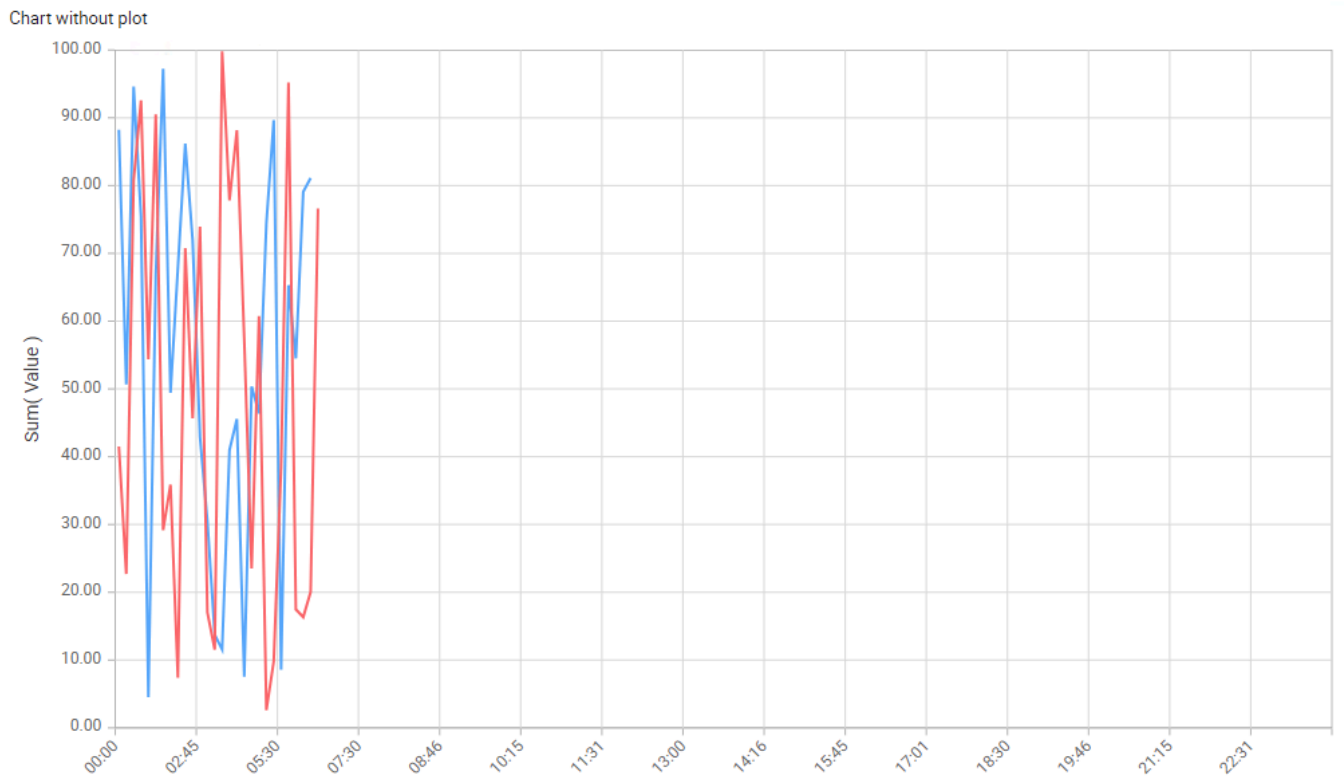
Last modified: Feb 17, 2022

2.8.1.10. Plot null values

Using time series with multiple lines could cause trouble in the display if the datasource handle too much null values for specific time.

line plot missing

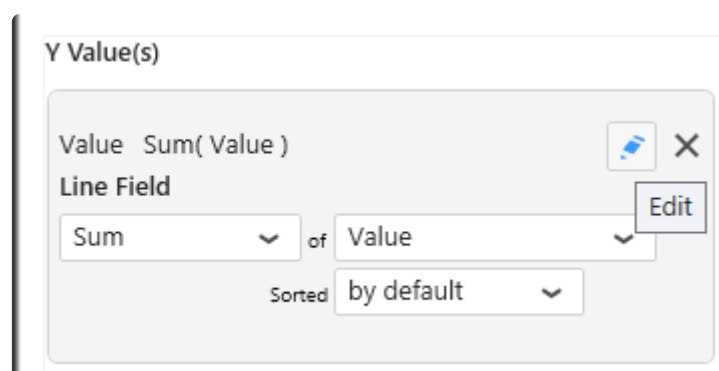
If the chart doesn't displays all values as bellow :



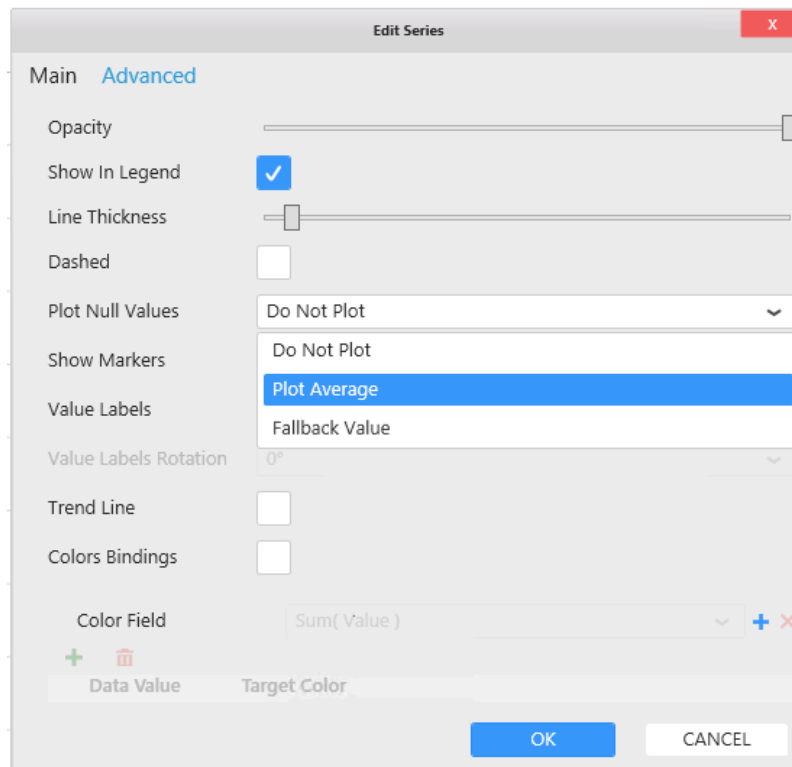
If the chart doesn't display properly when *null* value occurs, the *plot null values* feature will solve the problem

Configuring the plot null values

Select the chart widget and edit the series property :



Go in the advanced tab and change the Plot null value option.



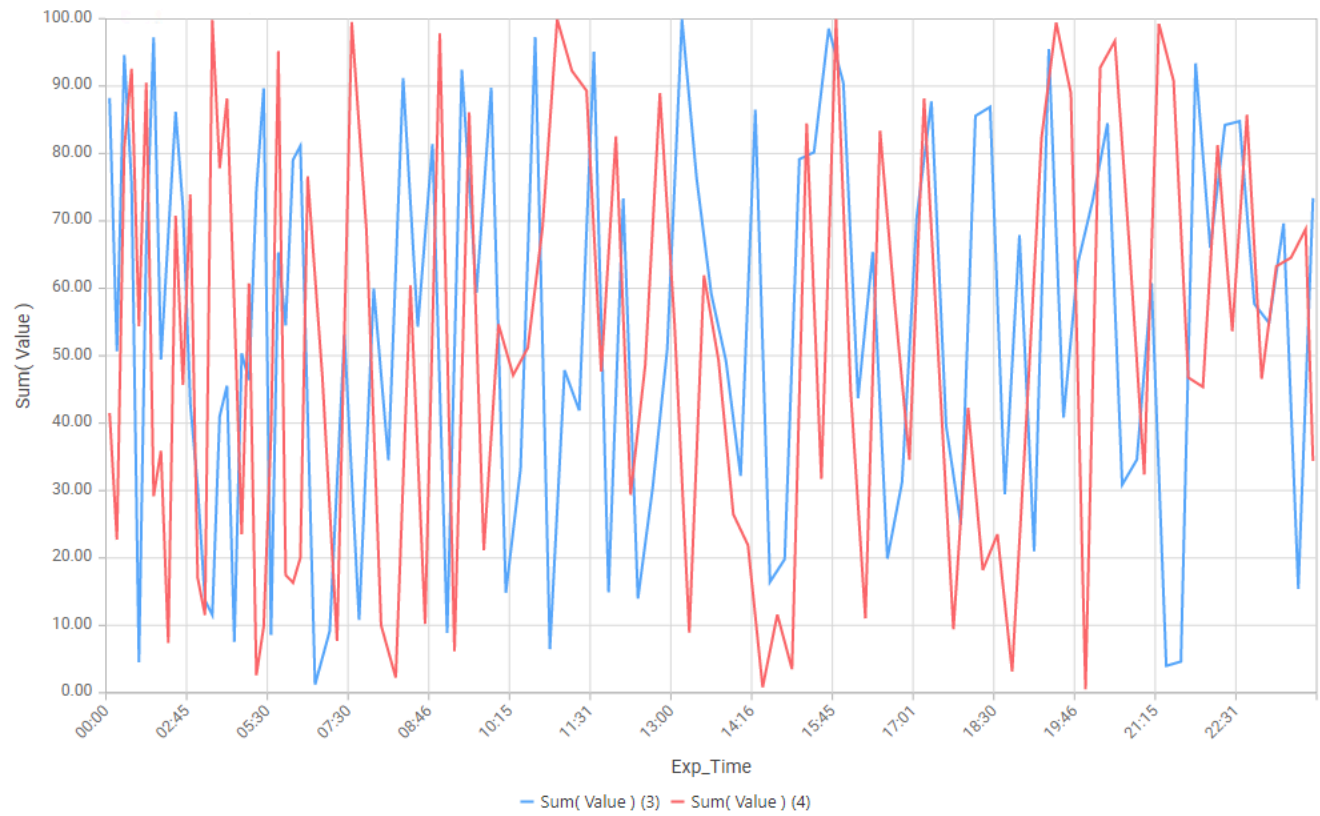
There is 3 modes :

- Do not plot : The normal mode where chart won't draw line if there is null value
- Plot Average : Plot average data to prevent the problem to occurs
- Fallback value : use a specific value for null data

! Plot average or Fallback value should not be used with show markers option. Otherwise, blank point will appear.

Once Plot null values is enabled, the data will be displayed correctly on the chart :

Chart without plot



Last modified: Feb 17, 2022

2.8.2. Polar Chart

Polar Charts allow to view data on a 2D plane using polar coordinates : a center at 0 and values displayed as distance to that center.

Last modified: Feb 17, 2022




2.8.2.1. Binding Data


Introduction

The following fields are available for configuring data binding on a Polar Chart :



Show


Y Value(s)

Value Avg(OEE)   



Draw Type Column 

Source Field



Avg  of OEE 

Sorted by default 

Vs




Sum  of Add optional field... 


As

 Polar Chart 

Group by

X Axis

Value  of Entity  

Sorted Asc 

- *Y Value(s)* : the distance between the data point and the center of the chart
- *X Axis* : how we group values together at different angles to create points on the line

Show : *Y Value(s)*

This represents the *quantity* we want to display on the Chart, and will bind for example to the distance between the data point and the center of the chart.

These fields **must be aggregated** : you must choose an aggregation function (SUM, AVG, ...)
At least one field must be bound.

Multiple fields : multiple Series

When binding multiple fields at the same time, each field will generate a separate Series.




This way, each Series can have its own graphical properties, its own Draw Type, etc...

To change the order of fields, see [the corresponding chapter](#).




Example

With a field called “Price” and a field called “Target”, you will chart 2 separate series, one for each field.

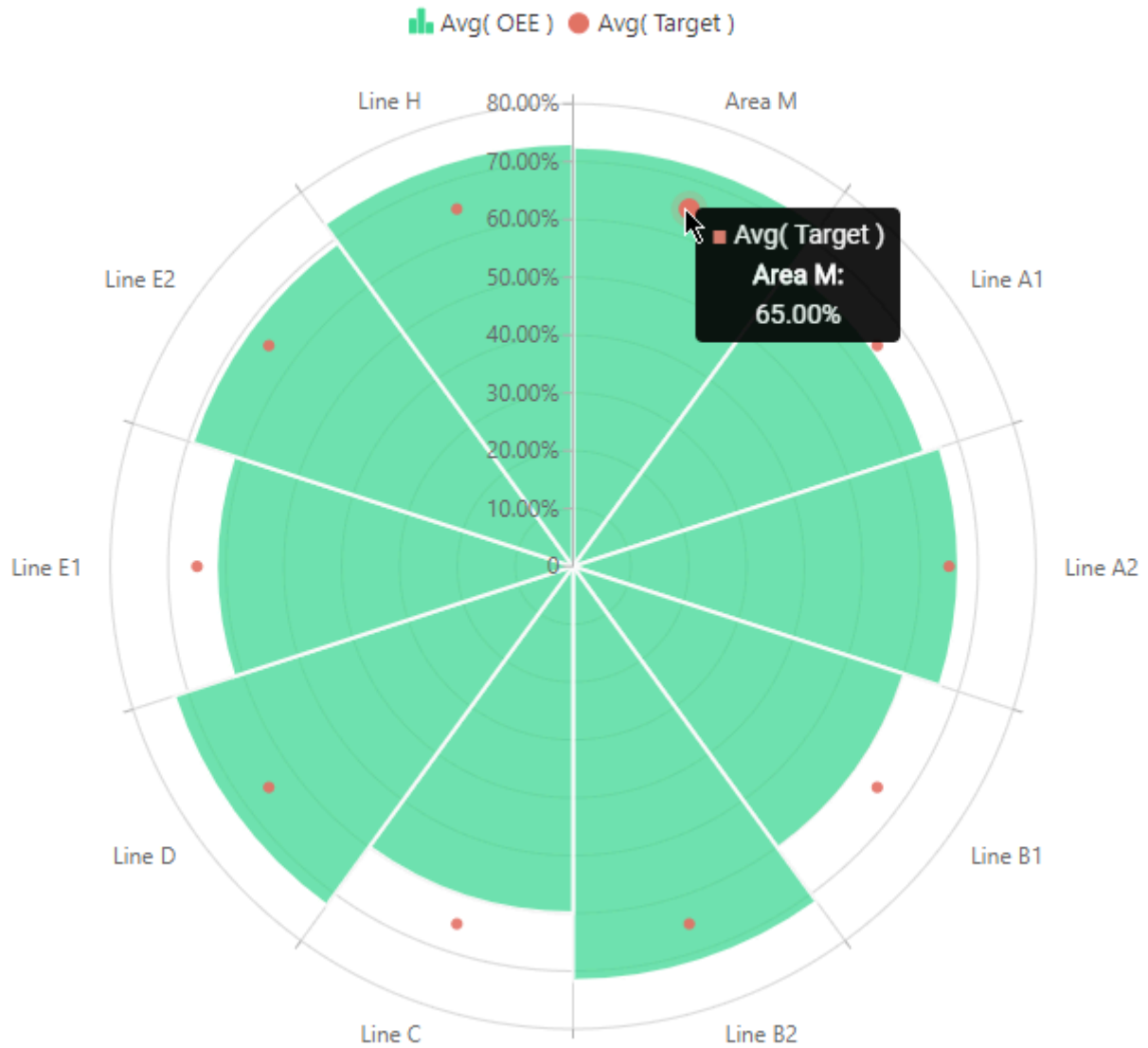
Y Value(s)

Value	Avg(OEE)			
Draw Type	Column			
Source Field				
Avg	of	OEE		
Sorted	by default			

Vs

Value	Avg(Target)			
Draw Type	Scatter			
Source Field				
Avg	of	Target		
Sorted	by default			

...



Group by : X Axis

This represents the *category* we want to use to separate data points.

These fields **cannot be aggregated** : they must have several separate values in order to group the “Values” aggregation.

At least one field must be bound.

Last modified: Feb 17, 2022

2.8.2.2. Chart Types / Draw Types

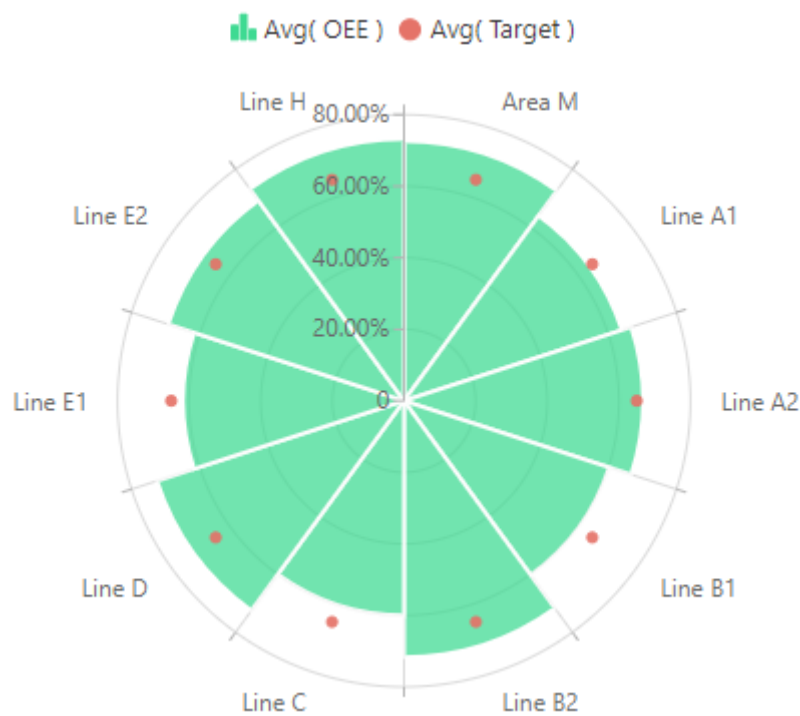
Chart Widget Types

There are 2 main types of polar charts :

Polar Chart

Constant values are circles.

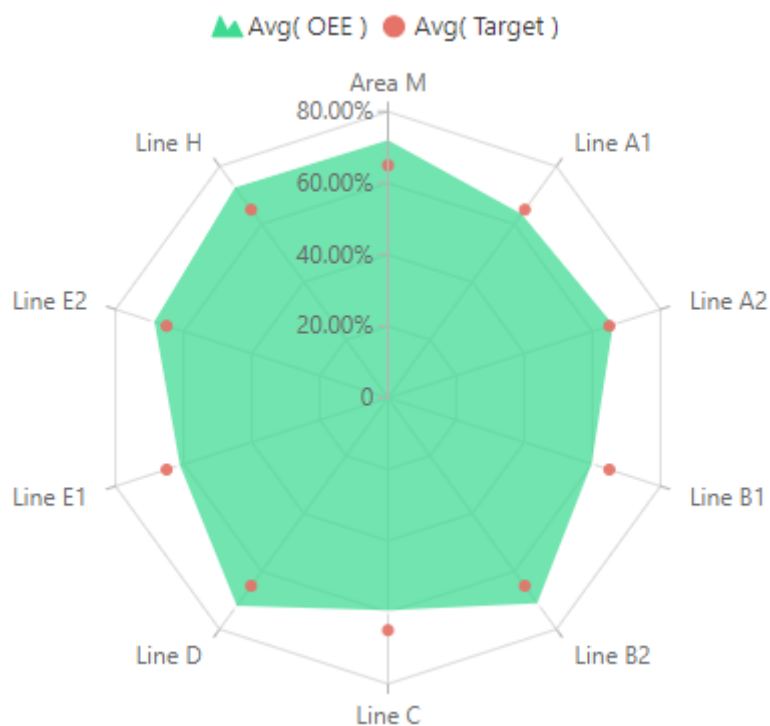
Each separate X Axis value is in the middle of a radial portion.



Radar Chart

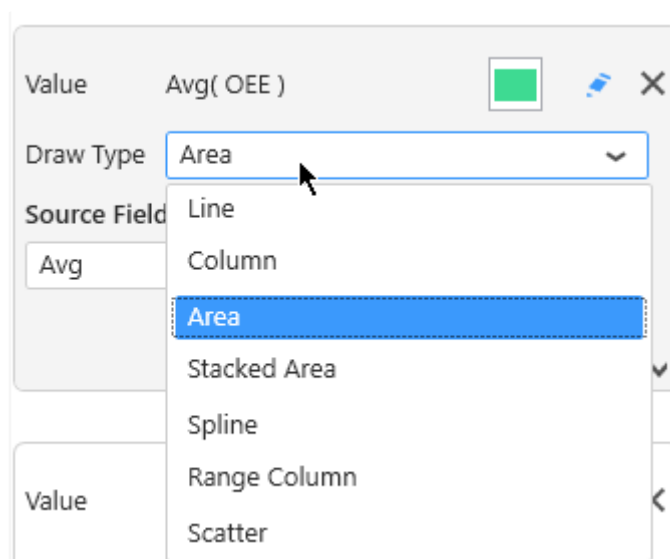
Constant values are straight lines.

Each separate X Axis value is on the edge of a radial portion.



Draw Types

For each Chart Type (Polar or Radar), each series can have a variety of *Draw Types* :



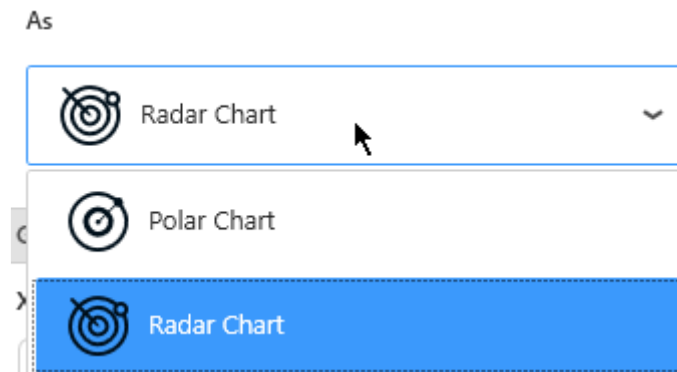
In the same chart, each separate series can have a different *Draw Type*.

Last modified: Feb 17, 2022

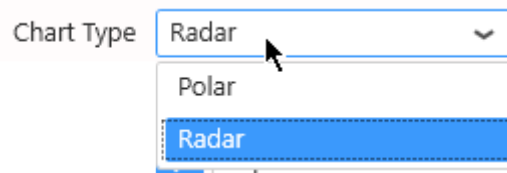
2.8.2.3. Switching Chart Types

When adding a Widget, the Chart will have a single type globally.
The Chart type can be changed on the fly while keeping the widget configuration.

To change the Chart type, use the selector under *As* in the data configuration :



There is also a shortcut under *Basic Settings* :



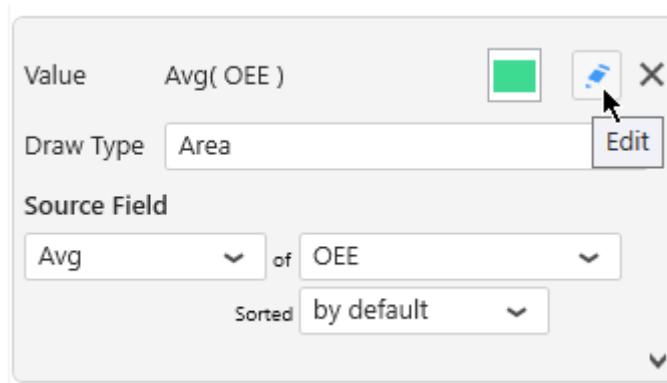
There is also a shortcut in the top bar :



Last modified: Feb 17, 2022

2.8.2.4. Series Settings

Each *Y Value* Series can be configured individually by clicking the pen icon next to its name :



The image shows a 'Series Settings' dialog box for a chart series. At the top, it displays the series name 'Value' followed by 'Avg(OEE)'. To the right of the name are three icons: a green square, a blue pen icon, and a close 'X' icon. Below the name, there is a 'Draw Type' section with a dropdown menu set to 'Area' and an 'Edit' button. Underneath is the 'Source Field' section, which includes a dropdown set to 'Avg', followed by the word 'of', and another dropdown set to 'OEE'. Below this is a 'Sorted' section with a dropdown set to 'by default'. A small downward arrow is visible at the bottom right of the dialog box.

This allows to fine-tune your chart by configuring exactly what you want on each series inside the widget.

✿ Keep in mind that some configuration options are not available for all chart types.

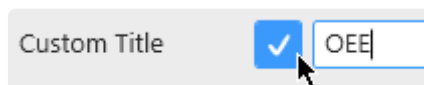
Last modified: Feb 17, 2022

2.8.2.4.1. Series Name

Each Series has a name displayed in various places.

By default, this name is automatically generated from the data field bound to the Series.

To configure this name, edit the Series Settings, check *Custom title* and write the desired name :

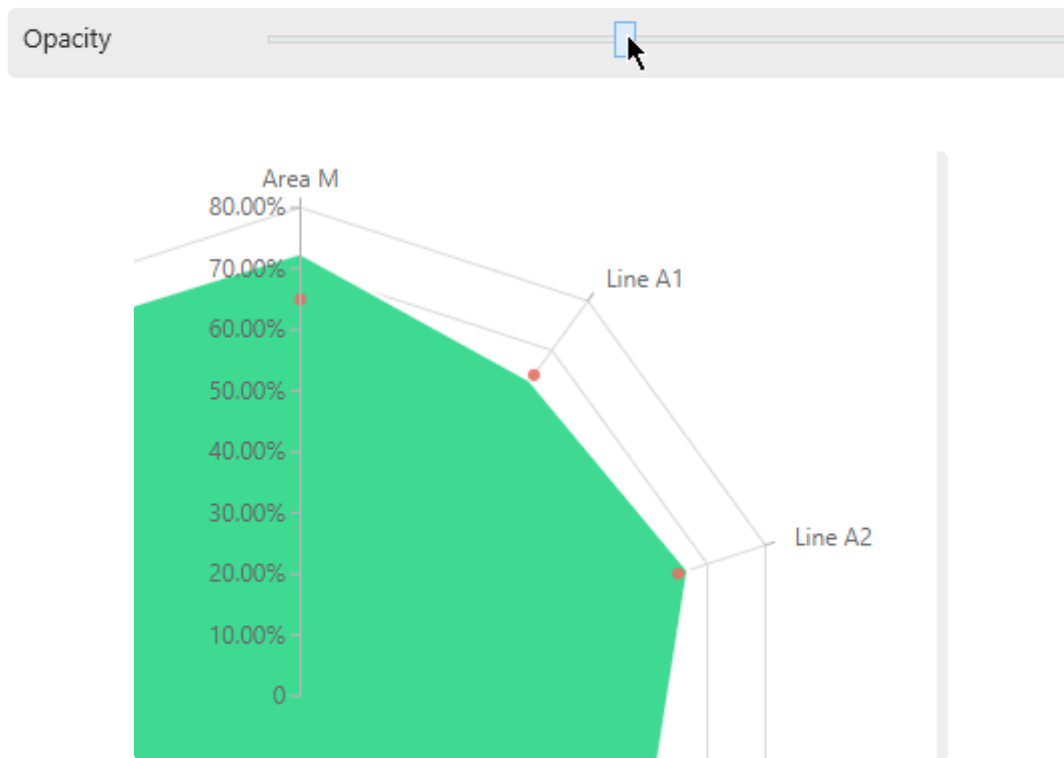
A screenshot of a user interface element for configuring a series name. It consists of a light gray rounded rectangle containing the text 'Custom Title' on the left. To the right of the text is a blue square checkbox with a white checkmark. Further right is a text input field with a blue border and a light blue background, containing the text 'OEE'. A black mouse cursor is pointing at the checkbox.

Last modified: Feb 17, 2022

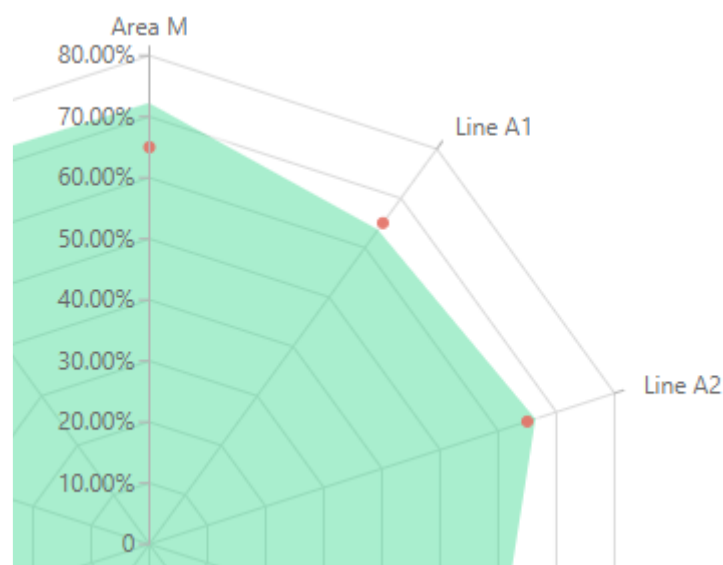
2.8.2.4.2. Style and Appearance

Opacity

Each chart series can be made semi-transparent to allow to see the other series behind it.
The *Opacity* of the Series can be configured :




... will turn into :



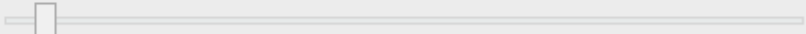
Border

Some Draw Types can have a border around the shapes :

Border Color

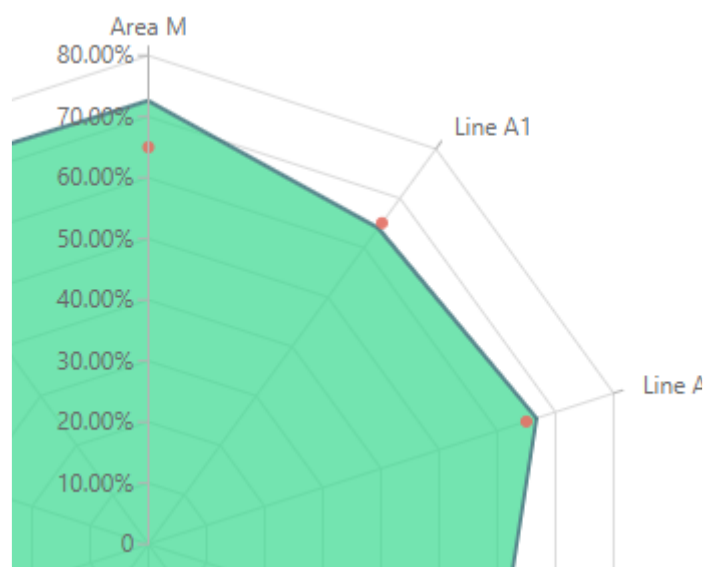


Border Thickness



Border Color : select a color from the color picker

Border Thickness : give a value greater than zero to see the border, increase to have a thicker border



Last modified: Feb 17, 2022

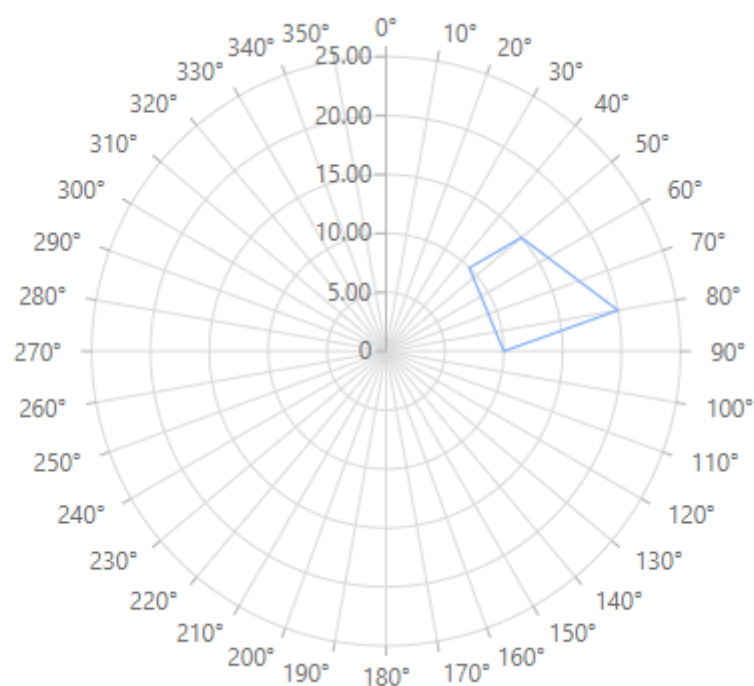
2.8.2.5. X Axis

By default, the angular position of X Axis items is calculated automatically to divide the plane evenly : $360^\circ / (\text{number of items})$

When the X Axis field is a Number, the minimum and maximum angles are calculated from the data.

Instead, if a Number type field is bound as X Axis, then you can force the X Axis scale to 0° - 360°

Force 0 - 360° ☒



Last modified: Feb 17, 2022

2.8.2.6. Y Axis

Custom Range

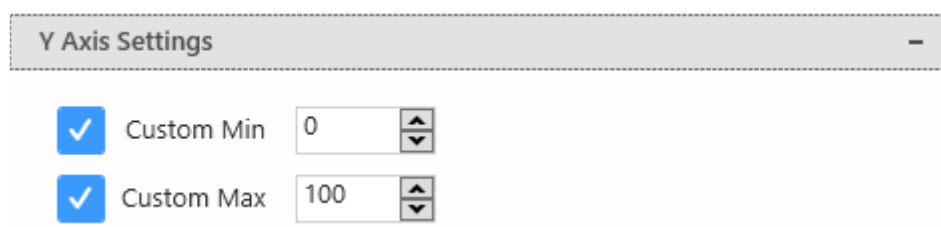
(new in version 2020 R2)

By default, the minimum and maximum value of the Y Axis is automatically calculated to scale to the data displayed.

Instead, you can force a custom value for the minimum and/or maximum of the Y axis.

Under *Y Axis Settings*, check the relevant boundary that you want to constrain, and enter the desired value :

- *Custom Min* : forcing a minimum value on the Y Axis
- *Custom Max* : forcing a maximum value on the Y Axis



Y Axis Settings	
<input checked="" type="checkbox"/>	Custom Min 0
<input checked="" type="checkbox"/>	Custom Max 100

Last modified: Feb 17, 2022

2.8.2.7. Legend

Series Legend

The Legend shows the meaning of each series :

 Avg(OEE)  Avg(Target)

Hide/Show Legend

The chart Legend can be hidden or displayed using *Show Legend* under *Basic Settings* :

Show Legend ☒ Bottom

Legend position

The chart Legend can be positioned on any side of the widget :

Show Legend ☒ Bottom

- Bottom
- Top**
- Left
- Right

Top

Customize Legend


Legend items are generated from the [Series Title](#).

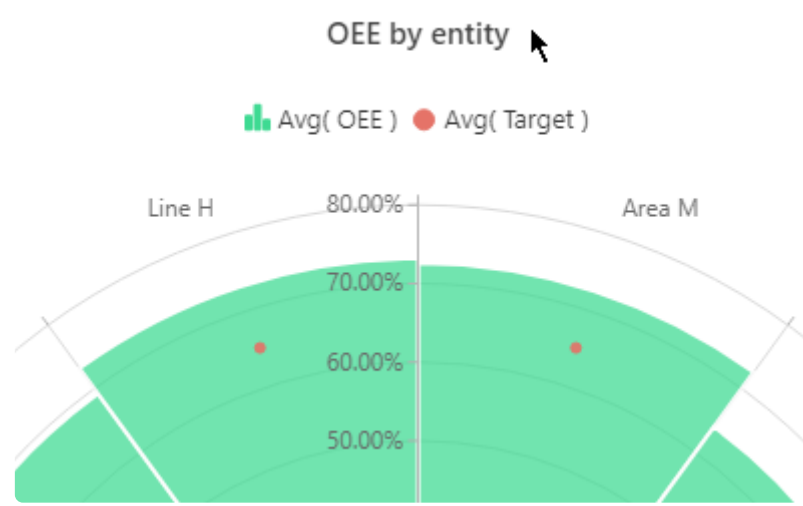
Chart Title

The chart has a Title.

By default, this is generated from the X Axis field name.

Instead, you can configure it under *Basic Settings* by checking *Use Custom Title* and writing the desired title :

Use Custom Title ☒ OEE by entity 





You can hide this Title by writing an empty Custom Title.

Last modified: Feb 17, 2022

2.8.3. Map

Alpana allows to display geographical data using 2 types of maps :

-  Choropleth Maps show a color on the complete map areas
-  Bubble Maps show a bubble centered on the map areas

Last modified: Feb 17, 2022

2.8.3.1. Maps format : GeoJSON

File format

Alpana supports a map format called [GeoJSON](#)

This is a structured text format similar to Javascript Objects and can be edited with any text editor.

Geographic or X-Y

The shapes represented by Alpana maps can be :

- geographic : coordinates are longitudes/latitudes and a Mercator projection is applied
- normal : coordinates are X/Y and are considered as on a flat surface

Features

The GeoJSON format allows to define shapes as “Features” (mostly polygons) which Alpana can draw in Widgets as vector graphics very efficiently.

GeoJSON “*Features*” supported by Alpana are :

- Polygon : any set of points define a closed shape as a polygon
- MultiPolygon : any set of polygons can be grouped into a single shape (example : the British Isles may be considered a single shape made of several separate polygons)
- Point : a single point can also be represented (point of interest, city, etc)

Properties

Each Feature can possess a set of *Properties* which can contain any metadata.

These Properties allow map makers to give unique names to each shape, and will allow Alpana to bind dashboard data to each shape depending on its name (“to each Feature depending on its Property”).

These Properties are a dictionary of key-value pairs.

Finding or Creating new Maps

Editing

Some GeoJSON files can be easily edited by hand using a text editor (Notepad), especially for modifying Properties.

This can be made easier using a text editor with syntax highlighting for Javascript (or JSON) like Visual Studio or Notepad++.

Some easy-to-use graphical tools exist, including free web-based tools like <http://geojson.io/>

Creating

Creating maps from scratch is more difficult when using only a text editor.

One option is to use a graphical tool like <http://geojson.io/>

Another option is to generate the GeoJSON Features programmatically (using Excel for example) by concatenating JSON strings and actual coordinates.

Finding GeoJSON Maps

It's easy to find existing GeoJSON maps with relatively open licenses on the web.

Usually just type the name of your region + "geojson", and you should find many results.

GeoJSON file example

This is an extract of a world map geojson file :

```

{
  "type": "FeatureCollection",
  "features": [
    {
      "type": "Feature",
      "properties": {
        "scalerank": 1,
        "featurecla": "Admin-0 country",
        "labelrank": 4,
        "sovereight": "The Bahamas",
        "sov_a3": "BHS",
        "adm0_dif": 0,
        "level": 2,
        "type": "Sovereign country",
        "admin": "The Bahamas",
        "adm0_a3": "BHS",
        "geou_dif": 0,
        "geounit": "The Bahamas",
        "gu_a3": "BHS",
        "su_dif": 0,
        "subunit": "The Bahamas",
        "su_a3": "BHS",
        "brk_diff": 0,
        "name": "Bahamas",
        "name_long": "Bahamas",
        "brk_a3": "BHS",
        "brk_name": "Bahamas",
        "brk_group": null,
        "gdp_md_est": 9093,
        "pop_year": -99,
        "lastcensus": 2010,
        "gdp_year": -99,
        "economy": "6. Developing region",
        "income_grp": "2. High income: nonOECD",
        "continent": "North America",
        "region_un": "Americas",
        "subregion": "Caribbean",
        "region_wb": "Latin America & Caribbean"
      },
      "geometry": {
        "type": "MultiPolygon",
        "coordinates": [
          [
            [
              [
                -77.53466,
                23.75975
              ],
              [
                -77.78,
                23.71
              ]
            ]
          ]
        ]
      }
    }
  ]
}

```

All properties can be used to link your data from your datasource.

The whole file can be downloaded here : [Link text](#)

Last modified: Feb 17, 2022

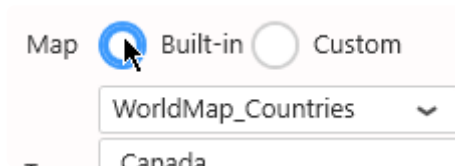
2.8.3.2. Choosing a map

Select a Map

Built-in Maps

Some geographical maps of the world are provided with Alpana.

They are available under Map Settings, by selecting Built-in :

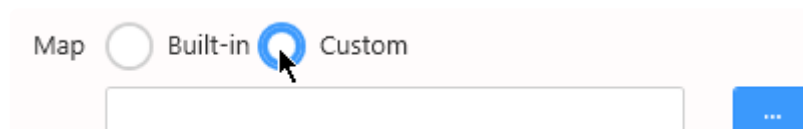


By default, the selected map shows the world's countries.

Custom Maps

You own custom GeoJSON files can be used instead.

Under Map Settings, select Custom :



Click the “...” to browse for a *.json file on your machine.



Note : Performance VS Details

This file will be embedded in the Dashboard itself.

This may impact the file size of the web page generated by the dashboard.

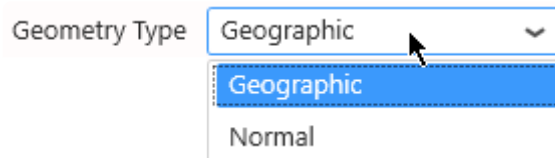
Any time a user will load the dashboard in their web browser, they will download the page in their browser. If the map is huge with many details, this may impact dashboard performance.

Geometry type

Select a Geometry Type :

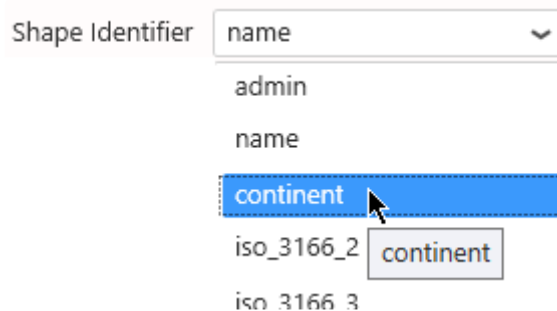
- *Geographic* : coordinates are longitude/latitude with a corresponding Mercator projection. This is useful for geographical data like country shapes. Not suitable for viewing very small values of latitude and longitude (eg: 0.0001 degree latitude or longitude)
- *Normal* : coordinates are X/Y with no projection. This is useful for representing a plan, like an

equipment shape or a plant floor disposition.



Shape Identifier

When a map file is selected, the GeoJSON *Properties* key names are listed in the “Shape Identifier” combobox in Alpana Designer :



For example, the default map has Properties named “admin”, “name”, “continent”, ...
And each Property has values like name=France, continent=Europe, ...

```
"features": [
  { "type": "Feature", "properties": { "admin": "Afghanistan", "name": "Afghanistan", "continent": "Asia", "iso_3166_2": "AF" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Angola", "name": "Angola", "continent": "Africa", "iso_3166_2": "AO" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Albania", "name": "Albania", "continent": "Europe", "iso_3166_2": "AL" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "United Arab Emirates", "name": "United Arab Emirates", "continent": "Asia", "iso_3166_2": "AE" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Argentina", "name": "Argentina", "continent": "South America", "iso_3166_2": "AR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Armenia", "name": "Armenia", "continent": "Asia", "iso_3166_2": "AM" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "French Southern and Antarctic Lands", "name": "Fr. S. Antarctic L", "continent": "Antarctica", "iso_3166_2": "TF" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Australia", "name": "Australia", "continent": "Oceania", "iso_3166_2": "AU" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Austria", "name": "Austria", "continent": "Europe", "iso_3166_2": "AT" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Azerbaijan", "name": "Azerbaijan", "continent": "Asia", "iso_3166_2": "AZ" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Bahrain", "name": "Bahrain", "continent": "Asia", "iso_3166_2": "BH" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Bangladesh", "name": "Bangladesh", "continent": "Asia", "iso_3166_2": "BD" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Belgium", "name": "Belgium", "continent": "Europe", "iso_3166_2": "BE" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Brazil", "name": "Brazil", "continent": "South America", "iso_3166_2": "BR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Bulgaria", "name": "Bulgaria", "continent": "Europe", "iso_3166_2": "BG" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Canada", "name": "Canada", "continent": "North America", "iso_3166_2": "CA" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Cape Verde", "name": "Cape Verde", "continent": "Africa", "iso_3166_2": "CV" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Chad", "name": "Chad", "continent": "Africa", "iso_3166_2": "TD" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "China", "name": "China", "continent": "Asia", "iso_3166_2": "CN" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Colombia", "name": "Colombia", "continent": "South America", "iso_3166_2": "CO" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Comoros", "name": "Comoros", "continent": "Africa", "iso_3166_2": "KM" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Congo", "name": "Congo", "continent": "Africa", "iso_3166_2": "CG" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Costa Rica", "name": "Costa Rica", "continent": "North America", "iso_3166_2": "CR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Croatia", "name": "Croatia", "continent": "Europe", "iso_3166_2": "HR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Cuba", "name": "Cuba", "continent": "North America", "iso_3166_2": "CU" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Cyprus", "name": "Cyprus", "continent": "Europe", "iso_3166_2": "CY" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Czechia", "name": "Czechia", "continent": "Europe", "iso_3166_2": "CZ" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Denmark", "name": "Denmark", "continent": "Europe", "iso_3166_2": "DK" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Djibouti", "name": "Djibouti", "continent": "Africa", "iso_3166_2": "DJ" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Dominican Republic", "name": "Dominican Republic", "continent": "North America", "iso_3166_2": "DO" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Ecuador", "name": "Ecuador", "continent": "South America", "iso_3166_2": "EC" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Egypt", "name": "Egypt", "continent": "Africa", "iso_3166_2": "EG" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "El Salvador", "name": "El Salvador", "continent": "North America", "iso_3166_2": "SV" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Equatorial Guinea", "name": "Equatorial Guinea", "continent": "Africa", "iso_3166_2": "GQ" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Eritrea", "name": "Eritrea", "continent": "Africa", "iso_3166_2": "ER" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Estonia", "name": "Estonia", "continent": "Europe", "iso_3166_2": "EE" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Ethiopia", "name": "Ethiopia", "continent": "Africa", "iso_3166_2": "ET" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Fiji", "name": "Fiji", "continent": "Oceania", "iso_3166_2": "FJ" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Finland", "name": "Finland", "continent": "Europe", "iso_3166_2": "FI" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "France", "name": "France", "continent": "Europe", "iso_3166_2": "FR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Gabon", "name": "Gabon", "continent": "Africa", "iso_3166_2": "GA" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Gambia", "name": "Gambia", "continent": "Africa", "iso_3166_2": "GM" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Germany", "name": "Germany", "continent": "Europe", "iso_3166_2": "DE" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Ghana", "name": "Ghana", "continent": "Africa", "iso_3166_2": "GH" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Greece", "name": "Greece", "continent": "Europe", "iso_3166_2": "GR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Guatemala", "name": "Guatemala", "continent": "North America", "iso_3166_2": "GT" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Guinea", "name": "Guinea", "continent": "Africa", "iso_3166_2": "GN" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Guinea-Bissau", "name": "Guinea-Bissau", "continent": "Africa", "iso_3166_2": "GW" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Guyana", "name": "Guyana", "continent": "South America", "iso_3166_2": "GY" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Haiti", "name": "Haiti", "continent": "North America", "iso_3166_2": "HT" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Honduras", "name": "Honduras", "continent": "North America", "iso_3166_2": "HN" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Hungary", "name": "Hungary", "continent": "Europe", "iso_3166_2": "HU" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Iceland", "name": "Iceland", "continent": "Europe", "iso_3166_2": "IS" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "India", "name": "India", "continent": "Asia", "iso_3166_2": "IN" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Indonesia", "name": "Indonesia", "continent": "Asia", "iso_3166_2": "ID" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Iran", "name": "Iran", "continent": "Asia", "iso_3166_2": "IR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Iraq", "name": "Iraq", "continent": "Asia", "iso_3166_2": "IQ" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Israel", "name": "Israel", "continent": "Asia", "iso_3166_2": "IL" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Italy", "name": "Italy", "continent": "Europe", "iso_3166_2": "IT" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Jamaica", "name": "Jamaica", "continent": "North America", "iso_3166_2": "JM" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Japan", "name": "Japan", "continent": "Asia", "iso_3166_2": "JP" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Jordan", "name": "Jordan", "continent": "Asia", "iso_3166_2": "JO" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Kazakhstan", "name": "Kazakhstan", "continent": "Asia", "iso_3166_2": "KZ" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Kenya", "name": "Kenya", "continent": "Africa", "iso_3166_2": "KE" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Kiribati", "name": "Kiribati", "continent": "Oceania", "iso_3166_2": "KI" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Korea", "name": "Korea", "continent": "Asia", "iso_3166_2": "KR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Kuwait", "name": "Kuwait", "continent": "Asia", "iso_3166_2": "KW" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Kyrgyzstan", "name": "Kyrgyzstan", "continent": "Asia", "iso_3166_2": "KG" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Laos", "name": "Laos", "continent": "Asia", "iso_3166_2": "LA" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Latvia", "name": "Latvia", "continent": "Europe", "iso_3166_2": "LV" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Lebanon", "name": "Lebanon", "continent": "Asia", "iso_3166_2": "LB" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Lesotho", "name": "Lesotho", "continent": "Africa", "iso_3166_2": "LS" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Liberia", "name": "Liberia", "continent": "Africa", "iso_3166_2": "LR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Libya", "name": "Libya", "continent": "Africa", "iso_3166_2": "LY" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Liechtenstein", "name": "Liechtenstein", "continent": "Europe", "iso_3166_2": "LI" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Lithuania", "name": "Lithuania", "continent": "Europe", "iso_3166_2": "LT" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Luxembourg", "name": "Luxembourg", "continent": "Europe", "iso_3166_2": "LU" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Madagascar", "name": "Madagascar", "continent": "Africa", "iso_3166_2": "MG" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Malawi", "name": "Malawi", "continent": "Africa", "iso_3166_2": "MW" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Malaysia", "name": "Malaysia", "continent": "Asia", "iso_3166_2": "MY" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Maldives", "name": "Maldives", "continent": "Asia", "iso_3166_2": "MV" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Mali", "name": "Mali", "continent": "Africa", "iso_3166_2": "ML" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Malta", "name": "Malta", "continent": "Europe", "iso_3166_2": "MT" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Mauritania", "name": "Mauritania", "continent": "Africa", "iso_3166_2": "MR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Mauritius", "name": "Mauritius", "continent": "Africa", "iso_3166_2": "MU" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Mexico", "name": "Mexico", "continent": "North America", "iso_3166_2": "MX" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Moldova", "name": "Moldova", "continent": "Europe", "iso_3166_2": "MD" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Monaco", "name": "Monaco", "continent": "Europe", "iso_3166_2": "MC" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Mongolia", "name": "Mongolia", "continent": "Asia", "iso_3166_2": "MN" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Montenegro", "name": "Montenegro", "continent": "Europe", "iso_3166_2": "ME" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Morocco", "name": "Morocco", "continent": "Africa", "iso_3166_2": "MA" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Mozambique", "name": "Mozambique", "continent": "Africa", "iso_3166_2": "MZ" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Myanmar", "name": "Myanmar", "continent": "Asia", "iso_3166_2": "MM" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Namibia", "name": "Namibia", "continent": "Africa", "iso_3166_2": "NA" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Nauru", "name": "Nauru", "continent": "Oceania", "iso_3166_2": "NR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Nepal", "name": "Nepal", "continent": "Asia", "iso_3166_2": "NP" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Netherlands", "name": "Netherlands", "continent": "Europe", "iso_3166_2": "NL" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "New Zealand", "name": "New Zealand", "continent": "Oceania", "iso_3166_2": "NZ" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Nicaragua", "name": "Nicaragua", "continent": "North America", "iso_3166_2": "NI" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Niger", "name": "Niger", "continent": "Africa", "iso_3166_2": "NE" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Nigeria", "name": "Nigeria", "continent": "Africa", "iso_3166_2": "NG" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "North Macedonia", "name": "North Macedonia", "continent": "Europe", "iso_3166_2": "MK" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Norway", "name": "Norway", "continent": "Europe", "iso_3166_2": "NO" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Oman", "name": "Oman", "continent": "Asia", "iso_3166_2": "OM" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Pakistan", "name": "Pakistan", "continent": "Asia", "iso_3166_2": "PK" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Palau", "name": "Palau", "continent": "Oceania", "iso_3166_2": "PW" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Panama", "name": "Panama", "continent": "North America", "iso_3166_2": "PA" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Papua New Guinea", "name": "Papua New Guinea", "continent": "Oceania", "iso_3166_2": "PG" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Paraguay", "name": "Paraguay", "continent": "South America", "iso_3166_2": "PY" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Peru", "name": "Peru", "continent": "South America", "iso_3166_2": "PE" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Philippines", "name": "Philippines", "continent": "Asia", "iso_3166_2": "PH" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Poland", "name": "Poland", "continent": "Europe", "iso_3166_2": "PL" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Portugal", "name": "Portugal", "continent": "Europe", "iso_3166_2": "PT" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Qatar", "name": "Qatar", "continent": "Asia", "iso_3166_2": "QA" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Romania", "name": "Romania", "continent": "Europe", "iso_3166_2": "RO" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Russia", "name": "Russia", "continent": "Asia", "iso_3166_2": "RU" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Rwanda", "name": "Rwanda", "continent": "Africa", "iso_3166_2": "RW" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Saudi Arabia", "name": "Saudi Arabia", "continent": "Asia", "iso_3166_2": "SA" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Senegal", "name": "Senegal", "continent": "Africa", "iso_3166_2": "SN" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Serbia", "name": "Serbia", "continent": "Europe", "iso_3166_2": "RS" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Sierra Leone", "name": "Sierra Leone", "continent": "Africa", "iso_3166_2": "SL" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Singapore", "name": "Singapore", "continent": "Asia", "iso_3166_2": "SG" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Slovakia", "name": "Slovakia", "continent": "Europe", "iso_3166_2": "SK" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Slovenia", "name": "Slovenia", "continent": "Europe", "iso_3166_2": "SI" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Somalia", "name": "Somalia", "continent": "Africa", "iso_3166_2": "SO" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "South Africa", "name": "South Africa", "continent": "Africa", "iso_3166_2": "ZA" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "South Korea", "name": "South Korea", "continent": "Asia", "iso_3166_2": "KR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Spain", "name": "Spain", "continent": "Europe", "iso_3166_2": "ES" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Sri Lanka", "name": "Sri Lanka", "continent": "Asia", "iso_3166_2": "LK" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Sudan", "name": "Sudan", "continent": "Africa", "iso_3166_2": "SD" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Suriname", "name": "Suriname", "continent": "South America", "iso_3166_2": "SR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Sweden", "name": "Sweden", "continent": "Europe", "iso_3166_2": "SE" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Switzerland", "name": "Switzerland", "continent": "Europe", "iso_3166_2": "CH" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Taiwan", "name": "Taiwan", "continent": "Asia", "iso_3166_2": "TW" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Tajikistan", "name": "Tajikistan", "continent": "Asia", "iso_3166_2": "TJ" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Tanzania", "name": "Tanzania", "continent": "Africa", "iso_3166_2": "TZ" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Thailand", "name": "Thailand", "continent": "Asia", "iso_3166_2": "TH" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Timor-Leste", "name": "Timor-Leste", "continent": "Asia", "iso_3166_2": "TL" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Togo", "name": "Togo", "continent": "Africa", "iso_3166_2": "TG" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Tonga", "name": "Tonga", "continent": "Oceania", "iso_3166_2": "TO" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Trinidad and Tobago", "name": "Trinidad and Tobago", "continent": "North America", "iso_3166_2": "TT" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Tunisia", "name": "Tunisia", "continent": "Africa", "iso_3166_2": "TN" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Turkey", "name": "Turkey", "continent": "Asia", "iso_3166_2": "TR" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Turkmenistan", "name": "Turkmenistan", "continent": "Asia", "iso_3166_2": "TM" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Tuvalu", "name": "Tuvalu", "continent": "Oceania", "iso_3166_2": "TV" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Uganda", "name": "Uganda", "continent": "Africa", "iso_3166_2": "UG" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Ukraine", "name": "Ukraine", "continent": "Europe", "iso_3166_2": "UA" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "United Kingdom", "name": "United Kingdom", "continent": "Europe", "iso_3166_2": "GB" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "United States", "name": "United States", "continent": "North America", "iso_3166_2": "US" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Uruguay", "name": "Uruguay", "continent": "South America", "iso_3166_2": "UY" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Uzbekistan", "name": "Uzbekistan", "continent": "Asia", "iso_3166_2": "UZ" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Vanuatu", "name": "Vanuatu", "continent": "Oceania", "iso_3166_2": "VU" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Venezuela", "name": "Venezuela", "continent": "South America", "iso_3166_2": "VE" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Vietnam", "name": "Vietnam", "continent": "Asia", "iso_3166_2": "VN" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Yemen", "name": "Yemen", "continent": "Asia", "iso_3166_2": "YE" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Zambia", "name": "Zambia", "continent": "Africa", "iso_3166_2": "ZM" }, "geometry": {} },
  { "type": "Feature", "properties": { "admin": "Zimbabwe", "name": "Zimbabwe", "continent": "Africa", "iso_3166_2": "ZW" }, "geometry": {} }
]
```



Note :

This is specific to this map file and will be different in other files.



This setting is **very important** since it defines which GeoJSON Property will be bound to your data.

The values in the selected *Shape Identifier* **must match** the values in your Data Source.

For this, you have basically 2 solutions :

- edit the GeoJSON file so that there is a Property that possesses values that match your data
- edit your Data Source so that the values match the values of a map Property

2.8.3.3. Binding Data

Introduction

The following field containers are available for configuring data binding on a Map :

The screenshot shows a 'Show' configuration window with three sections:

- Value:** A dropdown menu set to 'Sum', followed by 'of', a text input containing 'Production', and a 'Sorted' dropdown set to 'Asc'.
- Shape:** A dropdown menu set to 'Value', followed by 'of', a text input containing 'name', and a 'Sorted' dropdown set to 'Asc'.
- Calculations:** A dropdown menu set to 'Value', followed by 'of', a text input containing 'continent', and a 'Sorted' dropdown set to 'Asc'.

- *Value* : the color intensity of the shape (Choropleth Map), or the size of the bubble (Bubble Map)
- *Shape* : what Data Source field will be bound to the selected GeoJSON Property/Shape Identifier
- *Calculations* : (Choropleth Map only) assign a single color to a shape or group of shapes

Value

This represents the quantity we want to display on the Map, and will bind for example to the color intensity of the shape (Choropleth Map), or the size of the bubble (Bubble Map).

The Value field **must be aggregated** : you must choose an aggregation function (SUM, AVG, ...) This field is required.

Shape

This will link the values from the selected Data Source field to the values of the selected GeoJSON Property/Shape Identifier.



This is very important : this is how Alpana knows which map shape is associated to which data field.

The Shape field **cannot be aggregated** : it must have several separate values in order to group the “Value” aggregation.

This field is required.

Calculations (Choropleth Map)

When this field is configured, the Choropleth Map colors no longer show gradients of a single color depending on the intensity of the Value.

Instead, each separate value of the Calculations field generates a single separate color, and all corresponding shapes are painted with that color.

Then the “Value” field is only displayed as indication in the tooltip.

The *Calculations* field **cannot be aggregated** : it must have several separate values in order to group the “Value” aggregation.

This field is optional.

Example

Before applying a calculation field, all countries have a different shade of blue :

Show

Value

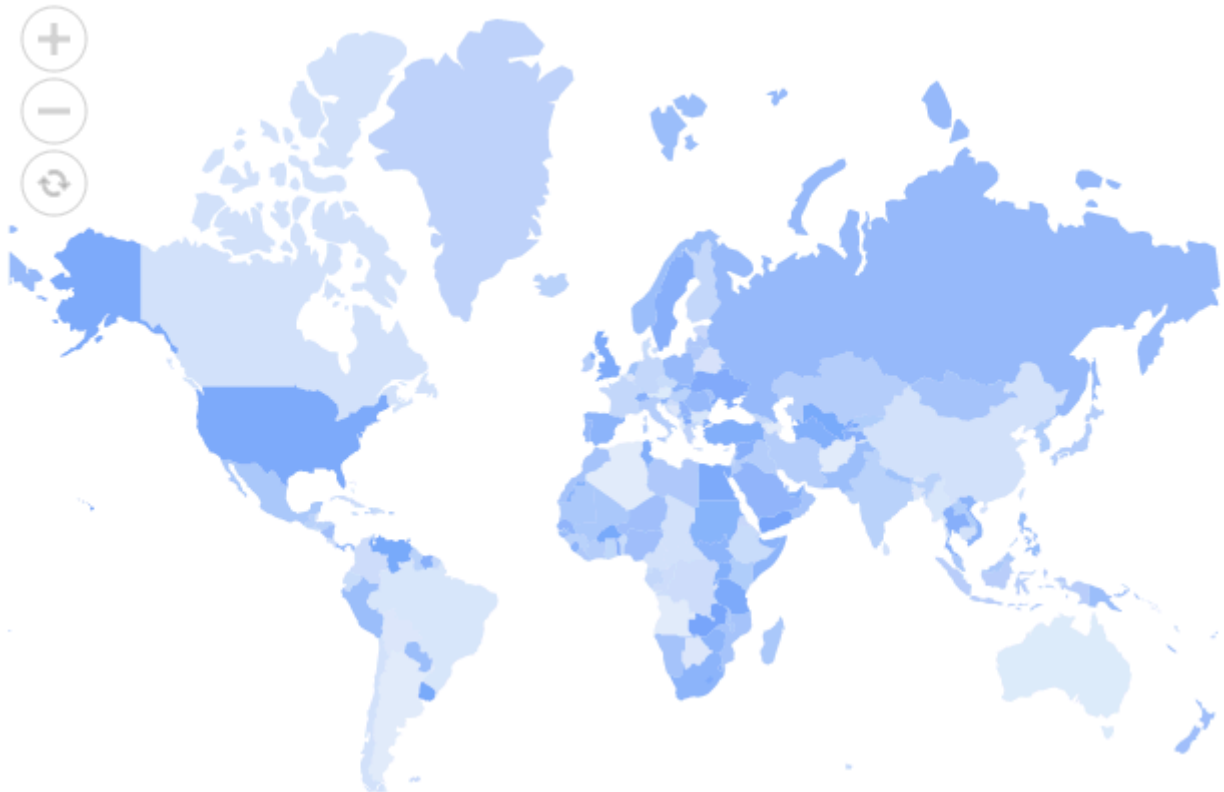
Sum of Production
Sorted ASC

Shape

Value of name
Sorted ASC

Calculations

Value of Add optional field...



After using “continent” as Calculations field, each country have the color of the corresponding continent :

Value

Sum

▼

of

Production

▼

×

Sorted

ASC

▼

Shape

Value

▼

of

name

▼

×

Sorted

ASC

▼

Calculations

Value

▼

of

continent

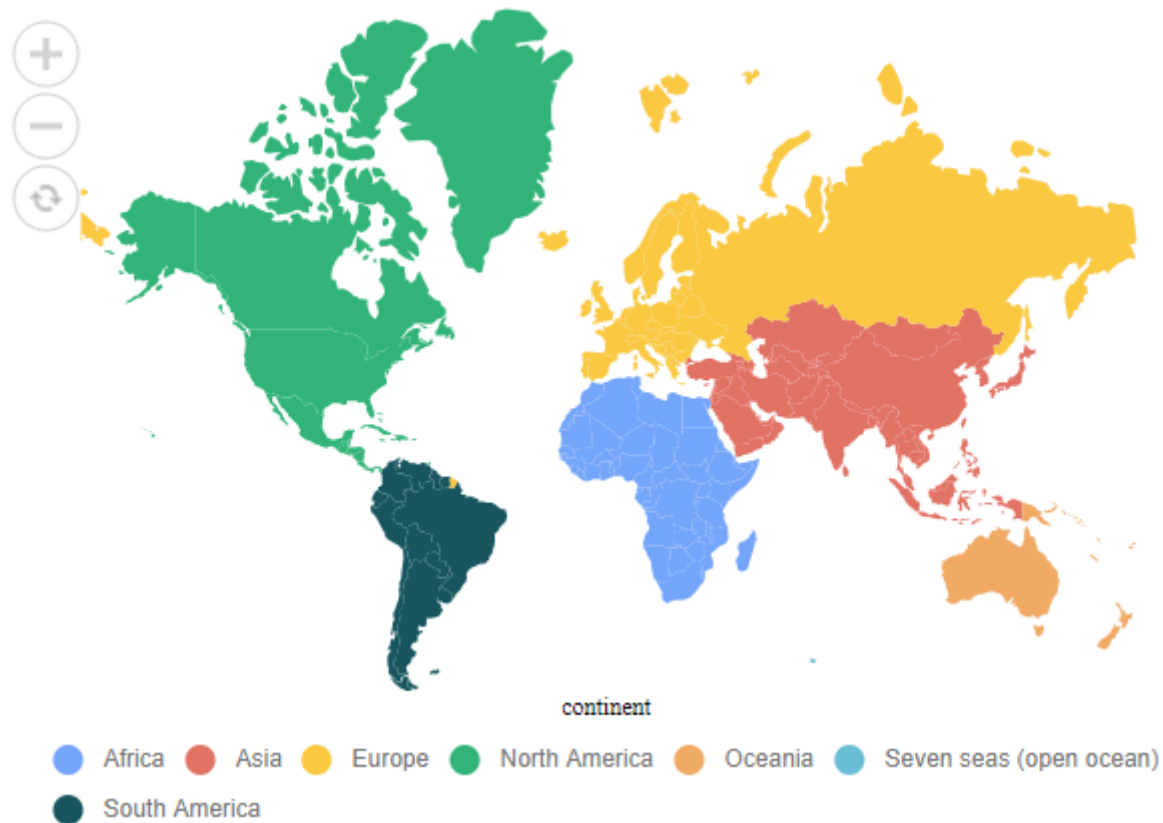
▼

×

Sorted

ASC

▼



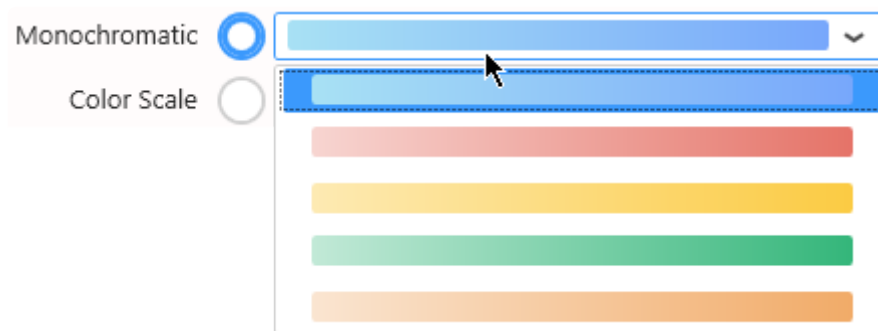
Last modified: Feb 17, 2022

2.8.3.4. Managing Colors

Monochromatic (Choropleth Map)

By default, Choropleth Map with **no Calculations** show value intensity as a gradient of a single color.

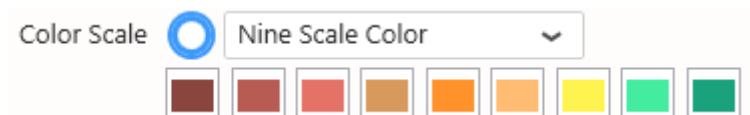
This *Monochromatic* Gradient can be set to a different color by using the dedicated combobox under *Map Settings* :



Color Scale (Choropleth Map)

Choropleth Map with no Calculations can be configured to show value intensity in ranges of single colors.

Select Color Scale and choose the number of colors and the colors of each interval :



The interval between the maximum of Value and the minimum of Value will be split in equal intervals and assigned a single color.

✿ This can be useful for setting a color code like “low is red, medium is orange, high is green”.

Value-based Colors (Choropleth Map)

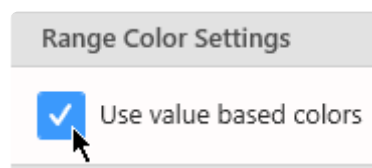
Choropleth Map **with Calculations** show a single different color for each different value of the Calculations field.

By default, these colors are indexed from a default palette.

Color 1		#77A7FB
Color 2		#E57368
Color 3		#FBCB43
Color 4		#34B67A
Color 5		#F1AB68
Color 6		#6CC2D9
Color 7		#195962
Color 8		#E18878
Color 9		#1AA27D
Color 10		#BFAAC7
Color 11		#89695E
Color 12		#A5C77F
Color 13		#F48FB1
Color 14		#90CAF9
Color 15		#CC4452

Instead of index-based, you may then choose **Value-based** colors : the same value in the Calculations field will always have the same color in the Map.

For this, simply check *Use value-based colors* under *Range Color Settings* :



Customizing Value-based colors

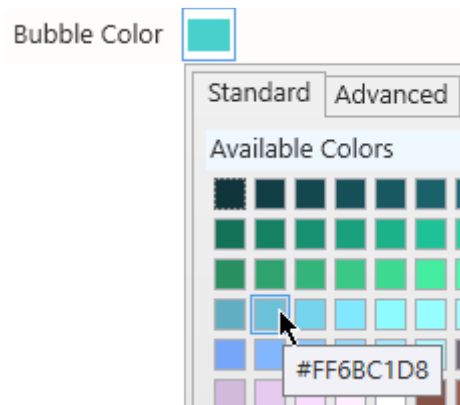
Value-based colors are defined **at the Data Source level**.

This is in order to allow re-use of the colors everywhere the same data is used.

To configure value-based colors, see the corresponding chapter [Value-based Settings](#) under [Transforming Data](#).

Bubble Color (Bubble Map)

Bubbles have a single color defined by *Bubble Color* under *Basic Settings* :



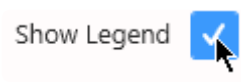
Last modified: Feb 17, 2022

2.8.3.5. Data Point information

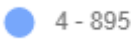
Legend (Choropleth)

Depending on the color mode selected, the Choropleth Map can display a legend.

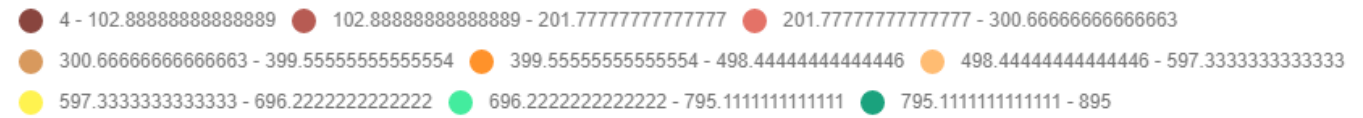
Click on *Show Legend* under *Basic Settings* :



In Monochromatic color, a gradient is displayed with the minimum and maximum values and an arrow for the current value :



In Color Scale mode, the scale is displayed with the minimum and maximum values and an arrow for the current value :



In Calculations mode, the legend displays the name and color of each item :



Last modified: Feb 17, 2022

2.8.3.6. Runtime navigation


At runtime, the maps can be navigated by the user :

- zoom : mouse scroll allows to zoom in/out
- move : click and drag to move

Navigator




In addition, a Navigator can be displayed to help users navigate using mouse clicks.

Under *Basic Settings*, select *Enable Navigator* :

Enable Navigator 

At runtime, 3 icons are displayed at the top left of the map :



-  : resets zoom level
-  : zoom in
-  : zoom out

Last modified: Feb 17, 2022

2.8.4. Grid



The Grid is a very powerful and simple widget.
It allows to display tabular data in many ways.

Last modified: Feb 17, 2022

2.8.4.1. Binding Data

Introduction

The following field containers are available for configuring data binding on a Grid :

The screenshot shows a 'Show' dialog box with a close button. It contains two sections: 'Column(s)' and 'Hidden Columns(s)'. Each section has a container for defining a field group. In the 'Column(s)' section, the first container shows 'Value' of 'Date' formatted as 'Quarter' and sorted 'Asc'. Below it is an 'And' separator, followed by a second container with 'Value' of 'Add optional field...'. The 'Hidden Columns(s)' section has a similar structure with 'Value' of 'Date' formatted as 'Month' and sorted 'Asc', followed by an 'And' separator and a second container with 'Value' of 'Add optional field...'.

- *Column(s)* : fields that will be Grid columns
- *Hidden Column(s)* : field that will be in the query but not visible to the user

Columns

Any number of fields of any type can be added as Grid Columns.

The order in the Columns container defines the order of Grid columns from left to right.

Value fields may or may not be aggregated.

Each field groups all the other fields on the right of it.

Changing the order of fields is documented [here](#).

Example

With fields Year, Continent :

Show

Column(s)

Value

of

Date

X

Formatted as

Year

Sorted

Asc

And

Value

of

continent

X

Sorted

Asc

The Grid shows the first Year (2016) and all its Continents,(Asia, Europe, North America), then the second Year (2017) and all its Continents, etc... :

Year(Date)	continent
2015	Asia
2015	Europe
2015	North America
2016	Asia
2016	Europe
2016	North America
2017	Asia
2017	Europe
2017	North America

With fields Continent, Year :

Show

Column(s)

Value
of
continent
X

Sorted
Asc

And

Value
of
Date
X

Formatted as
Year

Sorted
Asc

The Grid shows the first Continent (Asia) and all its Years (2015, 2016, 2017), then the second Continent (Europe) and all its Years, etc... :

continent	Year(Date)
Asia	2015
Asia	2016
Asia	2017
Europe	2015
Europe	2016
Europe	2017
North America	2015
North America	2016
North America	2017

Hidden Columns

Optionally, any number of fields of any type can be added as *Hidden Columns*.



Hints :

This can be useful for setting up conditional formatting based on calculations that the user doesn't need to see.

This can also be useful for grouping fields by a field where the values don't have to be

shown to the user.

The Hidden columns group the visible columns.

Value fields may or may not be aggregated.

Example

When configuring a single column called Year :

Show

Column(s)

Value

of

Date

Formatted as

Year

Sorted

ASC

... the data is grouped, and only distinct values of Year (2015, 2016, 2017) are displayed, and only once :

Year(Date)
2015
2016
2017

When configuring additionally a hidden field Continent which has 3 distinct values :

Show

Column(s)

Value

 of

Date

X

Formatted as

Year

Sorted

Asc

And

Value

 of

Add optional field...

Hidden Columns(s)

Value

 of

continent

X

Sorted

Asc

... each Year will appear 3 times : once for each value in Continent :

Year(Date)	
2015	▲
2015	
2015	
2016	
2016	
2016	
2017	
2017	
2017	▼

Last modified: Feb 17, 2022

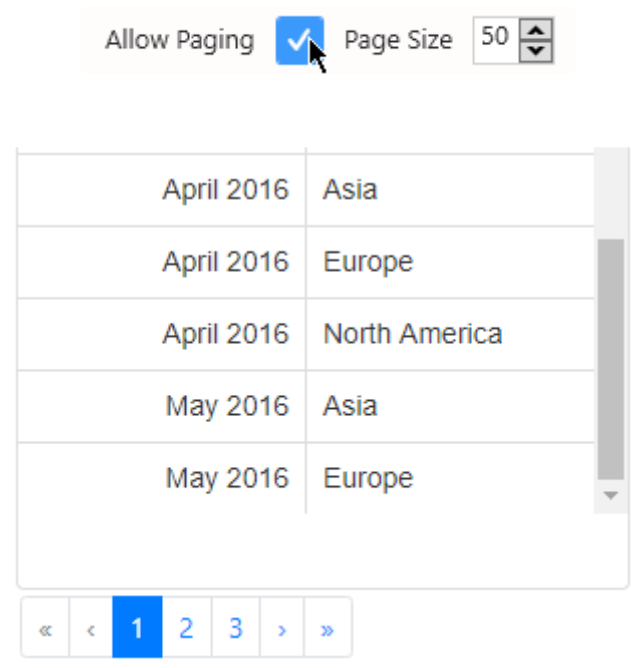
2.8.4.2. Layout and appearance

Paging

When loading a Grid Widget, all the rows of data are loaded.

The Grid can also be configured with *Paging* : it only loads pages of 50 rows (configurable), and a page navigator allows to see the rest of the data.






Check *Allow Paging* under *Basic Settings* and set a *Page Size* (default 50) :



The User can still scroll down each page (depending on the widget height), but not more than 50 rows at a time.

Then the navigator can be used to go to :



-  first page
-  previous page
-  a specific page number
-  next page
-  last page

Column width

Grid column width is by default constant, but can be configured to adapt to the content width.

Year	Country_Full	
2015	Asia - China	
2015	Asia - India	
2015	Europe - Denmark	
2015	Europe - France	
2015	North America - C...	
2015	North America - U...	

Check *Fit To Content* under *Basic Settings* :

Fit To Content ☒

Year	Country_Full	
2015	Asia - China	
2015	Asia - India	
2015	Europe - Denmark	
2015	Europe - France	
2015	North America - Canada	
2015	North America - United States	

Manual resize

At runtime, the user can resize the columns.

Hover your mouse between the column headers to show a “resize” pointer :

Change Log

Date	←||→ Tagname
11/25/2019 9:35:52 AM	amcharts_p

Then you can :

- drag to resize manually
- double-click to automatically resize the left column to the largest element

Grid Lines

Grid lines (columns/rows separators) can be displayed or hidden.

Check the corresponding *Horizontal/_/Vertical* option :

Horizontal Grid Line ☐

Vertical Grid Line ☒

Month Year(Date)	continent
January 2015	Asia
January 2015	Europe
January 2015	North America

Horizontal Grid Line ☒

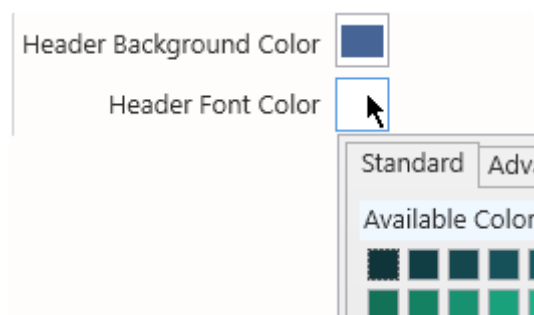
Vertical Grid Line ☐

Month Year(Date)	continent
January 2015	Asia
January 2015	Europe
January 2015	North America

Column Headers style

The visual style of widgets is inherited from the currently applied [Theme](#).

You can override the column headers style by selecting a color for their background and font :

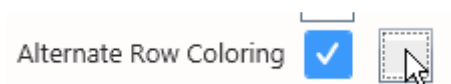


id	name
1.00	name 1
2.00	name 2

Alternate Row Coloring

For better readability, you can configure a secondary row color to display only on the odd-numbered rows.

Check *Alternate Row Coloring* and select a color :



Canada	54.00
China	87.00
Denmark	18.00
France	14.00

Last modified: Feb 17, 2022

2.8.4.3. User interaction

Note : Grid as Master Widget

As most other Widget types, the Grid can be configured as a [Master Widget](#) to filter other widgets.

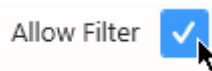
Additionally, the Grid allows you to make multiple selections : maintain the keyboard `Ctrl` key while clicking Grid rows to select multiple values.

Manual Filtering

Users can be allowed to filter column contents at runtime based on a text value.

Configuring Manual Filter

In the *Basic Settings* section, select *Allow Filter* :



Applying Manual Filter

At runtime, a text box appears under each column name, allowing users to filter by this column content :

ite)	continent	FactoryName	Sum(Pr
		san| I ✕	
2015	North America	San Francisco	
2016	North America	San Francisco	
2017	North America	San Francisco	

Only values that **start with** the input text is filtered.

! If [paging](#) is enabled, only the current page is filtered. To see the result across all pages, navigate to the corresponding page.

Clearing Manual Filter

To clear the filter, the User can click on the cross of that text box :

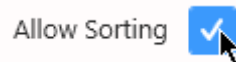


Manual Sorting

When loading a Grid widget, sorting order depends on data binding and sorting configuration.

However, when manual sorting is allowed, the User can click on column titles to manually sort the Grid on that column :

To enable this feature (enabled by default), un-check *Allow Sorting* under *Basic Settings* :



Single sorting

Clicking the column header will cycle between 3 states :

- not sorted
- sorted ascending
- sorted descending

Example


Here is the default sorting : Year ascending, continent ascending, (Production ascending) :

Year(Date)	continent	Sum(Production)
2015	Asia	59.86M
2015	Europe	11.75M
2015	North America	38.80M
2016	Asia	60.21M
2016	Europe	11.71M
2016	North America	38.72M
2017	Asia	59.99M
2017	Europe	11.70M
2017	North America	38.65M


When the User clicks on continent, the Grid is now sorted by continent in ascending alphabetical order :

Year(Date)	continent	Sum(Production)
2015	Asia	59.86M
2016	Asia	60.21M
2017	Asia	59.99M
2015	Europe	11.75M
2016	Europe	11.71M
2017	Europe	11.70M
2015	North America	38.80M
2016	North America	38.72M
2017	North America	38.65M

When clicking a second time, the column is now sorted descending :

Year(Date)	continent 	↓	Sum(Production)
2015	North America		38.80M
2016	North America		38.72M
2017	North America		38.65M
2015	Europe		11.75M
2016	Europe		11.71M
2017	Europe		11.70M
2015	Asia		59.86M
2016	Asia		60.21M
2017	Asia		59.99M

Number fields can also be sorted manually :

Year(Date)	continent	↓ 	Sum(Production)
2016	Asia		60.21M
2017	Asia		59.99M
2015	Asia		59.86M
2015	North America		38.80M
2016	North America		38.72M
2017	North America		38.65M
2015	Europe		11.75M
2016	Europe		11.71M
2017	Europe		11.70M

Multiple sorting

Using the `Ctrl` keyboard key and clicking another column header (`Ctrl+click`) will combine the sorting clauses in the correct order.
A number icon indicates the order of the sorting clauses.

Example

- 1. Clicking on UP twice sorts it in descending order,
- 2. `Ctrl+click` on Count sorts by “UP descending” first, then “Count ascending”
- 3. `Ctrl+click` on Line twice sorts by “UP descending” first, then “Count ascending”, then “Line descending”

UP 1 ↓	Line 3 ↓	↑ 2 Count
Frarrance 2	Line15	4

Last modified: Feb 17, 2022

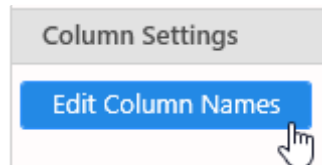
2.8.4.4. Column names

Edit Column Names

Columns are named automatically based on the corresponding field name and aggregation function.

These default names can be replaced by custom name for any column.

Under *Column Settings*, click *Edit Column Names* :

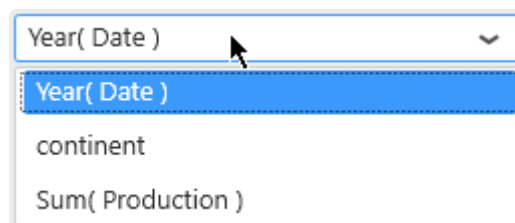


Rename column

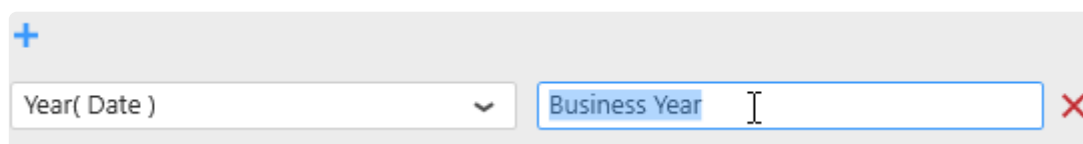
In the Edit Column Names dialog, click the **+** icon to add a column name customization :



From the new customization item, select a column name to rename :



Write a new name for the column :



Reset column name

To reset a column name to its original (auto-generated) name, click the red cross on the right of the corresponding item :



Nested Columns

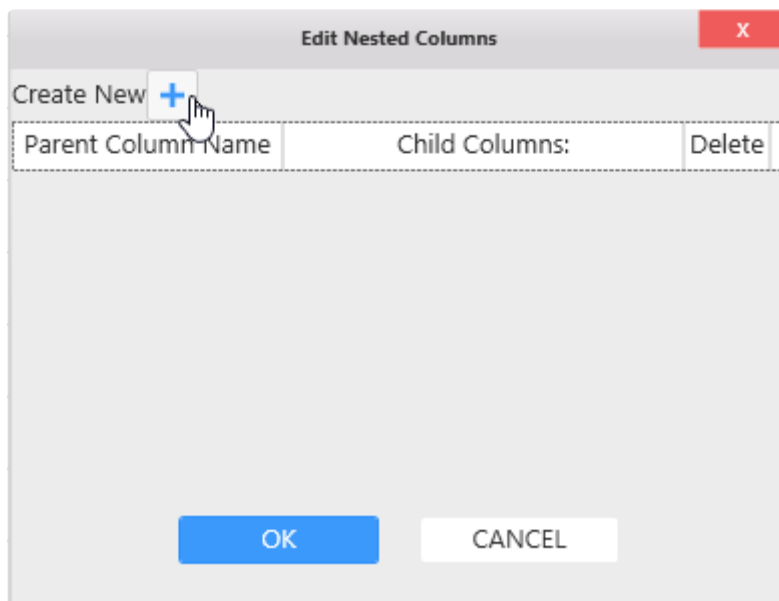
You can group Grid columns and configure a common title on top of the columns titles.

The top title is called a “Parent Column”, and the regular Grid column titles are called “Child Columns” of this Parent Column.

Under *Column Settings*, click *Edit Nested Columns* to open the editor.

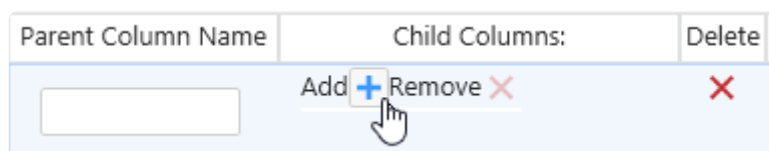
Create a Nested Column

Click *Create New* to start creating a new Nested Column :



A new un-configured row appears, and lets you configure :

- *Parent Column Name* : the text label you want to use on the Parent title
- *Child Columns* : the list of children columns that are nested under this Parent Column. This is where you can list, add, or remove children
- *Delete* : click to delete this Parent column.

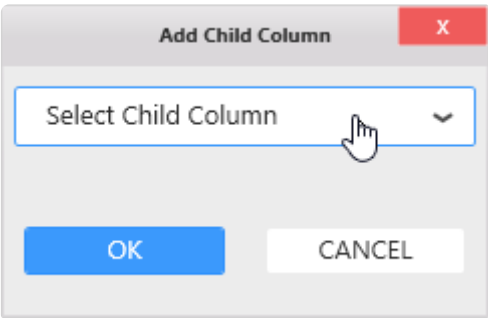


You can create several separate Nested Columns.

Add / Remove Children

Under *Child Columns*, click *Add* to select which current Grid columns you want to nest under this Parent Column.

The *Add Child Column* dialog appears, to let you select an available Column from the Grid :

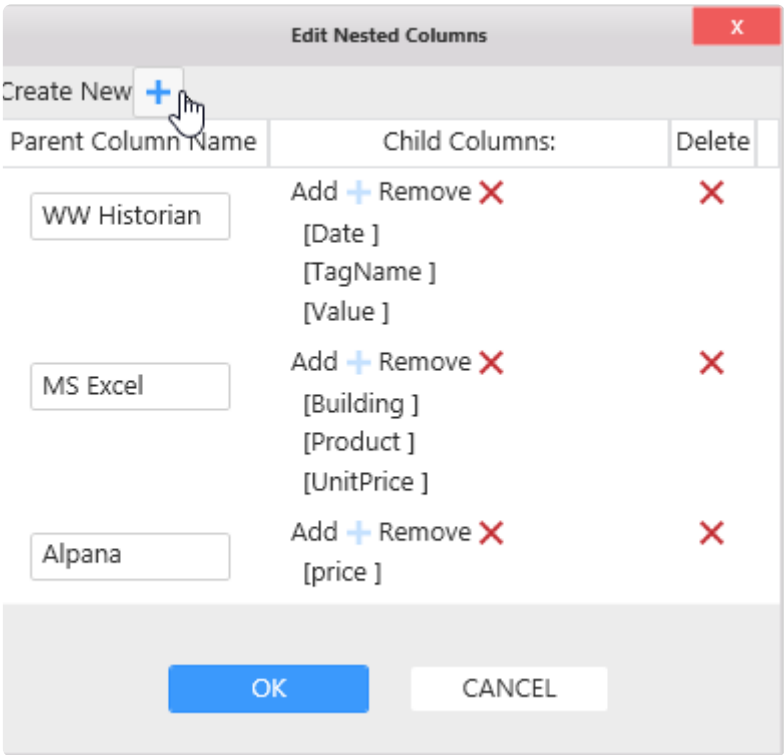


The column names are then listed in the *Edit Nested Columns* dialog :

Parent Column Name	Child Columns:	Delete
WW Historian	Add + Remove X [Date] [TagName] [Value]	X

Example

In this example, columns are grouped by data origin :



WW Historian			MS Excel			Alpana
Date	TagName	Value	Building	Product	UnitPrice	price
12/19/2019 3:29:54 PM	FT101.Value	24.69K	Building A	Product X	2.00	49.38K
12/19/2019 3:29:54 PM	FT102.Value	1.02K	Building A	Product Y	10.00	10.16K
12/19/2019 3:29:54 PM	FT201.Value	906.06	Building B	Product X	2.00	1.81K

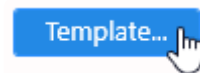
Last modified: Feb 17, 2022

2.8.4.5. Value display

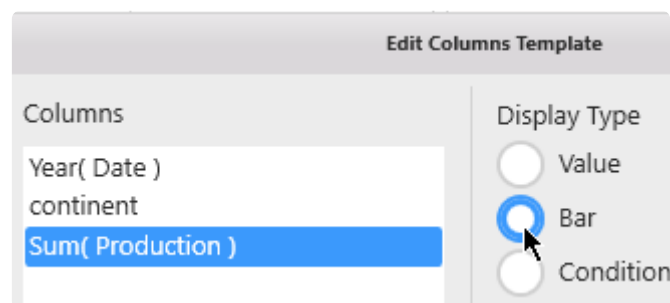
Bar graph

Value fields can be displayed as horizontal bar graphs.

For this, click *Template* under *Column Settings* :



In the Edit Columns Template dialog, select a **numerical** column from the left, and change its display type from Value (default) to Bar :



The value is now displayed as a green horizontal bar in each cell of the column :

continent	Total Production	Total Production ...
Asia	60M	<div></div>
Europe	12M	
North America	39M	<div></div>
Asia	60M	<div></div>

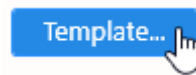
Last modified: Feb 17, 2022

2.8.4.6. Conditional Formatting

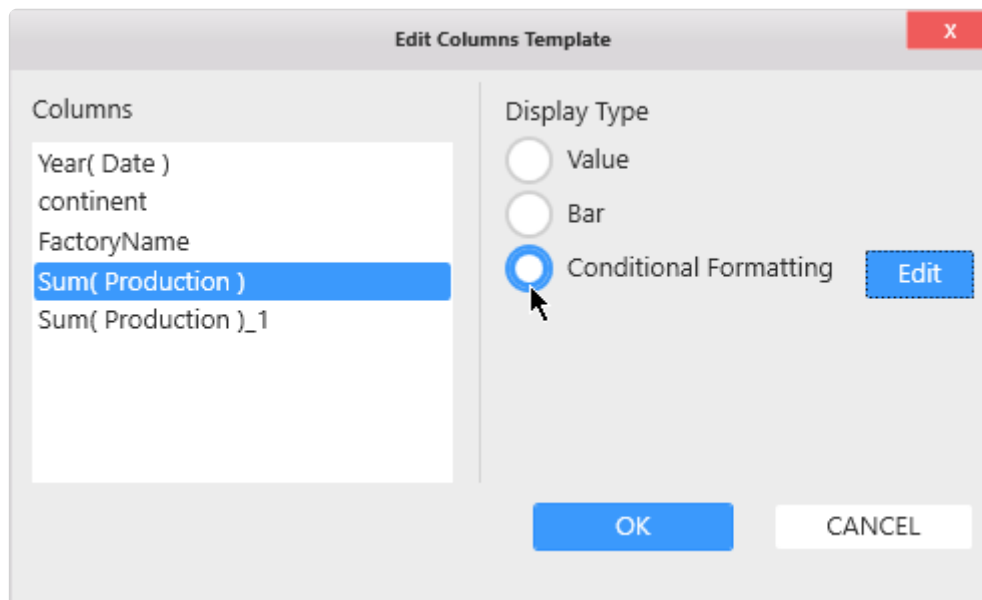
Grid cells can be formatted with color and text style based on data conditions.

Access Conditional Formatting

For this, click *Template* under *Column Settings* :

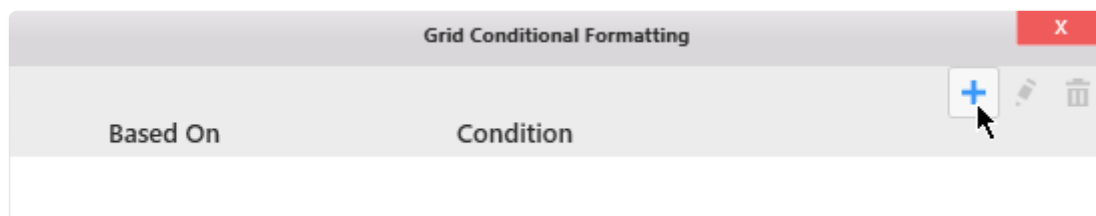


In the *Edit Columns Template* dialog, select on the left a column where you want to apply a formatting, then select *Conditional Formatting* and click *Edit* :



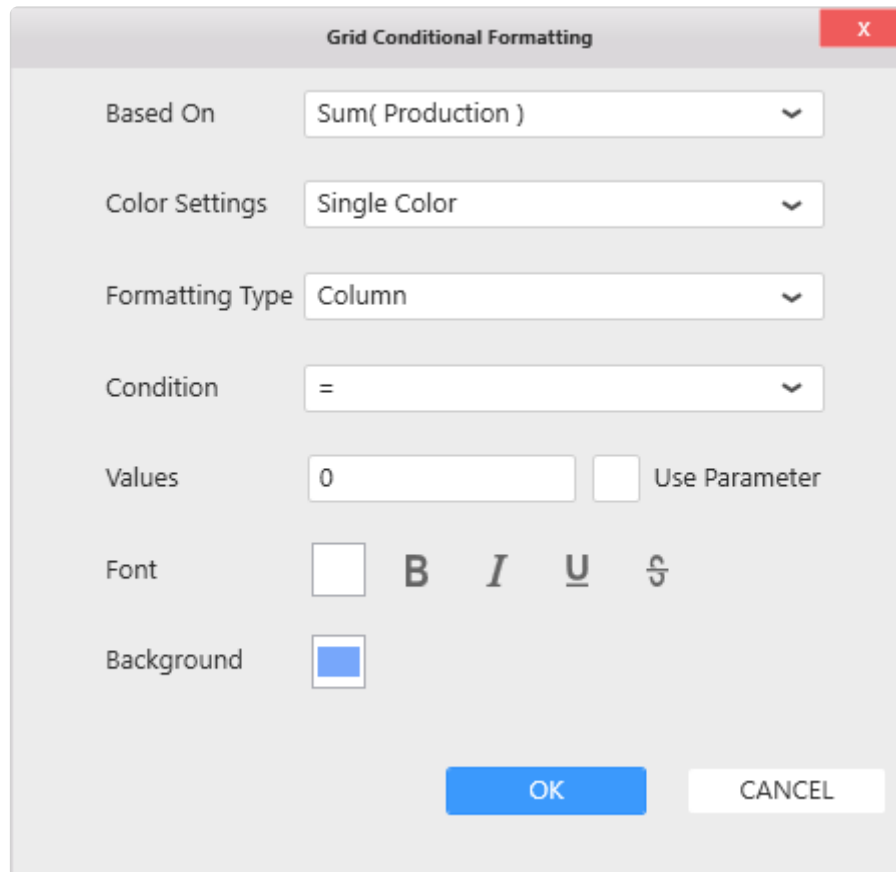
Add a Condition

In the *Grid Conditional Formatting* dialog, click **+** to add a first Condition :



Configure a Condition

A new *Grid Conditional Formatting* dialog appears for this new Condition :



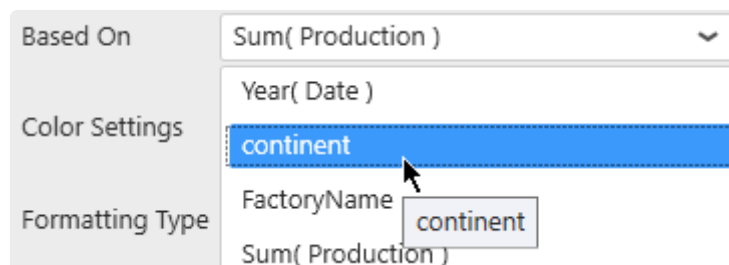
The dialog box is titled "Grid Conditional Formatting" and has a red close button (X) in the top right corner. It contains several settings:

- Based On:** A dropdown menu showing "Sum(Production)".
- Color Settings:** A dropdown menu showing "Single Color".
- Formatting Type:** A dropdown menu showing "Column".
- Condition:** A dropdown menu showing "=".
- Values:** A text input field containing "0" and a checkbox labeled "Use Parameter" which is currently unchecked.
- Font:** A section with a color selection box (white) and icons for Bold (B), Italic (I), Underline (U), and Strikethrough (ABC).
- Background:** A color selection box (blue).

At the bottom right, there are two buttons: "OK" (blue) and "CANCEL" (white).

Based On column

The Based On column selector allows to select which column will be used to calculate the condition :



This image shows the "Based On" dropdown menu expanded. The dropdown list contains the following options:

- Sum(Production)
- Year(Date)
- continent (highlighted in blue with a mouse cursor pointing to it)
- FactoryName
- Sum(Production)

A small tooltip box with the text "continent" is visible next to the highlighted "continent" option in the list.



Hint :

A Condition can be based on a different column than the one the formatting is applied to. It can also be based on a Hidden Column. This allows to base the condition on a complex Expression, but not show it to the end user.

Color Settings

Two color modes are possible :

- *Single Color* : based on a boolean condition, a single color is wholly applied or not, depending if the row meets the condition
- *Gradient* : based on a numerical field, a color gradient is applied to all cells, with color intensity depending on the magnitude of the number

Formatting Type

The formatting can be applied either :

- *Column* : on the cells of the selected column only
- *Row* : on all the cells of the same row

Single Color : Condition

For *Single Color* mode, the boolean condition is configured as : Column Operator Value

Example : `AlarmLevel >= 100`

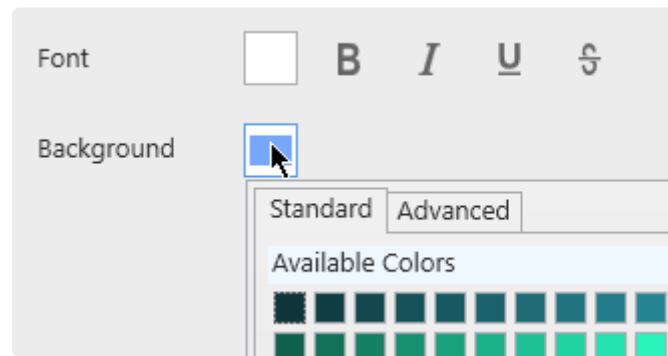
The operator can be selected from the *Condition* combobox :

The value to compare to can be entered in the text field called *Values* or a [Dashboard Parameter](#) can be used instead :

Single Color : Style

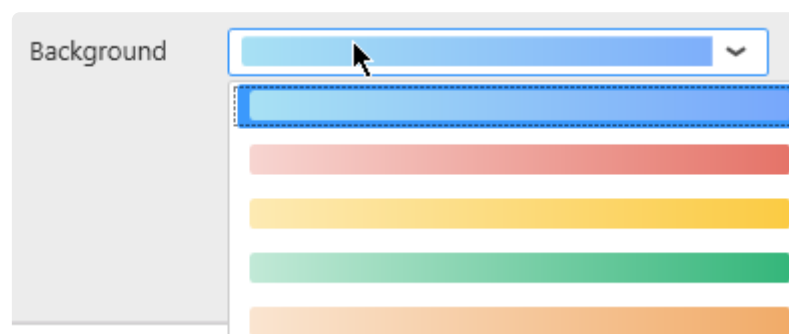
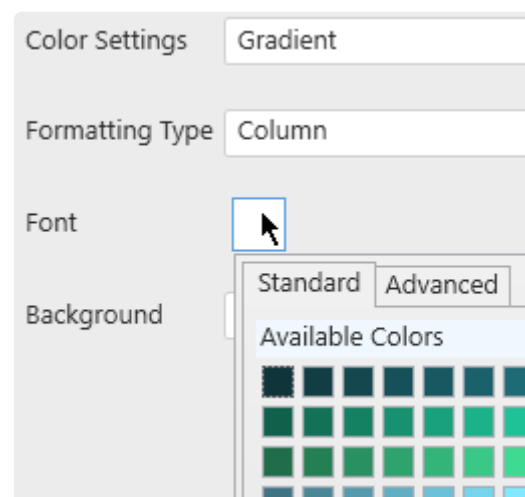
For *Single Color* mode, the style applied includes font color and style (**Bold**, *Italic*, Underlined, ~~Stricken~~)

:



Gradient : Style

For *Gradient* color mode, the style applied includes font color and gradient color :



Condition Order

Conditions will be applied in the same order as the list of conditions.

Example

The following list of conditions will apply the widest condition last (>1M), which will override any formatting done in the previous narrower condition (>10M) :


Based On	Condition
Sum(Production)	Sum(Production) > 10000000
Sum(Production)	Sum(Production) > 1000000

In order to apply a different color to the narrower condition (>10M), it needs to be listed last :

Based On	Condition
Sum(Production)	Sum(Production) > 1000000
Sum(Production)	Sum(Production) > 10000000


Editing a Condition

Click on a Condition and click on the pen icon to edit :

Grid Conditional Formatting			
		+	
Based On	Condition		
Sum(Production)	Sum(Production) > 1000000		
Sum(Production)	Sum(Production) > 10000000		

Deleting a Condition

Click on a Condition and click on the trash icon to delete :

Grid Conditional Formatting			
		+	
Based On	Condition		
Sum(Production)	Sum(Production) > 1000000		
Sum(Production)	Sum(Production) > 10000000		

Last modified: Feb 17, 2022

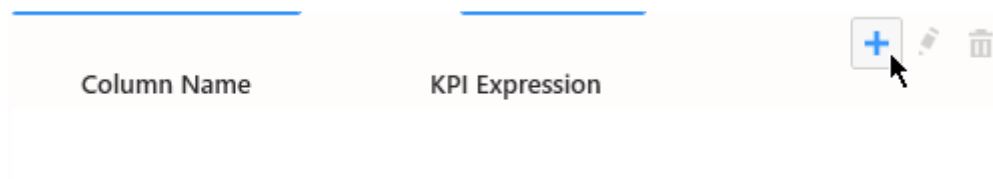
2.8.4.7. Grid KPI

Introduction

A **KPI Expression** (a new calculated column) can be generated to show how a value deviates from a target.

Creating a KPI

To create a KPI, navigate under section *Column Settings* near the list of KPI Expressions and click the **+** icon :



Configuring a KPI

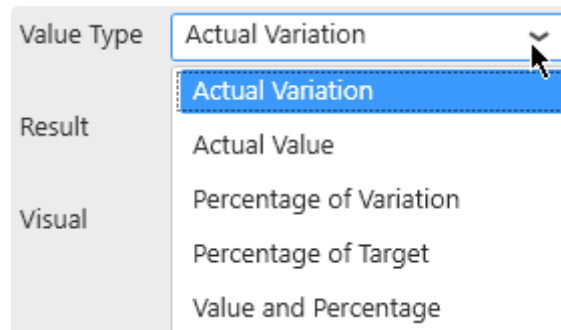
In the *KPI Column Configuration* dialog that appears, you can configure the KPI :

- *Actual Value* : the column that contains the value you want to track
- *Target Value* : the column to which you want to compare the Actual Value
- *Value Type* : what type of calculation is made to show the deviation
- *Result* : should we consider higher values as a good thing (green) or not (red)

- *Visual* : do we want to visualize the value as a number or a bar graph
- *Delta Background* : do we want to apply conditional color to the numbers or to the cell background

Value Types

Click to select a *Value Type* : what type of calculation is made to show the deviation :



Actual Variation

Shows as a single value the difference between the Value and the Target.

```
Calculation = Value - Target
```

Actual Value

Shows as a single value the Actual Value itself

```
Calculation = Value
```

Percentage of Variation

Shows as a single value the % of variation to target.

```
Calculation = 100 * (Value - Target) / Target
```

Percentage of Target

Shows as a single value the % of value to target.

```
Calculation = 100 * Value / Target
```

Value and Percentage

Shows 2 values in the cell :

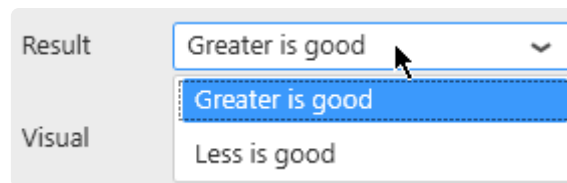
- *Actual Variation*
- *Percentage of Variation*

Result interpretation

The font and symbol of the KPI has a color :

- **green** for “good”
- **red** for “bad”

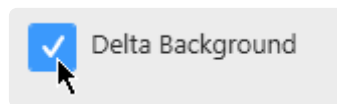
You can define high values as being “good” or “bad” using the Result configuration :



Style : background

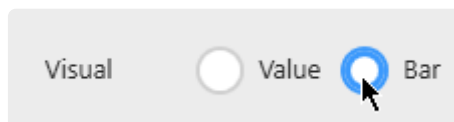
By default, the good/bad color is applied to the font, and the cell is white.

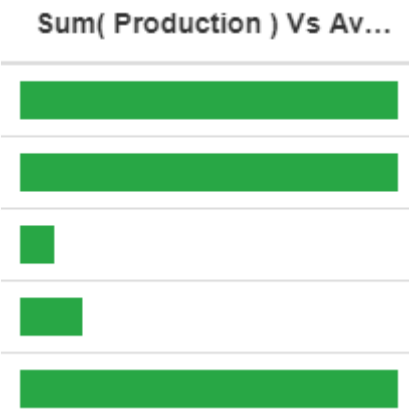
This can be configured as the opposite, for better visibility. Check *Delta Background* :



Style : Bar chart

Instead of showing the value as a number, the Actual Value calculation can be displayed as a Bar chart by selecting the appropriate Visual :





Last modified: Feb 17, 2022

2.8.4.8. Footer

Introduction

Footers are configured under *Footer Settings* and allow to create summary rows at the bottom of the Grid.

✿ Note : footers are disabled when Paging is enabled.

Creating a Footer

To create a Footer, navigate under *Footer Settings* and click the + icon :



Configuring a Footer

In the *Footer Row Configuration* dialog that appears, you can configure the Footer :

- *Columns* : the column names from the Grid
- *Aggregate Function* : choose a function to make the desired calculation
- *Display Name* : configure the text label
- *Clear* : use the red cross button to reset your configuration

Footer Row Configuration					X
Columns	Aggregate Function	Display Name	Clear		
TagName	Count	COUNT(TagName)	X		
UnitPrice	Max	maxi price	X		

Managing Footers

From the list of *Configured Footers*, you can Edit or Delete existing footers, by clicking the corresponding Footer name and action icon :

Footer Settings

+

Configured Footers

[mini price]

[maxi price]

[count]

Result

The Footers are displayed at the bottom on the Grid :

TagName	UnitPrice
FT101.Value	2
FT102.Value	10
FT201.Value	2
FT202.Value	10
FT301.Value	2
FT302.Value	10
	mini price: 2
	maxi price: 10
	count: 6

Last modified: Feb 17, 2022

2.8.4.9. HTML in the Grid

Introduction

The Grid Widget will display any text content as HTML (provided there is no conflict with the page structure, styles, scripts, etc).

There is no clear boundaries of what is supported and what might break a dashboard, and you should make tests for the HTML features you want to use.

General example

Your data contains a text field (called "html" here) with some HTML markup :

	A	B	C	D	E
1	html				
2	©[code192]				
3	html image :				




(this is from the same data as above)

This can be used for many customization cases, including displaying animated GIFs conditionally :

day

1

alarms

html_img	name
	pH meter
	pressure meter
	temperature sensor

Last modified: Feb 17, 2022

2.8.5. TreeMap

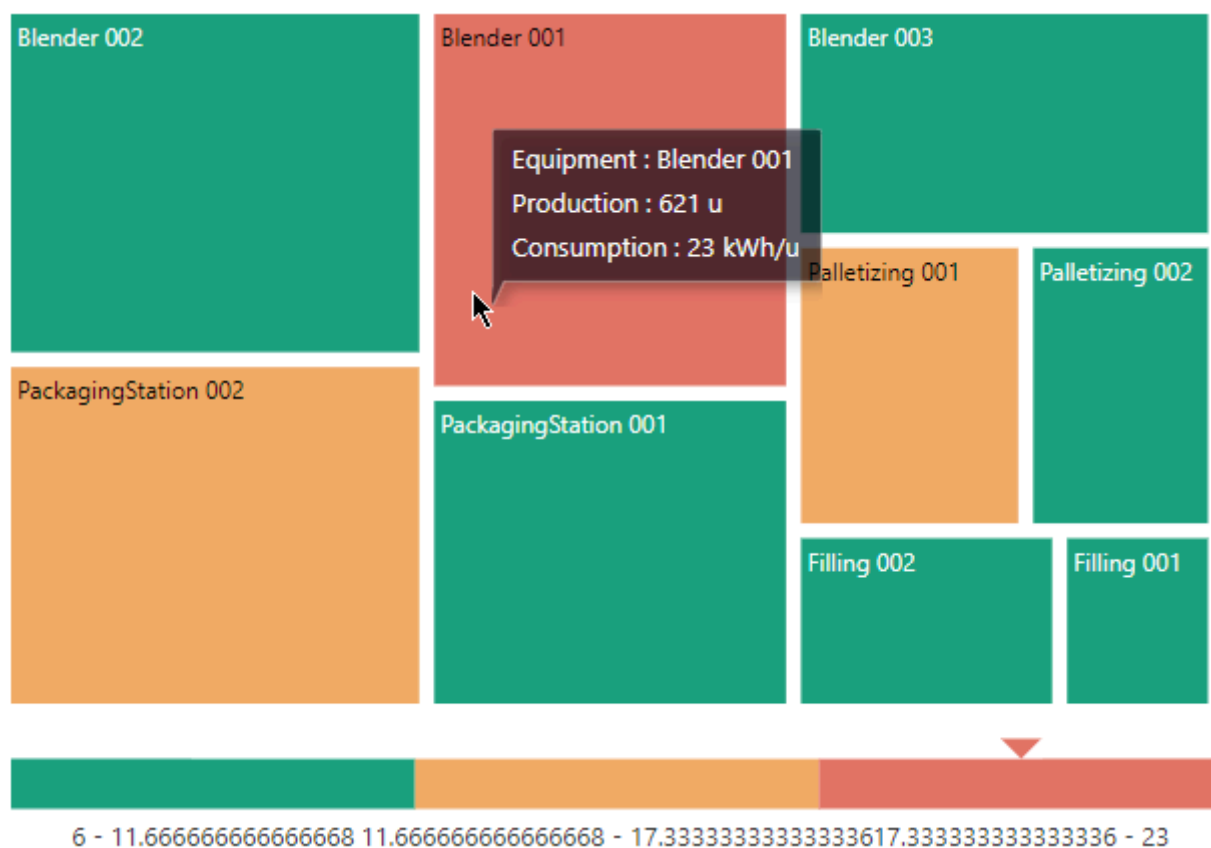


The TreeMap widget can be used as an extension of Proportion Charts : data is grouped in rectangles whose size and color can be bound to different data fields.

In a typical case, the size represents the importance, and the color represents the KPI itself. This can be useful typically for showing the efficiency of something combined with the quantity.

Example :

Each rectangle is grouped by Equipment. The size of rectangles is bound to the Quantity produced, the color is bound to the energy Consumption.



In the above TreeMap, we can see that the Blender_001 has very bad energy efficiency, but represents only a small fraction of the total production.

Last modified: Feb 17, 2022

2.8.5.1. Binding Data

Introduction

The following field containers are available for configuring data binding on a TreeMap :

Show

Weight

Sum of Production
Sorted Asc

Value(s)

Sum of Consumption
Sorted Asc

Group by

Group by

Value of Building
Sorted Asc

Value of Zone
Sorted Asc

Value of Equipment
Sorted Asc

Value of [Add optional field...](#)

- *Weight* : the size of the rectangles. If no “Value” is configured, this is also the color.
- *Value* : the color of the rectangles
- *Group By* : how we group values together to create separate rectangles

Weight

This represents the quantity we want to display on the TreeMap, and will bind for rectangle size.
If no “*Value*” field is configured, this field also binds to the color of the rectangles.

This field **must be aggregated** : you must choose an aggregation function (SUM, AVG, ...)
This field is required.

Values

When a *Values* field is bound, it defines the color of the rectangles, while the first field now only defines the size of rectangles.

This field **must be aggregated** : you must choose an aggregation function (SUM, AVG, ...)
This field is optional.

Example

For example, you configure a single field “Production” :

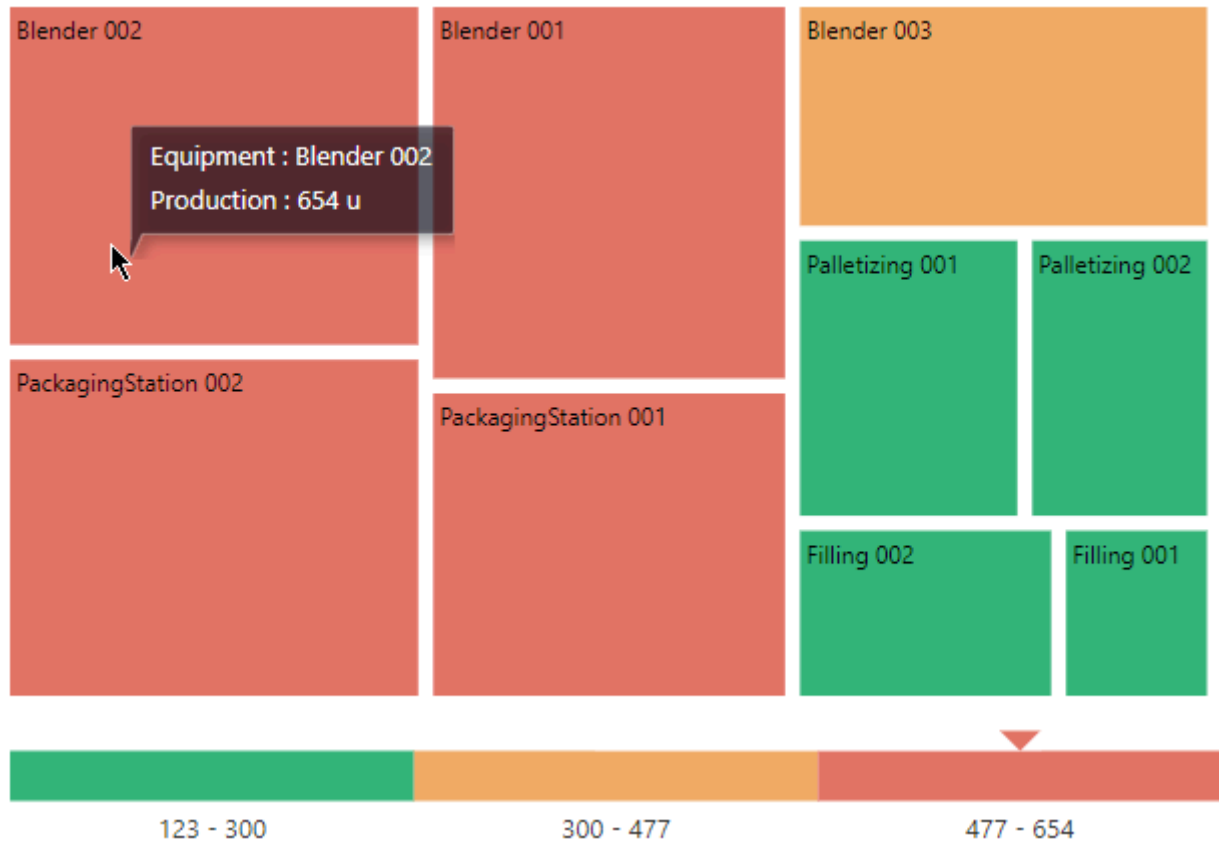
The screenshot shows a configuration interface with two sections: "Weight" and "Value(s)".

Weight section: It contains a dropdown menu with "Sum" selected, followed by the word "of", then another dropdown menu with "Production" selected. To the right of the second dropdown is a close button (X). Below this, the word "Sorted" is followed by a dropdown menu with "ASC" selected.

Value(s) section: It contains a dropdown menu with "Sum" selected, followed by the word "of", then a dropdown menu with the text "Add optional field..." in blue. This section is enclosed in a dashed border.

It defines both the size and color of rectangles.

So for example Equipment “Blender_002” has value 654 which is high (large and red) :



Now you configure as secondary field a “Consumption” :

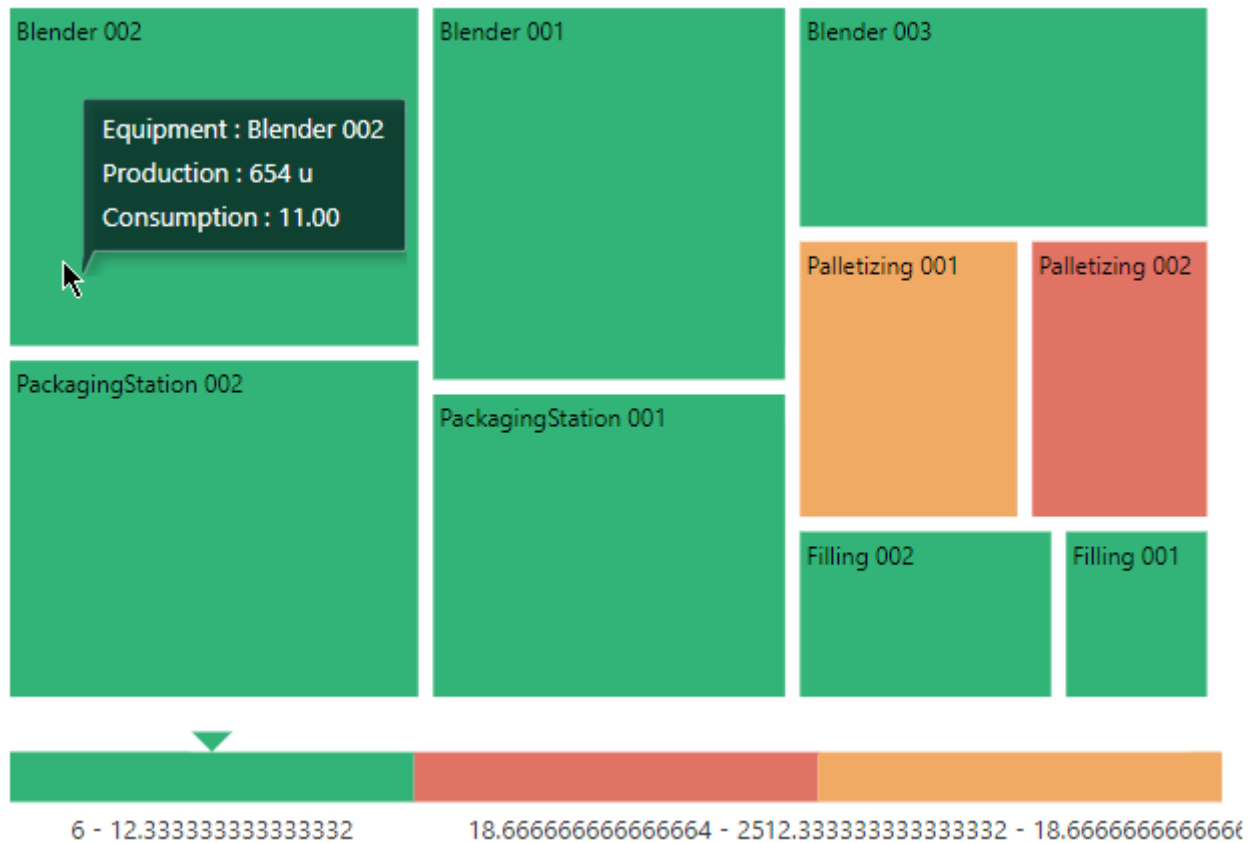
Weight

Sum of Production
Sorted Asc

Value(s)

Sum of Consumption
Sorted Asc

Now the rectangles keep the same size (the *Weight* field is the same), but the color is different. So for example Equipment “Blender_002” still has Quantity 654 which is high (large), but now the color is green because the secondary “Consumption” is low (11) :



Group By

This represents the category we want to use to separate rectangles.

These fields **cannot be aggregated** : they must have several separate values in order to group the “Values” aggregation.

Multiple fields : Grouping

When binding multiple fields at the same time, the rectangles will be grouped by the defined hierarchy.

For example, binding fields Continent>Country>Factory :

Group by

Value

▼

of

continent

▼

×

Sorted

ASC

▼

Value

▼

of

Country

▼

×

Sorted

ASC

▼

Value

▼

of

FactoryName

▼

×

Sorted

ASC

▼

Value

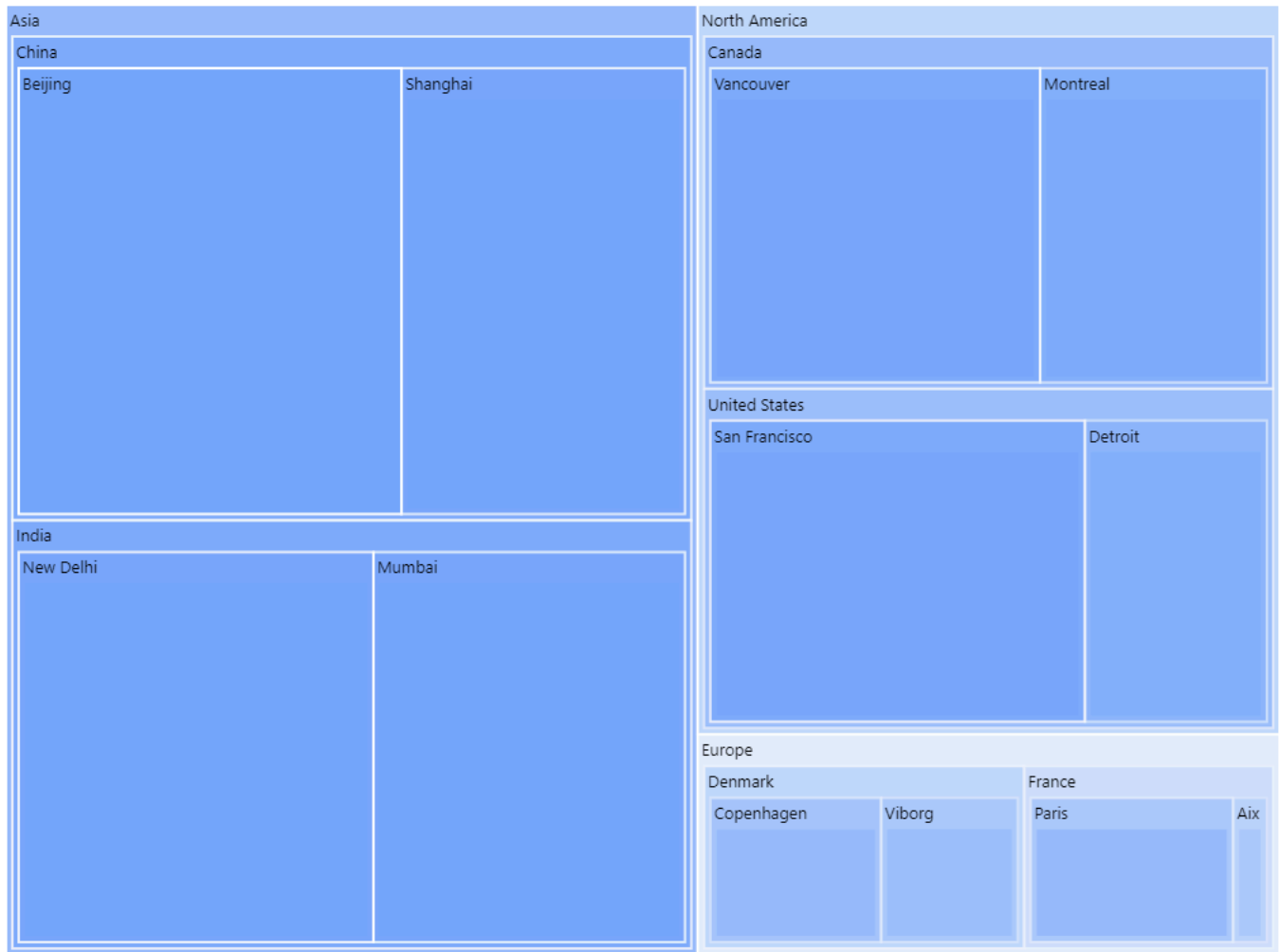
▼

of

Add optional field...

▼

... will group factories by country and the countries by continent :



Multiple fields : Drill-Down

When binding multiple fields at the same time, it is possible instead to define Drill-Down : the user will navigate the hierarchy by clicking.

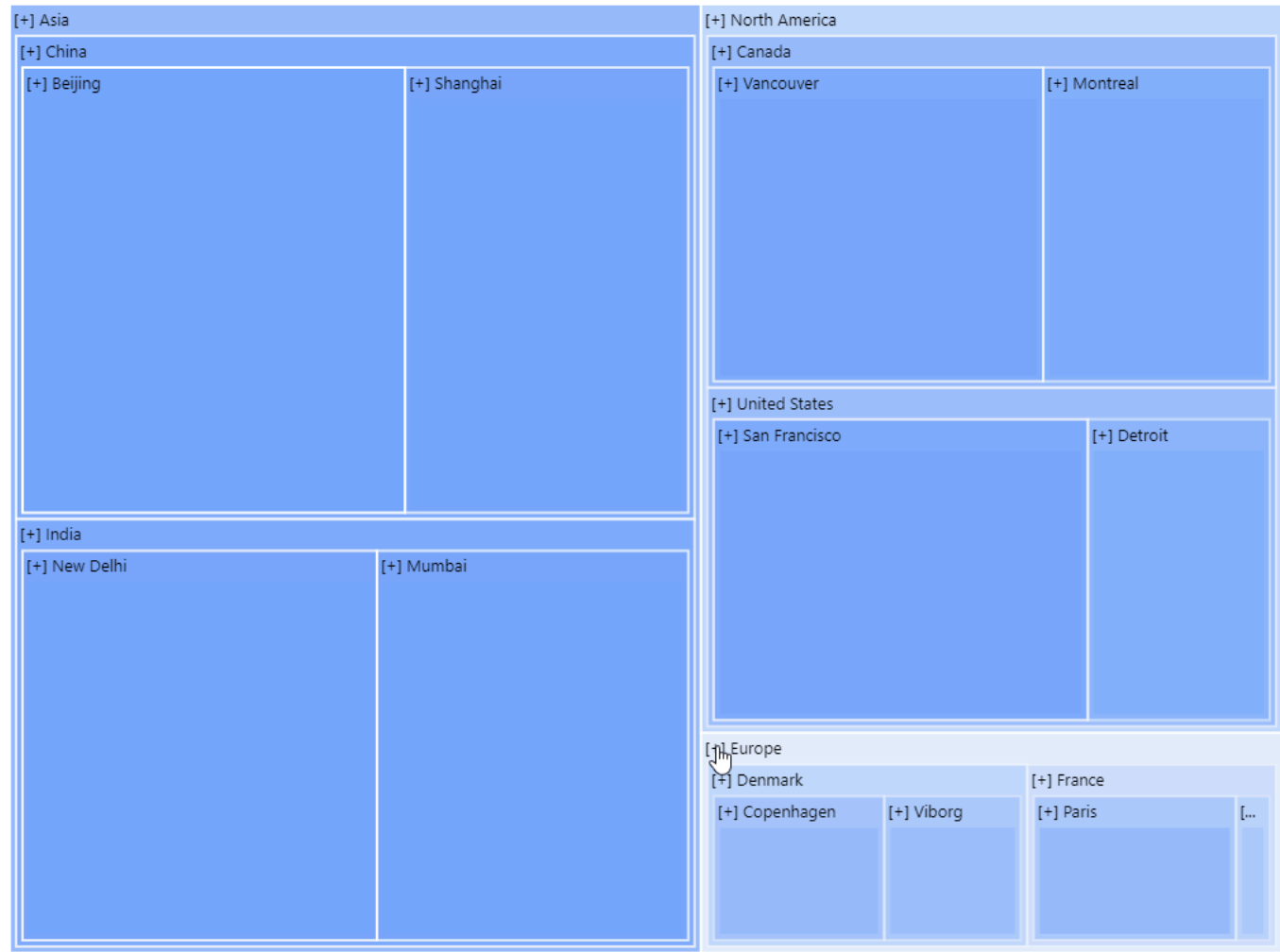
Under Basic Settings, select Enable DrillDown :



Now again the factories are grouped by country and the countries by continent. But in addition, this can be navigated by clicking on the [+] or [-] icon on shapes :



The User can click a Continent to drill down. For example, here clicking [+] on “Europe” brings focus to this level :



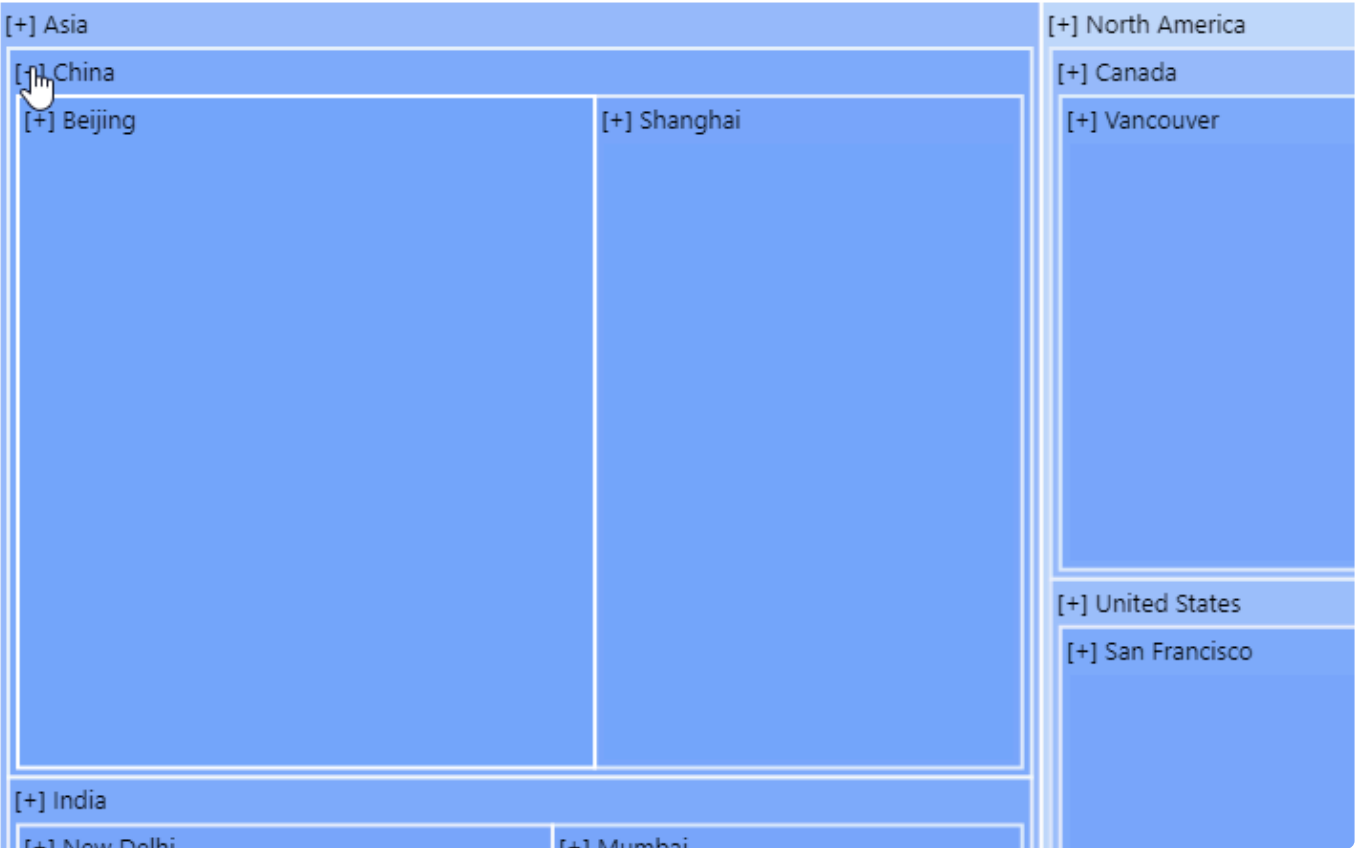
... and see a list of countries for that continent. Then clicking [+] on a Country brings focus on that Country :



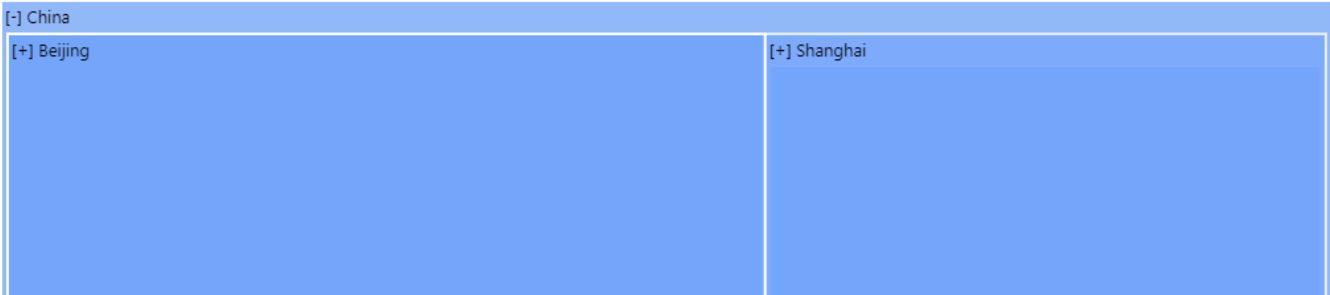
... and see a list of Factories for that Country :



It is possible to click the [-] to navigate up the DrillDown.



It is also possible to click on a lower level directly to navigate to it. For example, from top level, on can click directly a Country to drill down to this country and compare the Factories :



Last modified: Feb 17, 2022

2.8.5.2. Managing Colors

Monochromatic

By default, the TreeMap shows value intensity as a gradient of a single color.

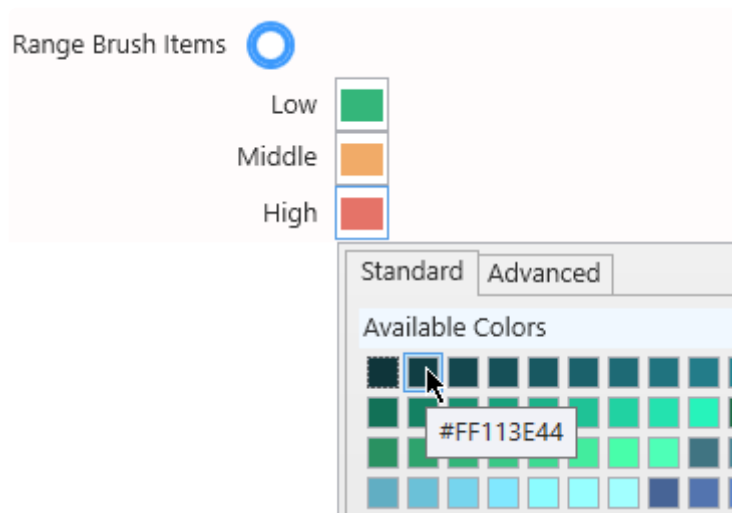
This *Monochromatic* Gradient can be set to a different color by using the dedicated combobox under *Range Color Settings* :



Range Brush

The TreeMap can be configured to show value intensity in ranges of single colors.

Select *Range Brush Items* and choose the colors of each interval :



The interval between the maximum of Value and the minimum of Value will be split in equal intervals and assigned a single color.

✿ This can be useful for setting a color code like “low is red, medium is orange, high is green”.

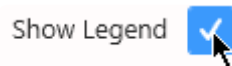
Last modified: Feb 17, 2022

2.8.5.3. Data Point information

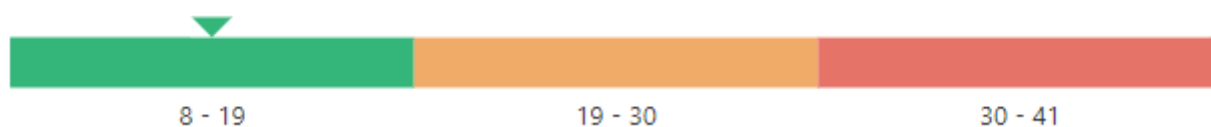
Legend

If using **Range Brush** colors, the TreeMap can display a legend.

Click on Show Legend under Basic Settings :



The scale is displayed with the value interval for each color, and the value for the currently selected shape is highlighted with an arrow :



Last modified: Feb 17, 2022

2.8.6. Circular Gauge



The Circular Gauge Widget can be used to display a single value as a gauge filling and optionally compare it to a target.

It can also be turned into a container for an indeterminate number of Circular Gauges.

Last modified: Feb 17, 2022

2.8.6.1. Binding Data

The Circular Gauge has 5 data fields available for binding :

- *Actual Value* : value displayed as a filling of the Circular Gauge
- *Start Value* : dynamic minimum value
- *End Value* : dynamic maximum value
- *Tolerance Threshold Minimum Value* : dynamic threshold minimum value range
- *Tolerance Threshold Maximum Value* : dynamic threshold maximum value range
- *Target Value* : target displayed as an arrow on the Circular Gauge
- *Series* : how we split series of different gauges in the same container

Show

Actual Value

Avg

▼

of

Value

▼

Sorted

by default

▼

×

Start Value

Min

▼

of

Add optional field...

▼

End Value

Max

▼

of

Max

▼

Sorted

by default

▼

×

Tolerance Threshold Minimum Value

Min

▼

of

Add optional field...

▼

Tolerance Threshold Maximum Value

Max

▼

of

Add optional field...

▼

Target Value

Avg

▼

of

Target

▼

Sorted

by default

▼

×

Group by

Series

Value

▼

of

Equipment

▼

Sorted

ASC

▼

×

Actual Value

This represents the **primary quantity** we want to display on the Circular Gauge, and will bind to the needle position and filling of the Circular Gauge.

This field must be aggregated : you must choose an aggregation function (SUM, AVG, ...)

This field is required.

Actual Value

Avg

▼

of

Consumption

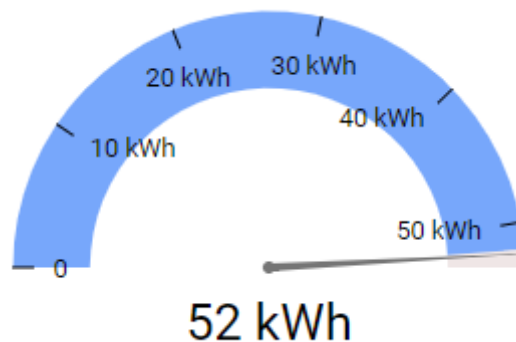
▼

✕

Sorted

by default

▼



Start Value

This represents the Minimum we want to display on the Circular Gauge, for example the “MinEU” field from Wonderware Historian.

When this field is bound, it overrides manual configuration of the Custom Range Minimum.

If the Actual Value goes below this Start Value, the Circular Gauge will appear empty.

This field must be aggregated : you must choose an aggregation function (SUM, AVG, ...).

This field is optional.

Start Value

Min

▼

of

Min

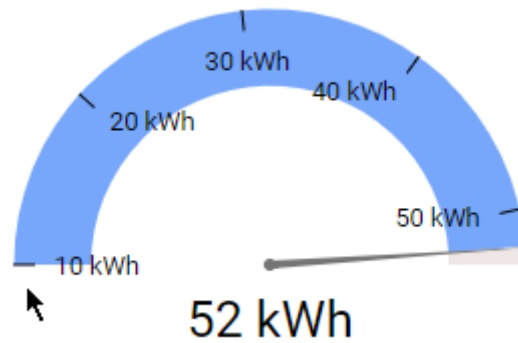
▼

✕

Sorted

by default

▼



End Value

This represents the Maximum we want to display on the Circular Gauge, for example the “MaxEU” field from Wonderware Historian.

When this field is bound, it overrides manual configuration of the Custom Range Maximum.

If the Actual Value goes above this End Value, the Circular Gauge will appear empty.

This field must be aggregated : you must choose an aggregation function (SUM, AVG, ...).

This field is optional.

End Value

Max

▼

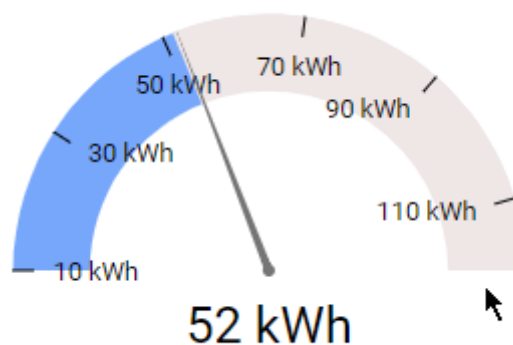
of

Max

▼

✕

Sorted by default ▼



Tolerance Threshold Minimum Value

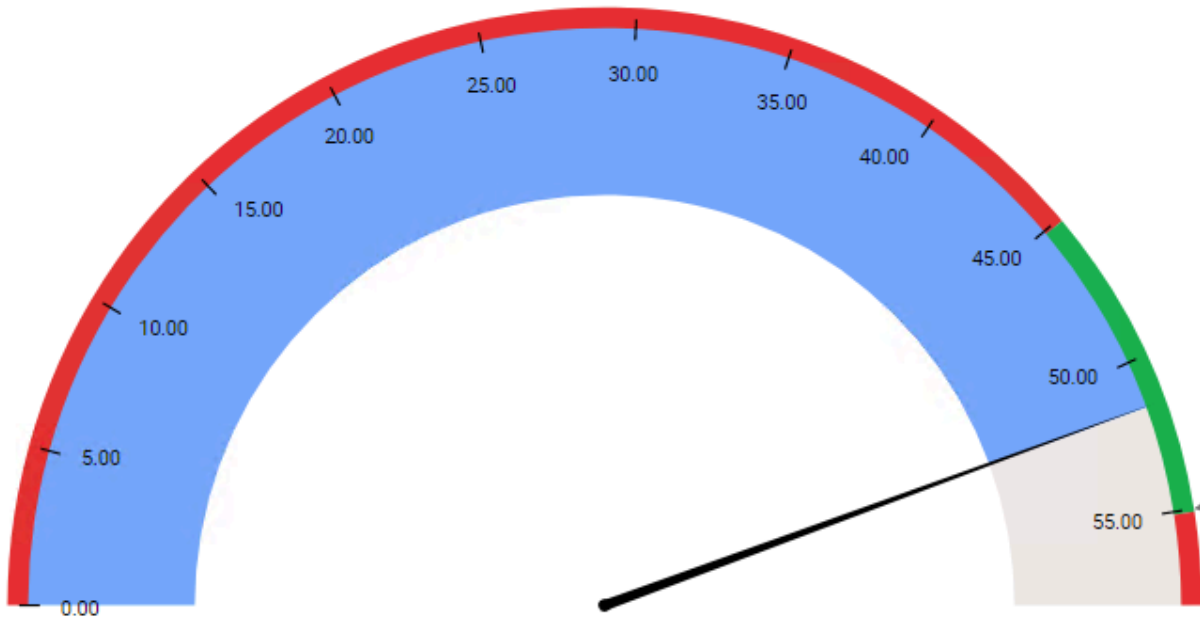
This represents the minimum of the good range we want to display on the Circular Gauge, and will bind to the minimum of the good zone.

If no maximum is set, all value above minimum will be good.

Tolerance Threshold Maximum Value

This represents the maximum of the good range we want to display on the Circular Gauge, and will bind to the maximum of the good zone.

If no minimum is set, all value bellow maximum will be good.



Target Value

This represents the Target we want to display on the Circular Gauge, and will bind to the position of a small arrow on the Circular Gauge.

When this field is bound, an additional information is displayed as text : the distance from Actual Value to Target Value in units and in percentage.

The Target Value field must be aggregated : you must choose an aggregation function (SUM, AVG, ...). This field is optional.

Target Value

Avg

▼

of

Target

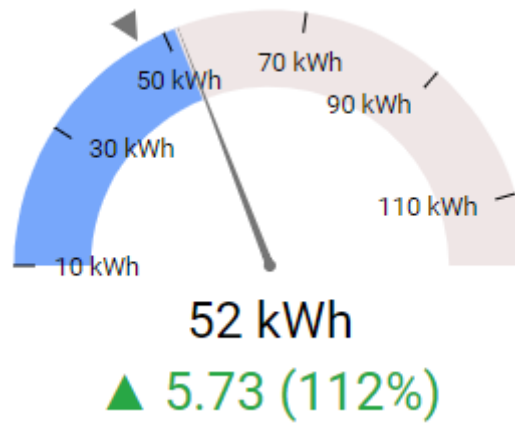
▼

×

Sorted

by default

▼



Series

This represents the series field to generate a different contained Circular Gauge for each different value in this Series field.

Each Circular Gauge will take a portion of size of the widget depending on the container shape. In order to access the other values, the user may need to scroll.

Please see [the corresponding chapter to configure the Circular Gauge as Widget container](#).



Note :

This only works if your series are values into a single data field.

Example : If you have a field called “Equipment”, you may want to plot a completely separate Circular Gauge for each value of Equipment :

Series

Value

▼

of

Equipment

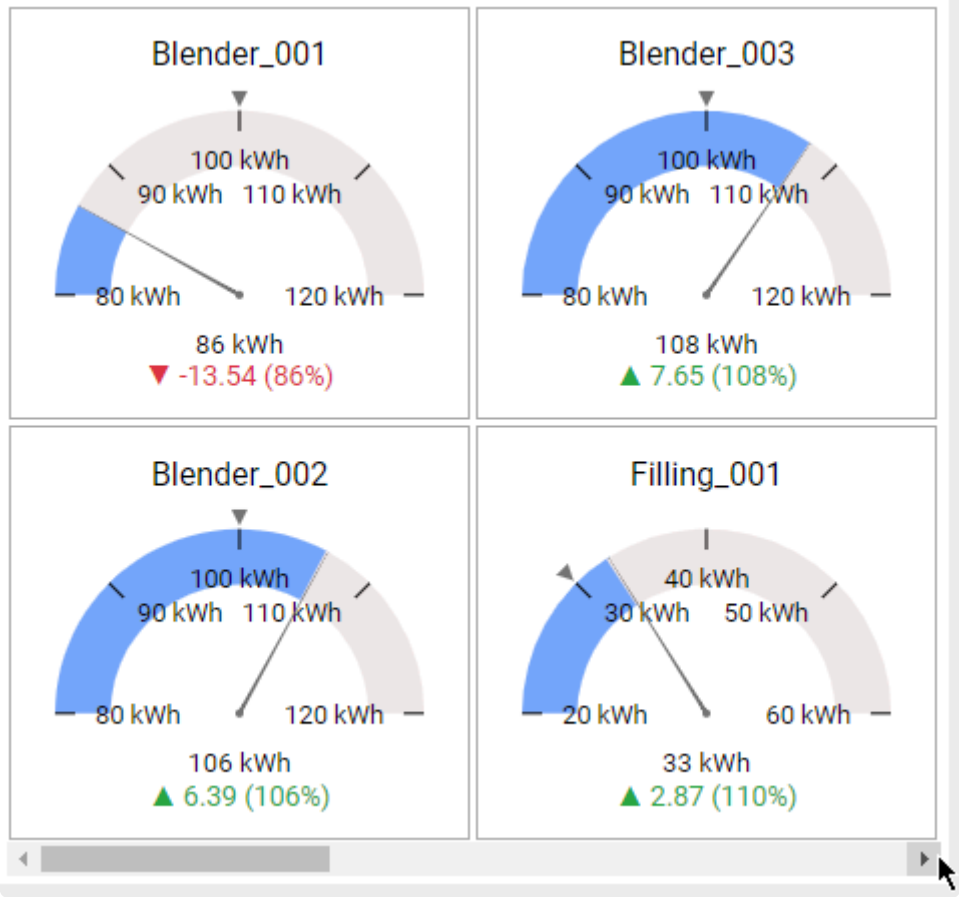
▼

✕

Sorted

ASC

▼



Last modified: Feb 17, 2022

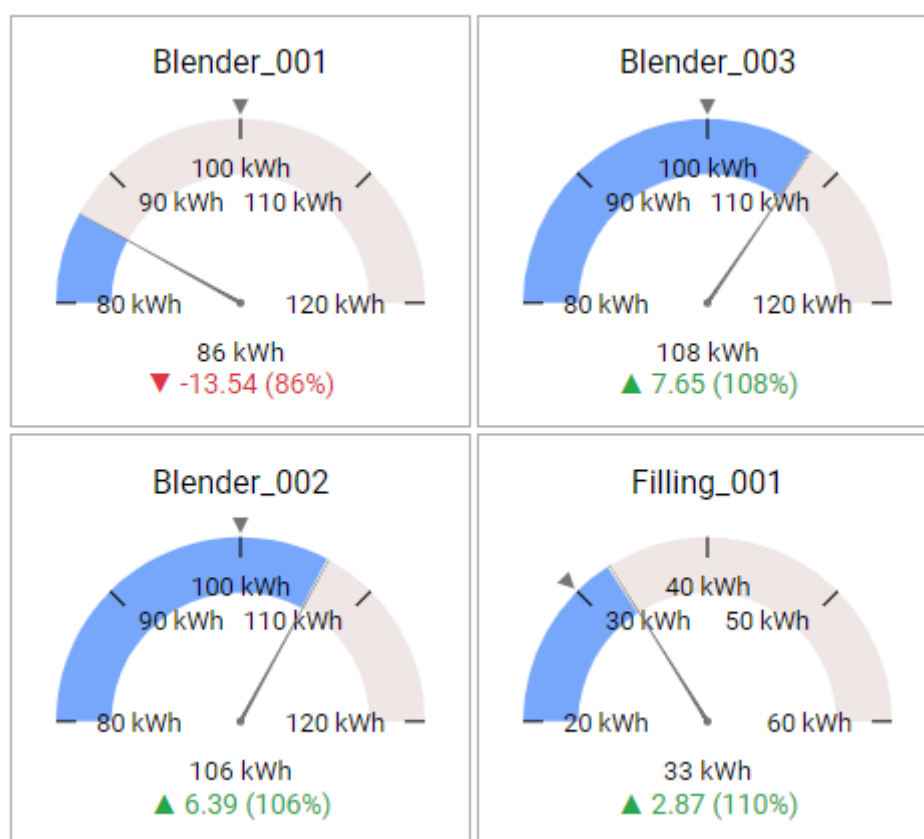
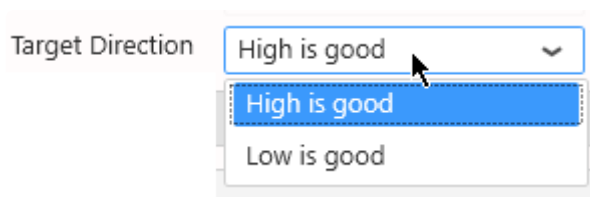
2.8.6.2. Value Display

Result interpretation

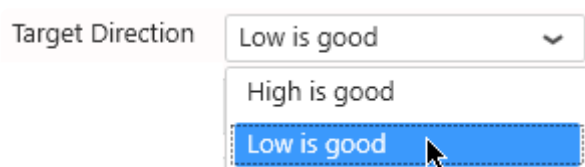
The font and symbol of the distance to target has a color :

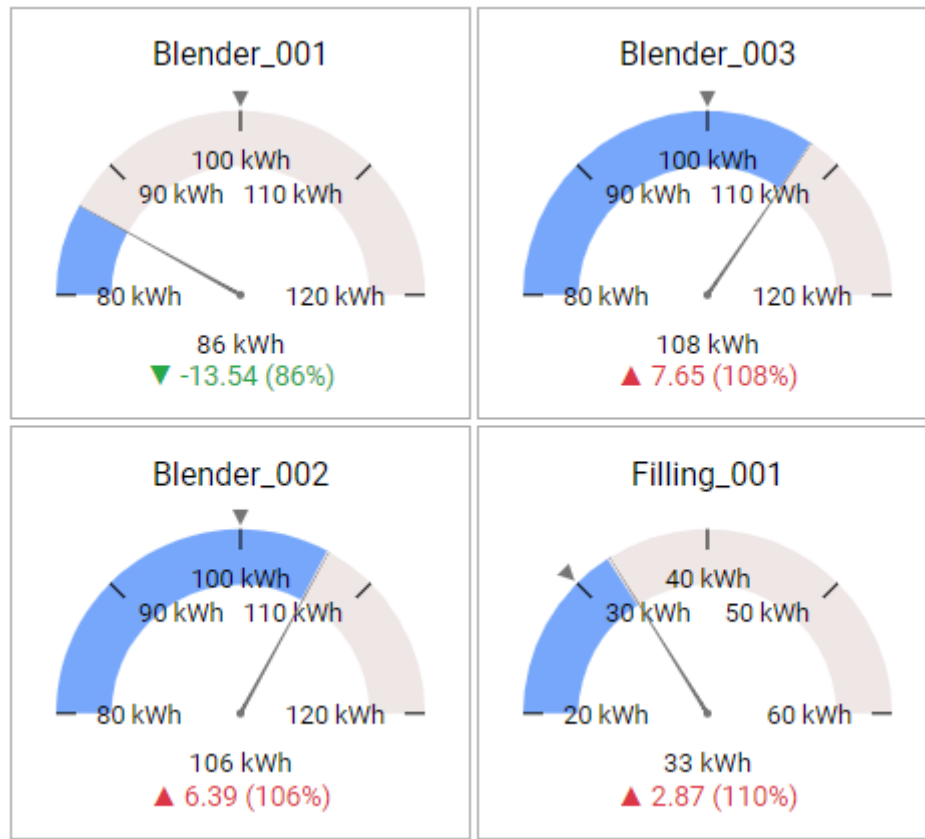
- **green** for “good”
- **red** for “bad”

You can define high values as being “good” or “bad” using the *Target Direction* configuration in *Basic Settings* :



... reverts into :





Value Range

Dynamic value ranges can be defined by binding data fields to the [Start Value and End Value](#) configurations.

If instead you want static values for the boundaries of the value range, go under Basic Settings , check the desired part of the *Custom Range* and fill the number box :

Custom Range ☒ Minimum
☐ Maximum

✿ This will override the dynamic data binding from Start Value and End Value.

Value Threshold

Value of the Threshold

Different kind of threshold or color range can be applied to the gauge.

A value threshold or Range can be displayed on the Circular Gauge to define good/bad value range or defining color zones.

- Unique : Unique threshold value that define upper or lower value is good or bad
- Range : Single zone that define if inside or outside value is good or bad
- Custom : Multiple color customizable zones.

To enable this feature, select `_Custom Threshold_` type under *Basic Settings* (see [Threshold configuration chapter](#))

Last modified: Mar 31, 2022

2.8.6.2.1. Threshold configuration

The custom threshold property is used to create color zone on the gauge.

There are 3 mode :

- Unique
- Range
- Custom

Unique

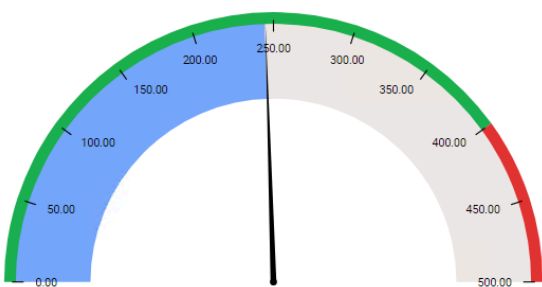
Custom Threshold ☒ Unique ☐ Range ☐ Custom

☐ Threshold value

Threshold Direction

Unique mode is made to get a single threshold value. it can be configured with a direction that define the zone in green or in red :

Direction	Below color	Above color
Low is good	Green	Red
High is good	Red	Green



target direction

Format

Main Value

Secondary Value

Range Settings

Range Color

Custom Range ☐ Start End

Custom Threshold ☒ Unique ☐ Range ☐ Custom

☒ Threshold value

Threshold Direction

Tooltip Configuration

Filter

Link



Note :

If a *Target Value* is configured (as in the screenshot above), the KPI still displays the distance to Target, and **not the distance to Unique Threshold**.

Range

Custom Threshold

☐ Unique

☒ Range

☐ Custom

☐

Start

0

☐

End

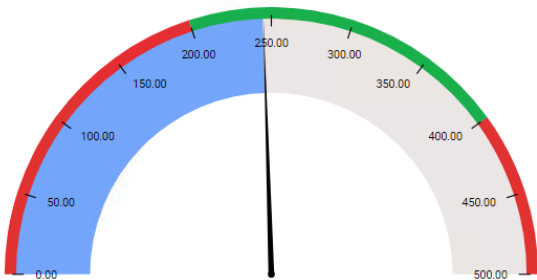
100

Threshold Direction

Inside is good

Range mode is working similar to the threshold but instead of having a single point, it is possible to define a zone with a minimum and a maximum.
It is possible to define only the start of the end of the zone. The direction is also configurable :

Direction	Inside color	Outside color
Inside is good	Green	Red
Outside is good	Red	Green



Main Value

+

Secondary Value

+

Range Settings

-

Range Color

☒

Custom Range

☐

Start

0

☐

End

100

Custom Threshold

☐ Unique

☒ Range

☐ Custom

☒

Start

200

☒

End

400

Threshold Direction

Inside is good

Tooltip Configuration

+

Custom

Custom Threshold

☐ Unique

☐ Range

☒ Custom

☒ Value Based

☐ Percentage Based

Range 1

×

The custom mode is the most flexible available for the gauge. It is possible to define up to **10 color zone**.
The zones can be configured with min & max value or with a percentage (of the gauge minimum and maximum)


Value based

Value based mode allows to configure each zone with a start and end value

Custom Threshold ☐ Unique ☐ Range ☒ Custom

☒ Value Based ☐ Percentage Based


Range 1 X

Color  #03AF0F

Start

End


Range 2 X

Color  #FDCC58

Start

End

Range 3 X

Color  #FE6769

Start

End

[+](#)


✿ It is not possible to overlap zone : The end of the previous zone can't be higher than the start of the next and the start can't be lower than the end of the previous zone.

Percentage based

Custom Threshold ☐ Unique ☐ Range ☒ Custom


☐ Value Based ☒ Percentage Based

Range 1 X

Color  #03AF0F


Percentage

Range 2 X

Color  #FDCC58

Percentage

Range 3 X

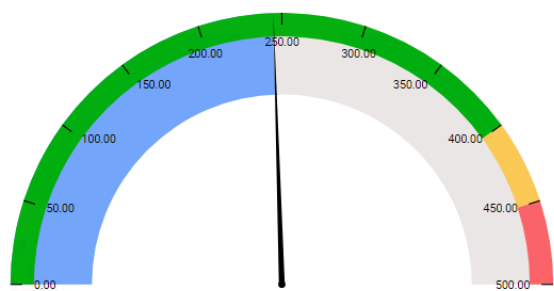
Color  #FE6769

Percentage

[+](#)

Percentage based mode allow to configure each zone with a percentage of the gauge

✿ The total of zones can't be more than 100



☒ Value Based ☐ Percentage Based

Range 1 X

Color

Start

End

Range 2 X

Color

Start

End

Range 3 X

Color

Start

End

[+](#)



All properties can be bound to parameter to setup a fully dynamic gauge.

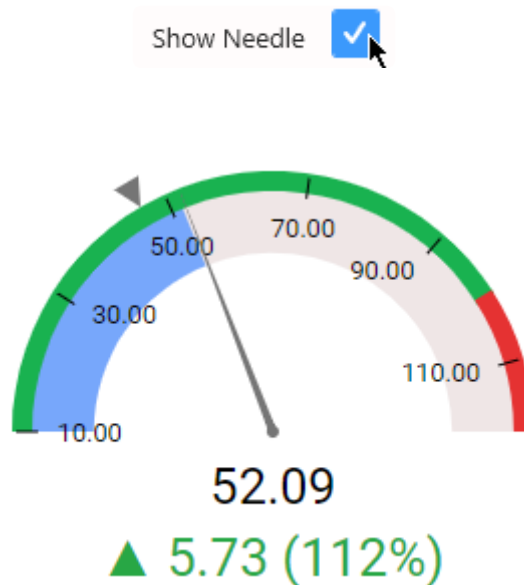
Last modified: Mar 31, 2022

2.8.6.3. Style and Appearance

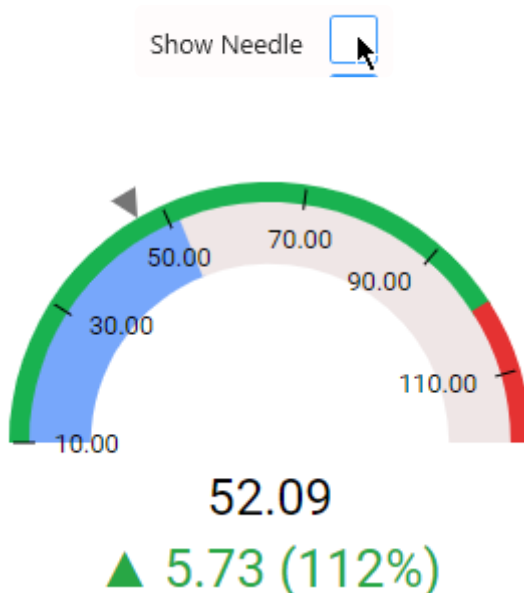
Needle

By default, the *Actual Value* is displayed using a gauge Needle.

This Needle can be shown or hidden by checking the option *Show Needle* under *Basic Settings* :



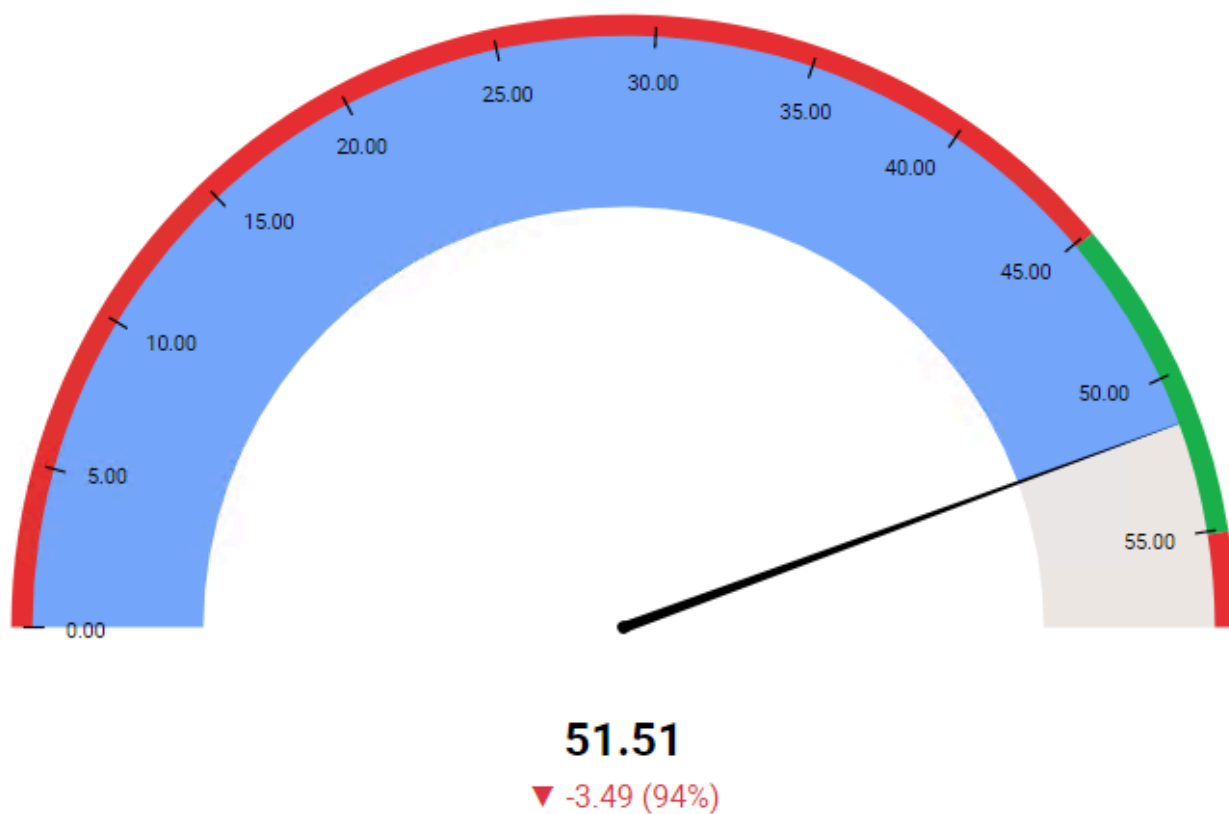
... turns into :



displaying KPIs

By default, the *Primary Value* (most visible information bellow the gauge) displays the actual value and the secondary value displays Both variation.

It can be changed depending on the information you want to give more visibility.



Changing the Main and secondary value in the right menu will change what information is shown on the widget :

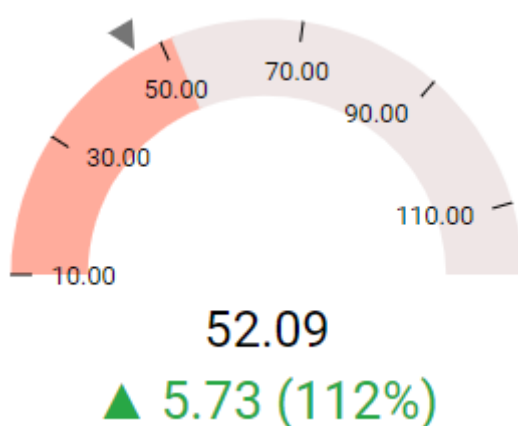
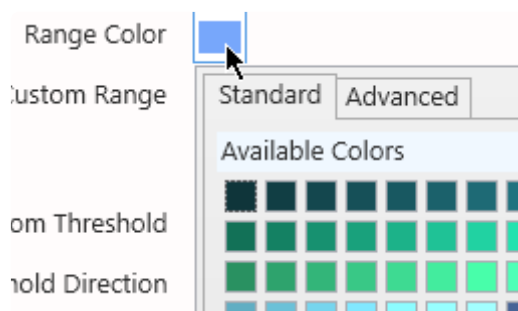
Main Value	
Show Value	<input checked="" type="checkbox"/>
Value Type	Actual Value
Show Actual Value Color	<input type="checkbox"/>
Show Indicator	<input checked="" type="checkbox"/>
Show Caption	<input type="checkbox"/>
Caption	

Secondary Value	
Show Value	<input checked="" type="checkbox"/>
Value Type	Both Variations
Show Actual Value Color	<input type="checkbox"/>
Show Indicator	<input checked="" type="checkbox"/>
Show Caption	<input type="checkbox"/>
Caption	

Circular Gauge filling : *Range Color*

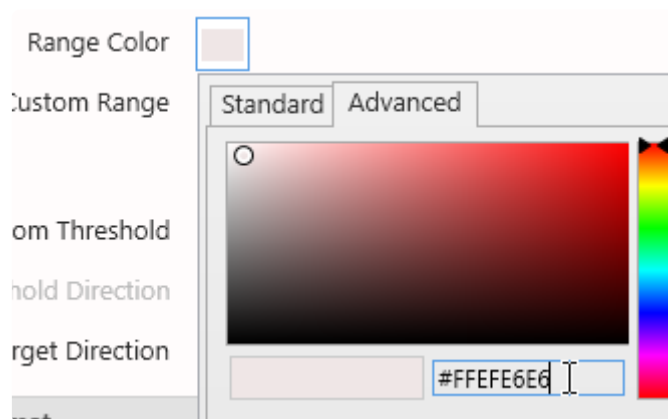
The Circular Gauge displays the *Actual Value* as a color filling.

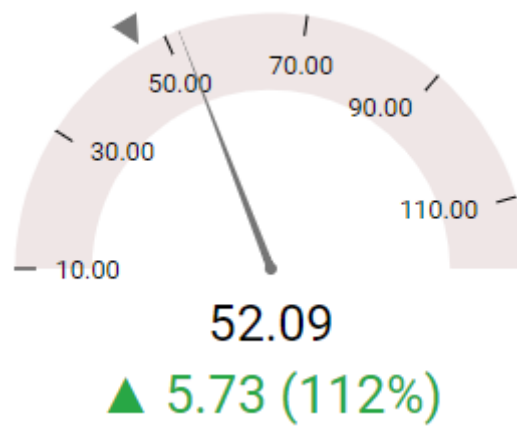
This color can be configured from *Range Color* under *Basic Settings* :



tip : hiding color

If you want to use only the Needle to display the *Actual Value*, you can hide the Range Color by setting it to the same color as the background color :

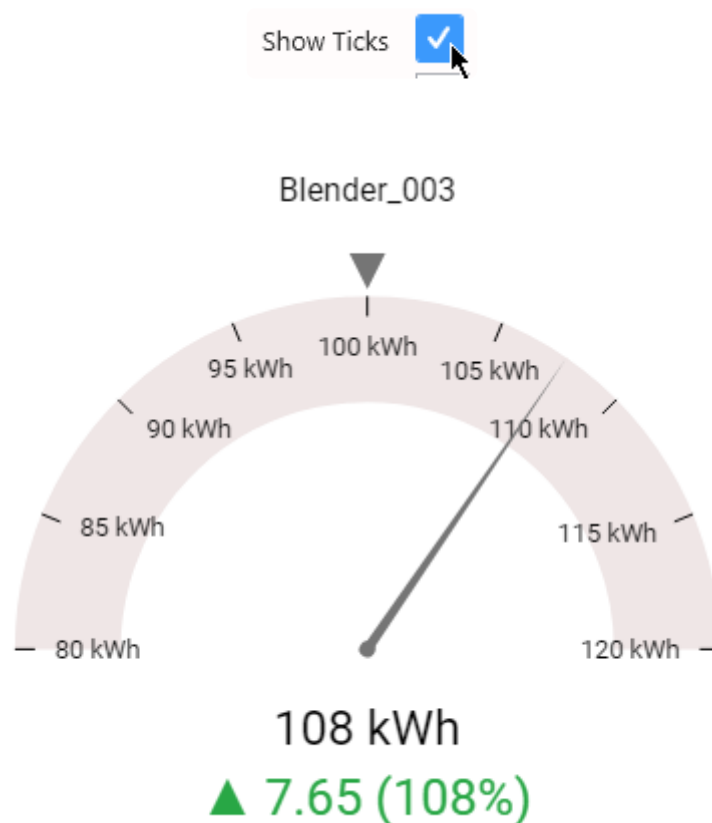




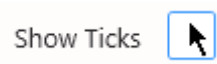
Range scale : *Ticks*

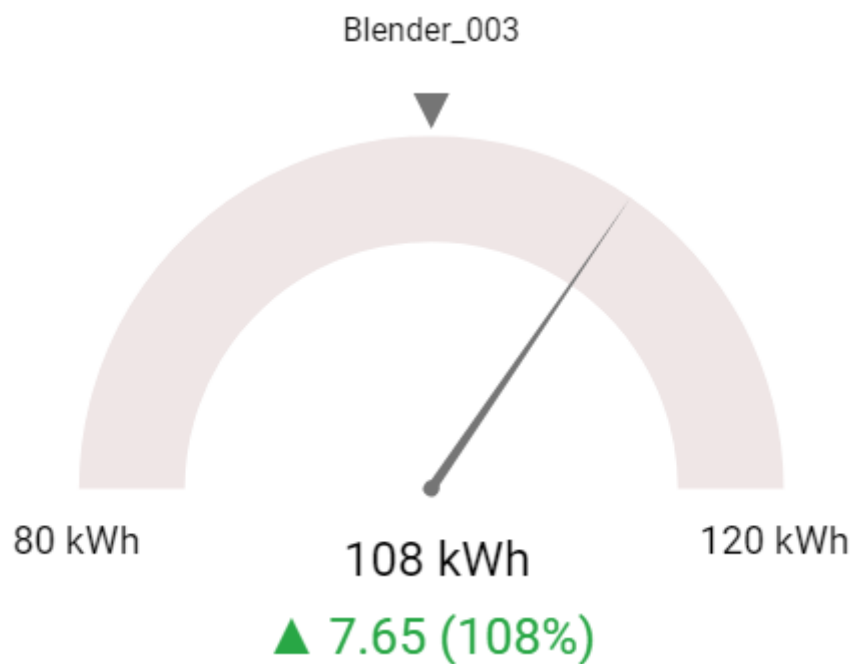
By default, the range of values is displayed as tick marks on a graduated scale.

When un-checking *Show Ticks* under the *Basic Settings*, these values are no longer displayed, and only the minimum and maximum are displayed :



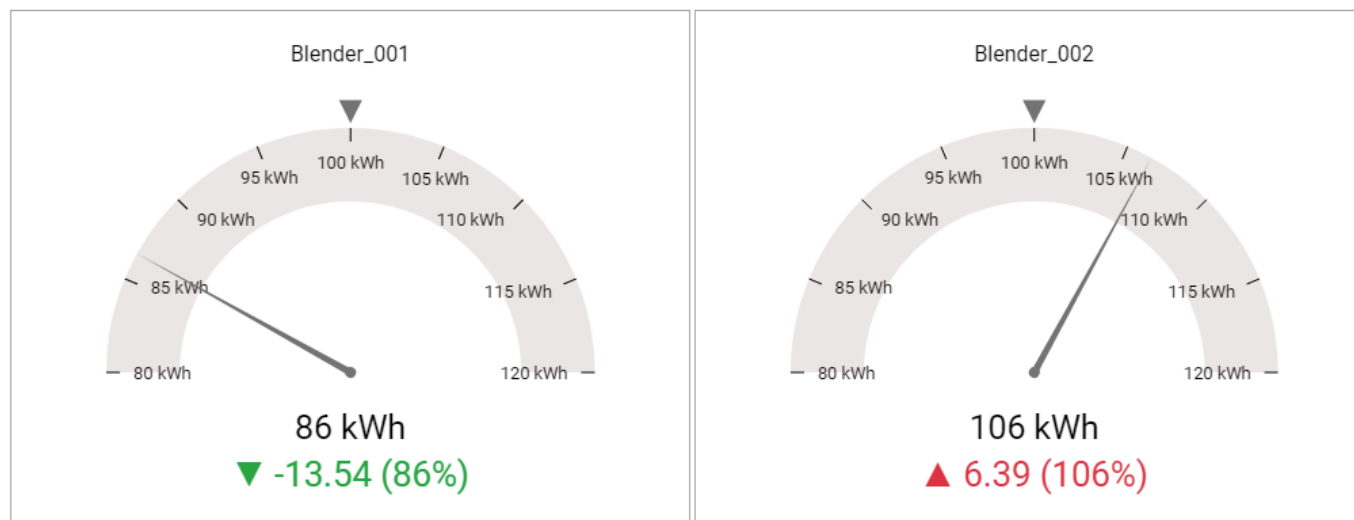
... turns into :





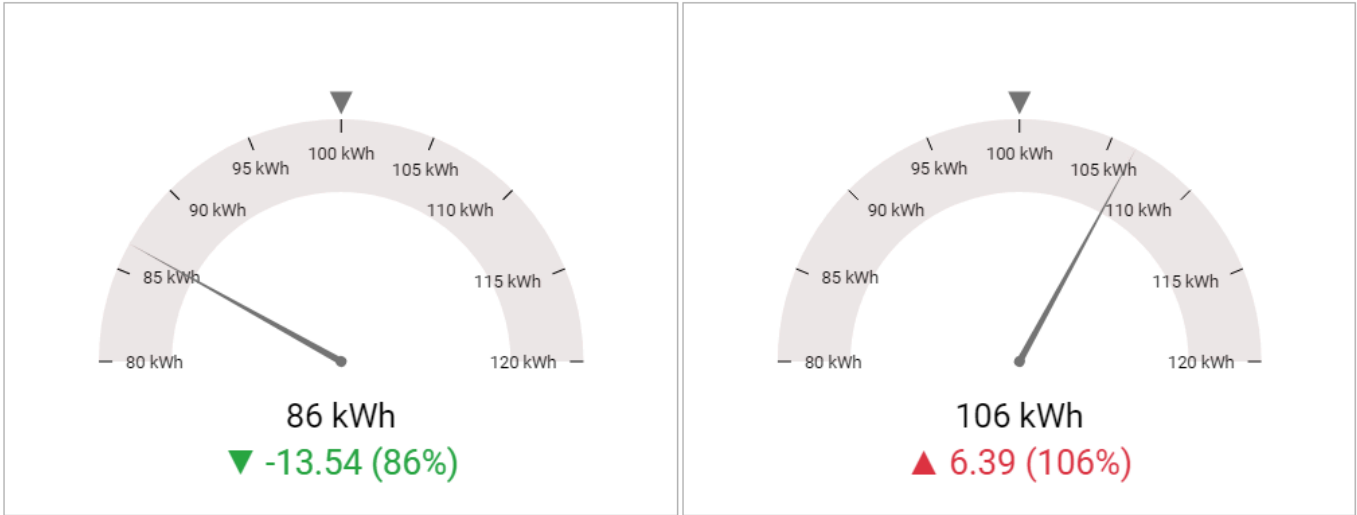
Series Titles

When the Circular Gauge is configured with a *Series*, each Circular Gauge in the series displays a Title :

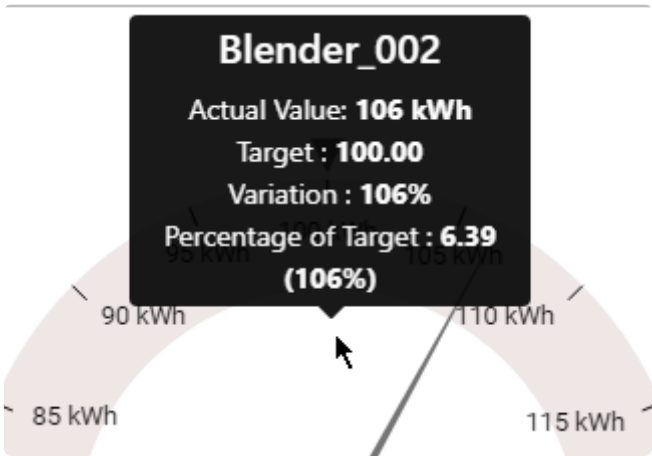


... turns into :

Show Title 



* Hint : when the title is hidden, you can still identify each Circular Gauge by hovering it to display the tooltip :



Last modified: Feb 17, 2022

2.8.7. Linear Gauge



The Linear Gauge widget allows to display a single value as a cursor on a linear gauge. Value intervals can be assigned a color to represent limits or a gradual value meaning.

Last modified: Feb 17, 2022

2.8.7.1. Data Binding

The Linear Gauge has 4 data fields available for binding :

- *Main Value* : main value displayed on the Linear Gauge, as a cursor position
- *Min Value* : minimum value for the Linear Gauge
- *Max Value* : maximum value for the Linear Gauge
- *Split into many widgets* : how we split series of different Linear Gauge widgets in the same container

Show
-

Main Value

Avg
▼
of
Consumption
▼
X

Sorted
by default
▼

Min Value

Min
▼
of
Min
▼
X

Sorted
by default
▼

Max Value

Max
▼
of
Max
▼
X

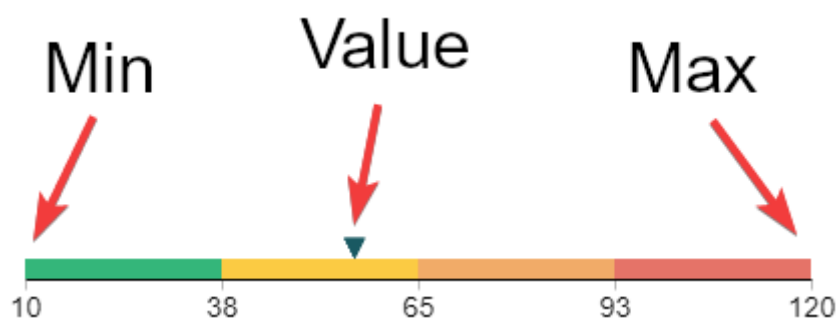
Sorted
by default
▼

Group by
-

Split into many widgets

Value
▼
of
Equipment
▼
X

Sorted
ASC
▼



Main Value

This represents the **primary quantity** we want to display on the Linear Gauge, and will bind to the cursor position of the Linear Gauge.

This field must be aggregated : you must choose an aggregation function (SUM, AVG, ...)
This field is required.

Min Value

This represents the Minimum we want to display on the Linear Gauge, for example the “MinEU” field from Wonderware Historian.

If the *Main Value* goes out of bound and becomes less than this *Min Value*, then the cursor points to the minimum, and doesn’t go further.

This field must be aggregated : you must choose an aggregation function (SUM, AVG, ...).
This field is required.

Max Value

This represents the Maximum we want to display on the Linear Gauge, for example the “MaxEU” field from Wonderware Historian.

If the *Main Value* goes out of bound and becomes less than this *Max Value*, then the cursor points to the maximum, and doesn’t go further.

This field must be aggregated : you must choose an aggregation function (SUM, AVG, ...).
This field is required.

Group By : *Split into many widgets*

This represents the series field to generate a different contained Linear Gauge for each different value in this *Split into many widgets* field.

Each Linear Gauge will take a portion of size of the widget depending on the container shape. In order to access the other values, the user may need to scroll.

Please see [the corresponding chapter to configure the Linear Gauge as Widget container](#).

Example : If you have a field called “Equipment”, you may want to plot a completely separate Linear Gauge for each value of Equipment :

Split into many widgets

The image shows a configuration box titled "Split into many widgets". Inside the box, there are two dropdown menus. The first dropdown is labeled "Value" and has a downward arrow. To its right is the word "of". The second dropdown is labeled "Equipment" and also has a downward arrow. To the right of the "Equipment" dropdown is a close button represented by an "X". Below these two dropdowns, there is a label "Sorted" followed by another dropdown menu that is currently set to "Asc" and has a downward arrow.

Linear Gauge



Last modified: Feb 17, 2022

2.8.7.2. Value display and Limits configuration

Linear Gauge colors

The Linear Gauge cursor is constrained between the minimum and maximum bounds.
 The interval between the minimum and the maximum can be split into intervals.
 Those intervals are calculated linearly by splitting the interval into a scale of N equal parts.
 Those intervals can be assigned a color to represent limits or a gradual value meaning.

The number of intervals N is defined by the number of color items in the list of *Scale Colors*.

Add colors with the + button.

Remove colors with the x button.

Configure colors with the color picker or the text input (color codes).



Example : gradual value

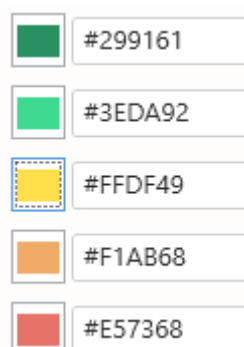
Min Value = 0

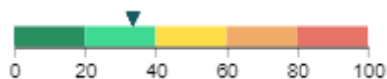
Max Value = 100

Colors ($N = 5$) : dark green, light green, yellow, orange, red

The scale will represent 5 intervals : 0–20, 20–40, 40–60, 60–80, 80–100, corresponding to the configured colors.

When the cursor will move, it can represent a temperature going warmer and warmer.





Example : limits

Min Value = 0

Max Value = 100

Colors (N = 10) : red, orange, grey, grey, grey, grey, grey, grey, orange, red

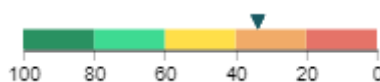
The scale will represent 10 intervals : 0-10, 10-20, etc, corresponding to the configured colors.

When the cursor will move, it can represent a KPI with a value which must not go near limits.



Invert

Checking the *Invert* option will display values from right-to-left instead of the default left-to-right.

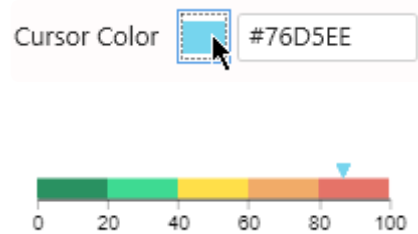


Last modified: Feb 17, 2022

2.8.7.3. Style and Appearance

Cursor Color

This setting allows to configure the color of the cursor.



Last modified: Feb 17, 2022

2.8.8. Card



The Card Widget can be used to display a single value as text and optionally compare it to a target.

(new in Alpana 2020 R1) The Card can display the KPI history on a small sparkline.

Last modified: Feb 17, 2022

2.8.8.1. Binding Data

Data fields

The Card has 3 data fields available for binding :

- *Value* : main value displayed on the Card
- *Target* : target displayed in the Card, compared to the Value
- *Sparkline* : series field (usually a date) to use as X Axis values on the sparkline
- Group By : *Split into many widgets* : how we split series of different Cards in the same container

Show

Value

Value

of

Consumption

Sorted

by default

Target

Value

of

Target

Sparkline

Value

of

Date

Converted as

Datetime

Sorted

ASC

Group by

Split into many widgets

Value

of

Equipement

Sorted

ASC

Value

This represents the **primary quantity** we want to display as text on the Card.

See below about Value Aggregation.

This field is required.

Value

Value

▼

of

Consumption

▼

✕

Sorted

by default

▼

120 kWh

Target Value

This represents the Target we want to display as text on the Card, and will be compared to the *Value*. When this field is bound, an additional information is displayed as text : a *KPI* indicating how the *Value* compares to the *Target* value, which can be configured.

See below about Value Aggregation.

This field is optional.

Value

Value

▼

of

Consumption

▼

✕

Sorted

by default

▼

Target

Value

▼

of

Target

▼

✕

▼66.67%

Value	Target
120 kWh	180 kWh

Sparkline

This is the field (usually a date/time) used for the X Axis of the sparkline chart.

This field is optional if you don't want to display a sparkline on the Card.

Value

Value of Consumption

Sorted

Target

Value of Target

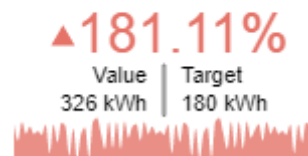
Sparkline

Value of Date

Converted as

Sorted

Card with Sparkline

**Group By : *Split into many widgets***

This represents the series field to generate a different contained Cards for each different value in this Series field.

Each Card will take a portion of size of the widget depending on the container shape. In order to access the other values, the user may need to scroll.

Please see [the corresponding chapter to configure the Card as Widget container](#).

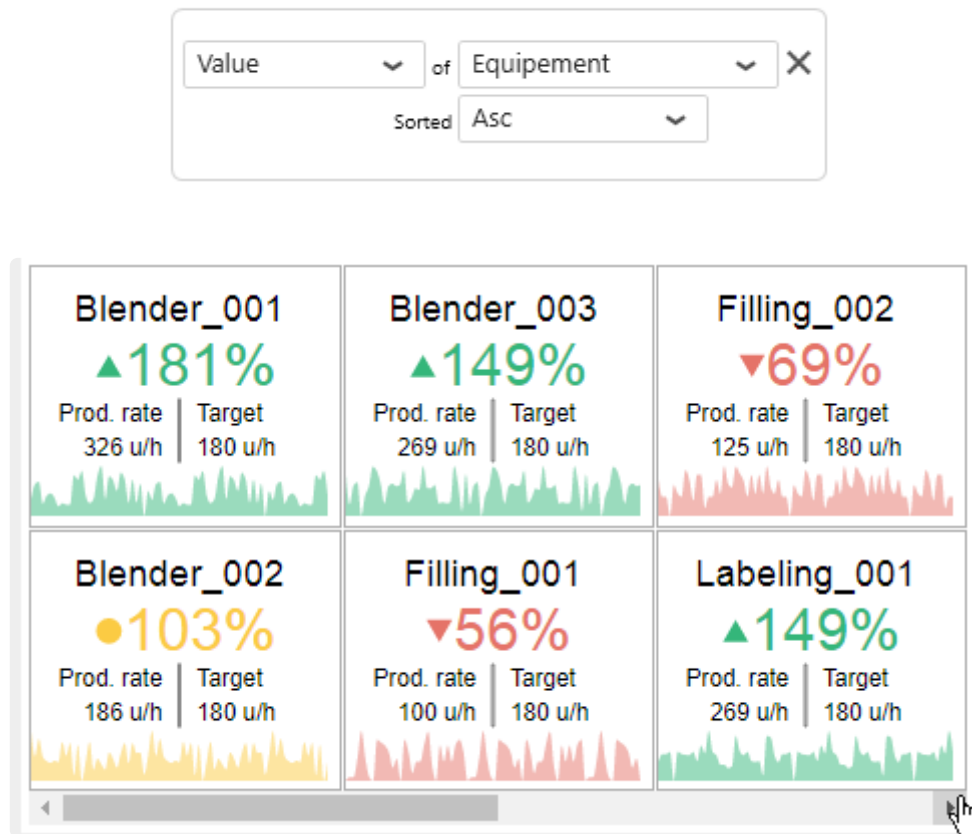


Note :

This only works if your series are values into a single data field.

Example : If you have a field called “Equipment”, you may want to plot a completely separate Card for each value of Equipment :

Split into many widgets



Value aggregation

This Widget displays two types of values :

- the Card “summary value” displayed as text labels : Value, Target, KPI
- the sparkline chart's Y value

You may configure the summary value in two different ways, under the *Value* category :

Value Type = Last Value

Displaying the *Last Value* means the last value on the sparkline chart, according to the sorting by the *Sparkline* field.

Value Type

✿ Note : in this case, the *Aggregate* selection is ignored.

Value Type = Aggregate

Instead of displaying the last value from the sparkline chart, the *Aggregate* setting allows to calculate a

value based on all values in the chart.

The aggregation function used to aggregate all the values in the chart is defined as the *Aggregate* option.

Value Type	Aggregate	▼
Aggregate	average	▼

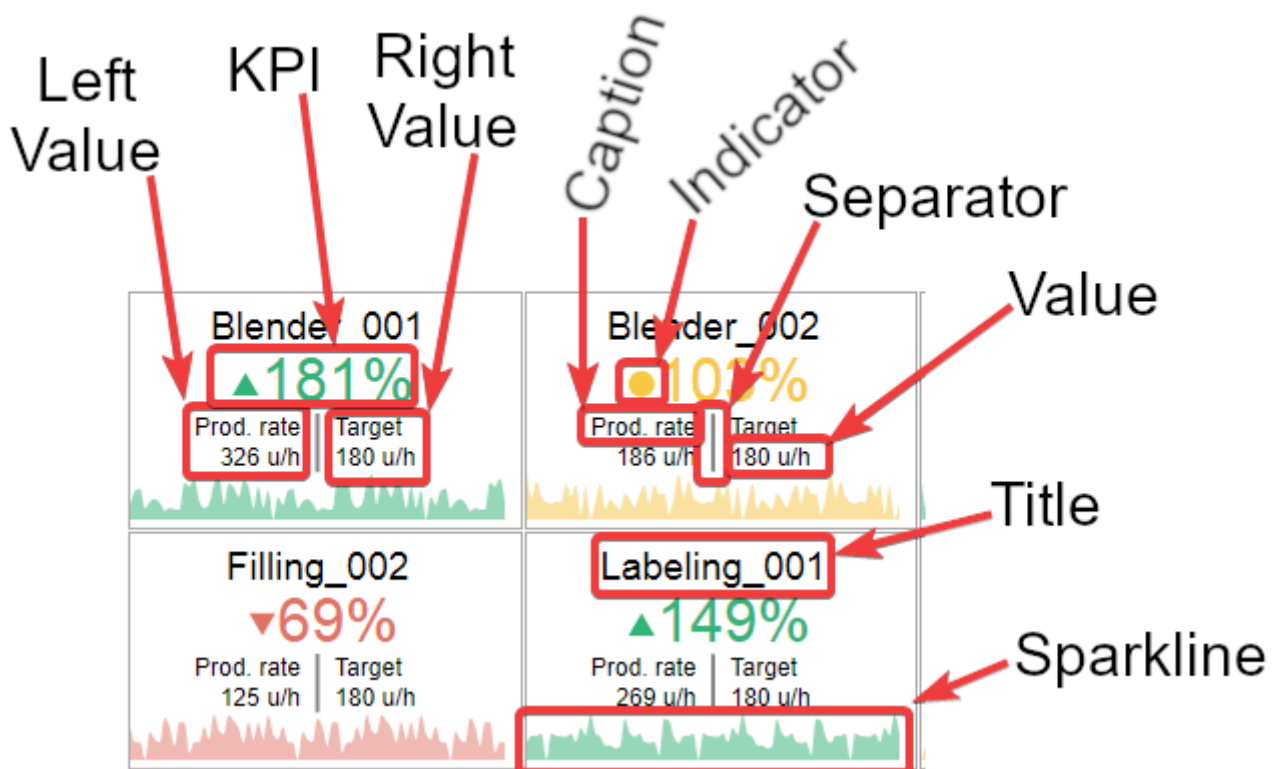


If *Value* and *Last* are used together (i.e. Value & Target) the all data will be aggregated. Is case of average aggregation with a last value, it could cause a wrong display. Data must be analyzed to prevent Aggregation problem with different value.

Last modified: Feb 21, 2022

2.8.8.2. Value Display

Depending on how it's configured, the Card displays several informations :



Each part can be configured, as detailed below.

Configuring KPI, Left Value, Right Value

For each of *KPI*, *Left Value*, *Right Value*, the following can be configured :

Show/hide

Each can be displayed or hidden by checking *Show Value* (or *Show KPI*) :

Show KPI	<input checked="" type="checkbox"/>
Show Value	<input checked="" type="checkbox"/>

Type

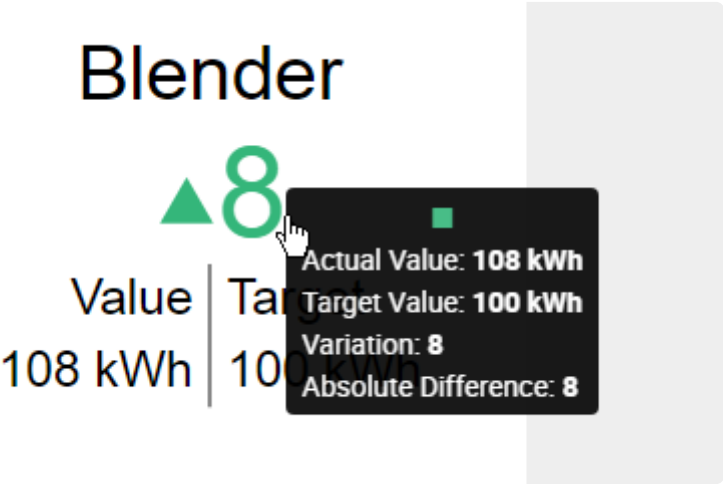
The value displayed at each position can be one of several types :

Value Type	Actual Value	▼
------------	--------------	---

Absolute Difference

Shows the difference between the Value and the Target.

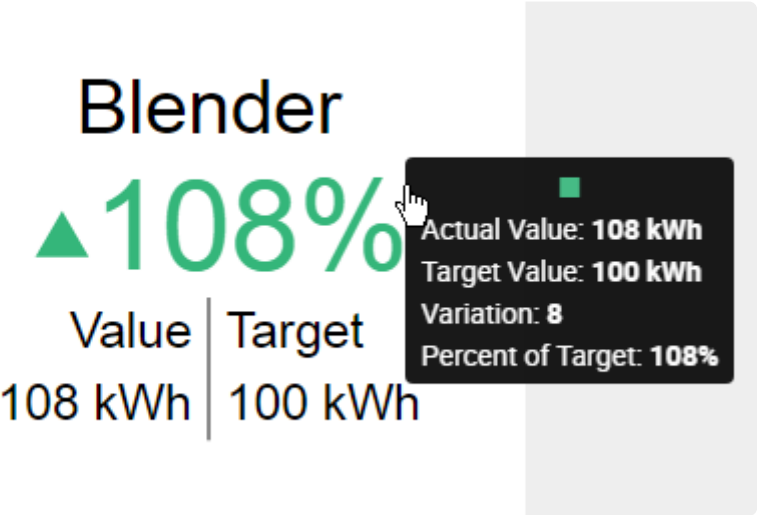
Calculation = Value - Target



Percent of Target

Shows the % of value to target

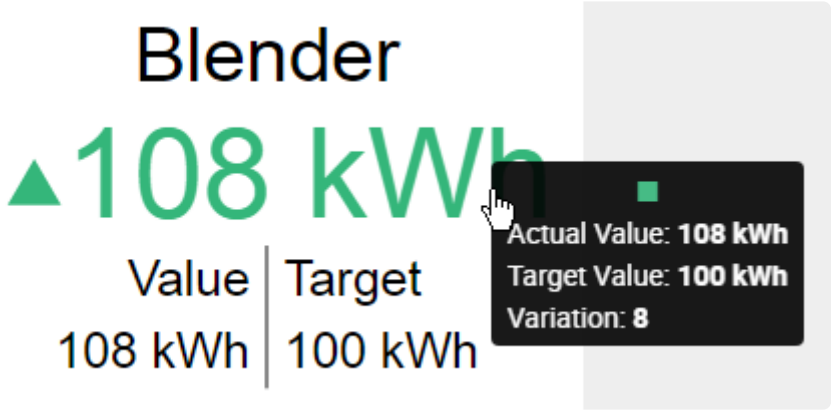
Calculation = 100 * Value / Target



Actual Value

Shows the value of the Value field itself.

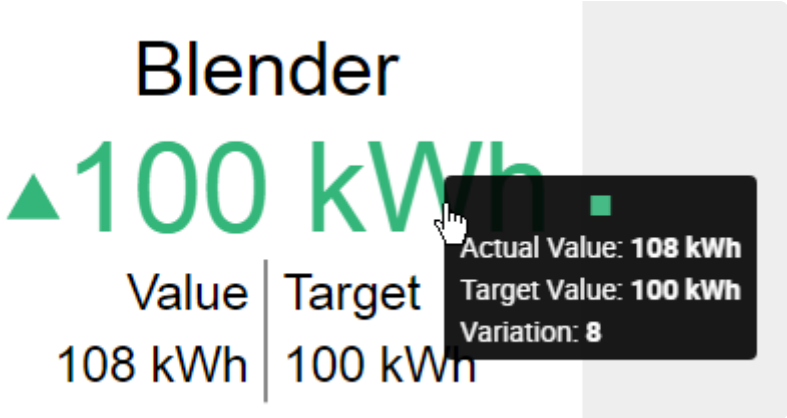
Calculation = Value



Target Value

Shows the value of the Target field itself.

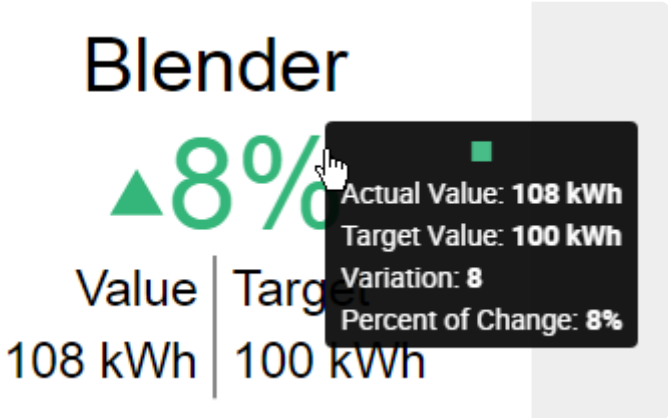
```
Calculation = Target
```



Percent of Change

Shows the % of variation to target.

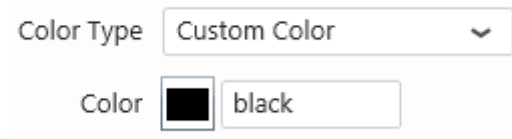
```
Calculation = 100 * (Value - Target) / Target
```



Color

The value displayed at each position can have :

- the *Direction Color* that depends on the distance between the Value and the Target, and whether we consider that “good” or “bad” (see below “Colors and result interpretation”)
- or a *Custom Color* that is fixed



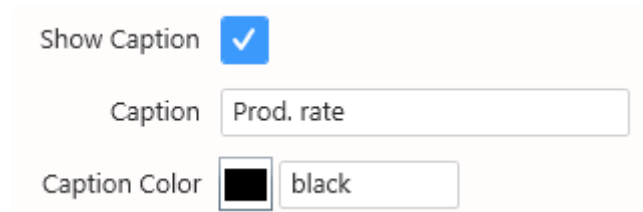
Color Type Custom Color

Color black

Caption

The Caption can be displayed or hidden by checking *Show Caption*.

The Caption's text and *Caption Color* can be configured :



Show Caption ☒

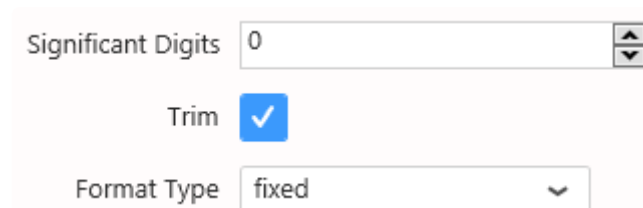
Caption Prod. rate

Caption Color black

✿ Note : the top part (dedicated to the KPI) doesn't have its own Caption

KPI Value formatting

The calculated KPI has its own value formatting, because it is a calculated value and isn't listed for [Value Formatting](#).



Significant Digits 0

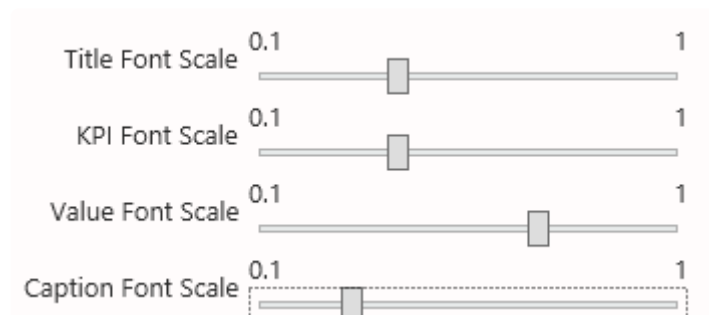
Trim ☒

Format Type fixed

✿ Tip : If the *Significant Digits* has value -1, then the full value is displayed.

Element sizes

The relative font sizes of elements can be configured :




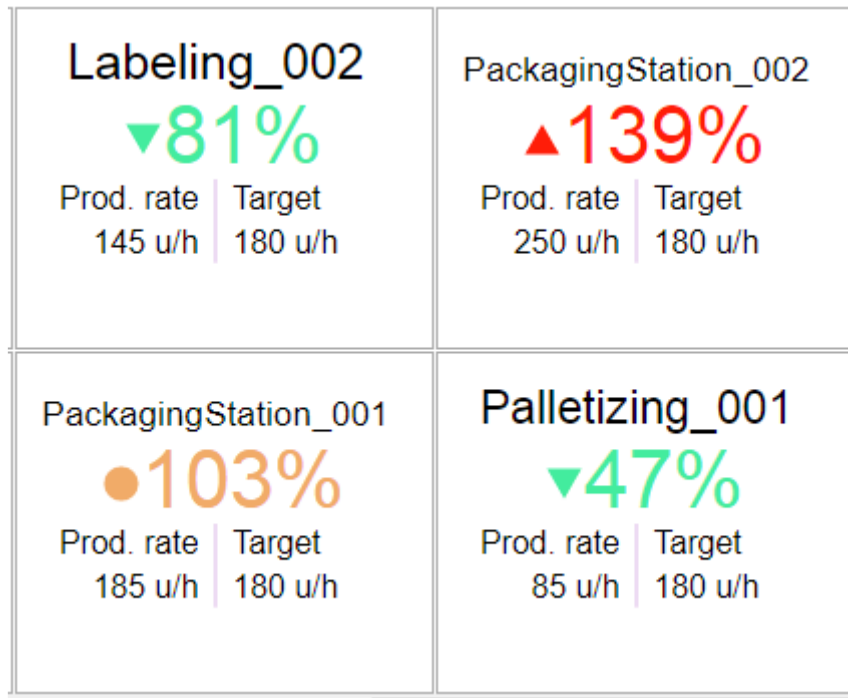
This *Font Scale* is relative, so that it remains responsive when the widget is viewed on different devices.

Colors and result interpretation

The font and symbol of the distance to target has a color :

- **green** for “good”
- **yellow** for “near target” or “similar”
- **red** for “bad”

Good Color		#43EC9E
Similar Color		#F1AB68
Bad Color		#FF1D08



High/Low Is Good

Direction Low is good ▼

You can define high values as being “good” or “bad” by selecting the *Direction* configuration in *Colors* :

- with *High is Good*, values that go above target will be displayed with the *Good Color*, and values that go below target will be displayed with the *Bad Color*
- with *Low is Good*, values that go above target will be displayed with the *Bad Color*, and values that go below target will be displayed with the *Good Color*

Thresholds for the “similar” state

Instead of displaying the “similar” state only when the value equals the target exactly, you can configure thresholds to accept an interval of values that are similar to the target.

These *lower threshold* and *higher threshold* are configured under *KPI thresholds* :

lower threshold	<input type="text" value="10"/>	<input type="button" value="▲▼"/>
higher threshold	<input type="text" value="10"/>	<input type="button" value="▲▼"/>

Other colors

When no Target is configured, only the Value is displayed, with a constant color.

This color can be configured under *Default Color* :

Default Color



#76A6FA

Blender_003

186 u/h

The *Separator Color* can also be configured :

Separator Color



#E5CCEE

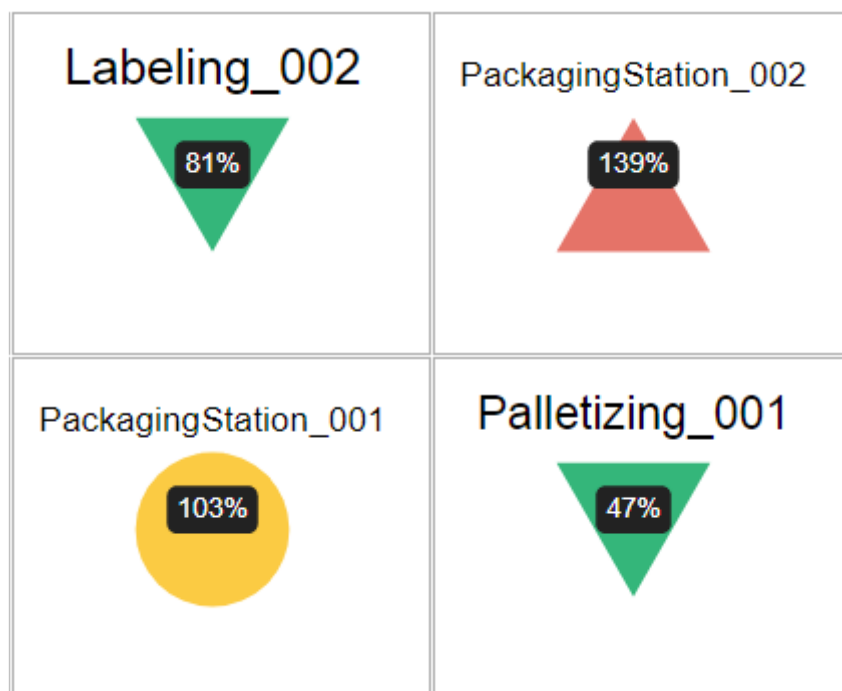
Full detail or KPI only

By default, when the Card has a Target Value, it displays both values as text, as well as a KPI with its value as text.

It is also possible to instead simplify this display and have only the KPI in a very readable way.

For this, select *Show Indicator Only* :

Show Indicator Only



Title style

The Title is especially useful when a “Split into many Widgets” field is bound. It can be hidden or shown, the text, position and color can be configured :

Show Title

☒

Title

eqp {{:Row}}

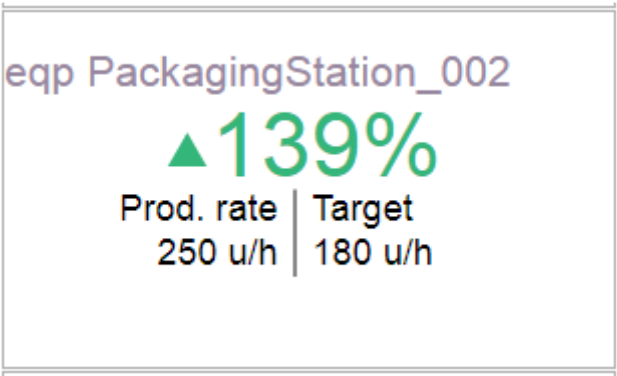
Title Position

Left

▼

Title Color

#98889F



Last modified: Feb 17, 2022

2.8.8.3. Card Sparkline

The Card displays a sparkline which is a mini-chart that gives an idea of the trend of the KPI. It uses Field Value as Y axis and field Sparkline for the X axis. Depending on the aggregation it could impact the data visualization.

Sparkline Scale

The vertical *Scale* of the sparkline chart can be configured, in % of the height of the row :

- 1 means to take the full height of the row
- 0.9 means almost the full height
- 0.1 means a very thin display



Sparkline Color

The *Color Type* of the sparkline chart can be :

- the *Direction Color* that depends on the distance between the Value and the Target, and whether we consider that “good” or “bad” (see “Colors and result interpretation”)
- or a *Custom Color* that is fixed

The *Opacity* of the color can also be configured.



Sparkline Interpolation

The sparkline chart is interpolated. Available interpolation methods are :



basis

A cubic [basis spline](#)

The result is a smooth curve which doesn't exactly pass through the data points themselves.



linear

A series of interconnected lines.

The result is that of a line chart.



monotone

A cubic spline that [preserves monotonicity](#) in y, assuming monotonicity in x.

The result is a smooth curve which goes through all data points and doesn't overshoot.



step

A step line centered on the data point.

The result is a step line which is constant around the data points.



step-after

A step line starting on the data point.

The result is a step line which is constant after the data points.



step-before

A step line ending on the data point.

The result is a step line which is constant before the data points.



Sparkline impact on the main value

When value is selected for the fields Value and Target, the card widget will get all data from the datasource and aggregate them (or use last) by the card properties (right panel)

If there is no sparkline used for the widget, the best practice is to use the *aggregation* on the fields (left menu)



Using Value in fields won't let data be ordered in the widget properties.

The sparkline will split the data in function of the selected field. For duplicate data (i.e. same datetime) they will be grouped and aggregated in function of the aggregation type of the fields `Value` & `Target`. Since the data will be processed, it may impact your widget main value. To prevent any trouble using the sparkline, the widget should be configured with :

1. Set Value & Sparkline fields as Value :

From

☒ Datasource
 ☐ Real-time

Selected Datasource

DataSource_1

Show

Value

Value

of

Value

Sorted

by default

Target

Value

of

Add optional field...

Sparkline

Value

of

Date

Converted as

Datetime

Sorted

ASC

Split into many widgets

Value

of

Add optional field...

Additional

Additional Values

Sum

of

Add optional field...


Additional Series

of

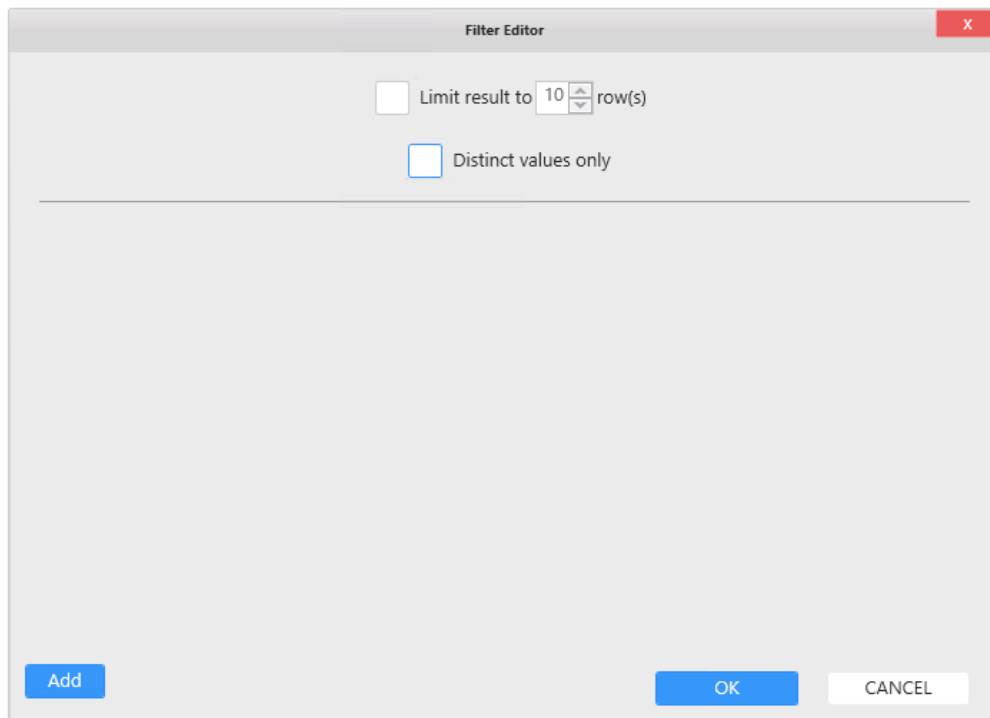
Add optional field...

2. Open filter editor :








☐ Ignore Filter Actions

 Ready.

3. Uncheck Distinct values only :



4. In the right panel, use aggregate and select the type of aggregation needed :

Header	Card
Description	
Properties -	
Behaviour -	
Show Indicator Only <input type="checkbox"/>	
Value -	
Unit	
Value Type	Aggregate
Aggregate	average
Color -	
Direction	High is good
Default Color	 black
Good Color	 #34B67A
Similar Color	 #FBCB43
Bad Color	 #E57368
Separator Color	 #555
KPI Thresholds -	
Lower Threshold	<input type="text"/> 0 
Higher Threshold	<input type="text"/> 0 
Title -	

Last modified: Feb 21, 2022

2.8.9. Sparkline



The Sparkline is a good way to summarize the state of many variables : you can view them side-by-side, with their current value compared to a mini-trend.

Optionally, you can improve this summary by displaying limits and a target.

(new in Alpana 2020 R1)

Last modified: Feb 17, 2022

2.8.9.1. Binding Data

Data fields

The Sparkline has 7 fields available for binding :

- *Tag* : the name of the variable
- *Value* : the value of the variable
- *Serie* : the field used as X Axis of the chart
- *Low* : the low threshold
- *High* : the high threshold
- *Target* : the target value
- *Split into many widgets* : a field to group and split variables

Show

Tag

Value

Value
of
Line_name
X

Sorted
Asc

Value

Value

Value
of
KPI_value
X

Sorted
by default

Serie

Value

Value
of
event_time_local
X

Converted as
Datetime

Sorted
Asc

Low

Value

Value
of
low_limit
X

Sorted
by default

High

Value

Value
of
high_limit
X

Sorted
by default

Target

Value

Value
of
Target
X

Group by

Split into many widgets

Value

Value
of
reas_desc_EN
X

Sorted
Asc

Tag

This represents the variable name, used to show separate indicators side-by-side.

The indicators are laid out in consecutive rows. Each indicator will take a given vertical size, and the full

width of the container.
In order to access the other indicators, the user may need to scroll down.

This field is required.

Tag

Value

▼

of

Line_name

▼

×

Sorted

ASC

▼

Line04

Line05

Line06

Value

This is the main value of the variable.
It will be displayed both :

- as Y value on the sparkline chart
- as main value on the summary

This field is required.

Value

Value

▼

of

KPI_value

▼

×

Sorted

by default

▼

29 m³

Serie

This is the field used for the X Axis of the sparkline chart.

This field is required.

Serie

Value
of
event_time_local
X

Converted as
Datetime

Sorted
ASC

**Low**

This is the lower bound of the limit.

The limit is displayed as a range area on the sparkline chart.

This field is optional, and only useful when a *High* field is also configured.

High

This is the higher bound of the limit.

The limit is displayed as a range area on the sparkline chart.

This field is optional, and only useful when a *Low* field is also configured.

Low

Value
of
low_limit
X

Sorted
by default

High

Value
of
high_limit
X

Sorted
by default

**Target**

This is the target value for the variable.

The target is displayed as numerical value in the summary.

This field is optional.

Target

Value

▼

of

Target

▼

✕

24(46) ▼
54(46) ▲

Group by : *Split into many widgets*

This represents the series field used to generate a different contained Sparkline Widget for each different value in this field.

This allows to create many sub-widgets dynamically.

This will turn the widget into a container, and generate a complete different chart for each value in the series field, contained in the Widget.

The layout of the charts inside the container is configurable.

Please see [the corresponding chapter to configure the view of the Widget container](#).

This field is optional.

Example : If you have a field called “Continent”, you may want to plot a completely separate Sparkline for each value of “Continent”, dynamically :

Value

of

FactoryName

Sorted

ASC

Value

Value

of

Production

Sorted

by default

Value

of

Date

Converted as

Datetime

Sorted

ASC

Group by

Split into many widgets

Value

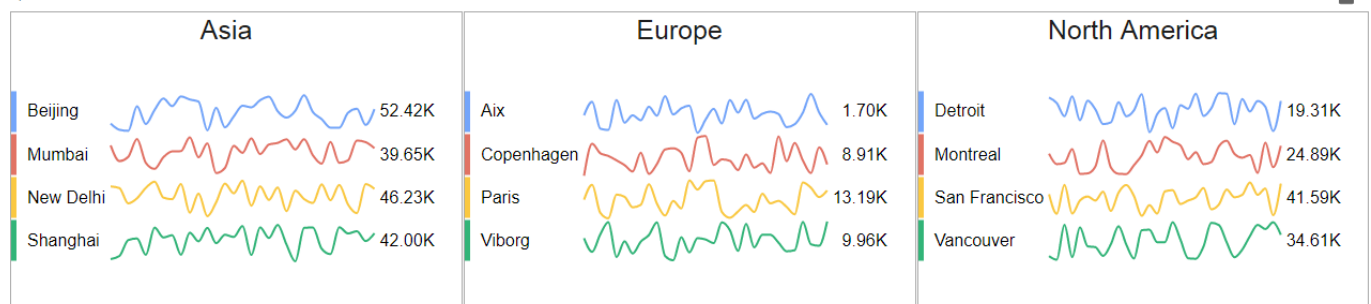
of

continent

Sorted

ASC

Sparkline



Value aggregation

This Widget displays two values :

- the sparkline chart's Y value
- the summary value

You may configure the summary value in two different ways, under the *Value* category :

Value Type = Last Value

Displaying the *Last Value* means the last value on the sparkline chart, according to the sorting by the *Series* field.

Value	
Value Type	Last Value

✿ Note : in this case, the *Aggregate* selection is ignored.

Value Type = Aggregate

Instead of displaying the last value from the sparkline chart, the *Aggregate* setting allows to calculate a value based on all values in the chart.

The aggregation function used to aggregate all the values in the chart is defined as the *Aggregate* option.

Value	
Value Type	Aggregate
Aggregate	average

Last modified: Feb 17, 2022

2.8.9.2. Configuring Layout

Display Mode

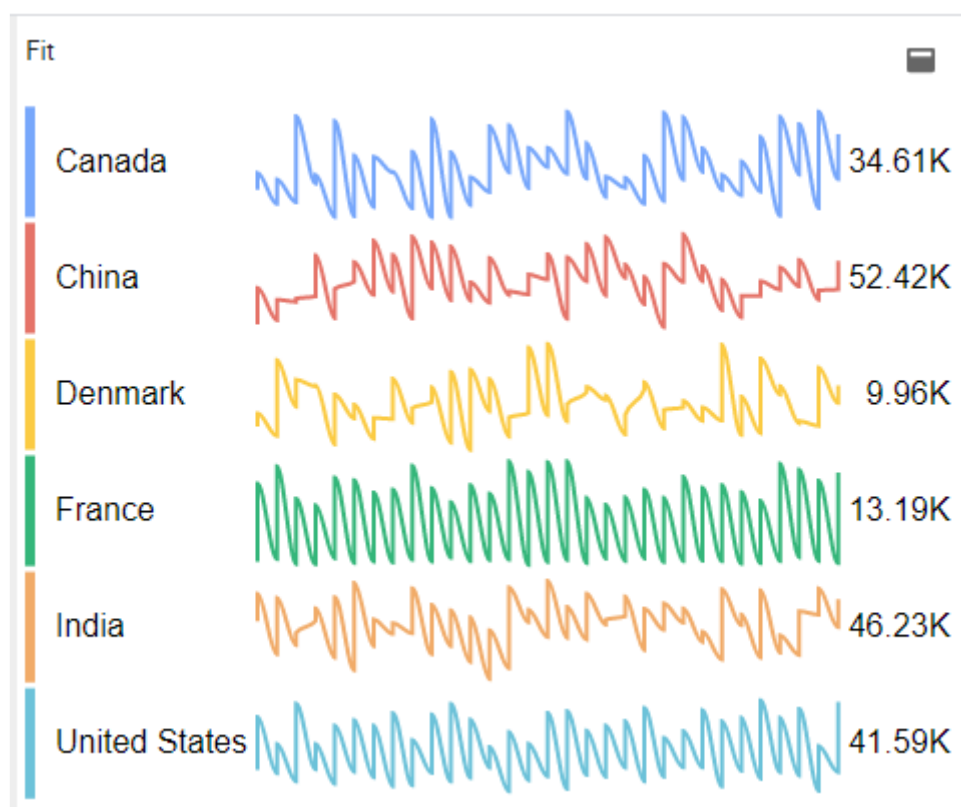
There are 3 ways to lay out the list of indicators vertically :

Display Mode List

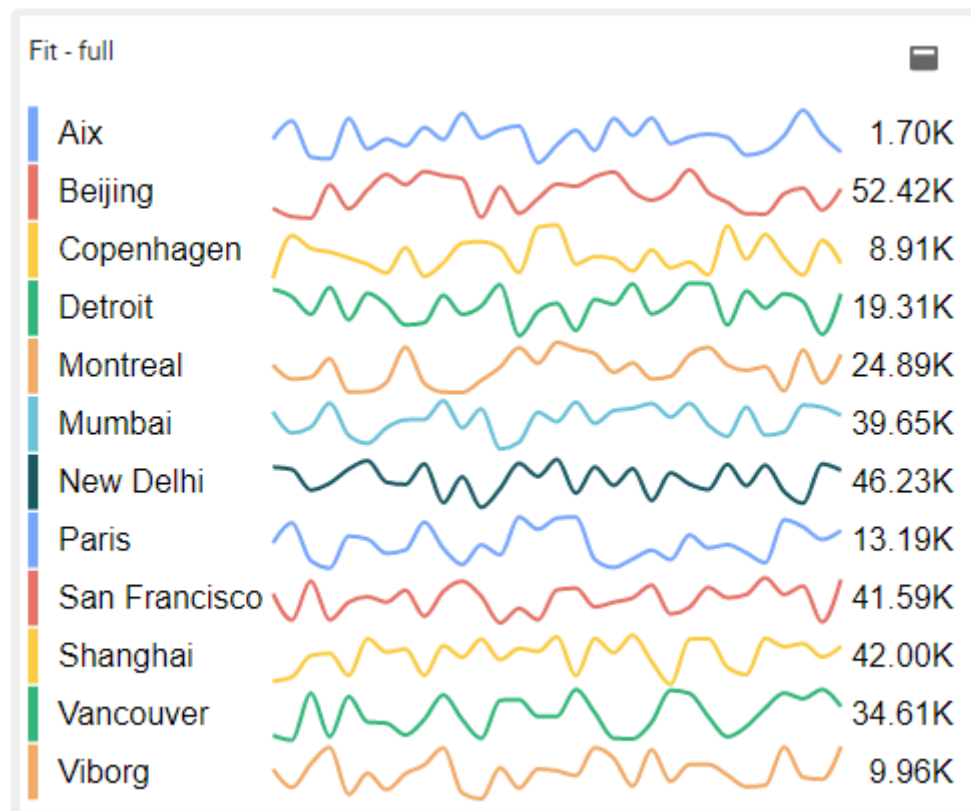
Fit

All indicators will fit the height allocated to the Widget, and take all the vertical space.

If there are few indicators and a lot of vertical space, they will be stretched vertically, and an lot of detail can be seen on the sparkline chart's variations.



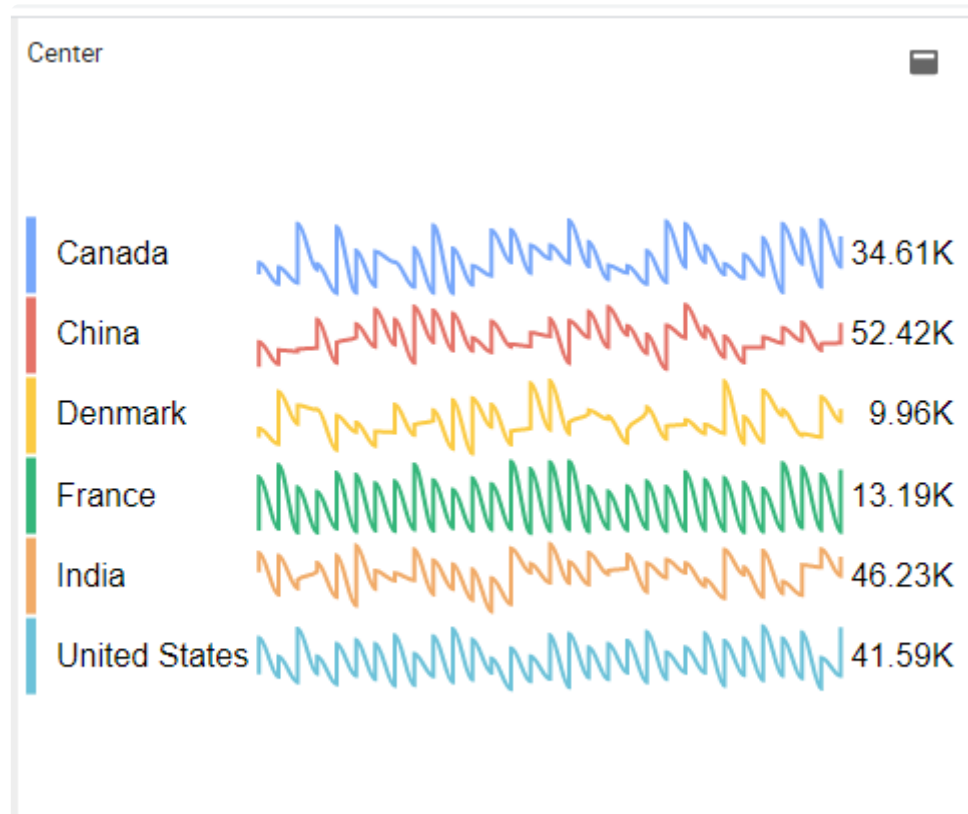
If there are many indicators and little vertical space, they will be squeezed vertically, so that all of them will fit.



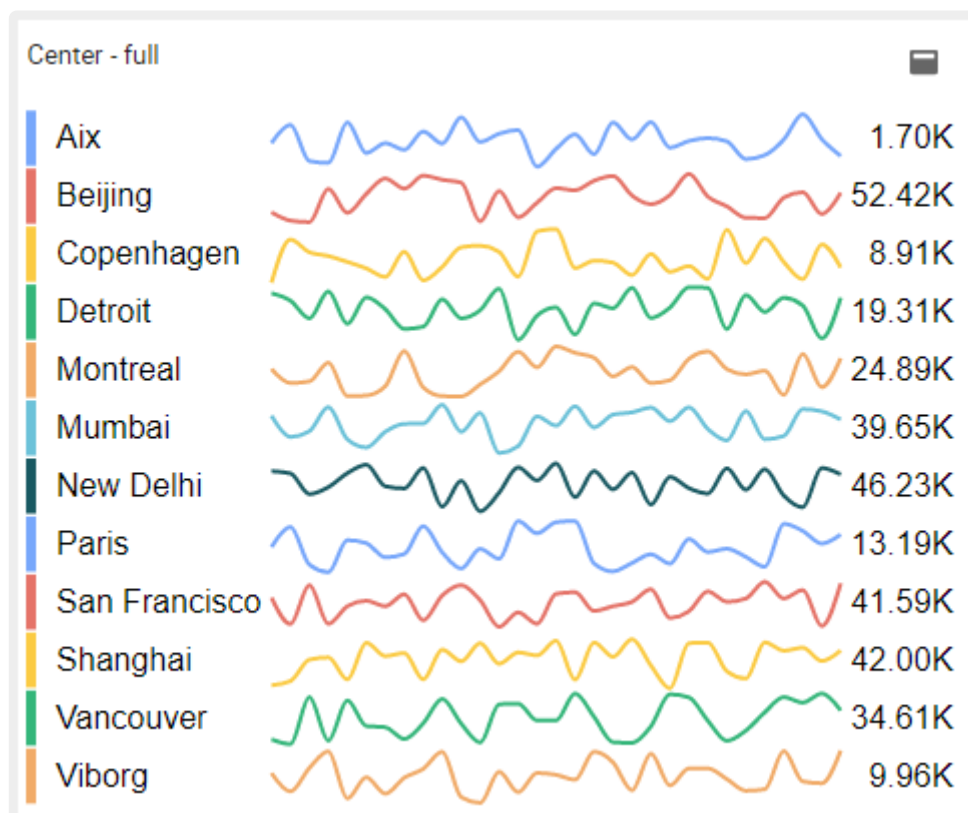
Center

The indicators will only attempt to fit if there are too many. Otherwise, they will be displayed with a fixed vertical size and centered vertically :

If there are few indicators and a lot of vertical space, they will not be stretched vertically, and there will be margins at the top and bottom.



If there are many indicators and little vertical space, they will be squeezed vertically, so that all of them will fit (same as the *Fit* layout).

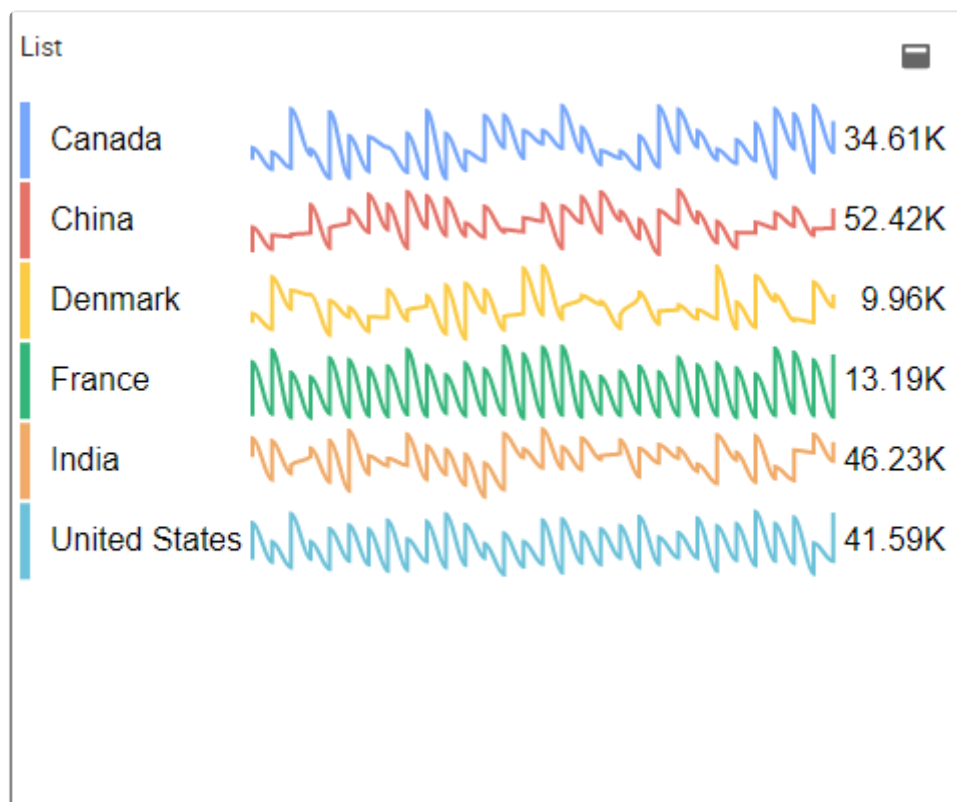


List

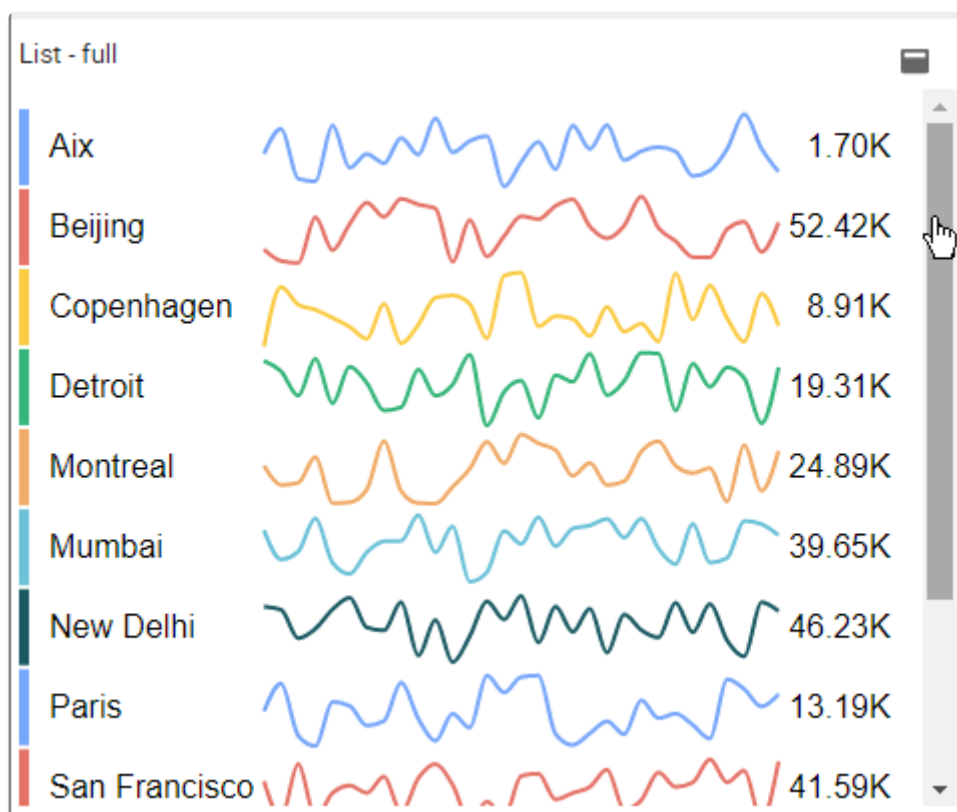
The indicators will not attempt to fit, they will be displayed with a fixed vertical size and aligned at the top

:

If there are few indicators and a lot of vertical space, they will not be stretched vertically, and there will be margins at the bottom.



If there are many indicators and little vertical space, they will be displayed with a scroll bar.



Row Size

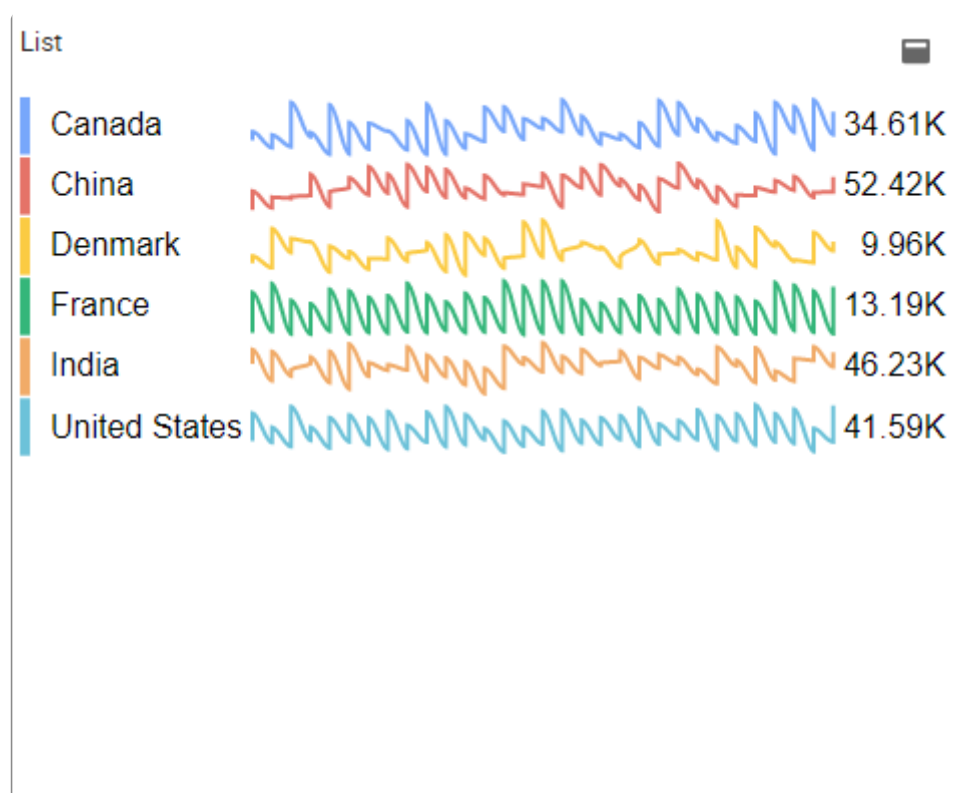
This is the height of the indicators.



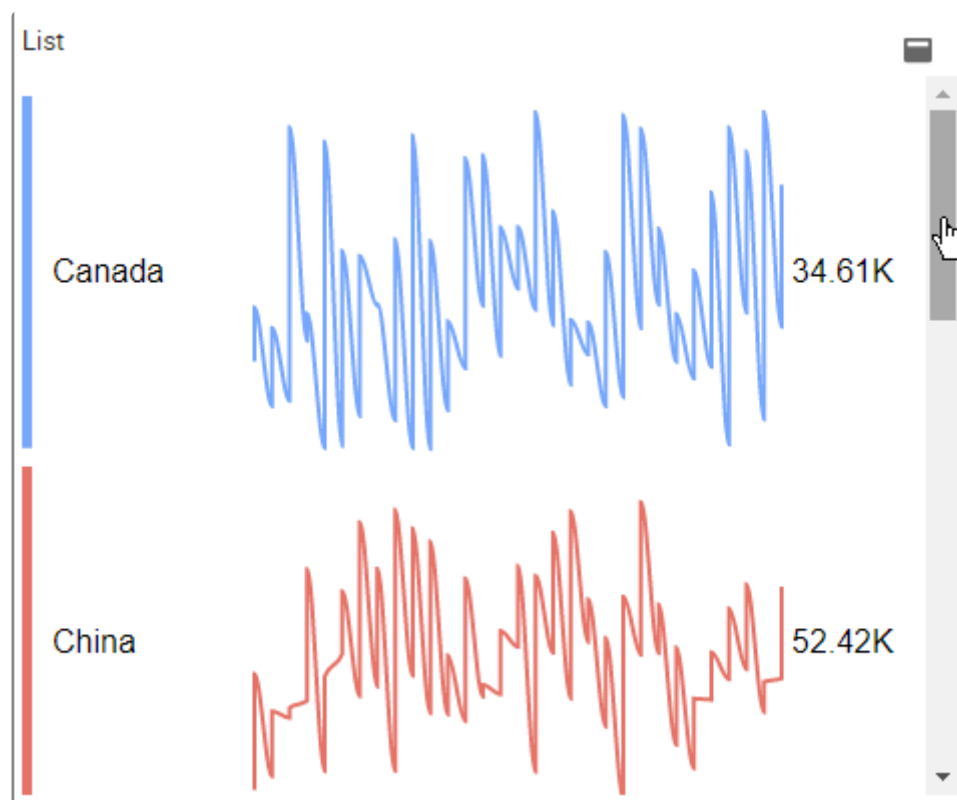
The effect depends on the *Display Mode* :

- *Fit* : *Row Size* is not applicable. The row height is calculated as the height of the Widget divided by the number of rows (number of *Tags*).
- *Center* : *Row Size* will only apply while there is some free vertical space
- *List* : *Row Size* will be the vertical size of the indicators

Example of small *Row Size* in List mode :



Example of large *Row Size* in List mode :

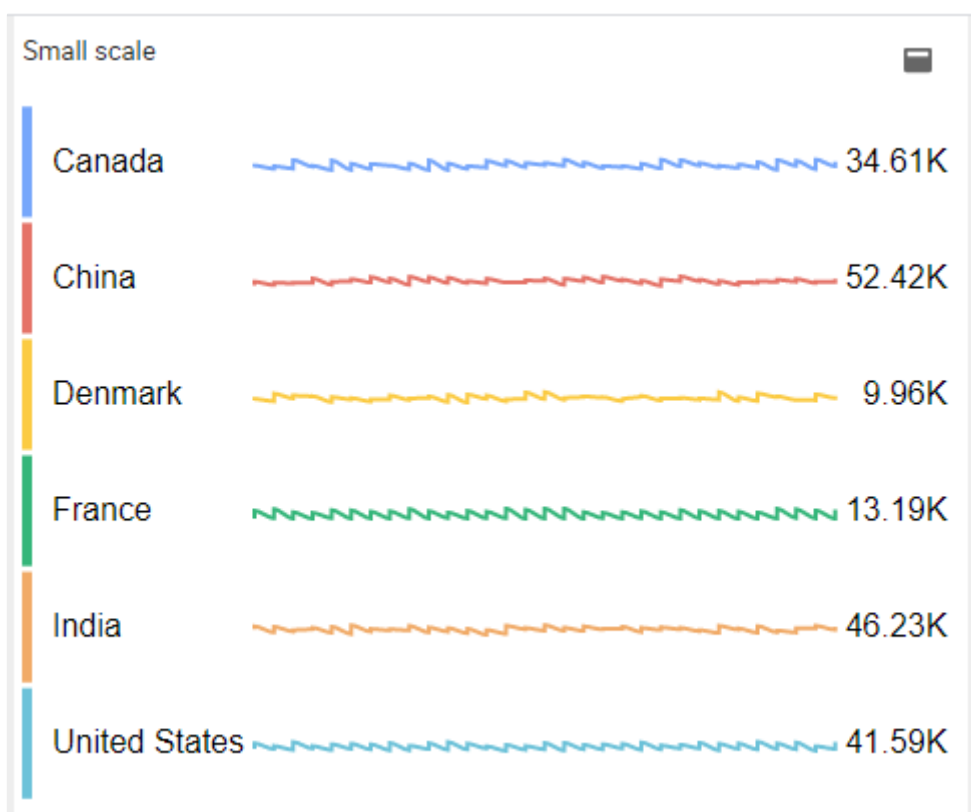
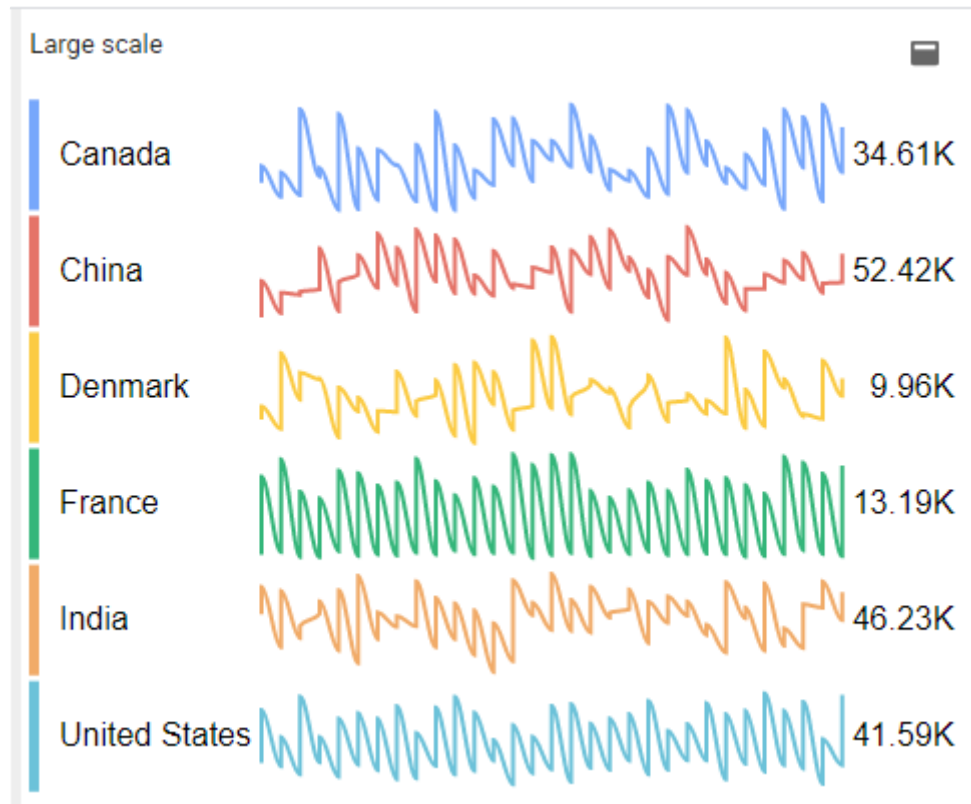


Sparkline Row Scale

Configure the relative vertical size of the sparkline chart, in % of the height of the row :

- 1 means to take the full height of the row
- 0.95 means almost the full height
- 0.05 means a very thin display

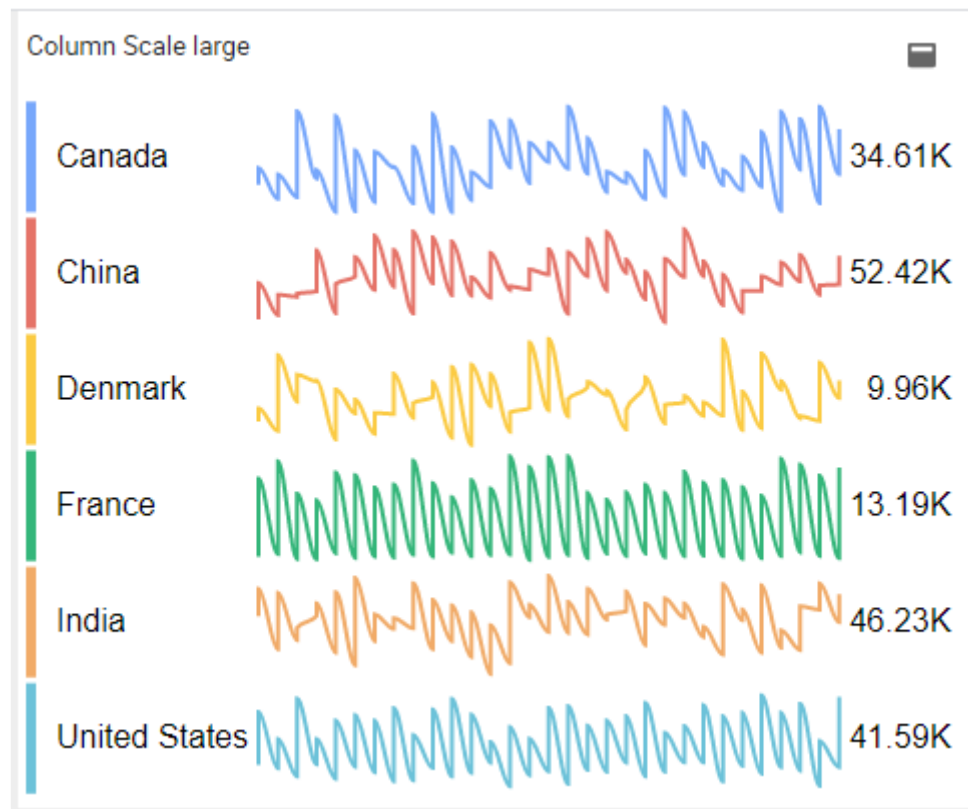


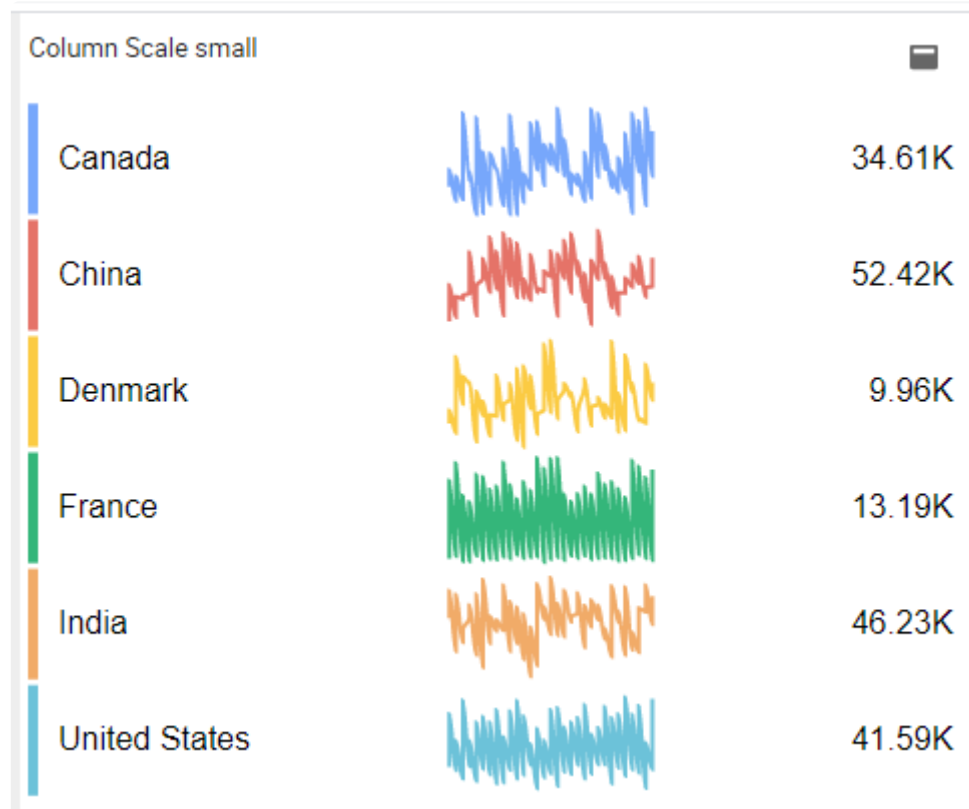


Sparkline Column Scale

Configure the relative horizontal size of the sparkline chart, in % of available space between the *Tag* name on the left and the summary value on the right :

- 1 means to take the full width
- 0.95 means almost the full width
- 0.05 means a very narrow display





Last modified: Feb 17, 2022

2.8.9.3. Sparkline chart style

Limits Opacity

This controls the opacity/transparency of the range area chart used to display the limit value, using fields *Low* and *High* as thresholds.

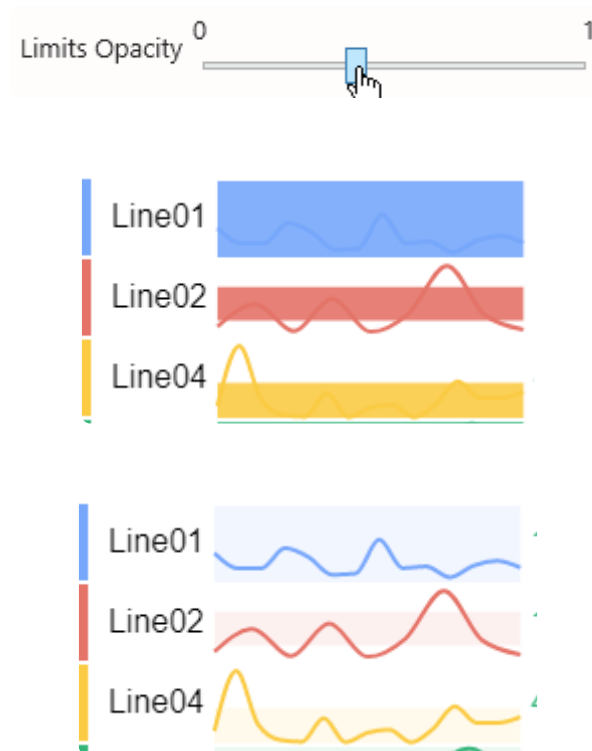


Chart interpolation

The main sparkline chart and the limit chart are each interpolated :

- *Line interpolate* : interpolation method used for the main sparkline chart
- *Limits interpolate* : interpolation method used for the limits range chart

Line Interpolate	monotone	▼
Limits Interpolate	step-after	▼

Available interpolation methods are :

basis

A cubic [basis spline](#)

The result is a smooth curve which doesn't exactly pass through the data points themselves.



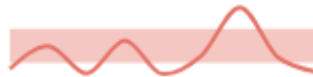
linear

A series of interconnected lines.
The result is that of a line chart.



monotone

A cubic spline that [preserves monotonicity](#) in y, assuming monotonicity in x.
The result is a smooth curve which goes through all data points and doesn't overshoot.



step

A step line centered on the data point.
The result is a step line which is constant around the data points.



step-after

A step line starting on the data point.
The result is a step line which is constant after the data points.



step-before

A step line ending on the data point.
The result is a step line which is constant before the data points.

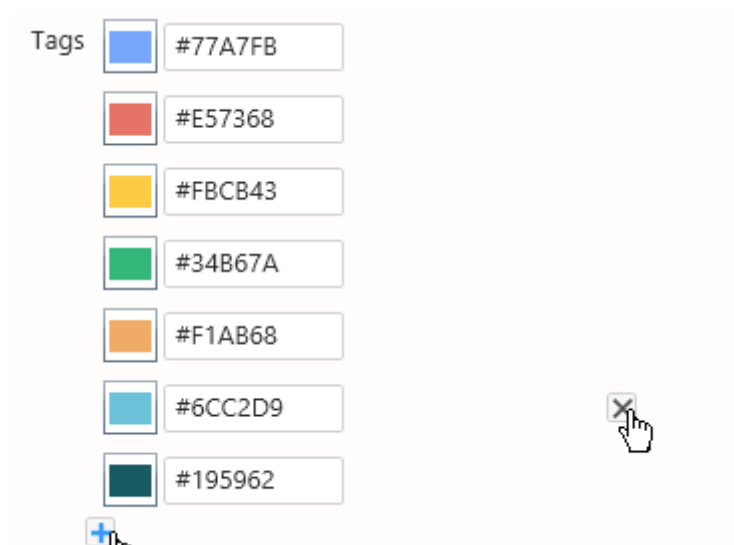


Chart colors

The color of each sparkline chart is picked from an indexed palette defined under *Color > Tags*.

You can add/remove colors and customize them.

If there is more Tags than colors, the colors are cycled.

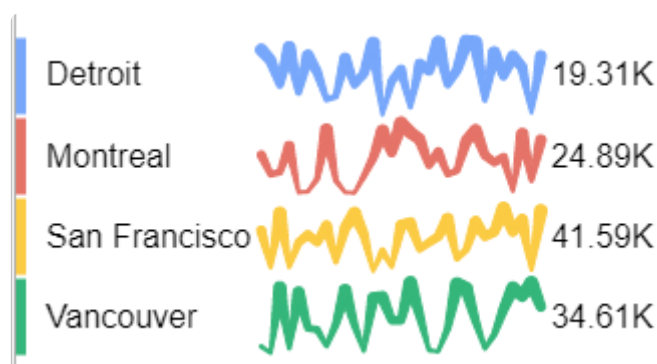


Trail

The sparkline charts can be configured to be drawn with a variable line thickness depending on the value.

Check *Use Trail* and define :

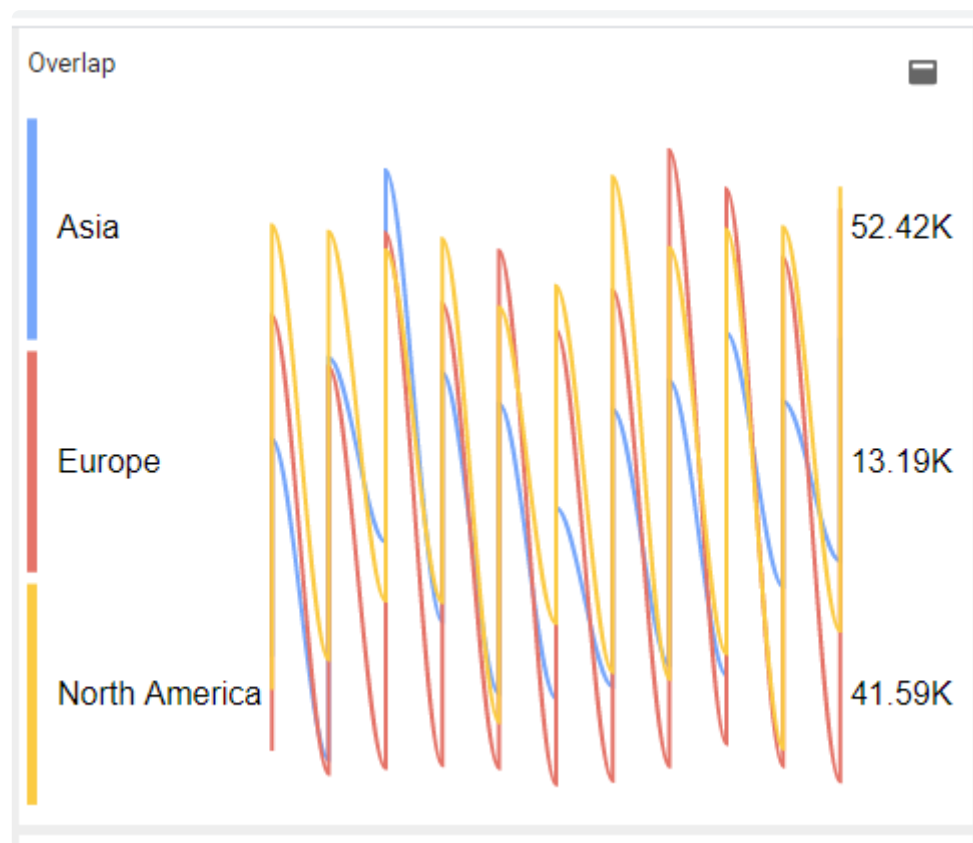
- *Trail Size Low* : the line thickness when the value is low
- *Trail Size High* : the line thickness when the value is high



Overlap Lines

This completely changes the display : instead of showing separate sparkline charts side-by-side, they are all superimposed on the same chart.

Overlap Lines ☒



Last modified: Feb 17, 2022

2.8.9.4. Style and Appearance

The summary value label displays :

Value (Target)

The Target is omitted if Value = Target, or if the *Target* field is unbound.

Summary style

Font

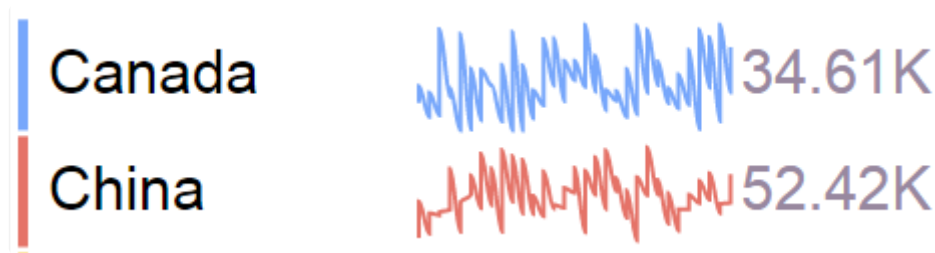
Font

Font

#98889F

Font Size

30



Color

This defines the color of the text used to display the *Value* (the color is overridden if a *Target* is defined, see below).

The color of the *Tag* name depends on the dashboard [theme](#).

Font Size

This defines the font size and color of the text used to display :

- the *Tag* name
- the *Value*

Color

Trend Good

#E57368

Trend Equal

#FBCB43

Trend Bad

#34B67A

60(46) ▲

1(46) ▼

56(46) ▲

24(46) ▼

Trend Good

The color used to display the value summary when it is higher than the Target.

Trend Equal

The color used to display the value summary when it is “Equal” to the Target.

Trend Bad

The color used to display the value summary when it is lower than the Target.

Title

The title and its font size.

It is especially useful when configured with the *Split into many widgets* configuration.

Title	continent {{:Row}}
Font Size	30

Sparkline

Last modified: Feb 17, 2022

2.8.10. Banner



The Banner Widget allows to display a stream of many KPI's inside an animated scrolling container. Users can click on the widget to pause the scrolling, and click again to resume.

(new in Alpana 2020 R1)

Last modified: Feb 17, 2022

2.8.10.1. Binding Data

The Banner has 4 data fields available for binding :

- *Tag* : how we split series of different items in the same stream
- *Value* : main value displayed
- *Target* : target displayed, compared to the Actual Value
- *Split into many widgets* : how we split series of different Banners in the same container

Show
-

Tag

Value
of
Equipment
X
Sorted
ASC

Value

Sum
of
Consumption
X
Sorted
by default

Target

Sum
of
Target
X
Sorted
by default

Group by
-

Split into many widgets

Value
of
Area
X
Sorted
ASC

Tag

This represents the series field to generate different items in the stream of displayed values.

This field **cannot be aggregated** : it must have several separate values in order to create separate items and group the “Values” aggregation.

This field is required.

Value

This represents the main number value displayed for the items.

This field must be aggregated : you must choose an aggregation function (SUM, AVG, ...)
This field is required.

Tag

Value

▼

of

Equipment

▼

✕

Sorted

ASC

▼

Value

Sum

▼

of

Consumption

▼

✕

Sorted

by default

▼

Blender_002 87 kWh

h Blender_002 87 kWh Blen

Target

This represents a target value to compare to the main *Value*.

This field must be aggregated : you must choose an aggregation function (SUM, AVG, ...)
This field is optional.

Tag

Value ▾ of Equipment ▾ X

Sorted ASC ▾

Value

Sum ▾ of Consumption ▾ X

Sorted by default ▾

Target

Sum ▾ of Target ▾ X

Sorted by default ▾

Filling_001 34 kWh(30 kWh)▲

er_001 105 kWh(100 kWh)▲ Blender_002

Group By : *Split into many widgets*

This represents the series field used to generate a different contained Banner Widget for each different value in this field.

This allows to create many sub-widgets dynamically.

This will turn the widget into a container, and generate a complete different chart for each value in the series field, contained in the Widget.

The layout of the charts inside the container is configurable.

Please see [the corresponding chapter to configure the view of the Widget container](#).

This field is optional.

Split into many widgets

Value

▼

of

Area

▼

×

Sorted

ASC

▼

Banner

Labeling_001	38 kWh(25)▲	Labeling_002	32 kWh(25)▲
Blender_001	105 kWh(100)▲	Blender_002	87 kWh(100)▼

Banner






Labeling_002	32 kWh(25)▲	PackagingStation_00	32 kWh(25)▲
Blender_002	87 kWh(100)▼	Blender_003	93 kWh(100)▼

Last modified: Feb 17, 2022

2.8.10.2. Style and Appearance

Colors

The colors of items can be configured :

Color		
Value		#D2BADA
Tag		#C8A235
Is Good		#34B67A
Is Equal		#FBCB43
Is Bad		#E57368

Blender_001 105 kWh(100)▲ Blender_002 87 kWh(100)▼

Value

This is the color of the numerical value (the value from the *Value* field).

Blender_001 105 kWh

✿ If a *Target* field is configured, then this color is ignored.
Instead the Good/Bad color is displayed (see below).

Tag

This is the color of the item's label (the value from the *Tag* field).

Is Good

This is the color of the numerical values when the main *Value* is considered “good” compared to the *Target* value.

Is Equal

This is the color of the numerical values when the main *Value* is considered “equal” compared to the *Target* value.

Is Bad

This is the color of the numerical values when the main *Value* is considered “bad” compared to the *Target* value.

Layout

Item Group Size

The stream of items is grouped in packets.
This setting controls the size of the group.

Item Group Size

Banner	
Blender_001 104.87	Blender_002 87.05

Speed

This setting controls the scrolling speed of the stream of values.

Speed

Last modified: Feb 17, 2022

2.8.11. Proportion Charts



Proportion Charts allow to see the relative importance of a quantity in different context values.

Proportion Charts are split into several Widget types, but it's possible to change type after configuring the widget :

- Pie
- Doughnut (Donut)
- Pyramid
- Funnel

They all have the same properties documented in this Chapter.

Last modified: Feb 17, 2022

2.8.11.1. Binding Data

Introduction

The following fields are available for configuring data binding on a Proportion Chart :

Show

Pie part

Part
☐


X

Sum
of
Sorted

Vs

Sum
of

As



Group by

Use drill down
☐

Split into the chart

Value
of
Sorted

Split into many charts

Value
of
Sorted

- *Part* : the size of the portion (pie slice, doughnut slice, etc)
- *Split into the chart* : how we group values together to create separate portions
- *Split into many charts* : how we split series of different charts in the same container

Parts

This represents the *quantity* we want to display on the Proportion Chart, and will bind to the size of the portion (pie slice, doughnut slice, etc).

These fields **must be aggregated** : you must choose an aggregation function (SUM, AVG, ...)

At least one *Part* field must be configured, but it's also possible to configure several.

When a single *Part* field is used, the portions are separated by the values in the *Split into the chart* fields (see below).

When binding multiple *Part* fields at the same time, 2 behaviors are possible :

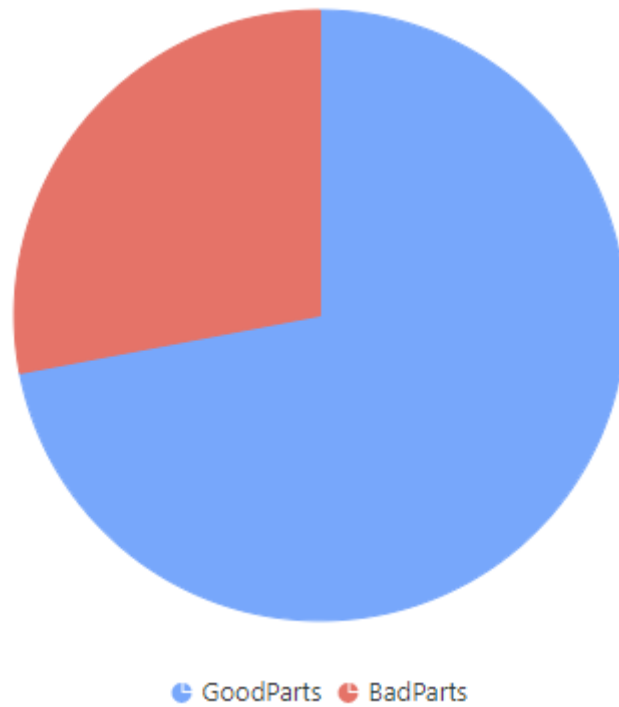
Multiple *Part* fields : multiple portions

If there is no *Split into the chart* field, each Value field will generate a portion :

Pie part

The image shows a configuration interface for a pie chart with two parts. The top part is labeled 'GoodParts' and has a blue square icon. The bottom part is labeled 'BadParts' and has a red square icon. Both parts are configured with the aggregation function 'Sum' and the field 'GoodParts' (for the top) or 'BadParts' (for the bottom). The sorting is set to 'by default'.

Part	Aggregation	Field	Sorted
GoodParts	Sum	GoodParts	by default
BadParts	Sum	BadParts	by default



Multiple *Part* fields with *Split into the chart* : multiple series

If a *Split into the chart* field is bound, each *Part* field will generate a separate Proportion Chart :

Show

Pie part

Part ☐ GoodParts

Sum of GoodParts

Sorted by default

Vs

Part ☐ BadParts


Sum of BadParts

Sorted by default

Vs

Sum of [Add optional field...](#)

As

 Pie

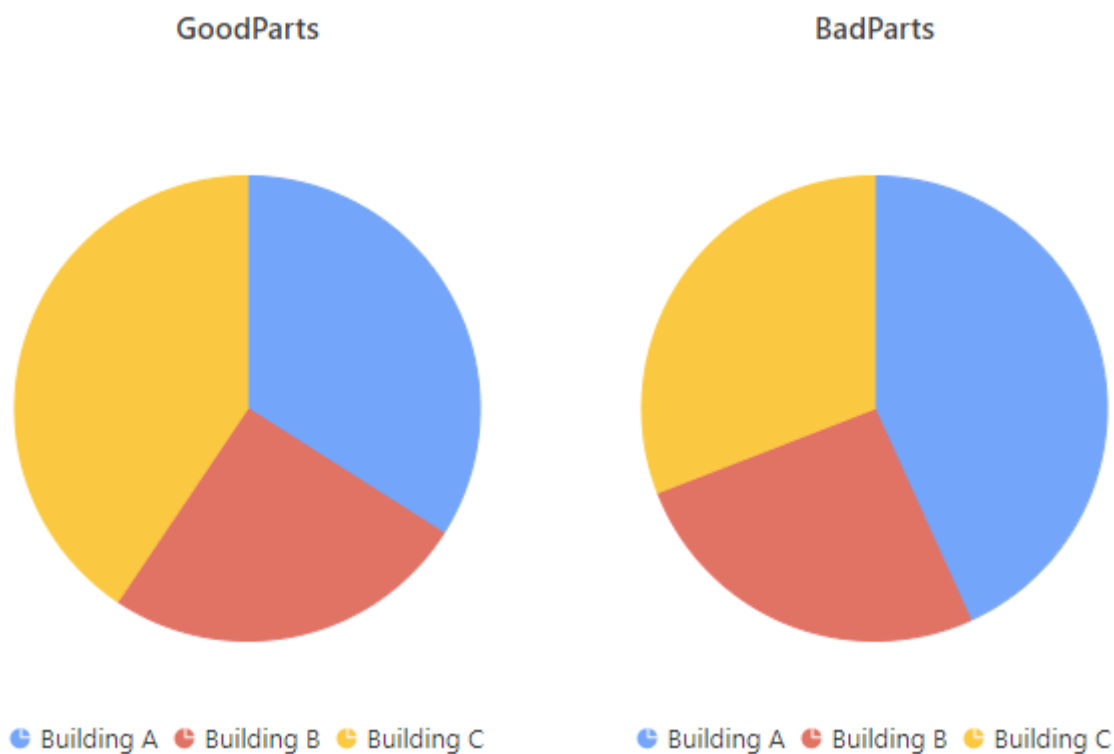
Group by

Use drill down ☐

Split into the chart

Value of Building

Sorted Asc



Split into the chart

This represents the *category* we want to use to dynamically separate portions on the Pie/Doughnut/etc.

These fields **cannot be aggregated** : they must have several separate values in order to group the “Values” aggregation.

Show -

Pie part

Part ☐ GoodParts X


Sum of GoodParts

Sorted by default

Vs

Sum of Add optional field...

As

 Pie

Group by -

Use drill down ☐

Split into the chart

Value of Building X

Sorted ASC



 Building A  Building B  Building C

Multiple *Split into the chart* fields : Drill-Down

To enable Drill-Down, you can check the box *Use drill down* :

Use drill down ☒

This allows to bind any number of fields to drill-down levels, in the same order as they are in the list.
To change the order of fields, see [the corresponding chapter](#).

Example : With fields called “Building” and “Equipment”, the following configuration will configure the corresponding drill-down :

Group by

Use drill down ☒

Drill down levels

Value

 of

Building

Sorted

ASC

Then

Value

 of

Equipment

Sorted

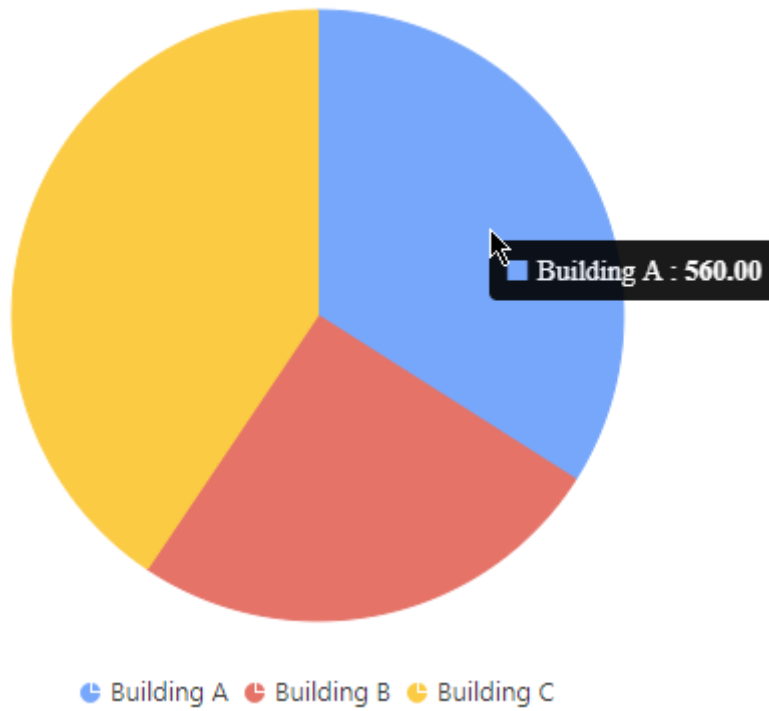
ASC

Then

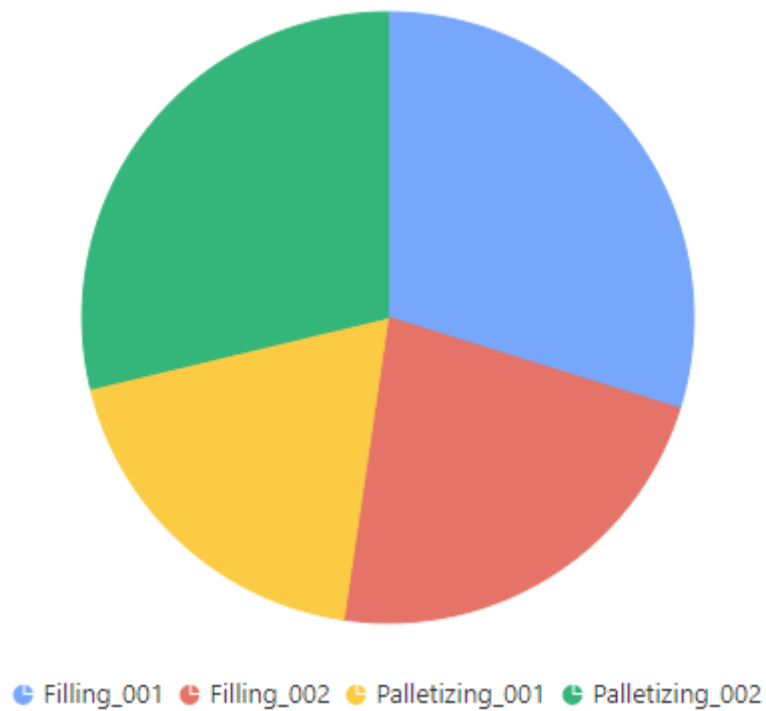
Value

 of

Add optional field...



... drills down into :



Split into many charts

This represents the series field to generate a different contained Proportion Chart for each different value in this *Split into many charts* field.

This will turn the widget into a container, and generate a complete different chart for each value in the

series field, contained in the Widget.

The layout of the charts inside the container is configurable.

Please see [the corresponding chapter to configure the view of the Widget container](#).

Split into many charts Series with Split into the chart as portions

Example : Your GoodParts are compared by Building. If you have a field called “Year”, you may want to plot a completely separate chart for each value of Year :

Show

Pie part

Part

☐

GoodParts

×

Sum

▼

of

GoodParts

▼

Sorted

by default

▼

Vs

Sum


▼

of

Add optional field...

▼

As



Pie

▼

Group by

Use drill down ☐

Split into the chart

Value

▼

of

Building

▼

×

Sorted

ASC

▼

Split into many charts

Value

▼

of

Year

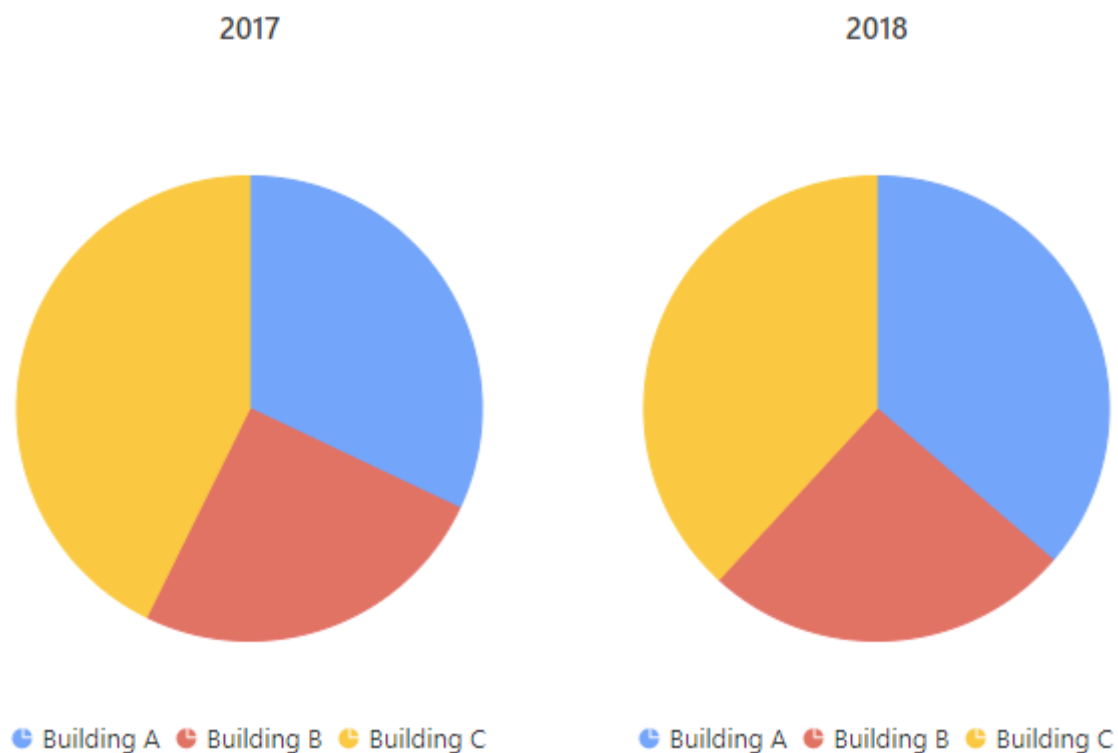
▼

×

Sorted

ASC

▼



Split into many charts Series with multiple *Parts* as portions

Example : Your GoodParts are displayed versus the BadParts. If you have a field called “Building”, you may want to plot a completely separate chart for each value of Building :

Show

Pie part

Part ☐ GoodParts

Sum of GoodParts

Sorted by default

Vs

Part ☐ BadParts


Sum of BadParts

Sorted by default

Vs

Sum of [Add optional field...](#)

As

 Pie

Group by

Use drill down ☐

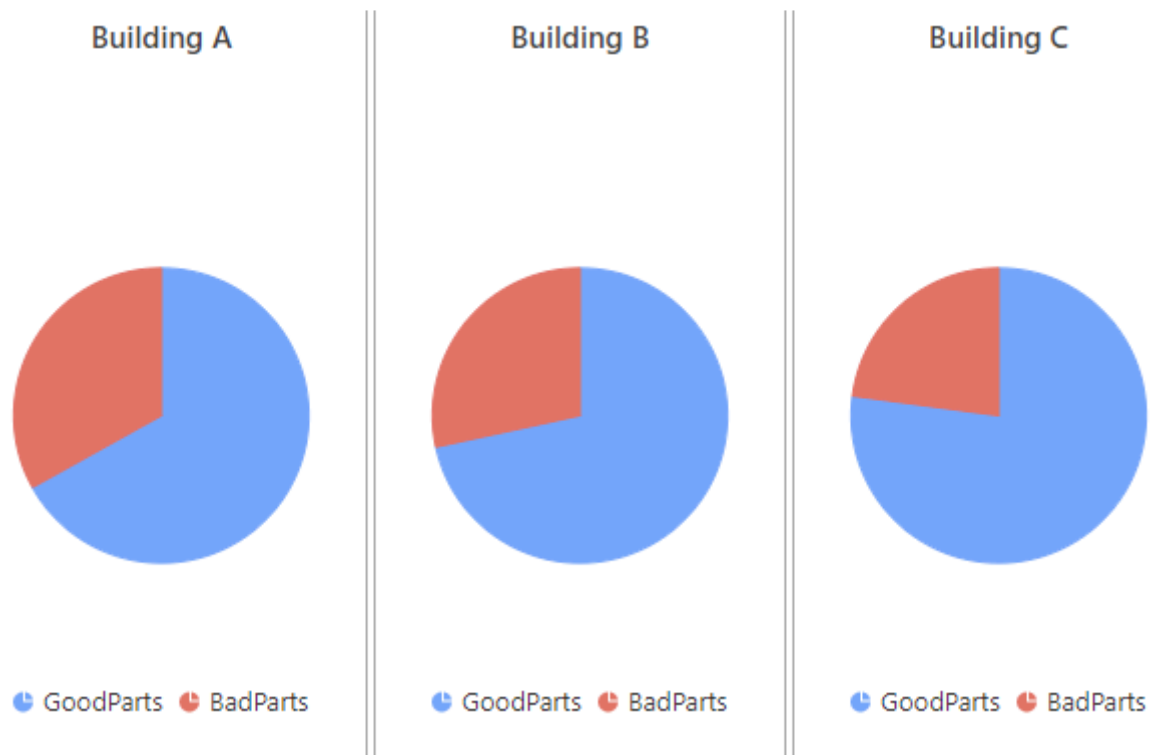
Split into the chart

Value of [Add optional field...](#)

Split into many charts

Value of Building

Sorted ASC



Split into many charts Series multiple Parts with Split into the chart as portions

All three types of fields can also be configured together : each *Part* field will generate a separate chart for each separate value of the *Split into many charts* field, and the portions will be defined by the *Split into the chart* field.

Example : You want a separate chart for the GoodParts of each Year, and a separate chart for the BadParts of each Year, and on each chart you want to compare the Buildings values :

Show —

Pie part

Part ☐ GoodParts ×

Sum ▼ of GoodParts ▼

Sorted by default ▼

Vs

Part ☐ BadParts ×


Sum ▼ of BadParts ▼

Sorted by default ▼

Vs

Sum ▼ of [Add optional field...](#) ▼

As

 Pie ▼

Group by —

Use drill down ☐

Split into the chart

Value ▼ of Building ▼ ×

Sorted ASC ▼

Split into many charts

Value ▼ of Year ▼ ×

Sorted ASC ▼

GoodParts (2017)



Building A Building B Building C

GoodParts (2018)



Building A Building B Building C

BadParts (2017)



Building A Building B Building C

BadParts (2018)



Building A Building B Building C

***Split into many charts* Series with synchronized Drill-Down**

If Drill-Down is configured, it becomes synchronized between each chart in the series.

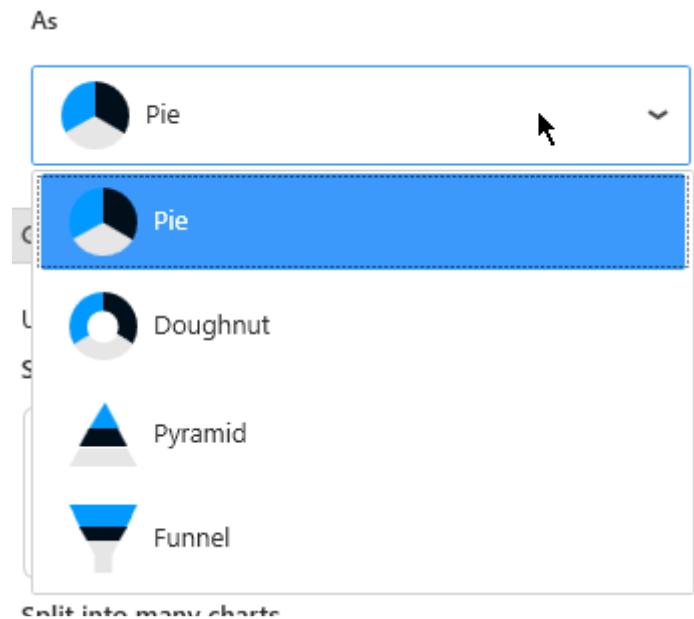
Last modified: Feb 17, 2022

2.8.11.2. Switching Chart type

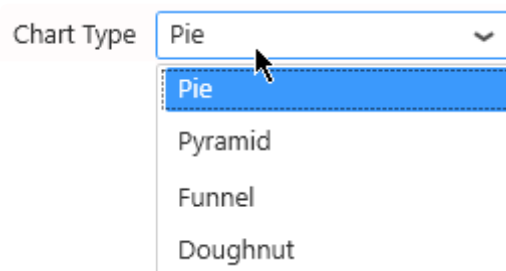
Proportion Chart type

Chart type can be changed on the fly while keeping the widget configuration.

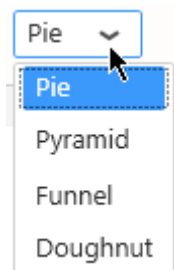
To change the Chart type, use the selector under *As* in the data configuration :



Or use the setting *Chart Type* under *Basic Settings* :



Or use the corresponding shortcut in the top toolbar :



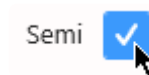
Semi

Pie and Doughnut types also can be displayed as Half-Pie or Half-Doughnut :



● Building A ● Building B ● Building C

For this, check *Semi* under *Basic Settings* :



Last modified: Feb 17, 2022

2.8.11.3. Data Point information

Value Labels

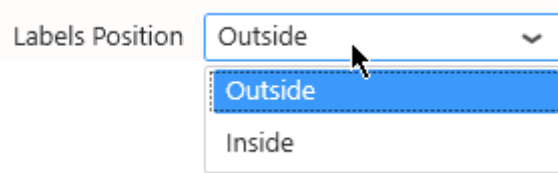
Text labels can be used to display the value next to each portion.

Under *Basic Settings*, check *Show Value Labels* :



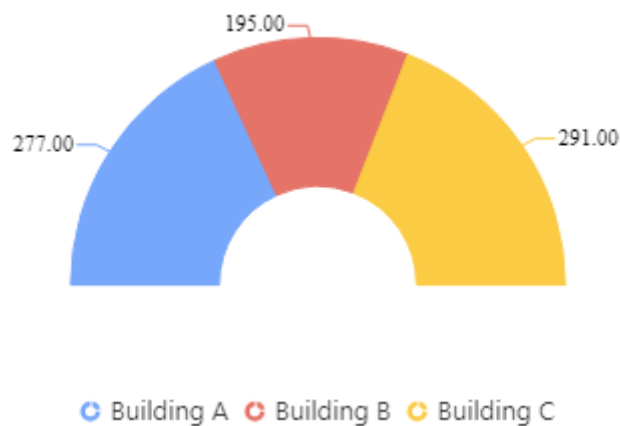
Position

The position of labels can be configured with the *Labels position* selector :



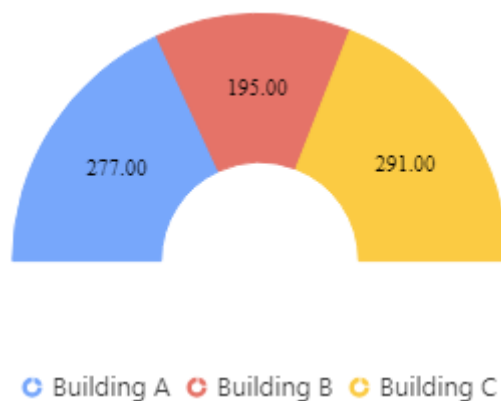
Outside (default)

By default, labels are displayed outside of the portions :



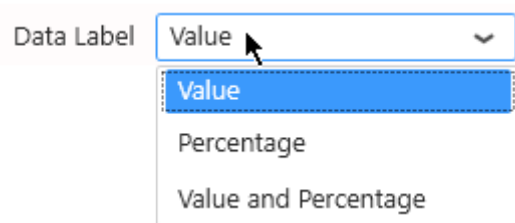
Inside

Labels can also be displayed inside the portion :



Type

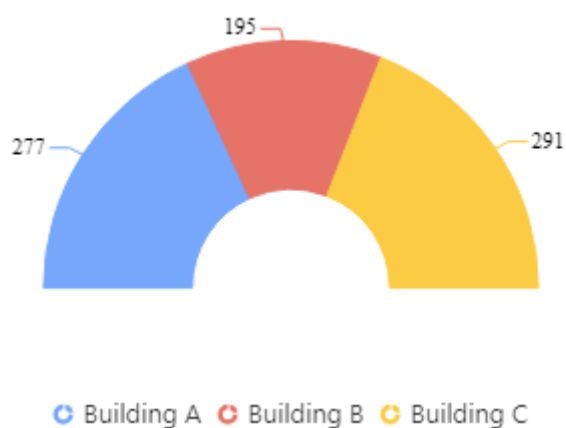
The type of labels can be configured with the *Data Label* selector :



- Value
- Percentage
- Value and Percentage

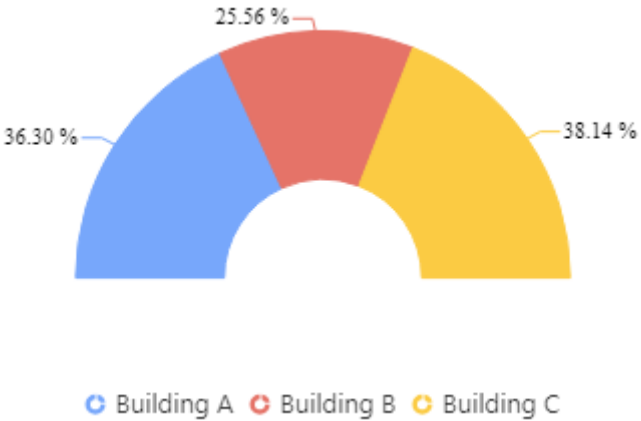
Value

Value labels show the aggregated Value field for the portion :



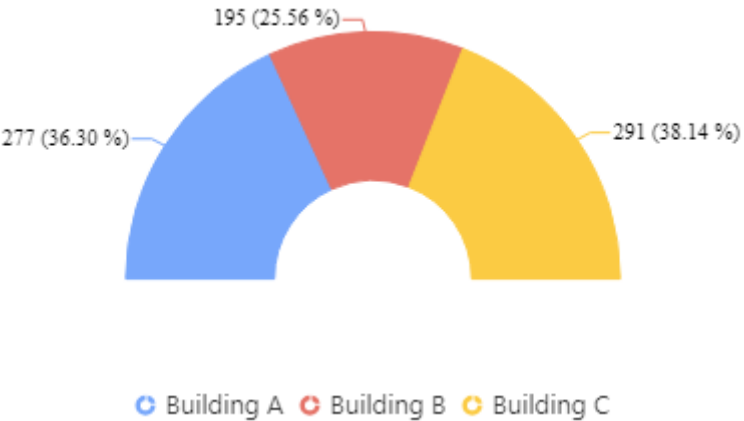
Percentage

Percentage labels show what percentage of the total the portion represents :



Value and Percentage

Value and Percentage can be combined in a single label :






Last modified: Feb 17, 2022

2.8.11.4. Legend

Portion Legend

The Legend shows the meaning of each portion :

 Building A  Building B  Building C

Hide/Show Legend

The chart Legend can be hidden or displayed using the corresponding checkbox :

Show Legend ☒

Legend position

The chart Legend can be positioned on any side of the widget :

Show Legend ☒

Bottom

Bottom

Top

Left

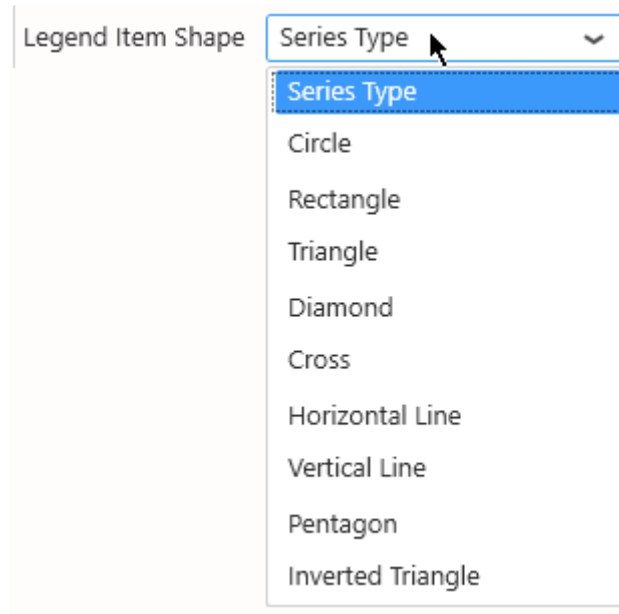
Right

Custom Legend Item shape

For each item in the Legend, its name and icon is displayed, with the Series color displayed on the icon. By default, the icon shape depends on the Chart type.

You can select a different shape that will apply to all Series in the Chart.

Select the desired shape from the *Legend Item Shape* list :



Note : *Series Type* means that the shape will depend on the Chart type (this is the default).

Customize Legend of portions

Legend items are automatically generated from the field names and values, but you can customize how they are generated under *Group Settings* :

Group Settings

Split into many charts

Title Format

{{:Row}}

Split into the same chart

Title Format

{{:Column}}

With *Split into the same chart*, you can use the placeholder `{{:Column}}` to be replaced by the field value :

Title Format

portion for {{:Column}}

portion for Building A
portion for Building B
portion for Building C

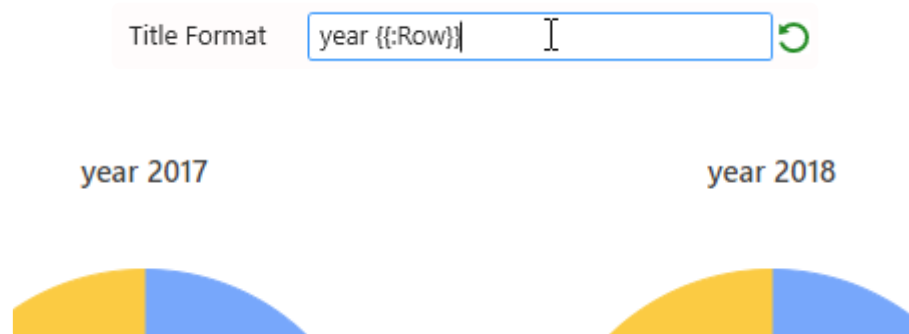
Customize Titles of contained charts

Group Settings also allows to configure the series titles when the Proportion Chart has a field bound to *Split into many charts*.

Depending on your data configuration, not all configurations may be available because they wouldn't

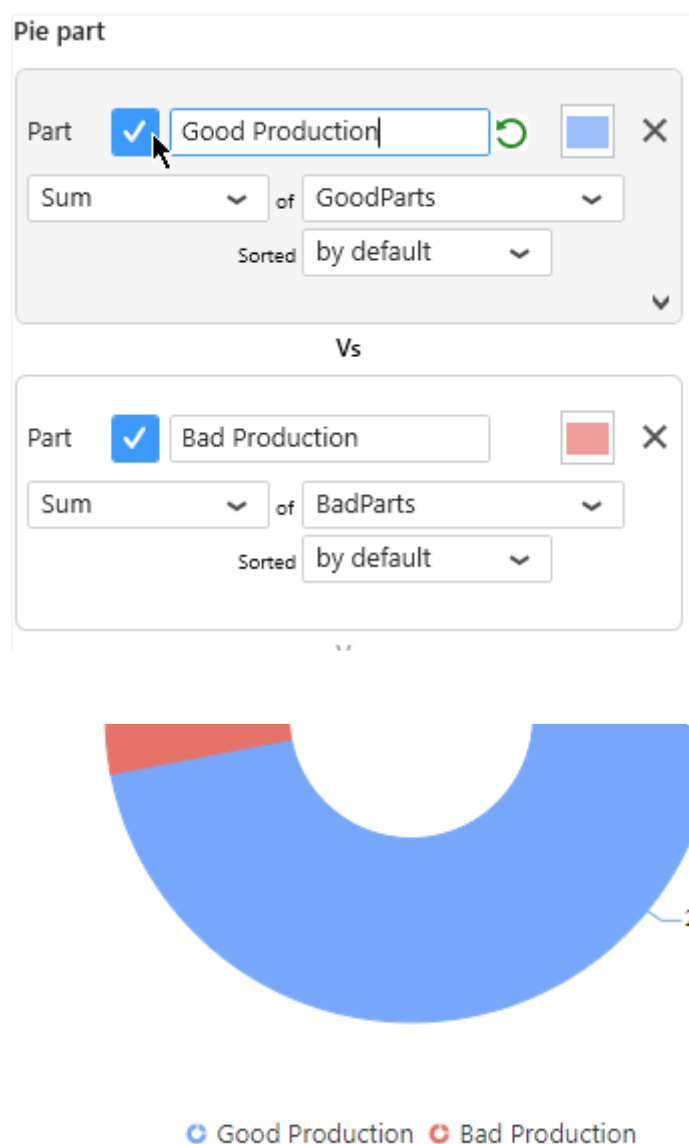
have meaning.

With *Split into many charts*, you can use the placeholder `{{:Row}}` to be replaced by the field value :



Customize the name of *Part* fields

The legend and titles generated by the *Part* fields can be renamed by checking the text box next to the data field configuration :



2.8.11.5. Managing Series Color

Indexed Colors (default)

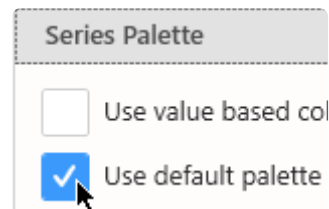
By default, Proportion Chart portions are assigned a color based on their index in the ordered list in which they appear (usually alphabetical order) :

Item1 in the values of the series (see Legend order) is assigned Color1, Item2 is assigned Color2, etc...







The palette has 15 colors. When there are more series items than 15, the colors assigned loop back to Color 1.

Default Palette (default)

To enable the Default Palette (it is enabled by default), check *Use Default Palette* under *Series Palette* :

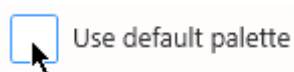


The list of colors in the default palette is below :

Color 1		#77A7FB
Color 2		#E57368
Color 3		#FBCB43
Color 4		#34B67A
Color 5		#F1AB68
Color 6		#6CC2D9
Color 7		#195962
Color 8		#E18878
Color 9		#1AA27D
Color 10		#BFAAC7
Color 11		#89695E
Color 12		#A5C77F
Color 13		#F48FB1
Color 14		#90CAF9
Color 15		#CC4452

Custom Palette

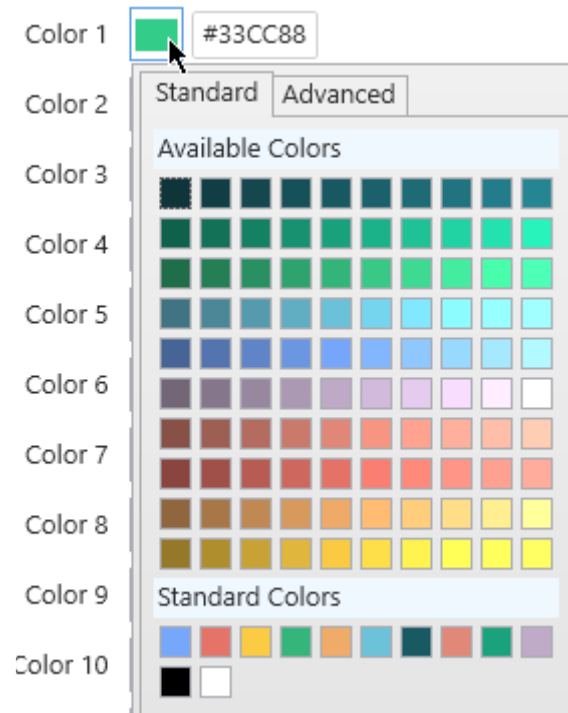
To start customizing the Default Palette, un-check *Use Default Palette* under *Series Palette* :



Then you can customize colors either by entering their hexadecimal code (#RRGGBB) :



... or by clicking the color and using the graphical color picker :



Value-based Colors

What are Value-based colors ?

But what if your series changes over time ?

When items are renamed, added, or deleted from the data, the index of existing items will change, and their color will change !

This could happen simply during filtering at runtime for example.

Instead of index-based, you may then choose **Value-based** colors : the same value in the Series field will always have the same color in the Chart.

For this, simply check *Use value-based colors* under *Series Palette* :



Customizing Value-based colors

Value-based colors are defined **at the Data Source level**.

This is in order to allow re-use of the colors everywhere the same data is used.

To configure value-based colors, see the corresponding chapter [Value-based Settings](#), under [Transforming Data](#).

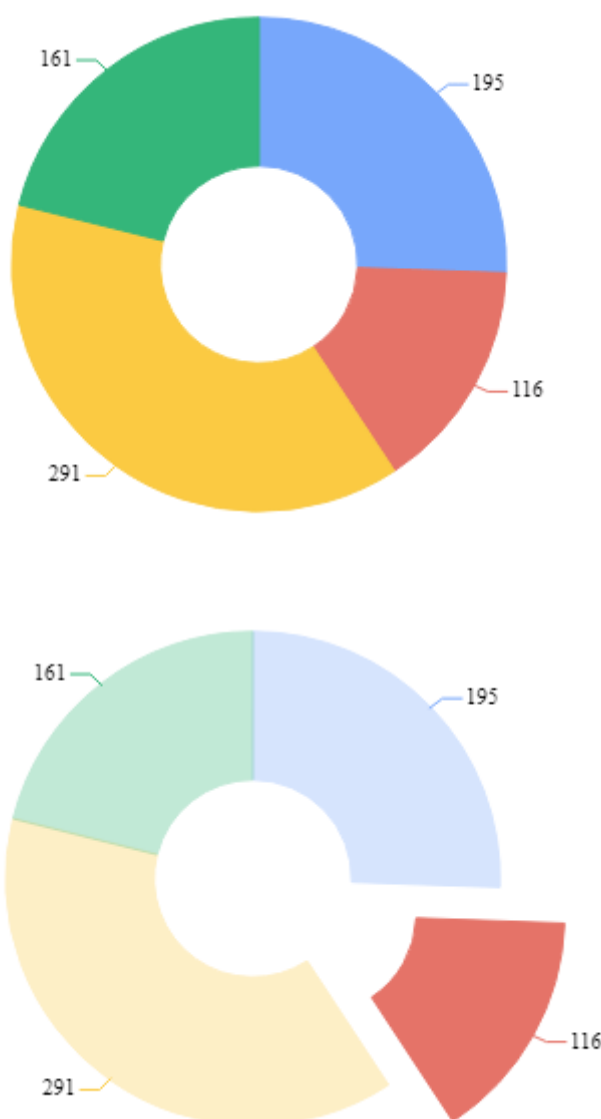
2.8.11.6. Interaction

Explode On Mouse Click

Check *Explode On Mouse Click* under *Series* :

Explode On Mouse Click ☒

At runtime, the user will be able to click on a portion to highlight it by slightly removing it from the chart :



Last modified: Feb 17, 2022

2.8.11.7. Style and Appearance

Opacity

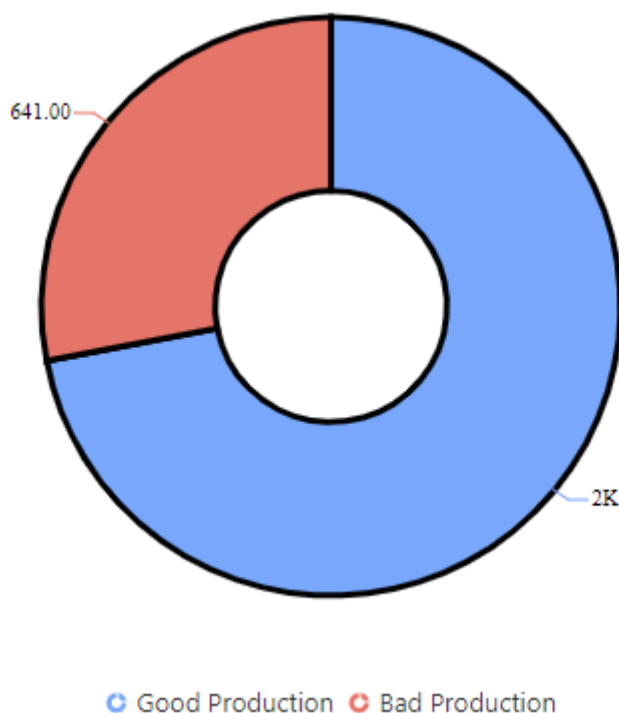
The chart can be made semi-transparent to better integrate with a background. Under *Series*, configure the *Opacity* :



Border

Under *Series*, a *Border Thickness* and *Border Color* can be configured :





Custom Title

When the chart is not configured to show a series of several charts, a *Custom Title* can be configured under *Basic Settings* :

Custom Title ☒ 



Last modified: Feb 17, 2022

2.8.12. Gantt



The Gantt Widget allows to display scheduling data : work orders time line, equipment states history, teams schedules, ...

(new in Alpana 2020 R1)

Last modified: Feb 17, 2022

2.8.12.1. Binding Data

Introduction

The Gantt Widget represents the time span of a series of events (work orders, shifts, machine states, ...) happening in parallel on a series of “Tags” (equipments, production lines, ...).

Time is represented on a X axis, and the events’ time span is represented as shapes spanning the desired duration.

Tags are separated by different labels on the Y axis, each one corresponding to a row on the visualization.

The following fields are available for configuring data binding on a Gantt :

- *Tag* : represent separation between events happening in parallel. *Tags* are represented side-by-side in different rows.
- *Start* : the start date of the events
- *End* : the end date of the events
- *Info* : additional information to display in the tooltip
- *Event* : allows to group several events with the same color
- *Split into many widgets* : allows to create many sub-widgets dynamically

Show

Tag

Value
of
WORKSTATION
Sorted
Asc

Start

Value
of
DATE_START
Converted as
Datetime
Sorted
Asc

End

Value
of
DATE_END
Converted as
Datetime
Sorted
Asc

Info

Value
of
SerialNumber

Group by

Internal grouping by Event

Value
of
WORK_ORDER
Sorted
ASC

Split into many widgets

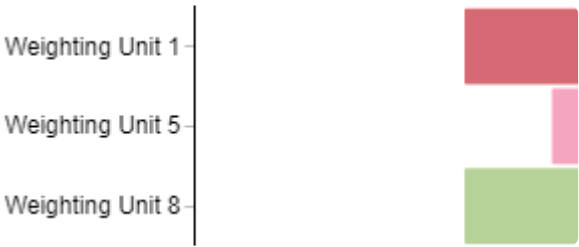
Value
of
FACTORY
Sorted
ASC

Tag

This is basically a series used for separating events happening in parallel, and displaying them side-by-side.

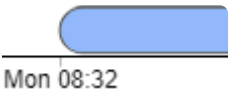
This field **cannot be aggregated** : it must have several separate values in order to create several

separate series.
This field is required.



Start

This must be a date/time value representing the start of the events.



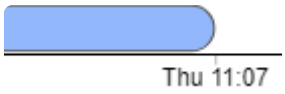
If the value is `NULL`, then it means we don't know when the event started, and the event starts at the beginning of the row :



This field **cannot be aggregated** : it must have several separate values in order to create several separate events.
This field is required.

End

This must be a date/time value representing the end of the events.



If the value is `NULL`, then it means we don't when the event will end, and the event ends at the end of the row :



This field **cannot be aggregated** : it must have several separate values in order to create several separate events.
This field is required.

Info

This allows to add additional text information inside the tooltip.

This field is optional.

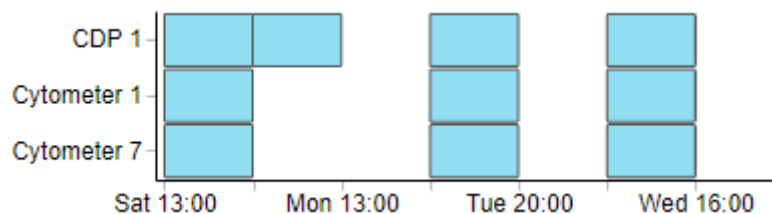
Group By : *Event*

This allows to group several events in the same row or across rows, by allocating a color and displaying it in a legend.

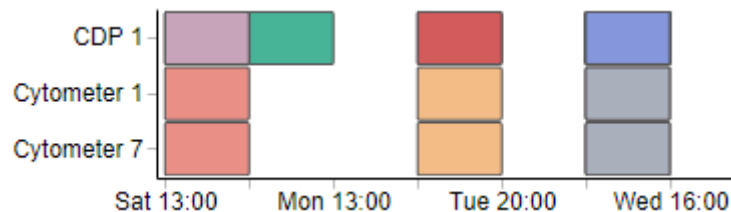
This field **cannot be aggregated** : it must have several separate values in order to create several separate groups.

This field is optional.

Without grouping by Event :



With Events grouped :



Group By : *Split into many widgets*

This represents the series field used to generate a different contained Gantt for each different value in this field.

This allows to create many sub-widgets dynamically.

This will turn the widget into a container, and generate a complete different chart for each value in the series field, contained in the Widget.

The layout of the charts inside the container is configurable.

Please see [the corresponding chapter to configure the view of the Widget container](#).

This field **cannot be aggregated** : it must have several separate values in order to create several separate series.

This field is optional.

Split into many widgets

Value

of

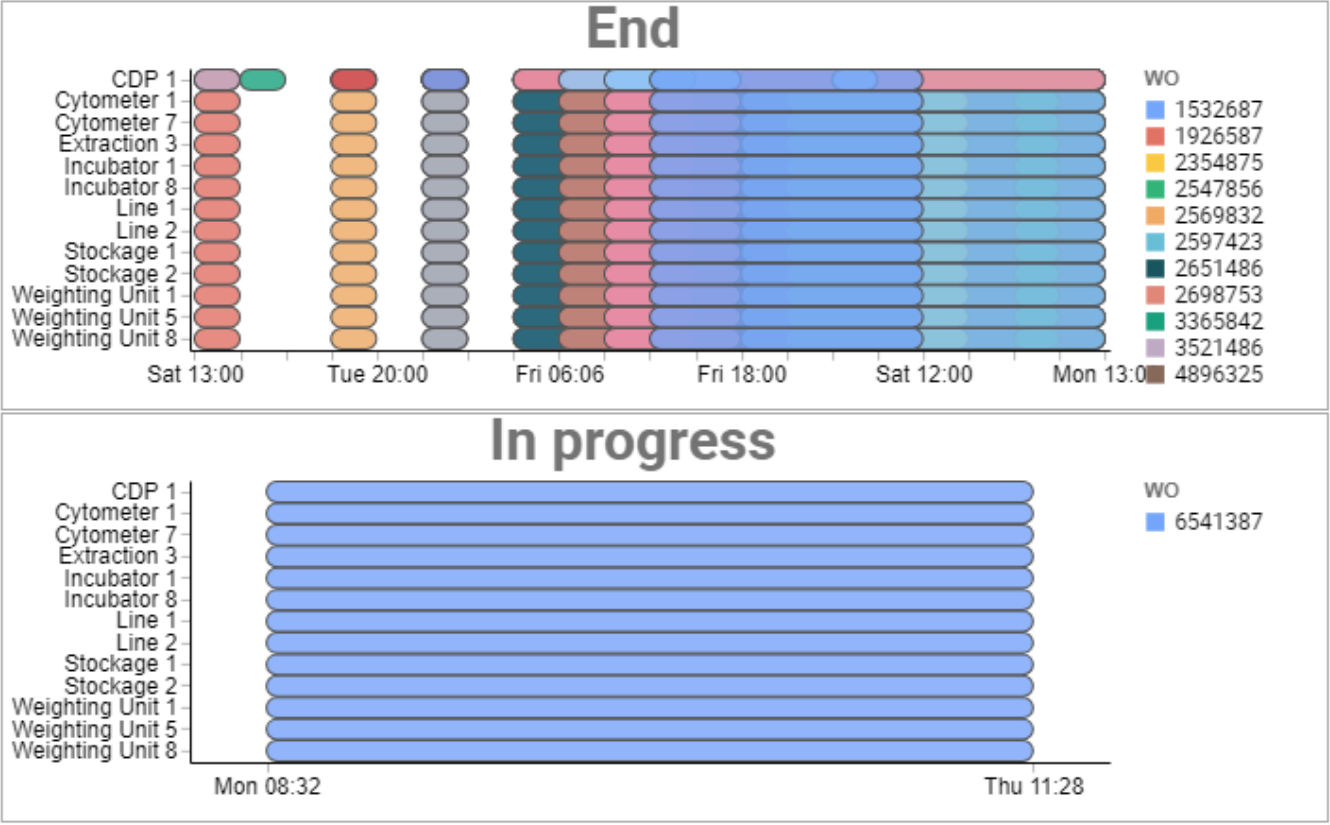
STATE

Sorted

ASC

X

WO states



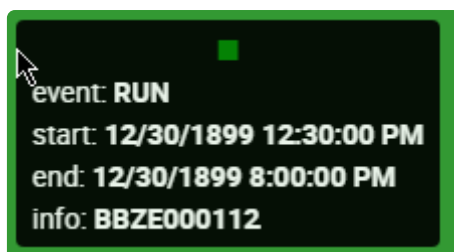
Last modified: Feb 17, 2022

2.8.12.2. Data Point Information

Tooltip

The tooltip displays the detailed information about the event :

- Event name
- Start Date
- End Date
- Info



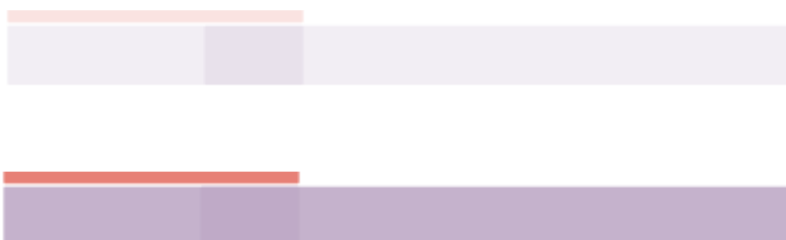
Last modified: Feb 17, 2022

2.8.12.3. Events Configuration

Opacity

Configure the opacity of each event.

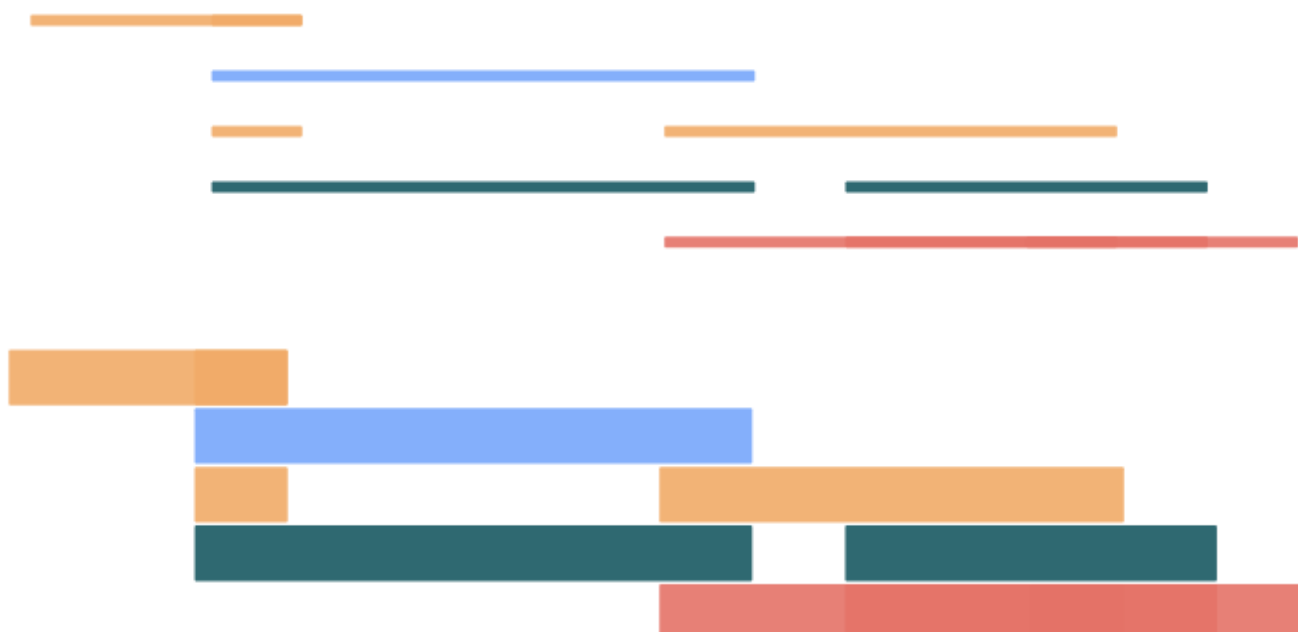
Lower/intermediate values (more transparent) allow to more easily visualize overlapping events.



Scale

Configure the relative vertical size of all the events :

- 1 means to take the full height of the row
- 0.95 means almost the full height
- 0.05 means a very thin display

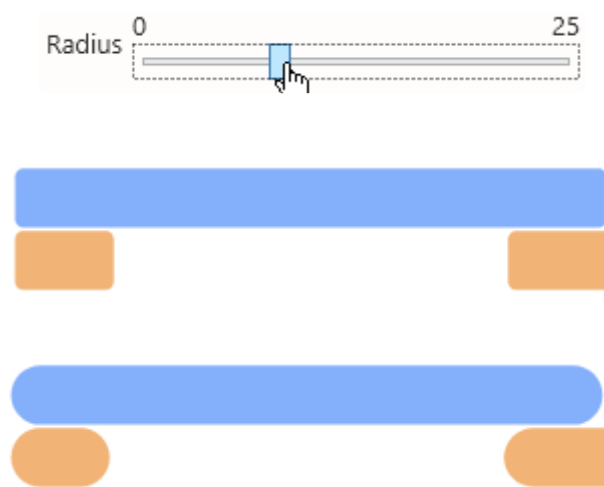


Radius

The radius of the rounded corners of all the events.

A *Radius* of 0 means square corners.

More round corners can be useful for distinguishing start/end dates of overlapping events.



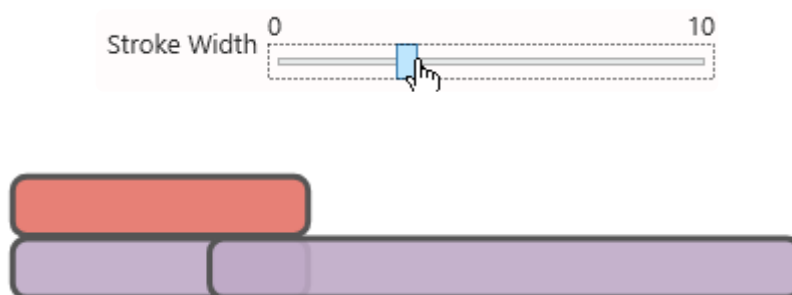
- * Note : the rounded corners are only displayed on the actual Start and End of events. If your event doesn't have an End Date (the value is `NULL`), then the corners are squared.
This useful for making the visual difference between finished and un-finished events.

Stroke Width

The width (in pixels) of the border of each event.

A *Stroke Width* of 0 means no border.

Displaying the border can allow to more easily visualize overlapping events.



Fill colors

This is the color that all the events take, **when there is no *Events* field bound**.

If you create several colors, they will be cycled for each row.



* If there is an *Events* field bound, this configuration is ignored, and the *Event Fill colors* is used instead.

Event Fill colors

This is the color that each of the events takes, in order, **when there is an *Events* field bound**.

This is an indexed palette.

If there is more events than colors, the colors are cycled.

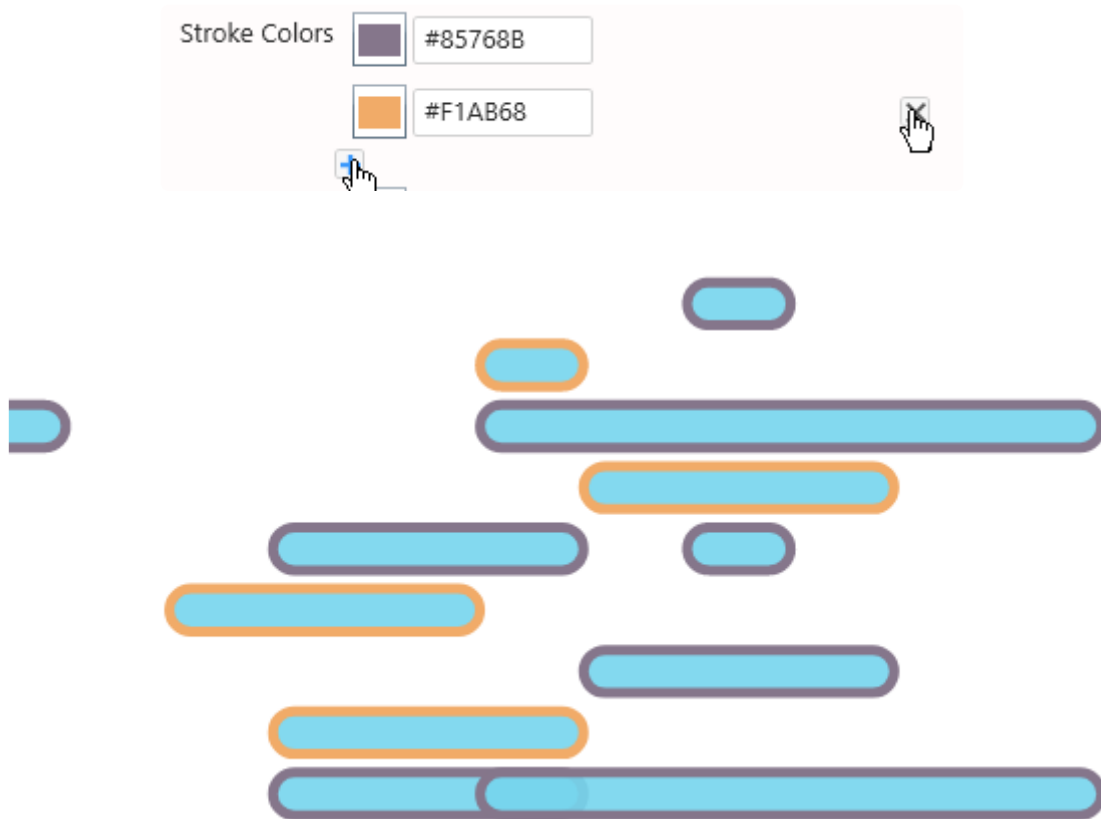
When several events have the same value of the *Events* field, they have the same color.



* If there is no *Events* field bound, this configuration is ignored, and the *Fill colors* is used instead.

Stroke colors

This is the color that the border of each of the events takes, **when there is no *Events* field bound**. If you create several colors, they will be cycled for each row.



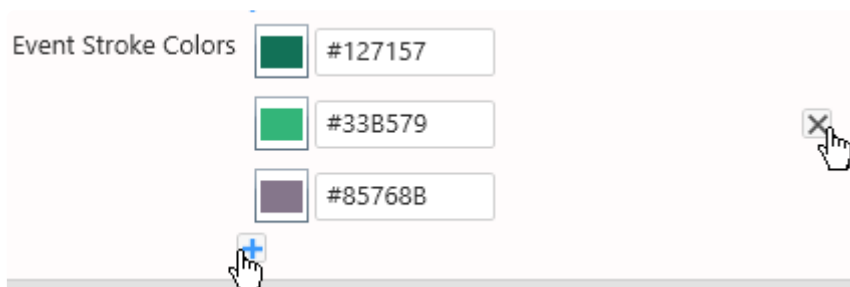
* If there is an *Events* field bound, this configuration is ignored, and the *Event stroke colors* is used instead.

Event Stroke colors

This is the border color that all the events takes, in order, **when there is an *Events* field bound**. This is an indexed palette.

If there is more events than colors, the colors are cycled.

When several events have the same value of the *Events* field, they have the same color.





If there is no *Events* field bound, this configuration is ignored, and the *Stroke colors* is used instead.

Last modified: Feb 17, 2022

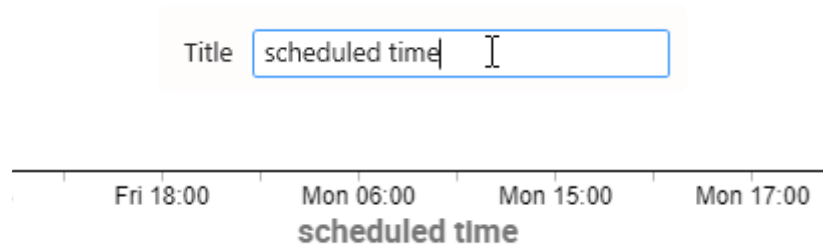
2.8.12.4. Axis Configuration

X Axis configuration

Title

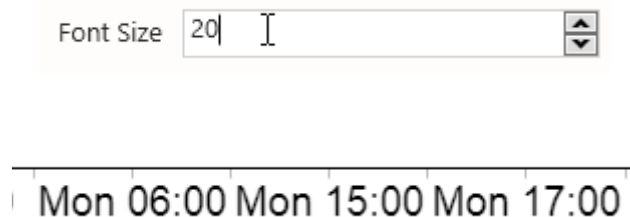
This is the Axis title.

If no title is configured, then it is the same as hiding the title (it doesn't take visual space).



Font size

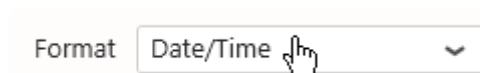
This is the font size of the Axis Labels.

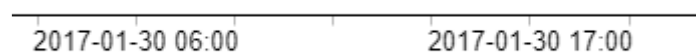


Format

This defines how dates should be formatted to display the X Axis labels :

- **Time** : HH:MM, **example** : 23:59
- **Day (long) / Time** (default setting) : ddd HH:MM, **example** : Thu 23:59
- **Day / Time** : dd HH:MM, **example** : 31 23:59
- **Month / Day / Time** : mm-dd HH:MM, **example** : 12-31 23:59
- **Date / Time** : yyyy-mm-dd HH:MM, **example** : 2020-12-31 23:59
- **Month / Day** : mm-dd, **example** : 12-31
- **Day / Month (long)** : dd mmm, **example** : 31 Dec
- **Month (long) / Year** : mmm yyyy, **example** : Dec 2020
- **Date** : yyyy-mm-dd, **example** : 2020-12-31

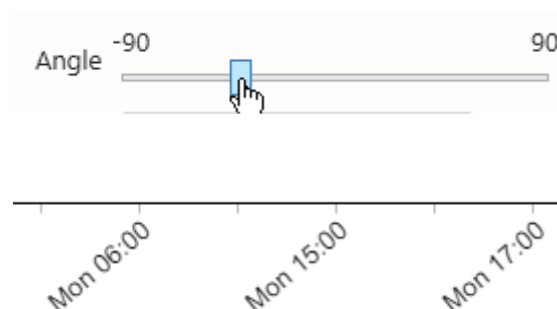




Angle

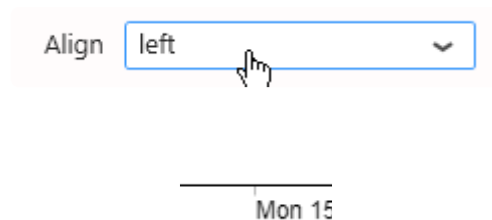
This is the orientation of the Axis Labels.

Positive values rotate clockwise, negative values rotate counter-clockwise.



Align

This is the text alignment of the Axis Labels compared to the tick mark : left/center/right.



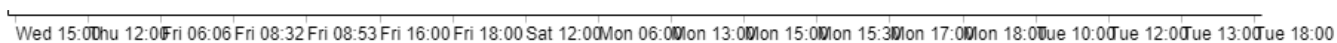
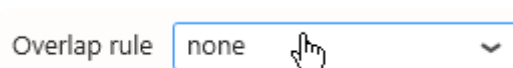
Overlap Rule

This represents how the Axis Labels are displayed when they overlap :

This defines the strategy to avoid overlap of the axis labels :

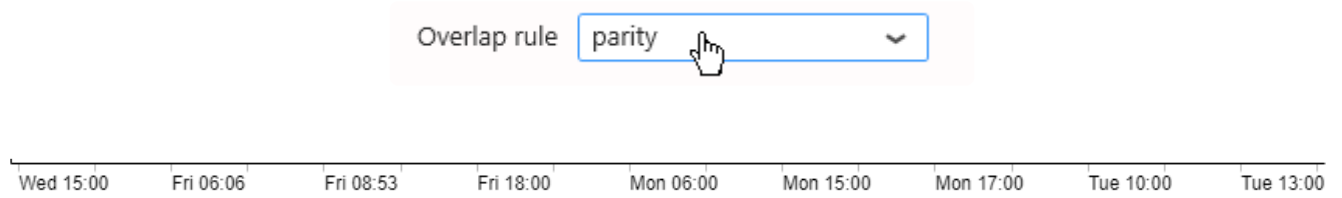
none

No strategy. If the labels overlap, they will be displayed as such.



parity

Removing every other label. This is the recommended default.



greedy

A linear scan of the labels is performed, removing any label that overlaps with the last visible label. This works better when the axis is not linear.

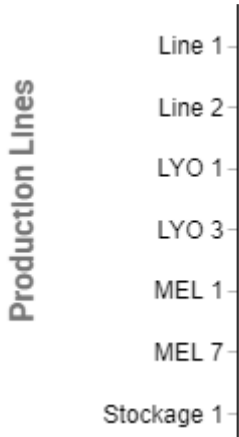


Y Axis configuration

Title

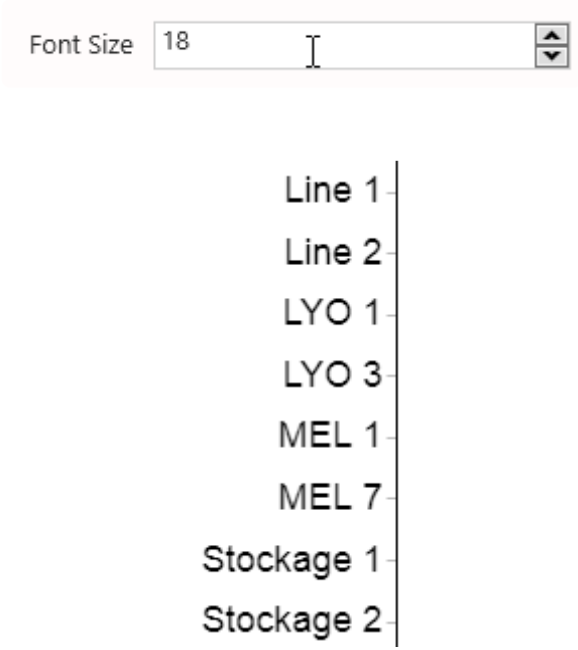
This is the Axis title.
If no title is configured, then it is the same as hiding the title (it doesn't take visual space).

Title Production Lines



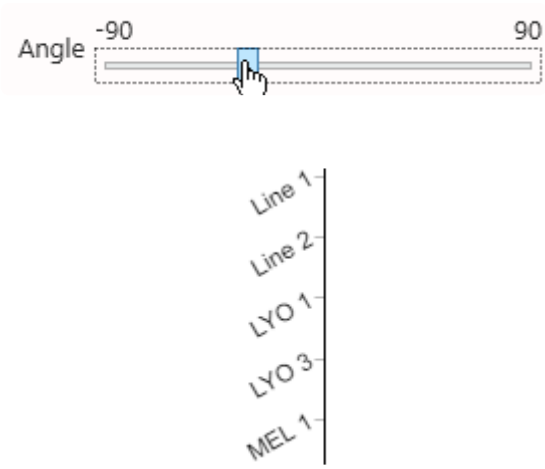
Font size

This is the font size of the Axis Labels.



Angle

This is the orientation of the Axis Labels.
Positive values rotate clockwise, negative values rotate counter-clockwise.



Align

This is the text alignment of the Axis Labels compared to the tick mark : left/center/right.

Last modified: Feb 17, 2022

2.8.12.5. Titles Configuration

Optionally a title can be displayed on top of the Gantt.

This is useful especially when configuring a *Split into many widgets* field : then configuring the Title as `{{ :Row }}` will give you the field value for each sub-widget.

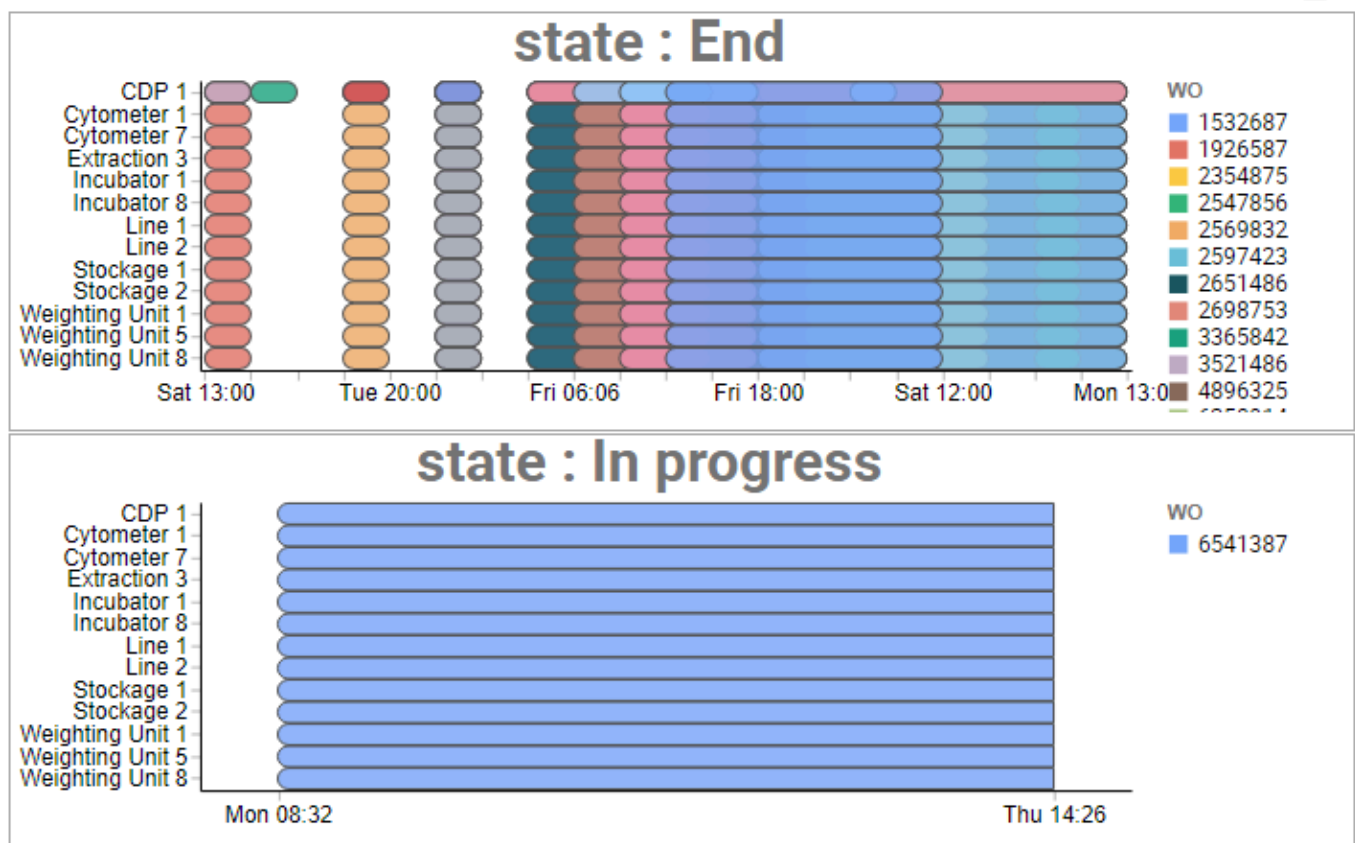
Title

This is the title itself.

If no title is configured, then it is the same as hiding the title (it doesn't take visual space).

Title

WO states



Title Font Size

This is the font size of the Title.

Axis Title Font Size

This is the font size of both the Axis Titles.

Events Title

This is the title of the legend when an *Event* field is configured.

Events Title

WO

WO

1532687

1926587

2354875

2547856

2569832

Events Font Size

This is the font size of the legend items when an *Event* field is configured.

Last modified: Feb 17, 2022

2.8.13. Sankey



The Sankey widget allows to see and quantify topological connections between items.
For example, you can analyze your energy flows, identify losses, find water leaks, etc...

Last modified: Feb 17, 2022

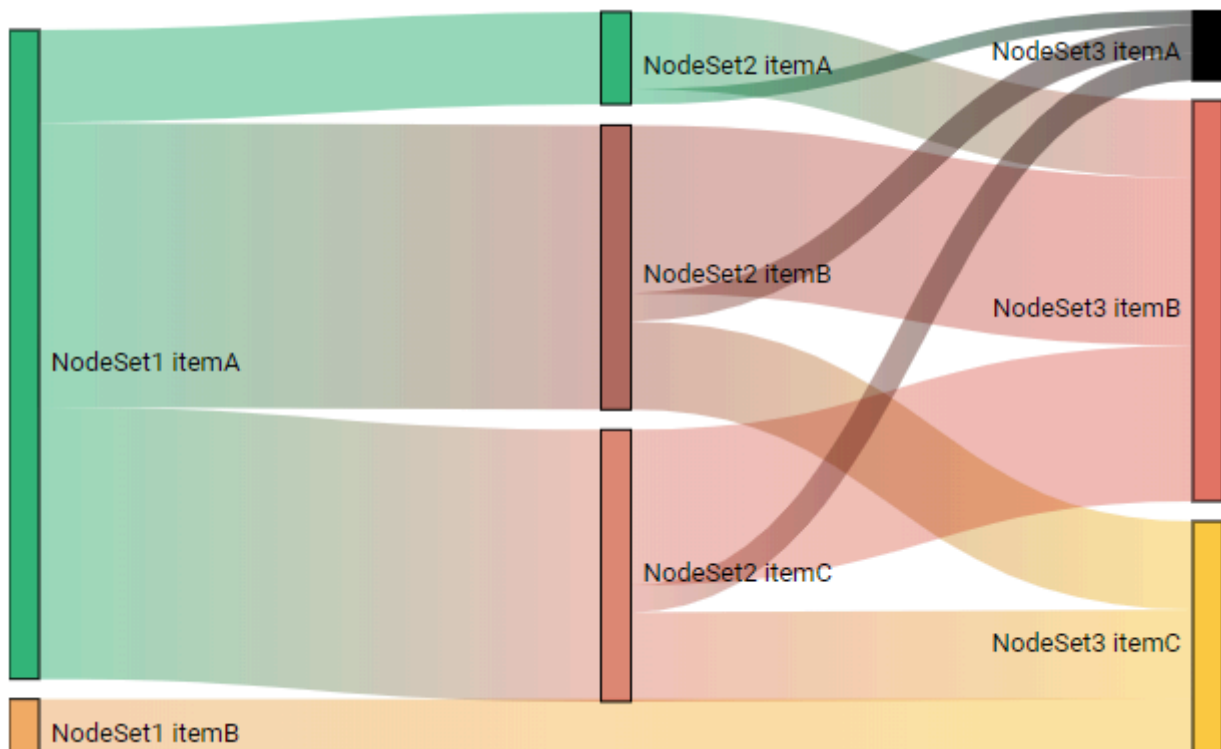
2.8.13.1. Binding Data

Introduction

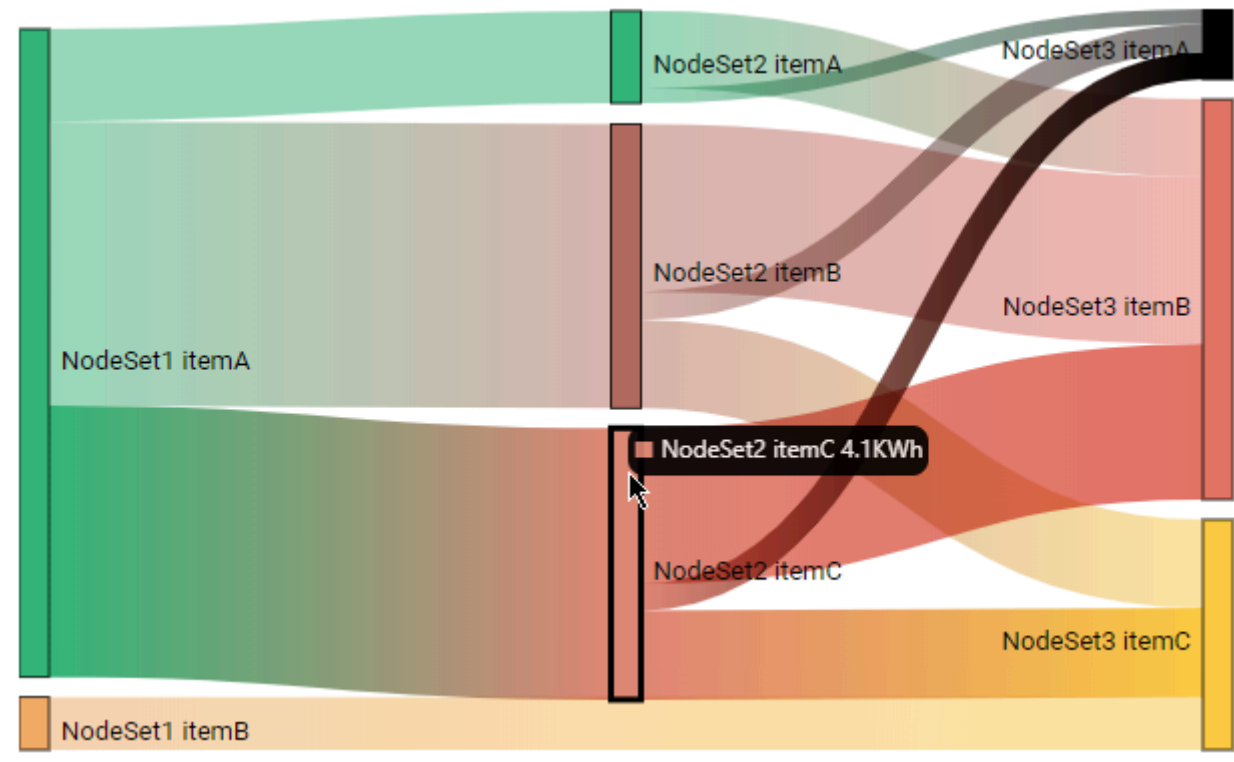
The Sankey diagram is composed of Nodes representing the items that will be interconnected.

Nodes are grouped in Sets of columns. this represents items that are at the same hierarchy level and which never interconnect.

Each Node from each Node Set can connect to any Node from any **other** Node Set, using a visual Link.



At runtime, clicking a Node allows to highlight all paths that go through this Node :



The following fields are available for configuring data binding on a Sankey :

Value

Sum of value
Sorted Asc

Node Sets

Value of source

Value of converter 1

Value of pipe

Value of converter 2

Value of equipment

Value of *Select required field...*

- *Value* : The visual size of the Nodes and their Links is determined by the *Value* field.
- *Node Set 1, 2, 3, ...* : the name of Nodes inside Node Set 1 is all the unique values in the *Node Set 1* field.

Value

This represents the *quantity* we want to display on the Sankey diagram, and will bind to the size of the Nodes and their Links.

This field **must be aggregated** : you must choose an aggregation function (SUM, AVG, ...)

Node Set 1

This represents the *category* we want to use to dynamically separate Nodes inside the 1st set of nodes (represented in the first column on the left).

These fields **cannot be aggregated** : they must have several separate values in order to group the “Value” aggregation.

If the field contains NULL values, then the corresponding Nodes are not represented. That means there is no connections with other Node Sets on this data row, and visually the Links just go through the Node Set. (see “NodeSet1 itemB” in screenshots above)

Value

Sum

▼

of

value

▼

×

Sorted

Asc

▼

Node Sets

Value

▼

of

source

▼

×

Value

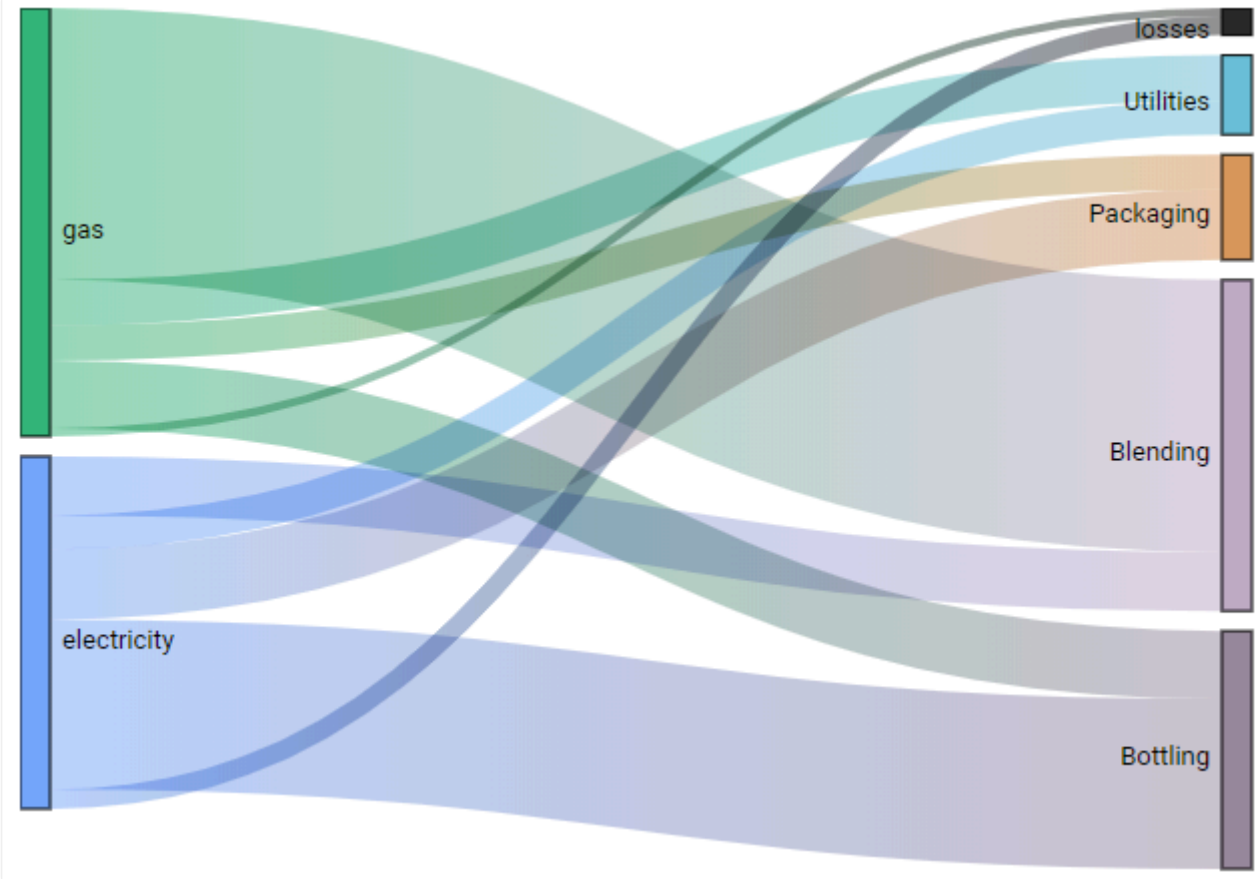
▼

of

equipment

▼

×



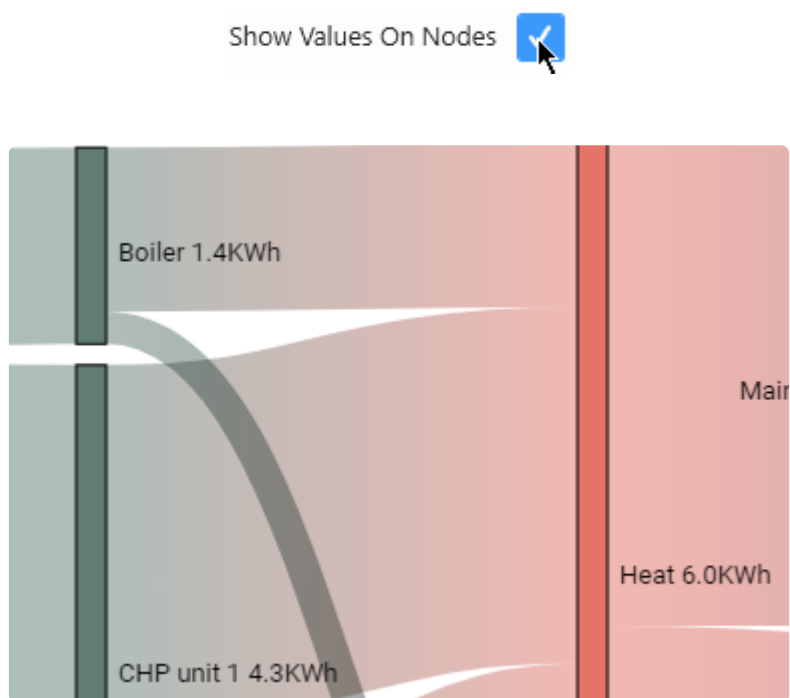
Last modified: Feb 17, 2022

2.8.13.2. Data Point information

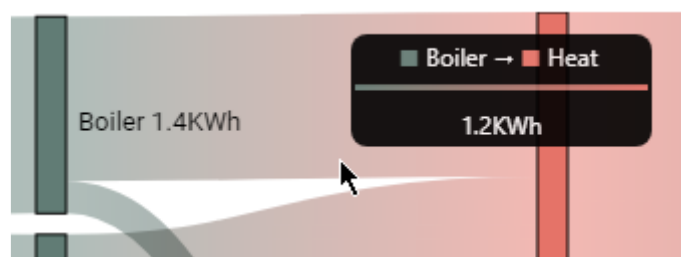
Value Labels

Text labels can be used to display the value next to each Node.

Under *Basic Settings*, check *Show Values On Nodes* :



Regardless of this setting, hovering a Node or a Link shows the corresponding value in the tooltip :



Last modified: Feb 17, 2022

2.8.14. Energy Rating



The Energy Rating widget allows to rate energy consumption and environment footprint on a grading scale.

This visualization is regulatory in European Union, and known in English as [EPC](#).

(new in Alpana 2020 R1)

Last modified: Feb 17, 2022

2.8.14.1. Binding Data

Introduction

The Energy Rating Widget represents the energy rating of equipments.

The rating is calculated from an analog/real value of energy consumption :

- primary energy consumed, in kWh, or in a normalized unit such as kWh / m²
 - mass of CO₂ equivalent, in kg(CO₂eq), or in a normalized unit such as kg(CO₂eq) / m²
- This analog value is converted to a discrete rating as a letter/color combination : A, B, C, D, etc...

The following fields are available for configuring data binding on a Energy Rating Widget :

- *Value* : The analog measurement to be displayed as a grade.
- *Brand, Model Type, Machine Type* : text properties of the machine
- *Split into many widgets* : allows to create many sub-widgets dynamically, to compare equipments for example

Show —

Value

Avg ▼ of Consumption ▼ ×

Sorted by default ▼

Brand

Last ▼ of Brand ▼ ×

Ordered using Area ▼

Sorted Asc ▼

Model Type

Last ▼ of Model ▼ ×

Ordered using Area ▼

Sorted Asc ▼

Machine Type

Last ▼ of Type ▼ ×

Ordered using Area ▼

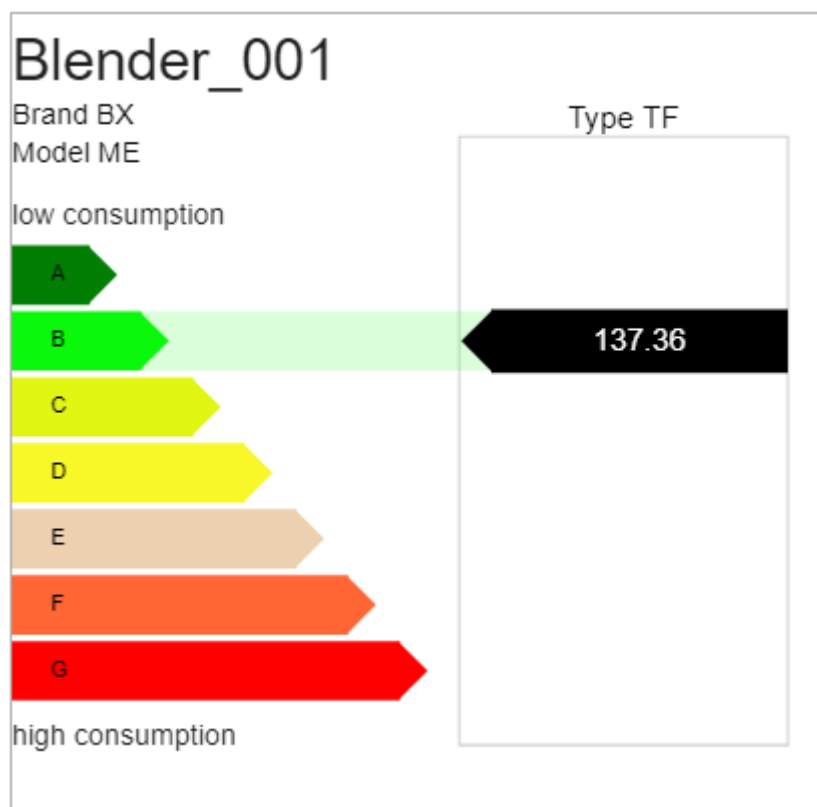
Sorted Asc ▼

Group by —

Split into many widgets

Value ▼ of Equipment ▼ ×

Sorted Asc ▼



Value

This is the analog input value that will be turned into a grade.

This field **must be aggregated** : it must have a single value in order to be turned into a single grade.
This field is required.

Brand, Model Type, Machine Type

Brand

This is the machine brand name, to comply with regulatory display.

Model Type

This is the machine model type, to comply with regulatory display.

Machine Type

These fields are additional text properties to display in the label.

They can be used to add regulatory information, or other metadata to help explain the consumption behavior of the machine.

Group By : *Split into many widgets*

This represents the series field used to generate a different contained Energy Rating for each different value in this field.

This allows to create many sub-widgets dynamically, for example one for each Equipment, or one per month.

This will turn the widget into a container, and generate a complete different chart for each value in the series field, contained in the Widget.

The layout of the charts inside the container is configurable.

Please see [the corresponding chapter to configure the view of the Widget container](#).

This field **cannot be aggregated** : it must have several separate values in order to create several separate series.

This field is optional.



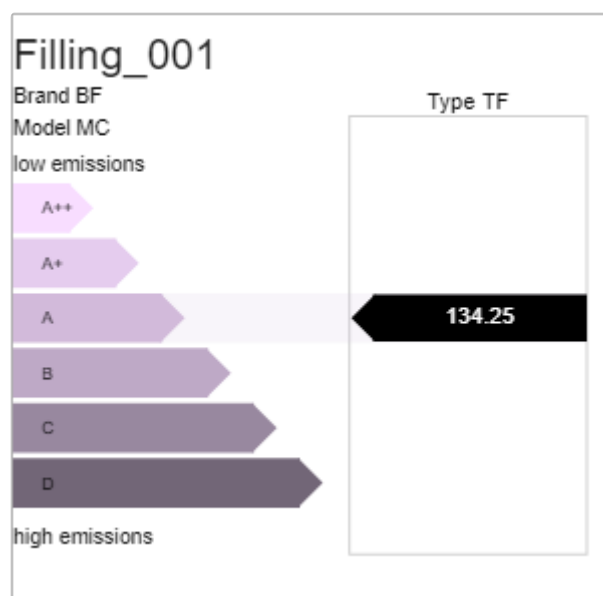
2.8.14.2. Grading Calculation and Display

Grading

In order to turn the analog *Value* into a grade, Alpana will use a list of *Thresholds* :

1. Is the *Value* less than the 1st threshold ? Then apply the 1st grade.
2. Is the *Value* less than the 2nd threshold ? Then apply the 2nd grade.
3. ...
4. Else, apply the last threshold.

You can configure those thresholds values and number, and the corresponding labels and colors. You should configure them at the same time, to ensure a consistent configuration.

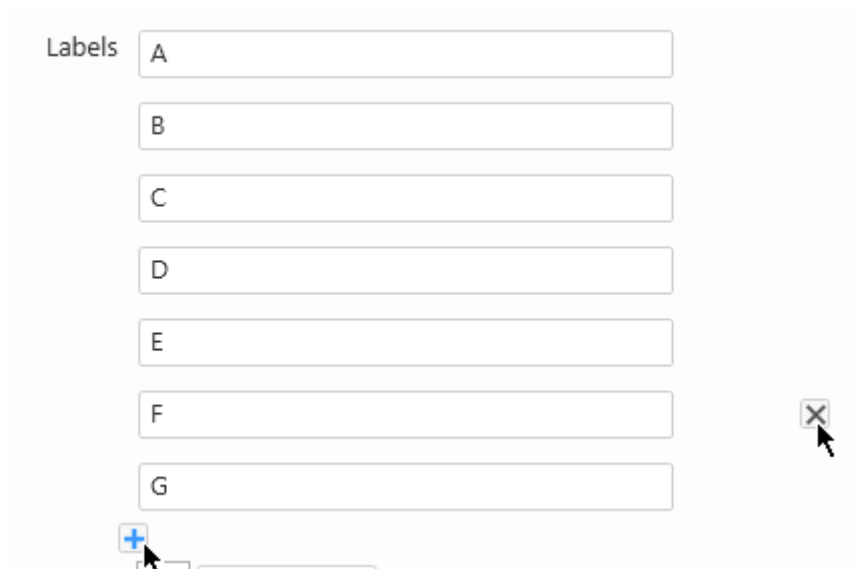


Labels

This is the list of grade labels to apply to each threshold.

By default, they are letter grades : A, B, C, etc...

You can add/remove labels, and change the corresponding text (to use A++, A+ etc for example).



Labels

A

B

C

D

E

F

G

+

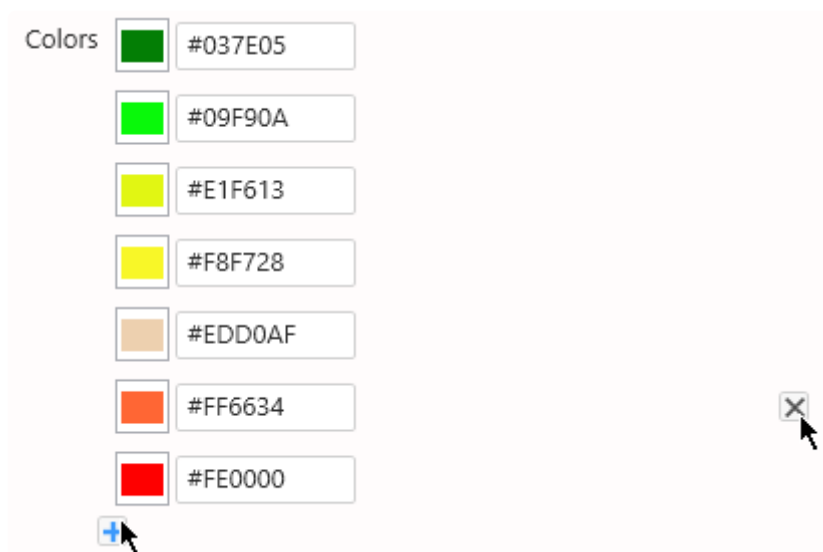
×

Colors

This is the list of colors to apply to each grade.

By default, this is a gradient from green (good grades) to red (bad grades).

You can add/remove/configure colors.



Colors

#037E05

#09F90A

#E1F613

#F8F728

#EDD0AF

#FF6634

#FE0000

+

×

Thresholds

This is the list of thresholds themselves, used to calculate the grade.

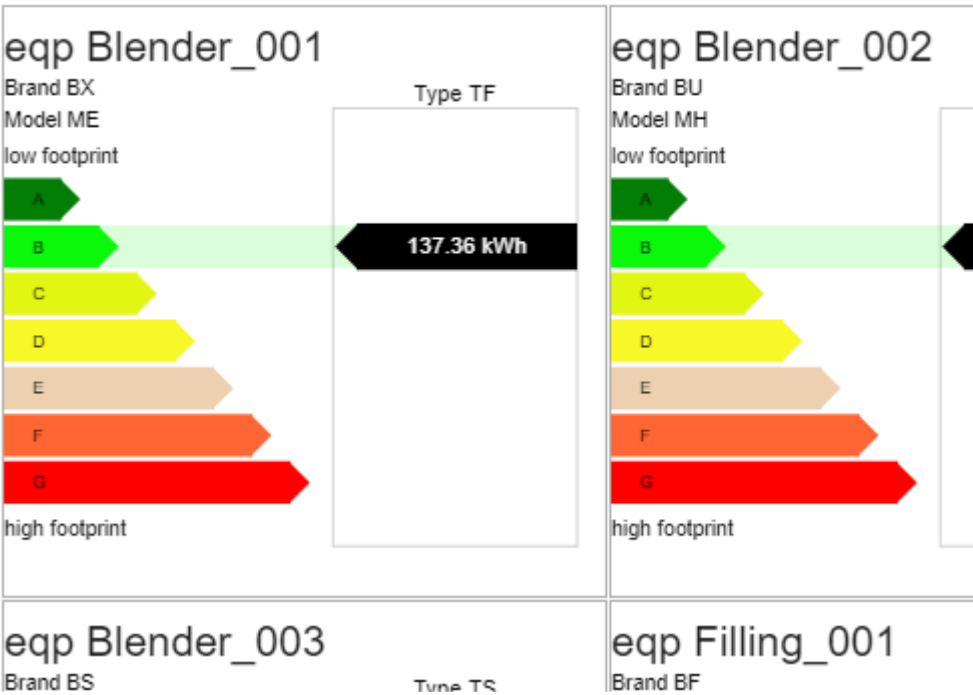
You can add/remove/configure thresholds.

Thresholds

50	<div></div>
140	<div></div>
230	<div></div>
320	<div></div>
410	<div></div>
500	<div></div>

Last modified: Feb 17, 2022

2.8.14.3. Titles and Labels



Title

Optionally a title can be displayed on top of the Widget.
This is useful especially when configuring a *Split into many widgets* field : then configuring the Title as `{{ :Row }}` will give you the field value for each sub-widget.

If no title is configured, then it is the same as hiding the title (it doesn't take visual space).

Title

Unit

This is the unit of measure of the *Value*.
It will be displayed in the value display of the tooltip.

Unit

Label Min

This is the text label to display next to the low values of *Value*, usually corresponding to low energy consumption and good grades ("A").

Label Min

low footprint

Label Max

This is the text label to display next to the high values of *Value*, usually corresponding to high energy consumption and bad grades (“G”).







Label Max

high footprint

Last modified: Feb 17, 2022

2.8.15. Filter Widgets

Even though all Widgets can be configured to filter other widgets, some are especially dedicated to filtering :

-  CheckBox
-  ComboBox
-  DatePicker
-  RadioButton
-  RangeNavigator
-  RangeSlider

Last modified: Feb 17, 2022

2.8.15.1. ComboBox



The Combobox presents multiple values in a foldable box and allows to make single or multiple selections.

Last modified: Feb 17, 2022

2.8.15.1.1. Binding Data

The Combobox has a 2 data fields for binding :

- *Using* : the value used internally for filtering
- *Displaying* : the value displayed for selection

The screenshot shows the configuration interface for a Combobox. It is divided into two main sections: 'Using' and 'Displaying'. Each section has a title bar with a minus sign. In the 'Using' section, there is a 'Value' dropdown set to 'Value', followed by 'of', then a dropdown set to 'aaID', and a close button 'X'. Below this is a 'Sorted' dropdown set to 'Asc'. The 'Displaying' section has a 'Value' dropdown set to 'Value', followed by 'of', then a dropdown set to 'EquipmentName', and a close button 'X'. Below this is a 'Sorted' dropdown set to 'Asc'.

***Using* : filter value**

This represents the category we want to use internally to filter distinct values.

This field cannot be aggregated : it must have several separate values in order to be used as filter. This is usually an internal unique ID.

This is a required field.

***Displaying* : display value**

This represents the text displayed to the user when viewing the Combobox.

This field cannot be aggregated : it must have several separate values in order to be used as filter. Values can be duplicates because the unique values used for filtering are the ones configured for *Using*. This is an optional field.

✿ If no *Displaying* field is set, the values from the *Using* field are displayed instead.

Last modified: Feb 17, 2022

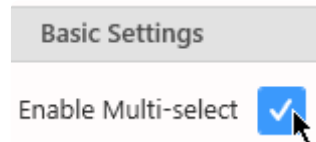
2.8.15.1.2. Configuring behavior

Multiple Selection

Configuring Multiple Selection

The Combobox can be configured to allow multiple selection.

Check the Enable Multi-Select box under Basic Settings :

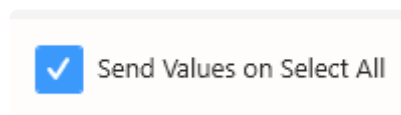


Send Value on Select All

By default, the Combo Box widget will send the Keyword “All” in the parameter without differentiating every element if all elements are selected.

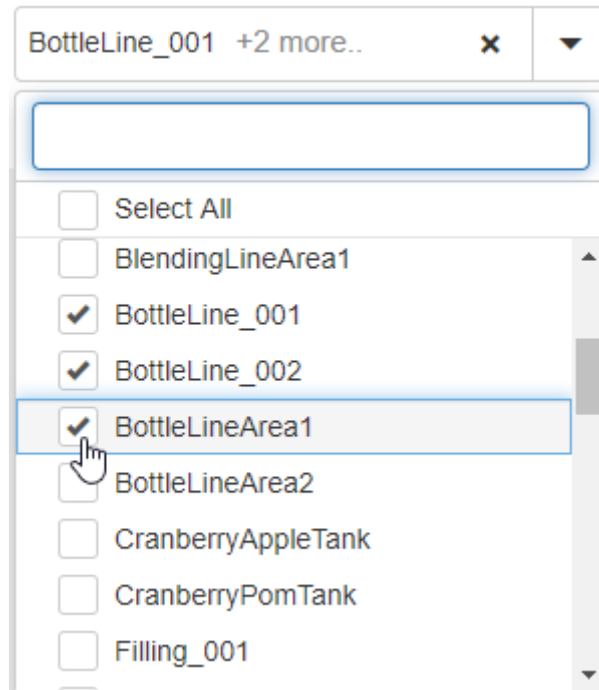
But in the case of passing parameter to a Stored Procedure or Displaying them in a label, It could be more relevant to list all items instead of keyword “All”

If the checkbox Send Values on Select All is checked, it will work as suggested and all elements will be listed in the parameter.



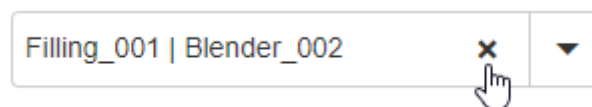
Selecting items at runtime

A checkbox appears in front of every item, allowing multiple selection :



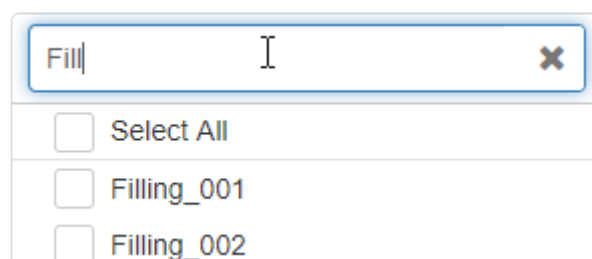
In addition, a new selection item called “*Select All*” (or “*Unselect All*”) is added at the top, to allow to select/unselect all items at once.

Clearing item selection at runtime



Item search

When Multiple Selection is configured, the Combobox contains a text box that allows the user to search for items



This search filters the content of the Commbobox incrementally and can be cleared using the cross button inside :

Filling_001

✕

▼

Fill|

✕

☐ Select All

☒ Filling_001

☐ Filling_002

☐ FillingArea1

Last modified: Apr 01, 2022

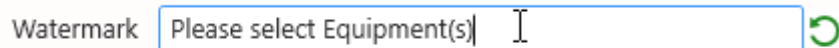
2.8.15.1.3. Style and Appearance

Watermark

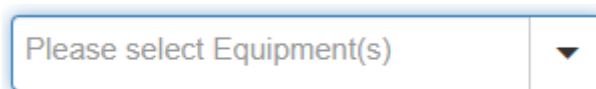
Under Basic Settings, the *Watermark* is the text displayed inside the Combobox when no value is selected.

This allows to invite the user to make a selection.

For example :



... at runtime will look like this :



Last modified: Feb 17, 2022

2.8.15.2. CheckBox



The CheckBox presents multiple values all visible in the widget and allows to make multiple selections.

Last modified: Feb 17, 2022

2.8.15.2.1. Binding Data

The Checkbox has a 2 data fields for binding :

- *Using* : the value used internally for filtering
- *Displaying* : the value displayed for selection

***Using* : filter value**

This represents the category we want to use internally to filter distinct values.

This field cannot be aggregated : it must have several separate values in order to be used as filter. This is usually an internal unique ID.

This is a required field.

***Displaying* : display value**

This represents the text displayed to the user when viewing the Checkbox.

This field cannot be aggregated : it must have several separate values in order to be used as filter.

Values can be duplicates because the unique values used for filtering are the ones configured for *Using*.

This is an optional field.

✿ If no *Displaying* field is set, the values from the *Using* field are displayed instead.

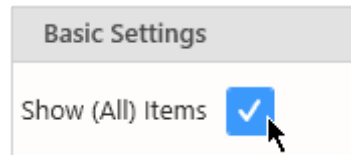
Last modified: Feb 17, 2022

2.8.15.2.2. Configuring behaviour

Show/Hide “All” item

By default, a item called “(All)” is added at the top, to allow to select/unselect all items at once.

You may show or hide this item from the Show (All) Items check box under Basic Settings :

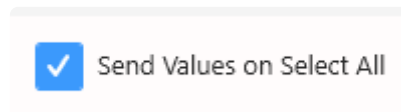


Send Value on Select All

By default, the Check box widget will send the Keyword “All” in the parameter without differentiating every element if all elements are selected.

But in the case of passing parameter to a Stored Procedure or Displaying them in a label, It could be more revelant to list all items instead of keyword “All”

If the checkbox Send Values on Select All is checked, it will work as suggested and all elements will be listied in the parameter.



Last modified: Apr 01, 2022

2.8.15.2.3. Style and Appearance

Multi-items Viewport

The layout of the checkboxes inside the container is configurable.

Please see [the corresponding chapter to configure the view of the Widget container](#).

Last modified: Feb 17, 2022

2.8.15.3. RadioButton



The RadioButton presents multiple values all visible in the widget and allows to make single selections.

Last modified: Feb 17, 2022

2.8.15.3.1. Binding Data

The Radiobutton has a 2 data fields for binding :

- *Using* : the value used internally for filtering
- *Displaying* : the value displayed for selection

The screenshot shows a configuration window for a Radiobutton. It has two main sections: 'Using' and 'Displaying'. Each section has a title bar with a minus sign. In the 'Using' section, there is a 'Value' dropdown set to 'Value', followed by 'of', then a dropdown set to 'aaID', and a close button 'X'. Below this is a 'Sorted' dropdown set to 'Asc'. The 'Displaying' section has a 'Value' dropdown set to 'Value', followed by 'of', then a dropdown set to 'EquipmentName', and a close button 'X'. Below this is a 'Sorted' dropdown set to 'Asc'.

***Using* : filter value**

This represents the category we want to use internally to filter distinct values.

This field cannot be aggregated : it must have several separate values in order to be used as filter. This is usually an internal unique ID.

This is a required field.

***Displaying* : display value**

This represents the text displayed to the user when viewing the Radiobutton.

This field cannot be aggregated : it must have several separate values in order to be used as filter.

Values can be duplicates because the unique values used for filtering are the ones configured for *Using*.

This is an optional field.

✿ If no *Displaying* field is set, the values from the *Using* field are displayed instead.

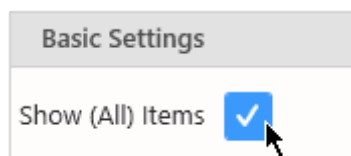
Last modified: Feb 17, 2022

2.8.15.3.2. Configuring behaviour

Show/Hide “All” item

By default, a item called “(All)” is added at the top, to allow to select/unselect all items at once.

You may show or hide this item from the Show (All) Items check box under Basic Settings :



Last modified: Feb 17, 2022

2.8.15.3.3. Style and Appearance

Multi-items Viewport

The layout of the radiobuttons inside the container is configurable.

Please see [the corresponding chapter to configure the view of theWidget container](#).

Last modified: Feb 17, 2022

2.8.15.4. RangeSlider



The Range Slider presents a slider and allows to select number ranges or single numbers, as well as dates.

Last modified: Feb 17, 2022

2.8.15.4.1. Binding Data

The Range Slider has a single data field for binding : *Using*

***Using* : filter value and display**

This represents the category we want to use internally to filter distinct values.

This is also the text labels displayed to the user when viewing the RangeSlider

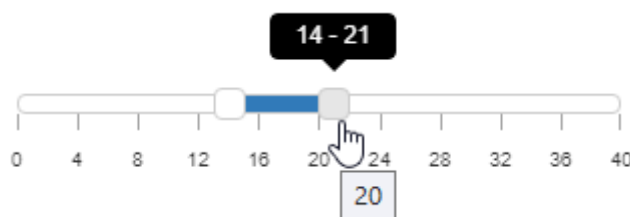
This field cannot be aggregated because it must have several separate values in order to be used as filter.

This is a required field.

Several data types are supported :

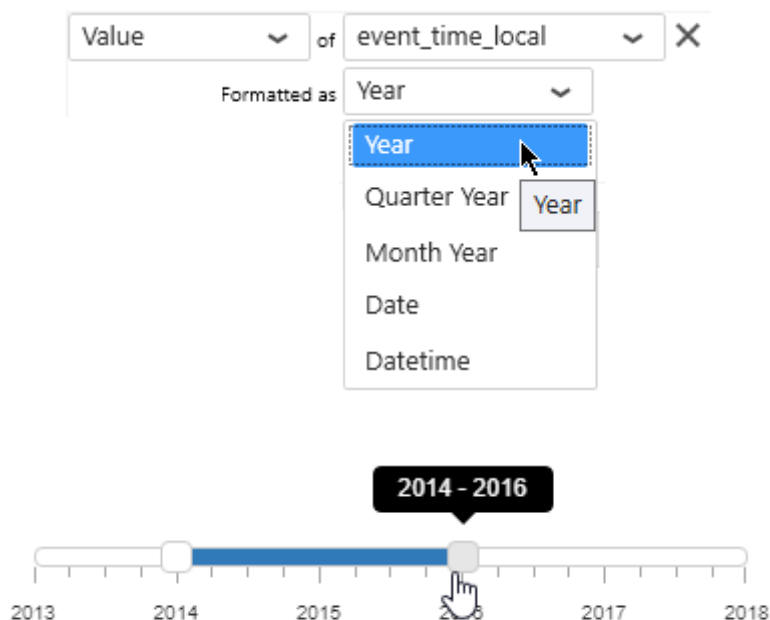
Number field

With a number field, the Range Slider displays numbers in order between the minimum value and the maximum value, and allows to select values :



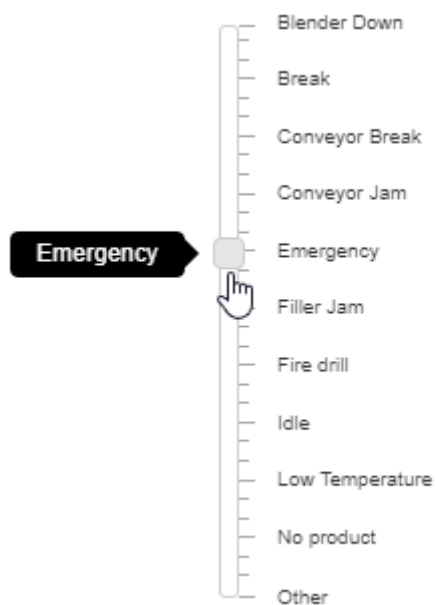
Date/Time field

With a date or time field, the Range Slider allows to select time intervals depending on the Date/Time formatting selected :



String field

The Range Slider could also be used to select strings, especially if using sorting (alphabetically) :



Last modified: Feb 17, 2022

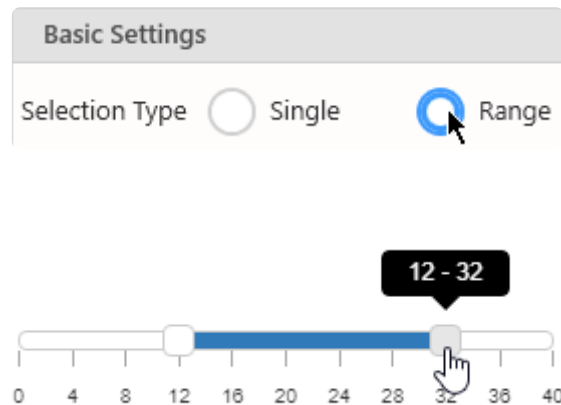
2.8.15.4.2. Configuring behaviour

Range Selection

Range

The Range Slider can be configured to select a range of values (default).

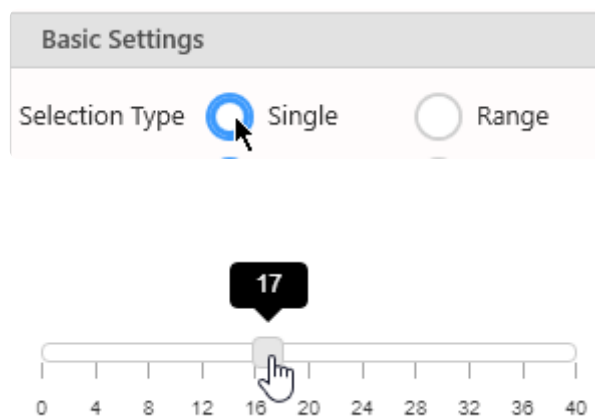
Under Basic Settings > Selection Type, select Range :



Single

The Range Slider can instead be configured to select a single value.

Under Basic Settings > Selection Type, select Single :



Last modified: Feb 17, 2022

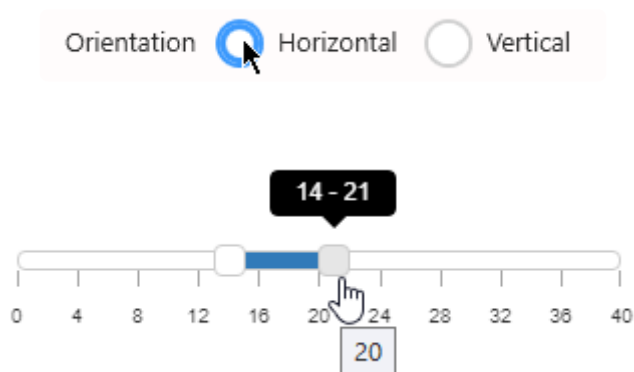
2.8.15.4.3. Configuring style

Orientation

Horizontal

The Range Slider can be oriented horizontally (default).

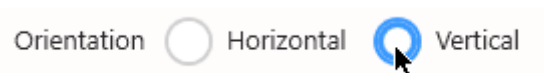
Under Basic Settings > Orientation, select Horizontal :

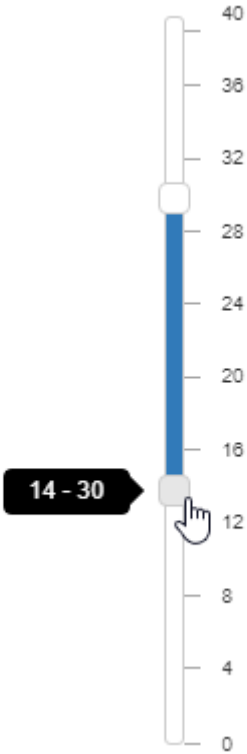


Vertical

The Range Slider can be oriented vertically.

Under Basic Settings > Orientation, select Vertical :





Last modified: Feb 17, 2022

2.8.15.5. DatePicker



The DatePicker presents a calendar and allows to make single or multiple date selections.

Last modified: Feb 17, 2022

2.8.15.5.1. Configuring without data

The Date Picker doesn't need to be bound to a Data source.
Instead, you may wish to configure it as a calendar filled with dates.

To choose this, select *Custom Data* :



Then you can just configure a *Minimum* and *Maximum* date to generate the calendar :

Minimum

Maximum

◀ **October 2019** ▶

Su	Mo	Tu	We	Th	Fr	Sa
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

12:00 AM ▼

Last modified: Feb 17, 2022

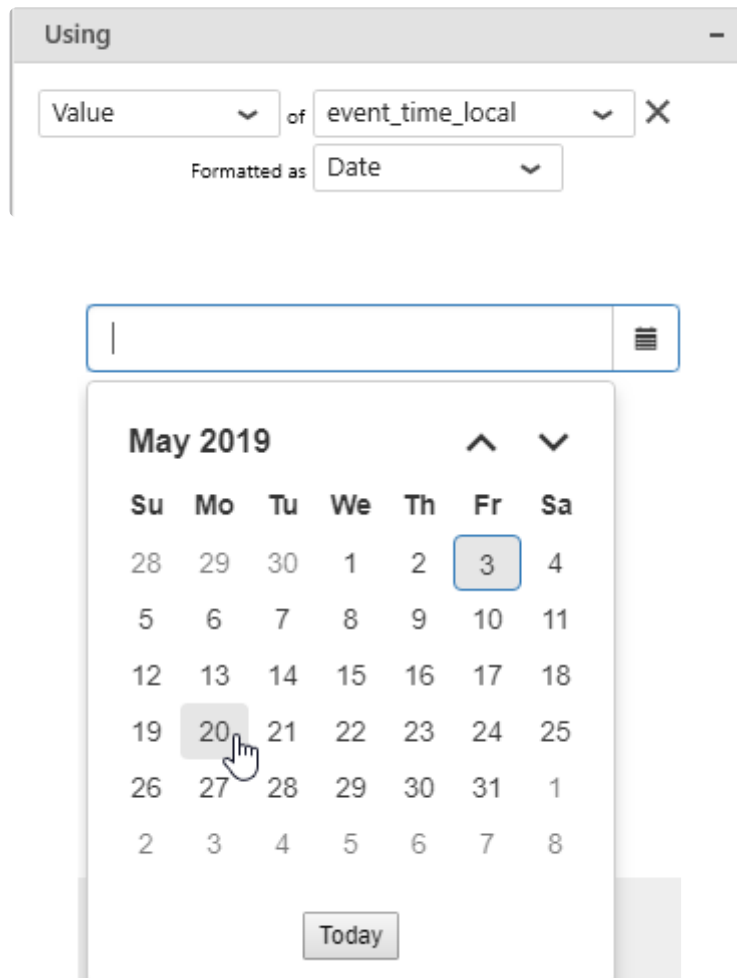
2.8.15.5.2. Binding Data

Instead of filling the calendar with all dates, you may wish to configure it to allow to select only the dates that exist in the data.

For this, select *Datasource Data* :



The DatePicker has a single data field for binding : *Using*



***Using* : filter value and display**

This represents the date field we want to use to present all the available distinct dates.

This field cannot be aggregated because it must have several separate values in order to be used as filter.

This is a required field.

The range of available dates will be the range between the oldest and the latest date in the date field.

2.8.15.5.3. Configuring behaviour

Range Selection

The DatePicker can be configured to allow range selection.

Configure the Selection Type to Range :

Basic Settings

Selection Type ☐ Single ☒ Range

The calendar can now show two pages at the same time, to make it easier to select a Start Date and an End Date :

DatePicker

May 9, 2019 → Jun 17, 2019
40 days

< May 2019 >

Su	Mo	Tu	We	Th	Fr	Sa
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1

< June 2019 >

Su	Mo	Tu	We	Th	Fr	Sa
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	1	2	3	4	5	6

Cancel

Apply

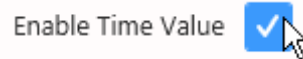
Time Selection

The Date Picker can be configured to allow time selection in addition to date.

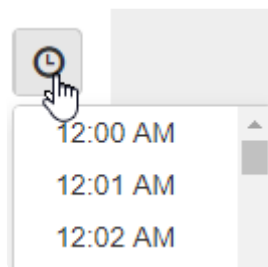
* If you configure *Time* selection with *Single* selection, the filter will try to match only the data that has the exact same minute. This usually gives no result, and you may want instead to use the *Range* selection with *Time*.

Enable Time selection

Select *Enable Time Value* :

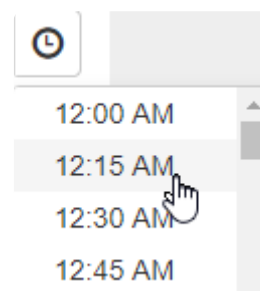
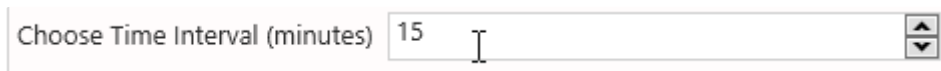


At runtime, this adds a time selector (or two, if Range is configured) :



Configure available times

By default, the time selector shows a list of times from midnight to midnight every 1 minute. This can be configured with *Choose Time Interval (minutes)* :



Default selection as Relative Date

What is Default selection as Relative Date

Like other Widgets, the DatePicker allows to configure its *default value* by selecting in the preview inside Alpana Designer. This default selection will be a fixed date range.

In addition, it is possible to configure a **relative date range as default selection**.
This is described in [the corresponding chapter](#).

Preset Ranges

When the Date Picker is configured with *Range* selection, you can display a list of commonly used presets for relative selection.

Check *Enable Preset Ranges* :



At runtime, in addition to the calendar selection, the user will be able to select from the preset ranges :

Start Date							→	End Date																																																																																											
Selected Days																																																																																																			
<div>< January 2018 ></div> <table border="1"> <tr><td>Su</td><td>Mo</td><td>Tu</td><td>We</td><td>Th</td><td>Fr</td><td>Sa</td></tr> <tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td></tr> <tr><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td></tr> <tr><td>28</td><td>29</td><td>30</td><td>31</td><td></td><td></td><td></td></tr> </table>							Su	Mo	Tu	We	Th	Fr	Sa		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				<div>< February 2018 ></div> <table border="1"> <tr><td>Su</td><td>Mo</td><td>Tu</td><td>We</td><td>Th</td><td>Fr</td><td>Sa</td></tr> <tr><td></td><td></td><td></td><td></td><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td></tr> <tr><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td></tr> <tr><td>25</td><td>26</td><td>27</td><td>28</td><td></td><td></td><td></td></tr> </table>							Su	Mo	Tu	We	Th	Fr	Sa					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				<div>This Week</div> <div>Last Week</div> <div>This Month</div> <div>Last Month </div> <div>This Year</div> <div>Last Year</div> <div>Custom Range</div>	
Su	Mo	Tu	We	Th	Fr	Sa																																																																																													
	1	2	3	4	5	6																																																																																													
7	8	9	10	11	12	13																																																																																													
14	15	16	17	18	19	20																																																																																													
21	22	23	24	25	26	27																																																																																													
28	29	30	31																																																																																																
Su	Mo	Tu	We	Th	Fr	Sa																																																																																													
				1	2	3																																																																																													
4	5	6	7	8	9	10																																																																																													
11	12	13	14	15	16	17																																																																																													
18	19	20	21	22	23	24																																																																																													
25	26	27	28																																																																																																
														<div>Cancel</div> <div>Apply</div>																																																																																					

- This Week
- Last Week
- This Month
- Last Month
- This Year
- Last Year

Last modified: Feb 17, 2022

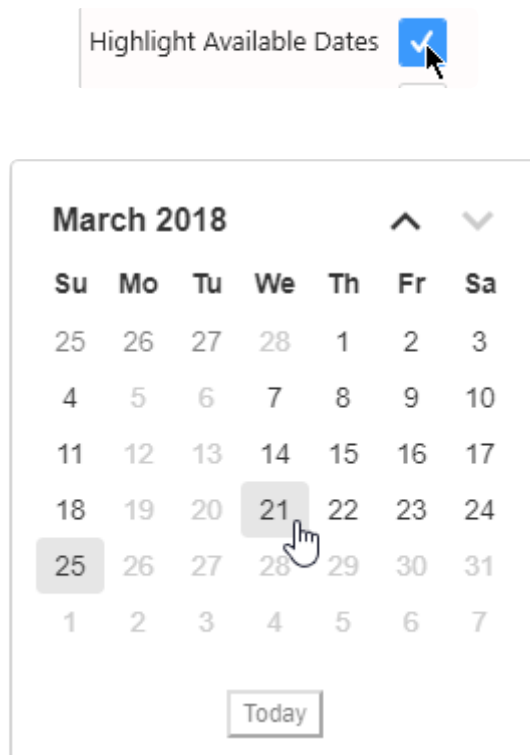
2.8.15.5.4. Configuring style

Highlight Available Dates

By default, all dates in the interval are available for selection. However, sometimes there is no actual data for a given date.

By checking Highlight Available Dates under Basic Settings, you can prevent users from selecting dates that don't have data.

The dates that don't appear in the configured date field are greyed-out and can't be selected :



Custom Date Format

(new in 2020 R2)

By default, selected dates are displayed in US format (M/d/yyyy).

You can configure this format by clicking on the pen icon next to the *Custom Date Format* option :



A dialog pops up and lets you configure the desired format, in the same way as for other [Date Formatting](#).

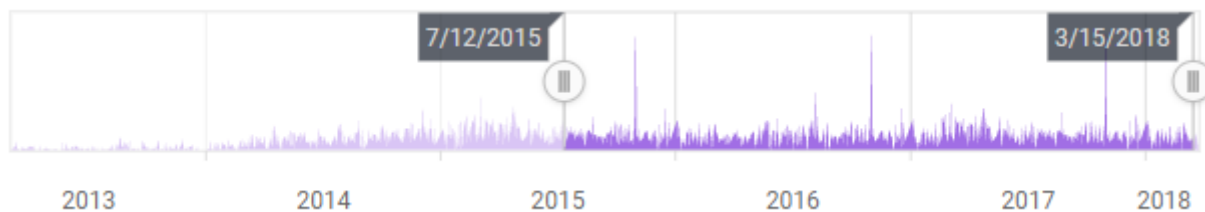
05.11.2020	
------------	---

Last modified: Feb 17, 2022

2.8.15.6. RangeNavigator



The Range Navigator presents a chart as background and allows to make date range selections on top of it.



Last modified: Feb 17, 2022

2.8.15.6.1. Binding Data

The following field containers are available for configuring data binding on a Range Navigator :

The screenshot shows a configuration interface for a Range Navigator. At the top is a 'Show' button with a minus sign. Below it are two main sections: 'Value' and 'Argument'.

Value Section:

- A dropdown menu set to 'Sum'.
- The word 'of'.
- A dropdown menu set to 'DurationHours'.
- An 'X' icon to clear the selection.
- A 'Sorted' label.
- A dropdown menu set to 'by default'.

Argument Section:

- A dropdown menu set to 'Value'.
- The word 'of'.
- A dropdown menu set to 'event_time_local'.
- An 'X' icon to clear the selection.
- A 'Formatted as' label.
- A dropdown menu set to 'Year'.
- A 'Sorted' label.
- A dropdown menu set to 'Asc'.

- Value : the height of the background chart
- Argument : the field used to filter data during selection, and also how we group values together to create points on the background chart

Value

This represents the quantity we want to display on the background chart, and will bind for example to the height of the Area (Area chart).

The Value field must be aggregated : you must choose an aggregation function (SUM, AVG, ...)
This is a required field.

Argument

This represents the category we want to use internally to filter distinct values.
This is how we group values together to create points on the background chart.

This field cannot be aggregated because it must have several separate values in order to be used as filter.

This is a required field, and must be a date field.

The date format (Date, MonthYear, ...) is used to group the data to display on the chart, but also during filter selection.

Last modified: Feb 17, 2022

2.8.15.6.2. Configuring behaviour

Default selection as Relative Date

What is Default selection as Relative Date

Like other Widgets, the RangeNavigator allows to configure its *default value* by selecting in the preview inside Alpana Designer. This default selection will be a fixed date range.

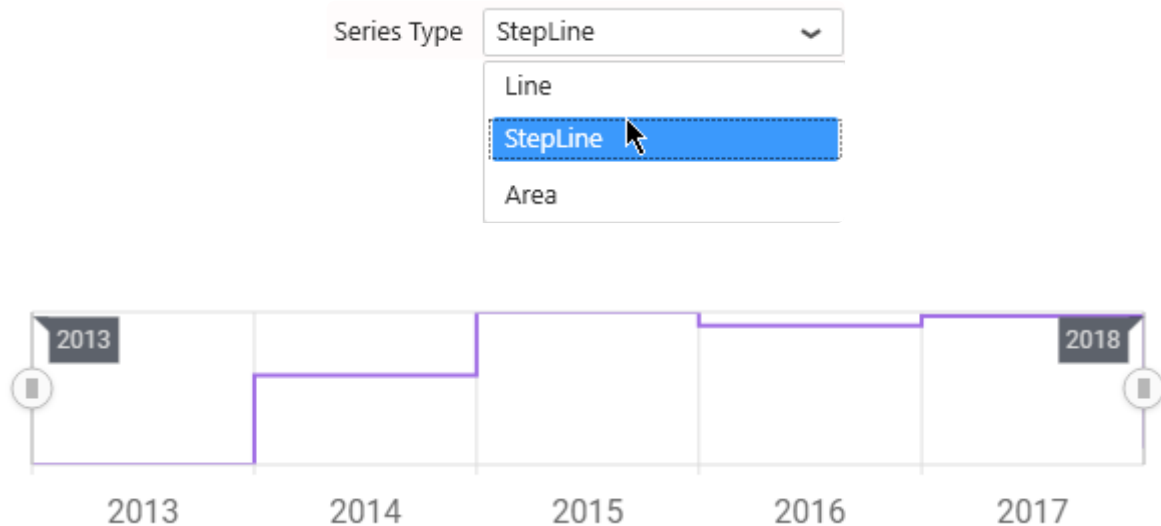
In addition, it is possible to configure a **relative date range as default selection**. This is described in [the corresponding chapter](#).

Last modified: Feb 17, 2022

2.8.15.6.3. Configuring style

Background Chart style

The style of the background chart can be changed by selecting from the Basic Settings > Series Type list :



Axis Interval Type

(new in 2020 R1)

This configures the labels that will be displayed on the time (X) axis :

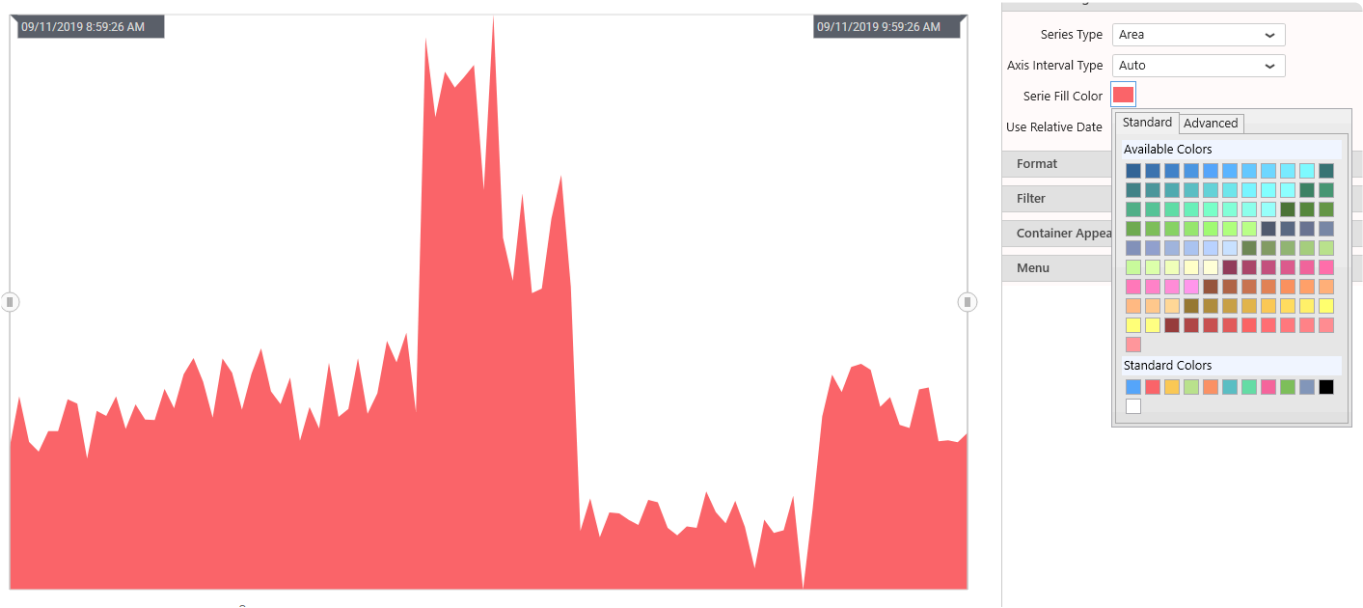
- *Years* : only the year is displayed
- *Quarters* : both the year and the quarter is displayed
- *Months* : both the year and the month is displayed
- *Days* : both the year and the “day + month” is displayed
- *Auto* : the interval is selected automatically depending on the time span of the data

Clicking an axis label (like the year number) will select that period.

Note : this does not define the date format of the Parameter when filtering, this is defined by the formatting of the Argument (see [Binding Data](#))

Line color change

The RangeNavigator chart color can be changed from the basic option settings



Last modified: Feb 17, 2022

2.8.15.7. TreeView

(new in Alpana 2020 R1)



The Tree View allows to present hierarchical context in a foldable tree, and select values from any node or leaf to filter the Dashboard.

Last modified: Feb 17, 2022

2.8.15.7.1. Binding Data

Introduction

The Tree View is composed of Nodes representing the hierarchy.

This allows the user to select context values from the top level, or drill-down into the lower levels to filter more specifically.

Each Node Group corresponds to a hierarchy level.

The following fields are available for configuring data binding on a Tree View :

- *Node Group 1, 2, 3, ...* : each field corresponds to one hierarchy level, its values are the corresponding user choices at that level.


Node Group 1

This represents the *category* we want to use to dynamically separate Nodes inside the 1st hierarchy level.


At least 1 field is necessary, to have 1 level of values presented.


These fields **cannot be aggregated** : they must have several separate values in order to be used as filter.

Node Group


Value 

 of


continent 




Sorted


Asc 

THEN


Value 

 of


Country 




Sorted


Asc 

THEN


Value 

 of


FactoryName 




Sorted

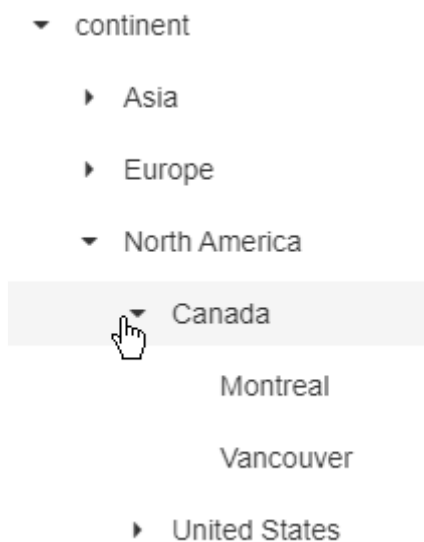
Asc 

THEN

Value 

 of

Select required field... 

**Note :**

If the last field contains `NULL` values, then the corresponding Nodes are not represented. If another field has `NULL` values, then the corresponding Node is represented as `No <FieldName> (<parentValue>)`. This allows to list children of nodes which are `NULL`.

Last modified: Feb 17, 2022

2.8.15.7.2. Configuring Behaviour

Lazy Loading

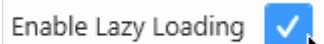
Usually, a large list of values means a lot of nodes to calculate before displaying the Widget, which could mean a performance degradation.

Instead, you can optionally let the Tree View only load the lists of values on demand : until the user unfolds a node, the children values are not loaded.

If the node unfolded has many values, this may mean that it will take some time to unfold.

On the other hand, the initial loading of the Widget is much faster, and most nodes will open fast if they each have few values inside their immediate children.

To enable this behavior, check *Enable Lazy Loading* :

A screenshot of a user interface element showing a checkbox labeled "Enable Lazy Loading". The checkbox is blue with a white checkmark, and a mouse cursor is pointing at it. The entire element is enclosed in a light gray rectangular box.

Enable Lazy Loading ☒

Last modified: Feb 17, 2022

2.8.16. Static Widgets

Alpana allows to create some Widget types that are not bound to data.
The following chapters describe those *Static Widgets*.

Last modified: Feb 17, 2022

2.8.16.1. Image



The Image Widget allows to display static images on a dashboard, and handles transparency.

This can be useful for displaying a logo or a reference image for example.

Last modified: Feb 17, 2022

2.8.16.1.1. bind image

To configure, simply browse for a supported image file : .png, .jpg, .bmp, .jpeg, .gif, .emf, .tif, .tiff, .ico

Last modified: Feb 17, 2022

2.8.16.1.2. Image Modes

Images can be configured with an Image Mode which determines how the image is cropped/stretched to fit the Widget container

Default

In Default mode, the image is simply centered and cropped, but not resized.

* If you use a transparent image on the image, the margins will not be visible.





Fill

In Fill mode, the image is stretched to fit the container.

- ✿ This can be useful to apply a background image and add Widgets on top of it : the Widget's position will be constant relative to the image, independently of the web page resizing.



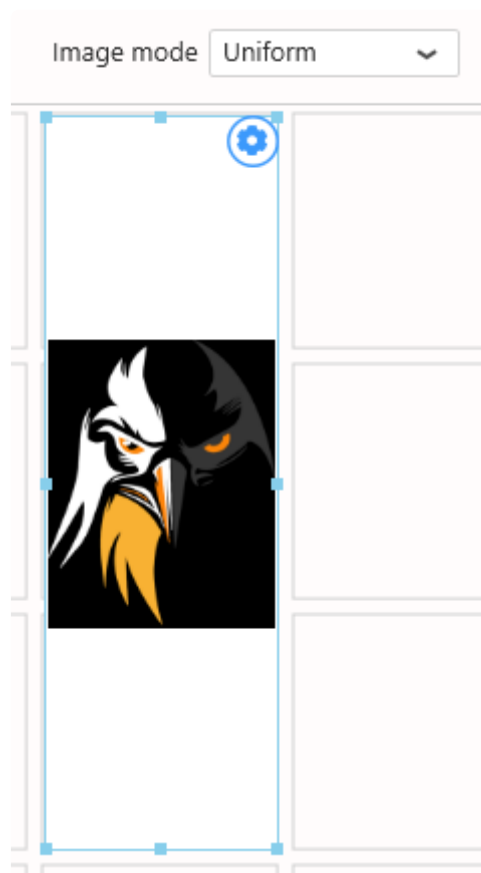
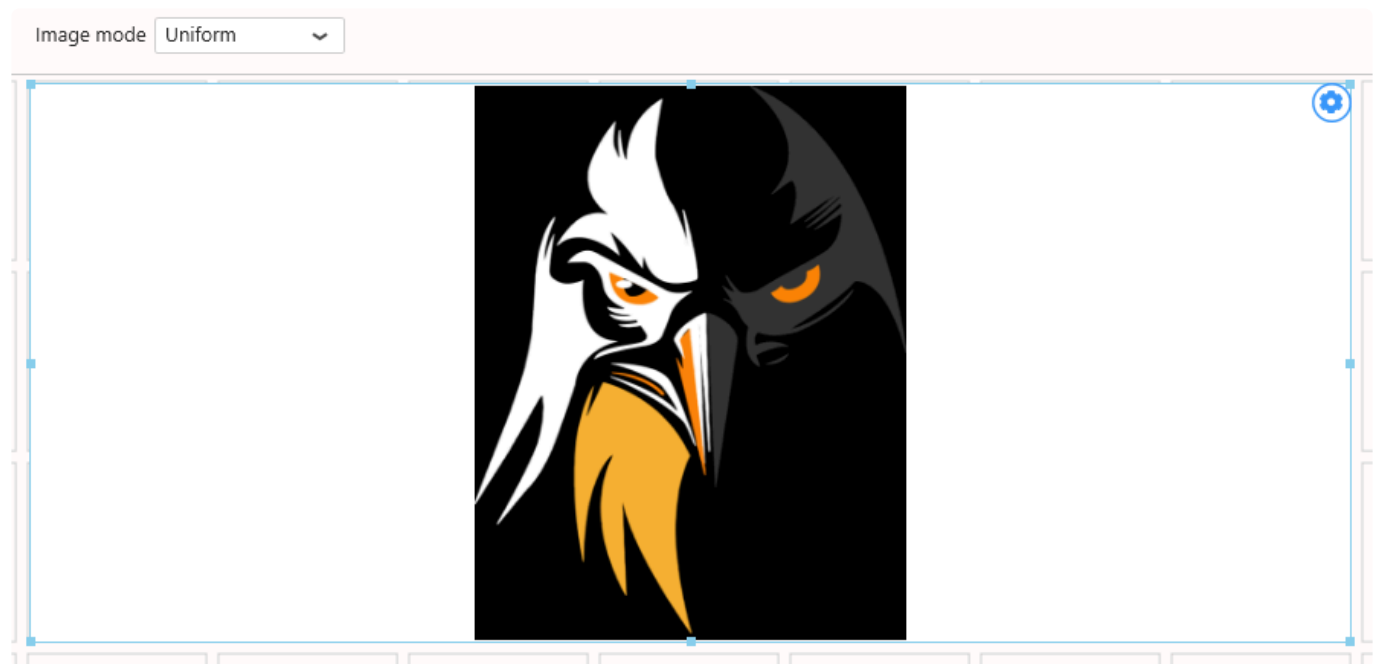
Uniform

In Uniform mode, the image is resized to fit the container without being stretched or cropped. The container is not filled completely.

This is useful to make sure the full image is always visible without being stretched.

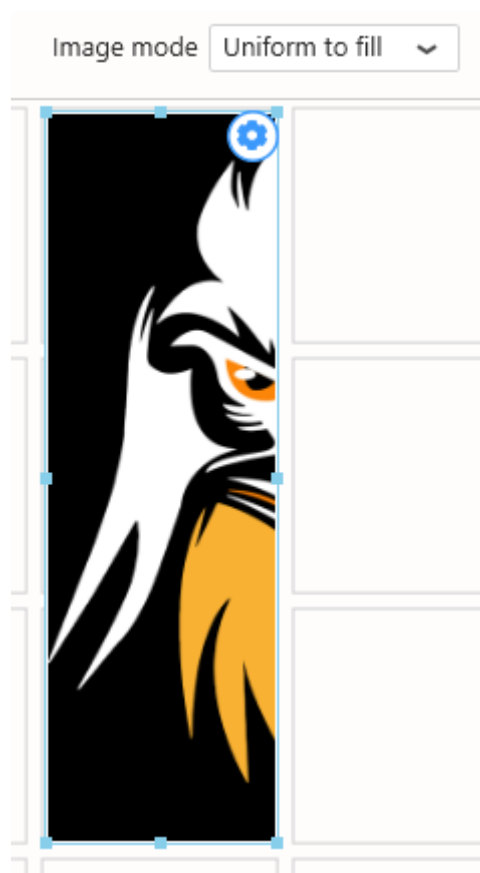
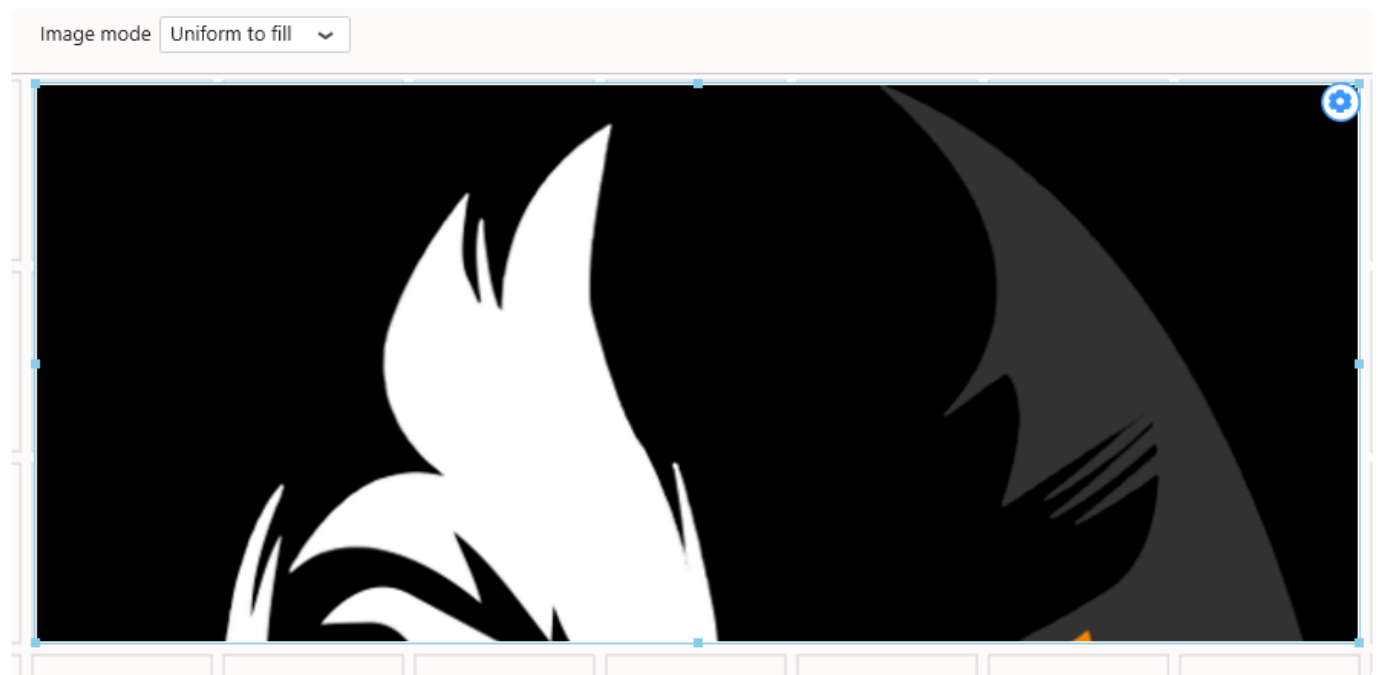
* This is usually desired for a logo.

If you use a transparent image on the image, the margins will not be visible.



Uniform to fill

In Uniform to fill mode, the image is resized and cropped to fill the container without being stretched.



Last modified: Feb 17, 2022

2.8.16.2. Label



The Label Widget allows to insert rich text into a Dashboard.

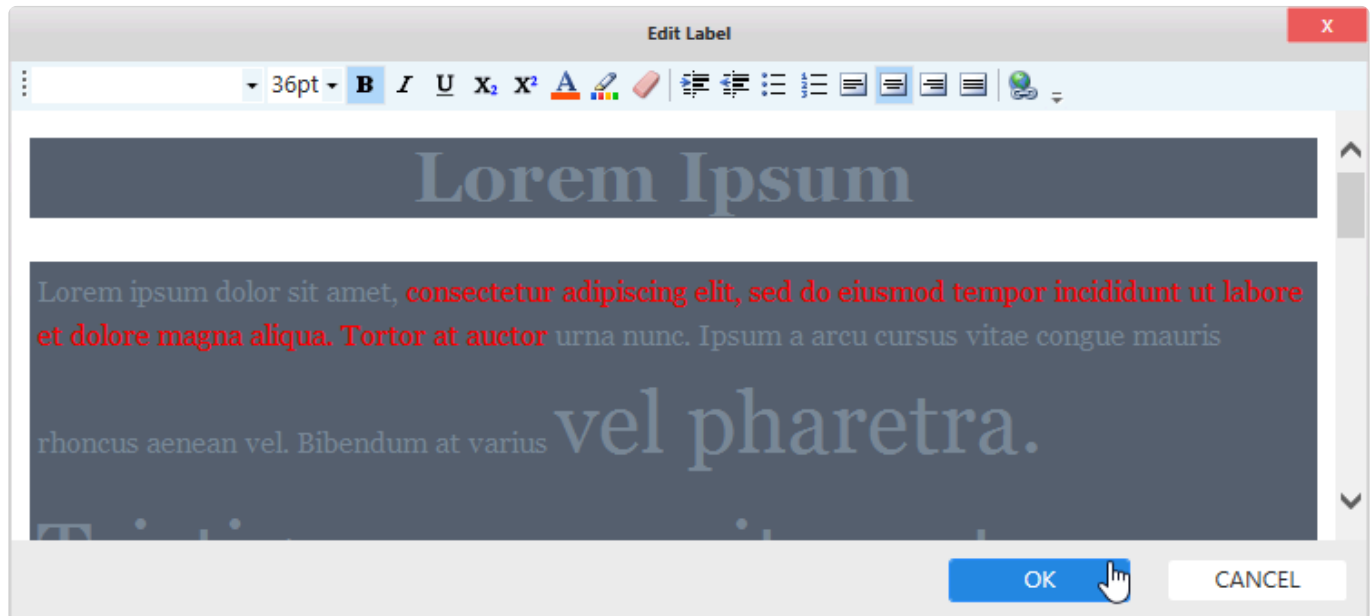
It can be used to display datasource content such as average or list of result separated by comma.

Last modified: Feb 17, 2022

2.8.16.2.1. Configuration

Text editor

The Label Widget can be configured like any rich text editor, with font type, size, style, color, alignment, bullet lists, hyperlinks, ...



Label Parameters

The text content can include placeholders that will be replaced by Parameter values, see [Label Parameters](#)

Data Values

All data needed in the label can be bond from the data source.

You can bind as much field from your data source in your widget and use them with specific placeholders to get the data displayed : `{{:value_x}}` where *x* is the field number.

i.e : If you add 3 fields and want to display the third one, you will write in the text editor : `{{:value_3}}`

You can use format option in the right menu to format the data you get. (i.e. number of digit for numeric value)

All results will be displayed in a comma seperated text.



If your data is agregated, the display format will be agregated too.

Last modified: Feb 17, 2022

2.8.16.3. Embed



The *Embed* Widget is a widget dedicated to embedding other content into Alpana :

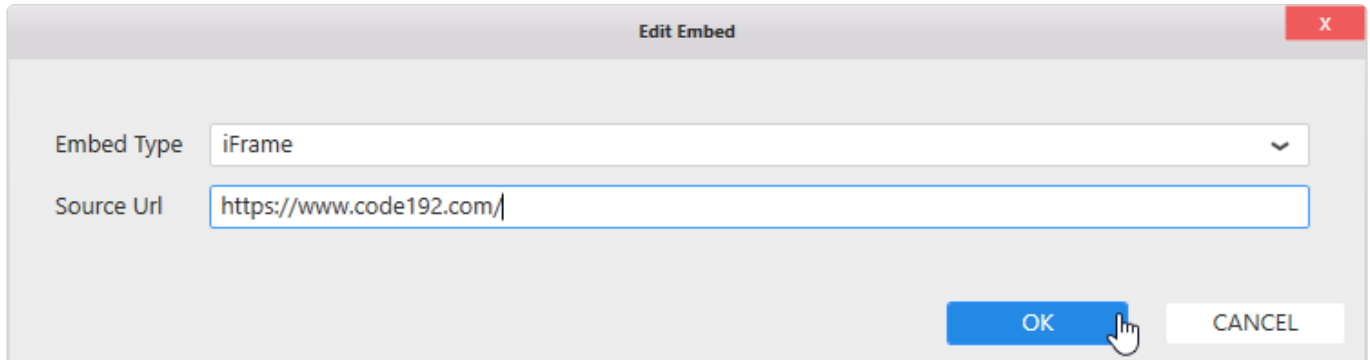
- other websites
- components from other applications (like Widgets from Aveva Insight)
- video or image streams from security cameras
- online documents published on other websites
- other web widgets, like streaming videos, calendars, etc...

Last modified: Feb 17, 2022

2.8.16.3.1. Configuration

Source Url

This is the Url that points to the content you wish to embed. Simply paste the Url in this text box.



Dynamic URL

You can update the URL displayed in the widget when a [Parameter](#) value is updated. For this, use the Parameter placeholder :

```
${MyParameterName}
```

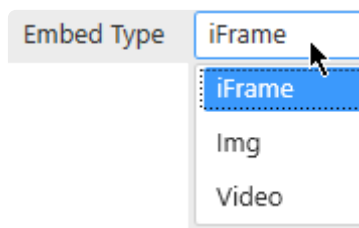
Example :

When the Parameter `param_Country` is updated, the Embed widget will display the corresponding Wikipedia page :

```
https://en.wikipedia.org/wiki/${param_Country}
```

Embed Type

The *Embed Type* determines how the content will be embedded :



iFrame

The content will be embedded “as-is”. This is usually the default.

Video

This is for video streams that require to be embedded inside `<video>` HTML markup.
This can be the case for some security cameras.

Img

This is for image streams that require to be embedded inside `` HTML markup.
This can be the case for some security cameras / webcams.

Last modified: Feb 17, 2022

2.8.16.3.2. Note : Cross-origin resource sharing

Embedding a content from one website (your content) into another website (Alpana) often requires to be allowed from the embedded website (your content).

This is called [Cross-origin resource sharing](#).

For example, the <https://www.google.com/> URL currently refuses to be embedded inside an iframe of another website. This is a normal thing, for security purposes.

In some cases, you can create an exception, please see with the documentation of your content website.

Last modified: Feb 17, 2022

2.8.16.4. PDF viewer



The PDF Widget allows to insert PDF documents into a Dashboard.

Last modified: Feb 17, 2022

2.8.16.4.1. Configuration

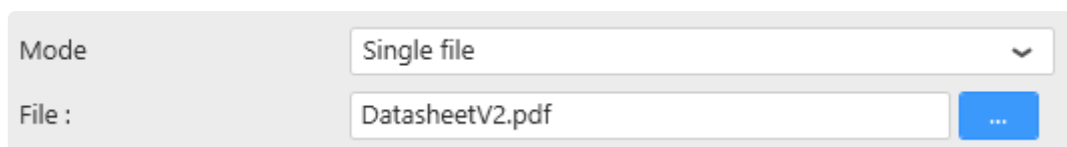
Selecting PDF file

There are two *Modes* for selecting a PDF file to display :

- *Single file* : a single file is displayed, always the same, and cannot be changed at runtime.
- *Based on parameter value* : a single file is displayed at a time, selected from a list of possible files. At runtime, which file is displayed depends on the value of a Parameter.

The files become embedded inside the Dashboard as dependencies, and will stay the same even if the original file is modified or deleted.

Single file

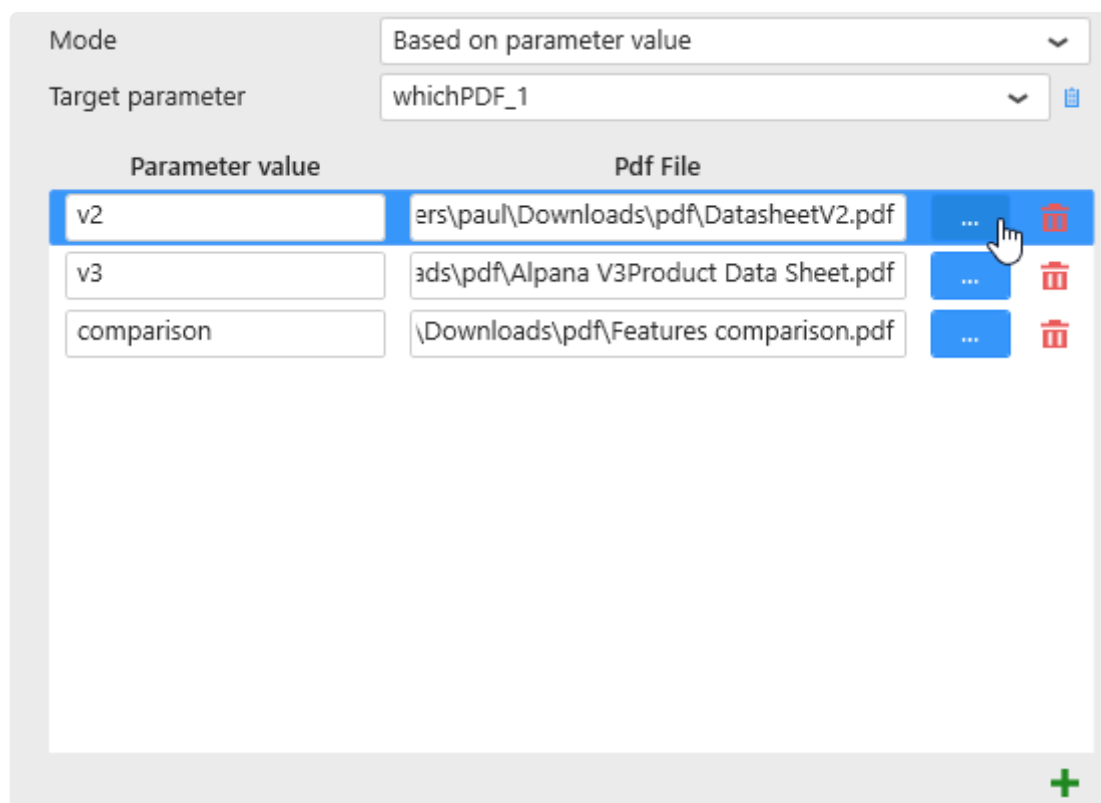


Mode: Single file

File : DatasheetV2.pdf ...

Click the ... button to browse for a file to select.

Based on parameter value



Mode: Based on parameter value

Target parameter: whichPDF_1

Parameter value	Pdf File		
v2	ers\paul\Downloads\pdf\DatasheetV2.pdf	...	🗑️
v3	ads\pdf\Alpana V3Product Data Sheet.pdf	...	🗑️
comparison	\Downloads\pdf\Features comparison.pdf	...	🗑️

+

In this mode, you must bind the Widget to a [Parameter](#), then configure which value of the Parameter will

open which PDF file.

Selecting a Parameter

Select the *Target Parameter* that will hold the desired value.

At runtime, when this Parameter changes, the widget will display the corresponding PDF file.

Selecting PDF files and binding to Parameter values

Click the **+** button to add a new binding :

- Enter the *Parameter value* in the text box
- Click the **...** button to browse for a file to select

When the selected *Target Parameter* will take the value in *Parameter value*, then the corresponding PDF file will be displayed.

To remove a binding, click the trash icon on the right of it.

Configuring the display

Several options allow to configure the way the PDF file is displayed :

Page Displayed	<input type="text" value="1"/>	1  
Zoom (Percent)	<input type="text" value="100"/>	100  
Enable Page Auto-Scroll	<input type="checkbox"/>	
Auto-Scroll Timer (Seconds)	<input type="text" value="1"/>	1  
Enable Runtime Toolbar	<input type="checkbox"/>	

Page Displayed

Select the page number of the PDF that should be displayed when the Dashboard opens.

Zoom (Percent)

Select the zoom factor to display the PDF when the Dashboard opens.

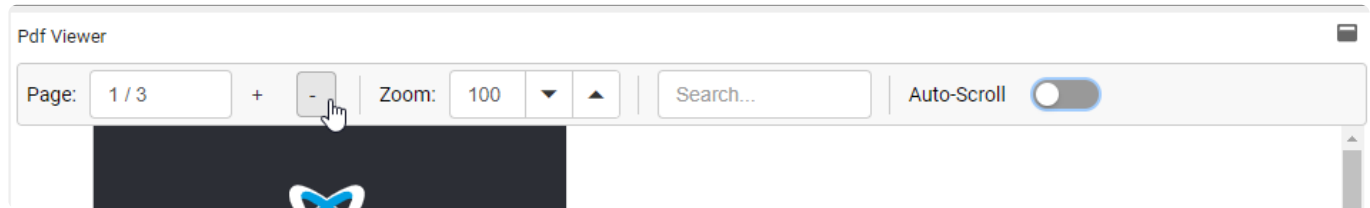
Auto-Scroll

If you check *Enable Page Auto-Scroll*, the PDF will be played like a slides presentation : each PDF page will be displayed for a certain duration, then the next page will be displayed automatically. When the end has been reached, the first page is next.

The duration to display each page is defined by *Auto-Scroll Timer (Seconds)* : the number of seconds to display each PDF page.

Runtime Toolbar

When you check *Enable Runtime Toolbar*, a toolbar is displayed at runtime with some controls to let you interact with the PDF file :



- *Page* : displays the current page number / and total page number. You can input the desired page number in this box.
- + - : Go to the next page by clicking + or the previous page by clicking -
- *Zoom* : enter the desired zoom factor (%) in the text box, or use the up/down arrows to increase/decrease the zoom factor
- *Search...* : enter strings of text to search the PDF
- *Auto-Scroll* : enable the Auto-Scroll feature (see above)

Last modified: Feb 17, 2022

2.8.17. Input Grid



The *Alpana Runtime Connection Input Grid* widget allows to configure an input form for an existing [Runtime Connection](#) and include it inside a Dashboard.

✿ This widget is a bit special :

- it allows to input data.
- it is not bound to a Data Source
- it is not displayed on a Public Dashboard because there would be no control over who inputs data

Pre-requisite : login

In order to configure this Widget from the Designer, you need to be logged-in to the Alpana Server, see [Login to Alpana Server](#)

Last modified: Feb 17, 2022

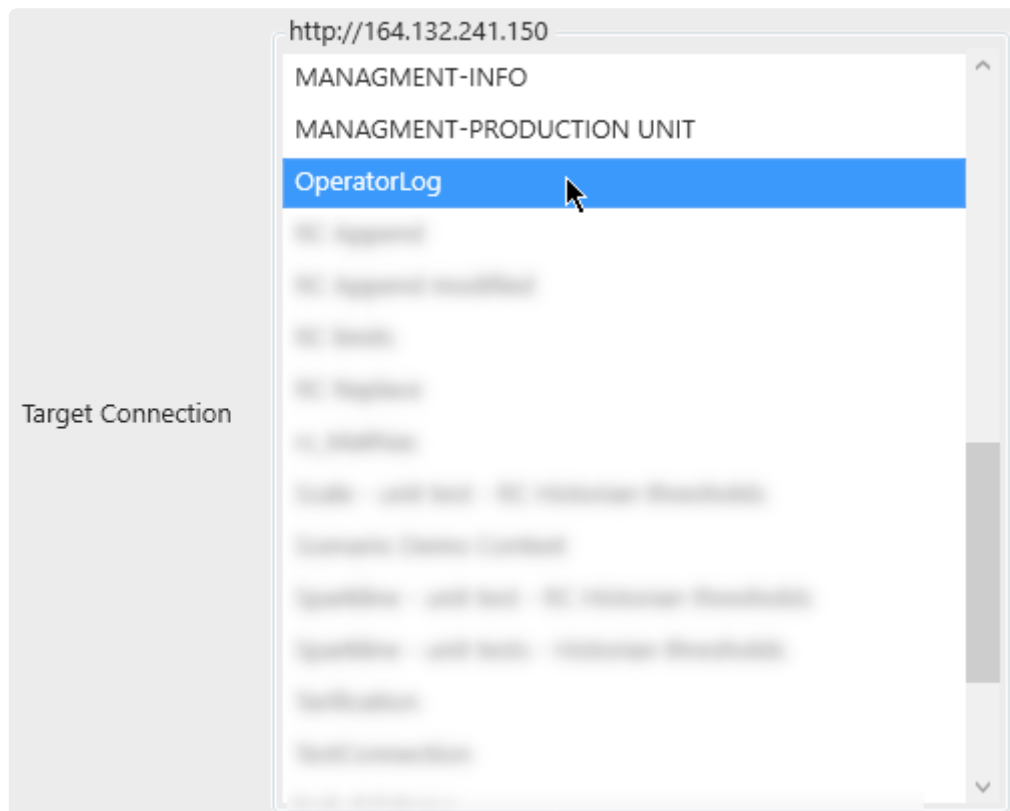
2.8.17.1. Configuration

When clicking the widget's settings, the *Edit Input Grid* dialog opens and lets you configure the options of that widget :



Selecting a *Target Connection*

Once you are connected to Alpana Server, the dialog presents the list of all Runtime Connections published on the Server.

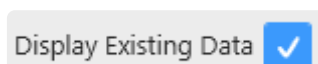


Select the desired Runtime Connection from the list.

Display and Permission options

Display Existing Data

You can optionally *Display Existing Data* :



This allows the user to see all data rows that were entered previously.
If this is disabled, then the user will only see the data row that was input during this session.

Allow Update

If you *Display Existing Data*, you can also optionally *Allow Update* :

Allow Update ☒

This allows users to modify the data on any existing entry in the table.

Allow Delete


If you *Display Existing Data*, you can also optionally *Allow Delete* :

Allow Delete ☒

This allows users to delete any existing entry in the table.

Input form options

The *Edit Mode* defines how a new data row is created or how an existing data row is edited :

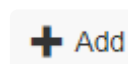
Edit Mode Normal 

Normal






In *Normal* mode, the data is edited inline inside the grid :

Adding data

The user clicks the *Add* button :

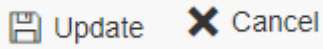


This creates a new empty row (or pre-filled with default values) :

my string field	my number field	my boolean	my datetime	my static list of ch...
<input type="text" value="boiler"/>	<input type="text" value="123.00"/>  	<input type="checkbox"/>	<input type="text" value="1/1/200..."/>  	

* Note : the auto-fields cannot be edited since they are created automatically by Alpana.

The user then updates all the fields as desired, and either clicks *Update* to save the change, or *Cancel* to cancel creating the entry :



Editing data

On an existing data row, the user can edit by clicking on the row and clicking the *Edit* button :



Deleting data

On an existing data row, the user can delete the row by clicking on the row and clicking the *Delete* button :



Dialog

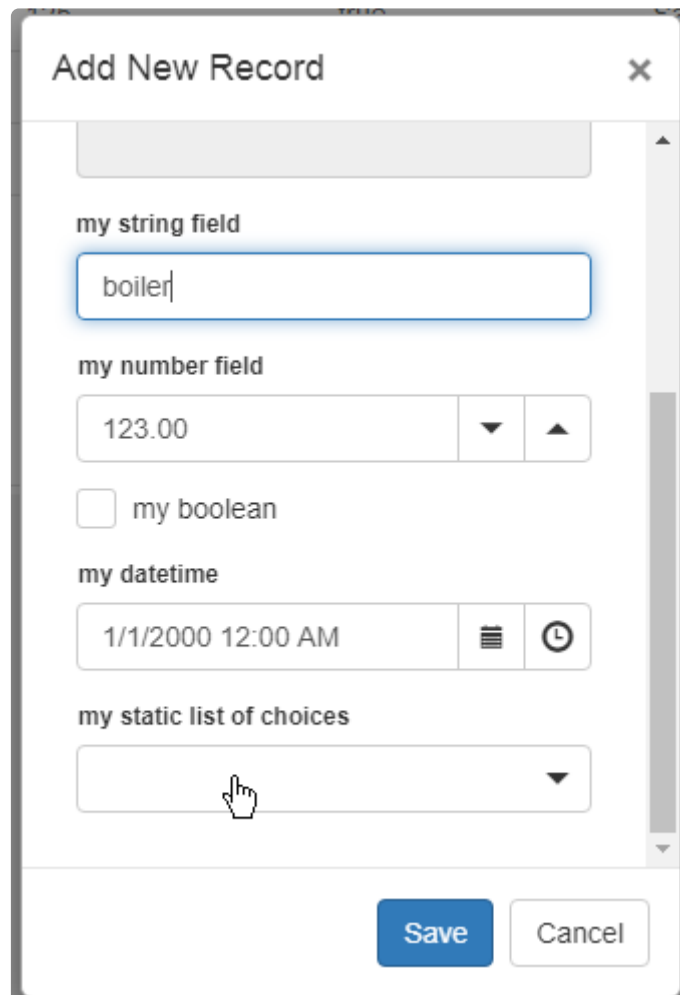
In *Dialog* mode, a pop-up dialog allows to edit/input data :

Adding data

The user clicks the *Add* button :



This opens the input dialog (empty or pre-filled with default values) :



Add New Record [X]

my string field
boiler

my number field
123.00 [▼] [▲]

☐ my boolean

my datetime
1/1/2000 12:00 AM [≡] [🕒]

my static list of choices
[▼]

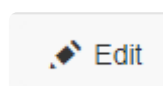
[Save] [Cancel]

✿ Note : the auto-fields cannot be edited since they are created automatically by Alpana.

The user then updates all the fields as desired, and can either **Save** or **Cancel** the dialog :

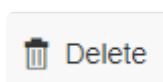
Editing data

On an existing data row, the user can edit by clicking on the row and clicking the *Edit* button :



Deleting data

On an existing data row, the user can delete the row by clicking on the row and clicking the *Delete* button :

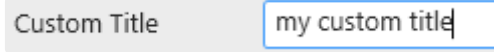


Style and Appearance

Custom Title

(new in 2020 R2)

The header of the widget can be configured :



Last modified: Feb 17, 2022

2.9. Using Dashboard Parameters

Last modified: Feb 17, 2022

2.9.1. What is a Parameter ?

A **Parameter** is a proxy between actions and results in a *Dashboard*.

What is this for ?

This is the mechanism behind Dashboard Filters, dynamic Stored Procedure calls, URL Parameters, ...

How does it work ?

A Parameter acts as a **variable** : its value can be assigned to and read from.

Listeners can subscribe to update automatically when the Parameter value changes.

A Parameter can take 0, 1 or more values.

A Parameter can listen to one or more Master Widgets to update its value.

Examples

Dynamic filtering

Dashboard Widgets can listen to Parameters :
when the Parameter changes, the Widget is **filtered** accordingly.

Dynamic data calls

Stored Procedures can also be set by Parameters :
when the Parameter changes, the Stored Procedure is updated accordingly.

Getting values from the URL

Parameters values can also be given through URLs to change their default value.

Automatically generated Parameters

In some cases, Parameters are created automatically : see Chapter [Widget as Master Filter](#).

Last modified: Feb 17, 2022

2.9.2. Managing Parameters

Parameters are configured and managed in a central menu in the Parameters Editor.
Read the next chapters to know more.

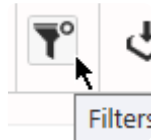
Last modified: Feb 17, 2022

2.9.2.1. Opening the Parameters Editor

How to open

From the Dashboard activity tab

In the top bar, use the Edit Filters icon :



From a “Use Parameter” configuration

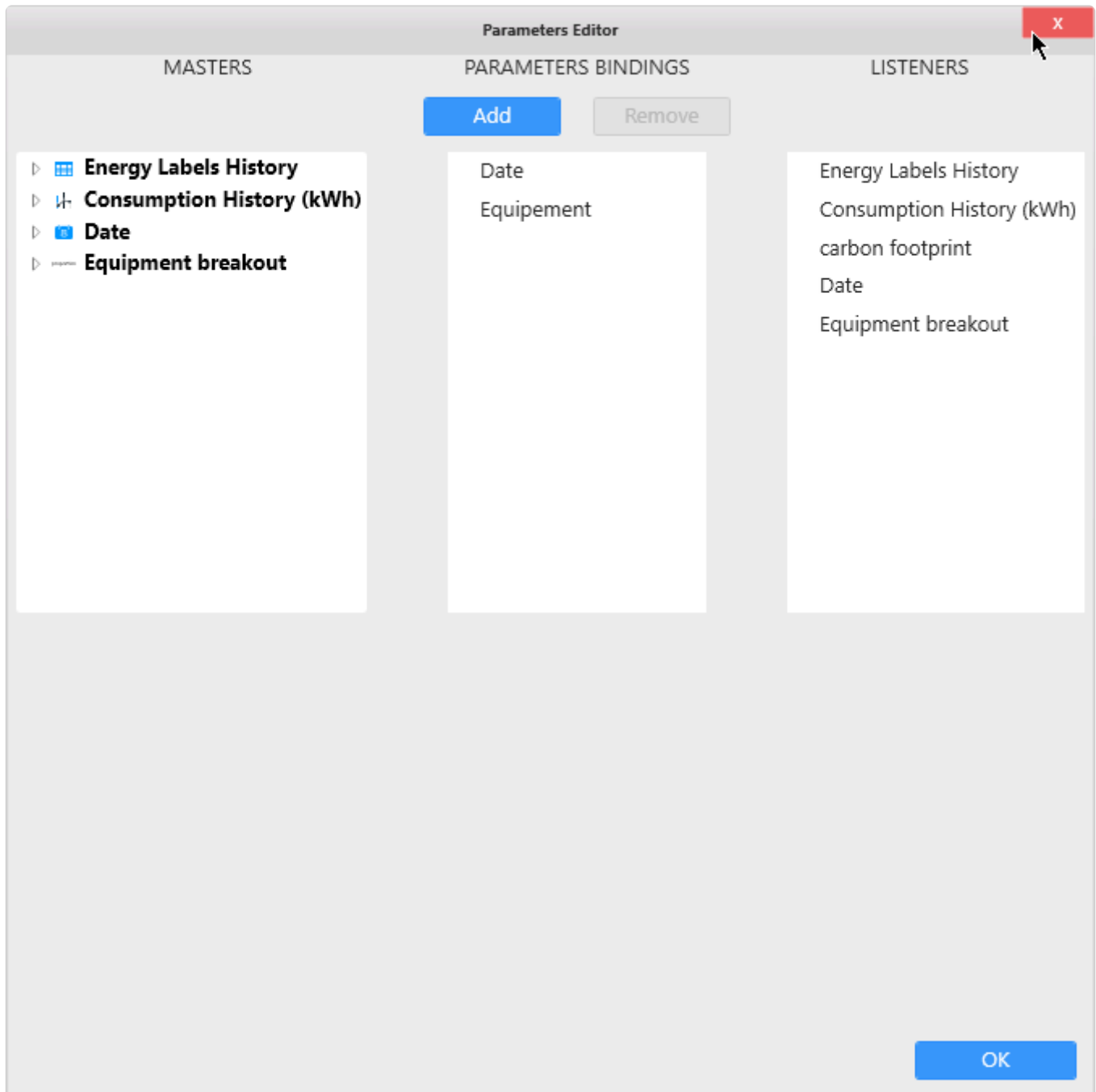
In many places where a Parameter can be used, a list icon acts as shortcut to open the Parameters Editor :



This appears for example in Data Source filters, in Stored Procedures parameters, etc...

Result : Parameters Editor

This opens the “Parameters Editor” dialog :



From there, you can manage Parameters :

- create Parameters
- rename Parameters
- remove Parameters
- change their default value
- change bindings between Widgets and Parameters

Masters

On the left is a list of Master Widgets and their selection events : this is a source of data for Parameters.

Parameters Binding

In the middle is a list of Parameters : this is the variable that contains the value.

Listeners

On the right is a list of Listener Widgets : this is a destination that will update according to the value.

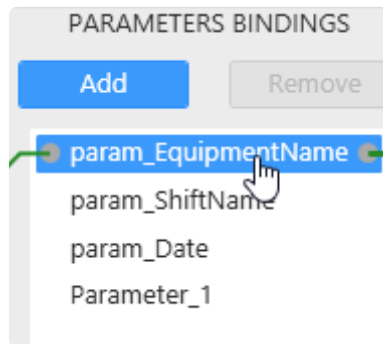
Last modified: Feb 17, 2022

2.9.2.2. Visualizing Parameter binding

See the references to a Parameter

There are many ways to use a Parameter (see the following chapters).

To see a summary of all places where a Parameter is used, click on the Parameter name under the “Parameters Bindings” list :



The list at the bottom of the dialog shows all the references to this Parameter :

References		
Item Type	Item Name	Description
Master Widget	ChoroplethMap	Binding master (Building)
Listener Widget	Alarm_occurrences	Binding listener
Datasource	Table windowed query in	Custom query parameter/value
Datasource	Table getEnergy_forBuilding in dbo	Programmability parameter

Each reference is described as :

- *Item Type* : type of item referencing the Parameter
- *Item Name* : name of the item referencing the Parameter
- *Description* : description of the reference

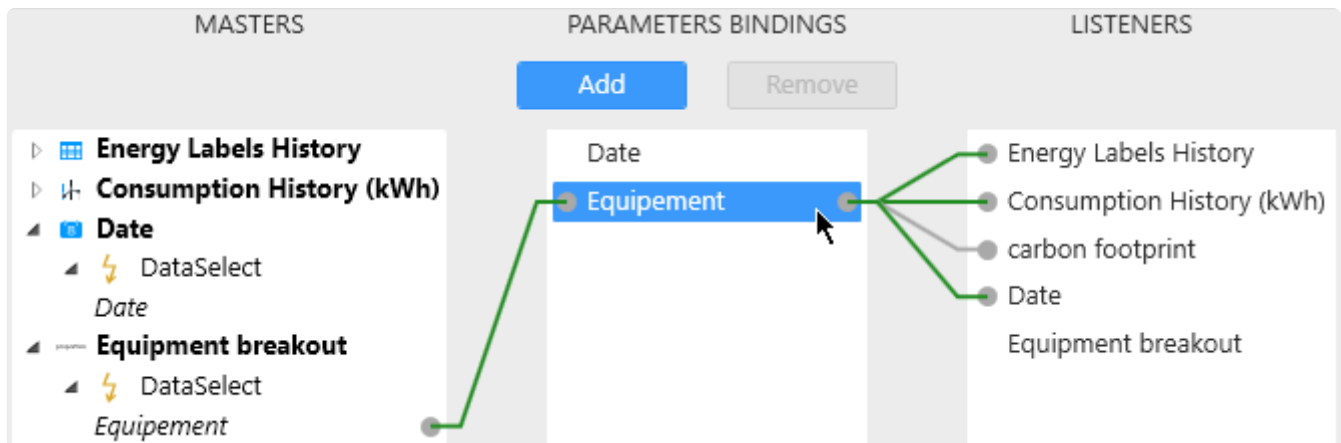
The types of references can be :

- *Binding master (FieldName)* : the Parameter is receiving values from the field “FieldName” of a [Master Widget](#)
- *Binding listener* : the Parameter is sending filter values to a [Listener Widget](#)
- *Custom query parameter/value* : the Parameter is being used inside a [Custom Query](#)
- *Programmability parameter* : the Parameter is being sent as argument to a [Stored Procedure](#)
- *Expression argument/value* : the Parameter is being used as a value inside an [Expression](#)
- *Data main filter* : the Parameter is being used as a filter value for a [Data Source](#)
- *Widget main filter* : the Parameter is being used as a filter value for a [Widget](#)
- *Query time parameter* : the Parameter is being used for the time settings of a [Historian Query](#)
- *Column conditional formatting* : the Parameter is being used as a comparison value in a [Grid Widget's conditional formatting](#)

- *Label content* : the Parameter is being used as a text value to replace [text inside a Label Widget](#), or to replace part of the URL of an [Embed Widget](#)
- *Widget header* : the Parameter is being used as a text value to replace [part of a Widget's header](#)
- *PDF document selection* the Parameter is being used to select one of multiple PDF files inside the [PDF Widget](#)

See the binding to a Parameter

To see which Widgets are connected to a Parameter, click on the Parameter name under the “Parameters Bindings” list :



List of Parameters

To the middle is a list of dashboard Parameters.

Master binding

To the left are the links to Master Widgets : this is the Widgets that can **send a value** into the Parameter.

Listener binding

To the right are the links to Listener widgets : this is the Widgets that will **receive a value** from the Parameter.

See Parameter-Listener relationship

To see how a Listener Widget will become filtered, click on the Listener Widget :

The link to Parameters is displayed in the middle.

At the bottom, is displayed a list of all filter actions configured for each Parameter :

- on the left : the field name from the Data Source
- on the middle : a boolean comparison operator
- on the right : the Parameter name
- at the bottom left : a checkbox to disable this filtering
- at the bottom right : an optional formatting applied to the Data Source field

Last modified: Feb 17, 2022

2.9.2.3. Editing Parameter bindings

To edit Parameters bindings, see the following chapters.

Last modified: Feb 17, 2022

2.9.2.3.1. Necessary connections

No connection is absolutely necessary :

- a Parameter that is not linked to a Master Widget can still receive values from a URL Parameter.
- a Parameter that is not linked to a Listener Widget can still send values into a Stored Procedure, a Custom Query Table, an Expression Value, a filter condition, ...

Multiple connections are possible :

- a Parameter can receive values from several Master Widgets
- a Parameter can send values into several Listener Widgets

Last modified: Feb 17, 2022

2.9.2.3.2. Removing a connection

Why remove a connection ?

By default, a Filter Widget becomes connected to all Listener Widgets using the same Data Source. Sometimes, you only want to filter some Widgets and not others.

This can also be useful for sending values into a Parameter without Listener Widgets :

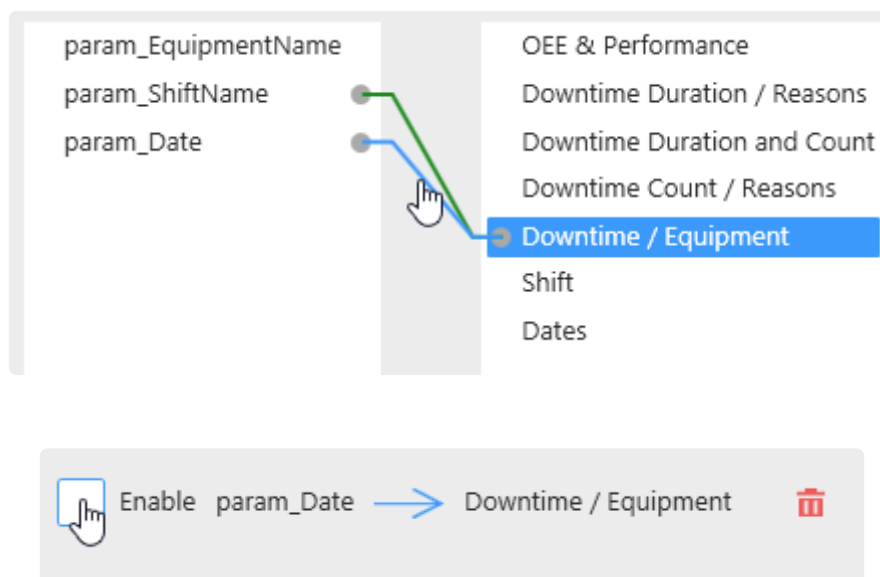
The Master Widget sends a value into the Parameter, and the Parameter is used as Stored Procedure parameter for example.

How to disable a connection

You can disable a connection without removing it.

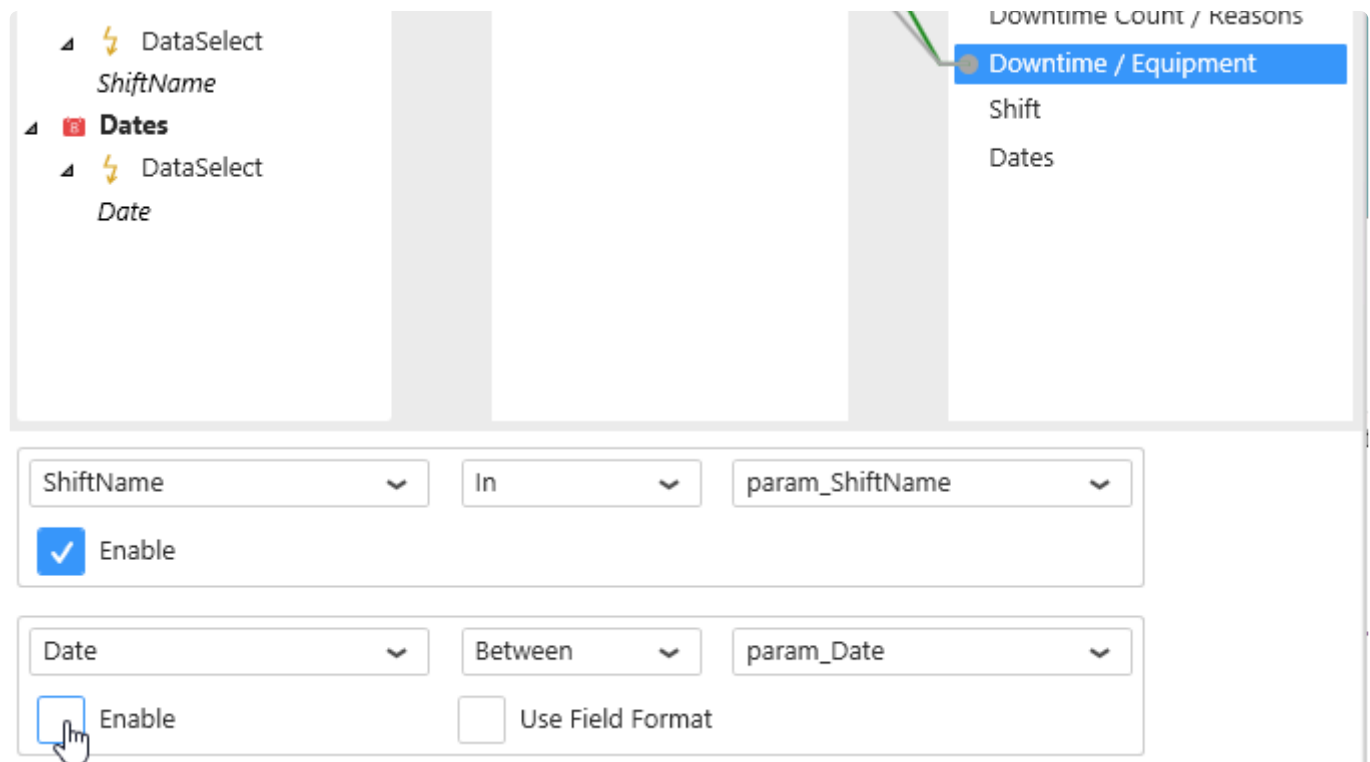
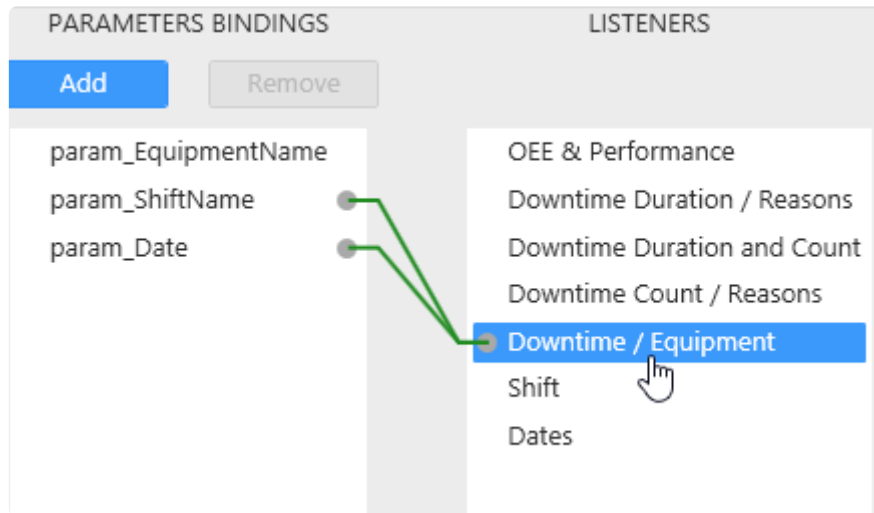
From the connection

Click on the connection, and un-check "Enable" :



From the Listener Widget

Alternately, you can click on a Listener Widget, and un-check "Enable" on the corresponding relationship :

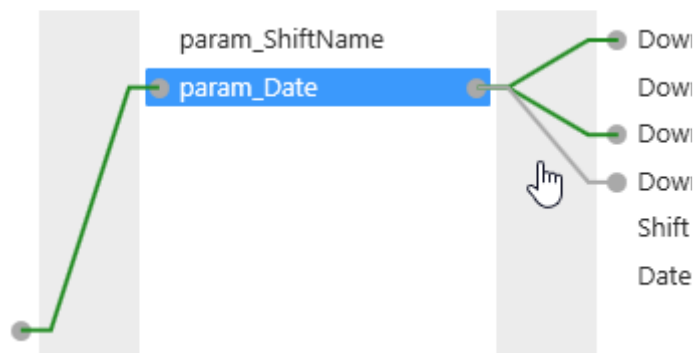


Re-enable connection

Similarly, you can re-enable the connection by checking again “Enable”.

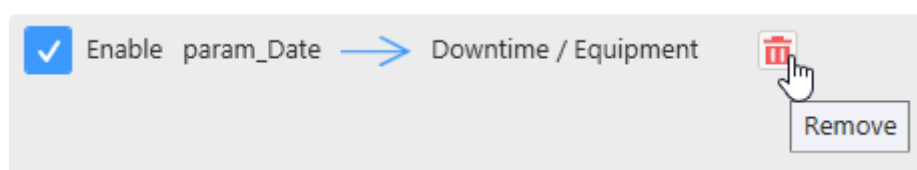
See disabled connections

A disabled connection is displayed as a greyed-out link :



How to remove a connection

To remove a connection, click on it, then click on the red bin button :



Last modified: Feb 17, 2022

2.9.2.3.3. Adding a connection

Why add a connection ?

This can be useful for **filtering across Data Sources** :

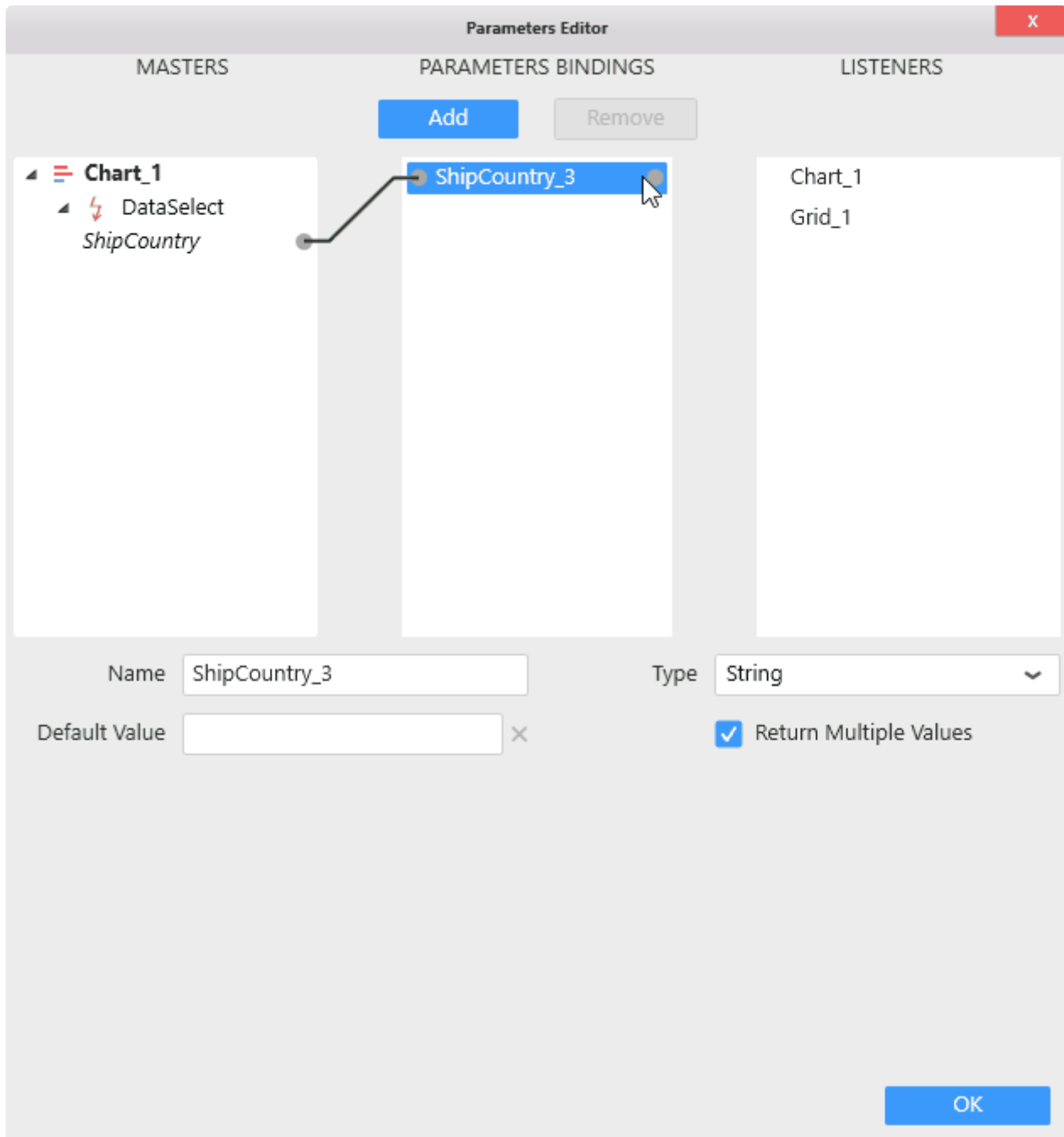
Only Widgets from the same Data Source are linked by default.

If you wish to use a Master Widget from DataSource_A to filter a Listener Widget from DataSource_B, you have to manually define the relationship : *what field in DataSource_B will become filtered by the Parameter and how ?*

This can also be useful for sending values into a Parameter without Listener Widgets. The Parameter can be used as Stored Procedure parameter for example.

How to add a connection

To add a connection, click on the right dot of the desired field to link from, and drag to the left dot on the field to be linked to :

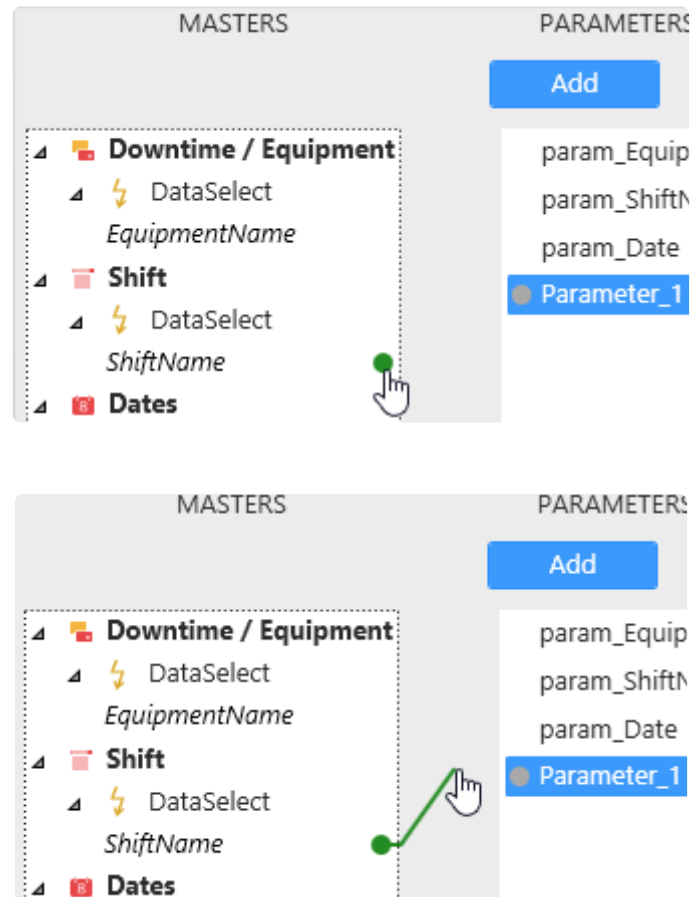


✿ A connection can only be created from left to right.

Connecting a Master to a Parameter

Browse the Master Widget on the left. Unfold the tree to find the desired DataSelect event (the name of the event is the name of the Data Source field selected).

Hover the DataSelect event. A grey dot appears on the right of the event name, this is where you will click and drag to draw a link :



Complete the link into the grey dot on the left of the destination Parameter :

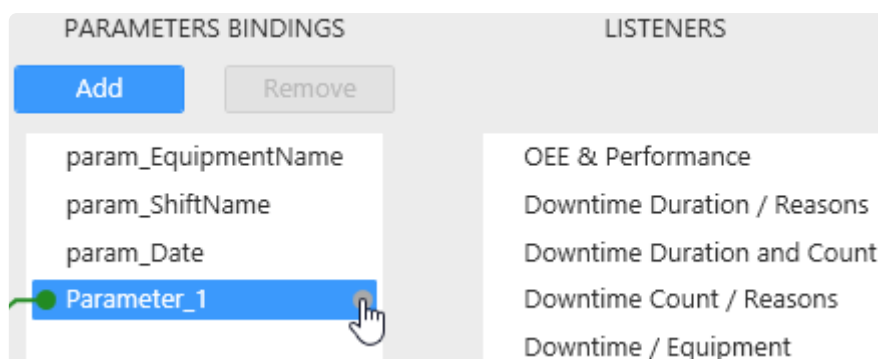


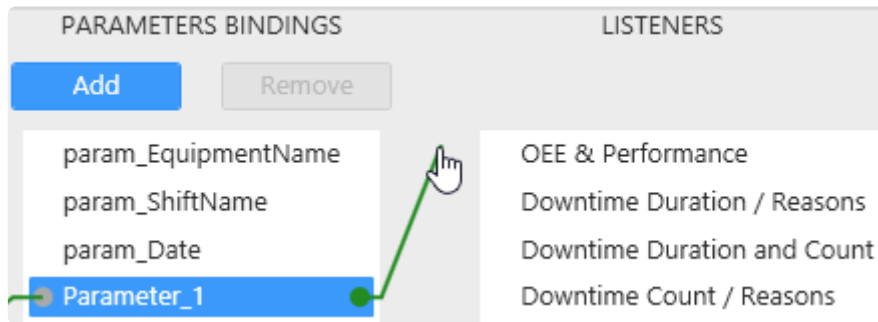
The Master Widget is now linked to this Parameter :

When a user will generate a DataSelect event for this field, the corresponding data value(s) will be sent into the Parameter.

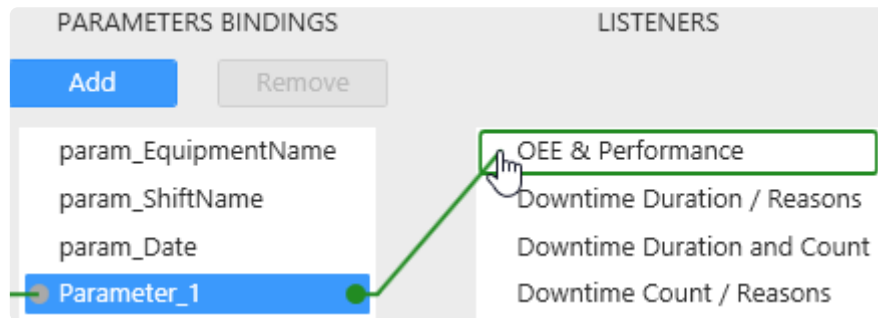
Connecting a Parameter to a Listener

Select a Parameter. A grey dot appears on the right of the Parameter name, this is where you will click and drag to draw a link :

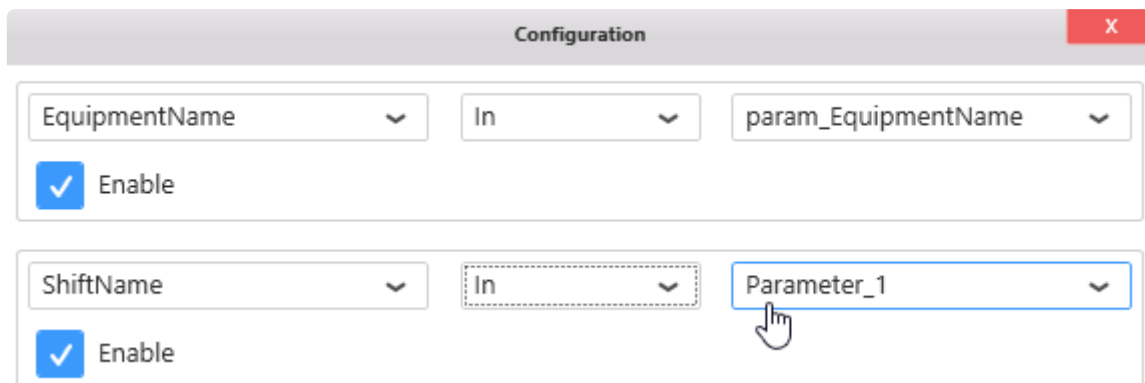




Complete the link into the grey dot on the left of the destination Listener Widget :



Upon completing the link, a relationship editor appears to let you set the relationship between the Parameter value and the Data Source fields of the Listener Widget :



Set up the desired relationship, and close the dialog with the red cross.

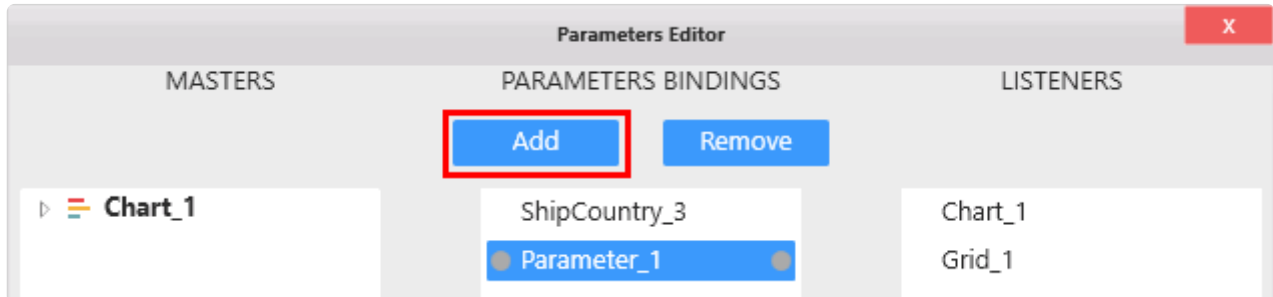
The relationship should read like a SQL statement. For example here : `WHERE ShiftName IN(<values of Parameter_1>)`

Last modified: Feb 17, 2022

2.9.2.4. Adding/Removing Parameter

Manually Adding a Parameter

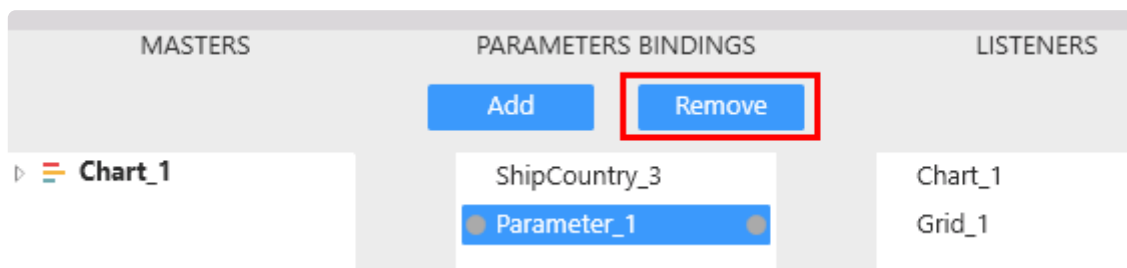
To add a Parameter simply click on the Add button under “Parameter Bindings” :



The new Parameter is added, with no links and default settings.

Manually Removing a Parameter

To remove a Parameter, select the Parameter and click the *Remove* button :



If the Parameter was used in the Dashboard, then the following happens :

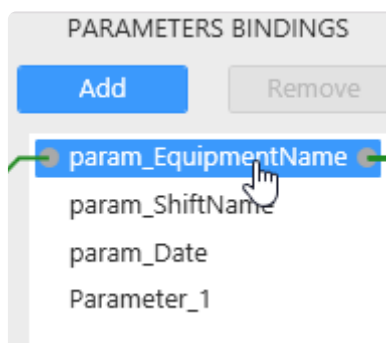
- for Listener Widgets, the Parameter its filter condition are removed
- if it was used in a Stored Procedure or a Custom Query, then it will be replaced by its default value, in order to maintain correct SQL syntax in those objects.

✿ A Dashboard can contain up to 100 parameters.

Last modified: Feb 17, 2022

2.9.2.5. Edit Parameter properties

To edit a Parameter, click on it in the middle list :



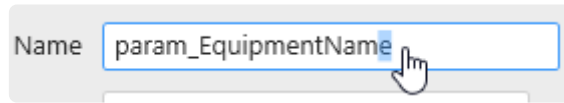
The Parameter properties are editable at the bottom :

Name	<input type="text" value="param_EquipmentName"/>	Type	<input type="text" value="String"/>
Default Value	<input type="text"/>	<input checked="" type="checkbox"/>	Return Multiple Values
<input type="button" value="Empty/All"/>		<input type="button" value="Empty/None"/>	
<input type="button" value="NULL Value"/>			

Last modified: Feb 17, 2022

2.9.2.5.1. Parameter Name

You can give a custom name to the Parameter by using this text box :

A screenshot of a user interface element. It consists of a light gray rounded rectangle. Inside, on the left, is the label "Name" in a dark gray font. To the right of the label is a white rectangular text input field with a thin blue border. The text "param_EquipmentName" is entered into this field. A mouse cursor, depicted as a hand with a pointing finger, is positioned at the end of the text inside the input field.

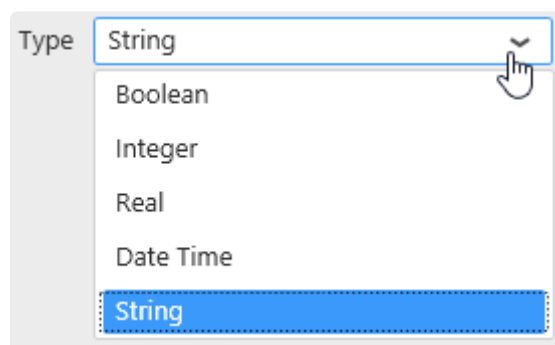
This is especially useful when using the Parameter as URL Parameter : the Parameter name will be used in the syntax to pass values to the Dashboard from the URL.

Parameter names are also listed in the Filter Overview at runtime.

Last modified: Feb 17, 2022

2.9.2.5.2. Value Type

To set the Type of the Parameter, select it from the “Type” listbox :



Values sent into this Parameter will be converted to this Type.

Last modified: Feb 17, 2022

2.9.2.5.3. Parameter Default Value

The value that the Parameter has by default is called the *Default Value*.

This is the value that the Parameter has before any manual filtering at runtime for example.

Setting Default Value from URL Parameters

[URL Parameters](#) actually replace the Default Value when the Dashboard loads.

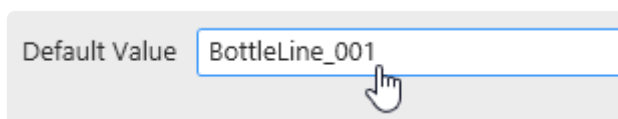
Setting Default Value from Widgets

It is possible to set a Parameter Default Value by making a selection in the Widget Preview of one of its Master Widgets.

This is explained in the [corresponding chapter](#).

Setting Default Value manually

Default Values can be set manually from the “Default Value” text box :



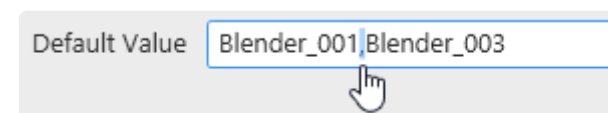
A screenshot of a user interface element. On the left, the text "Default Value" is displayed. To its right is a rectangular text input box with a blue border. Inside the box, the text "BottleLine_001" is entered. A hand cursor is positioned over the right side of the text box, indicating it is interactive.

Text or number Default Values

Text or number default value can be set manually by writing the value in the text box.

Multiple Default Values

Multiple Default values can be set using a comma , as separator :



A screenshot of a user interface element. On the left, the text "Default Value" is displayed. To its right is a rectangular text input box with a blue border. Inside the box, the text "Blender_001,Blender_003" is entered. A hand cursor is positioned over the right side of the text box, indicating it is interactive.

Date Default Values with Format

For Date type values, it is possible to use a date *Format*.

This will behave similarly as [Data Source Filters on formatted date fields](#).

Example :

In the Listener Widget relationship, use format “Month” :

Set the Parameter as Integer and in the *Default Value* text box, you enter 2.

⇒ By default, the month of February (month number 2) is filtered.

Special Default Values

A Default Value with “no content” could actually have different meanings :

- don't filter (select all items in the Listener Widgets)
- don't select anything (select nothing in the Listener Widgets)
- select explicitly the `NULL` value
- select explicitly the empty string ""

Select All

If you want the Parameter by default to not filter anything (select all values in the Listener Widgets), click the button *Empty/All* :

Select None

If you want the Parameter by default to remove every value (select no corresponding value in the Listener Widgets), click the button *Empty/None* :

Select NULL

If you want the Parameter by default to select the `NULL` value (`NULL` in SQL-like Connections, empty cells in Excel, etc), click the button *NULL Value* :

Empty string

! Erasing the content of the *Default Value* text box does not remove the Default Value !
Actually it sets the Default Value to be the empty string "".

To let the Parameter have the empty string "" as Default Value, erase all text content :

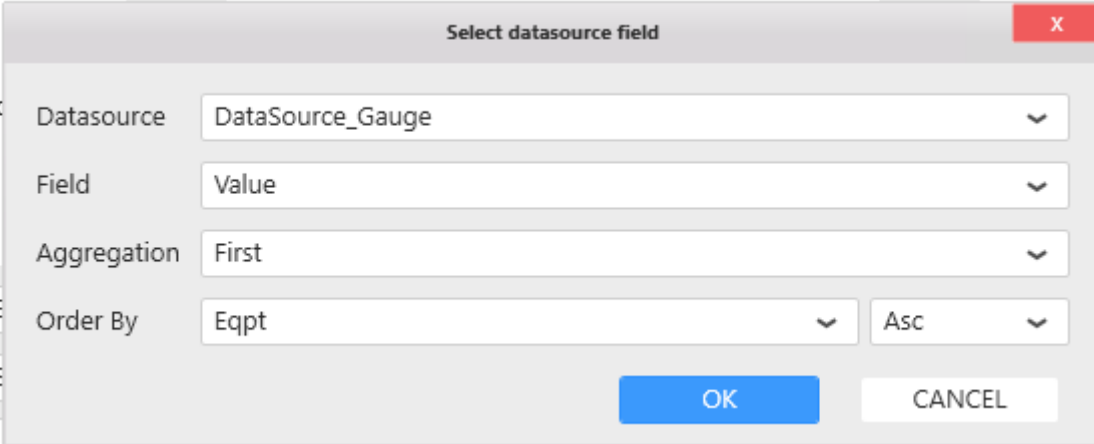
* Note : the buttons for special values are all white (unselected)

Select a datasource field as default value

It is possible to get a default value from a datasource :

To get a default value, it is needed to :

- Choose a **datasource** from the
- Choose the **field** which will be used as source of the default value
- Select an **aggregation** to define the formation of value
- Some aggregation require an **order by** from a field (such as First or Last)



Select datasource field

Datasource DataSource_Gauge

Field Value

Aggregation First

Order By Eqpt Asc

OK CANCEL

In this example, the parameter will get a default value from the first item in Value Field ordered by the eqpt field Ascending.

* The default value won't change after the datasource is loaded even if the datasource content changes (i.e. Filtered by a parameter)

Last modified: Mar 31, 2022

2.9.2.6. example : Multi-Data Source filtering

Multi-Data Source filtering

You can bind Parameters to any Listener Widget independently of its Data Source and independently of the corresponding field name.



This can be useful if you want to use for example a single date filter to apply to several Listener Widgets from different Data Sources.

Thus, you will avoid duplication and have a consistent filtering.

To achieve this, the Master Widget must be able to send the required values to the Parameter.

Example scenario 1

For example if DataSource1 has fewer values than DataSource2 (maybe a narrower date range, maybe not all equipments appear in this equipment list), then using the field from DataSource1 in the Master Widget will render you unable to send those missing values to the Parameter.

To solve this, you can use the field from DataSource2 which contains the most values (the widest date range, or the complete equipment list).

Note however that in this case you will try to filter Widgets from DataSource1 which may not contain the values and will return empty results.

Example scenario 2

If DataSource1 has some values that are not in DataSource2, **and** the other way around, then you cannot list all possible values in a Filter Widget by binding a field from one of your existing Data Source directly.

To solve this, you can create an additional Data Source dedicated to contain all the filter values you need to use. It could be a Custom Query with an UNION of both data sets, or it could come from one of your reference tables listing all equipments for example.

Note, once again, that when you will filter for values that exist only in one of the Data Sources, the Widgets bound to the other Data Source will return empty results.

Last modified: Feb 17, 2022

2.9.3. Widget as Master Filter

Alpana is dedicated to data exploration and interactive display of information. Using a filter at runtime allows the user to focus the visualizations on a sub-set of the data. *Dashboard Parameters* are the mechanism behind this dynamic filtering.

Dynamic filtering : Master Widget / Listener Widget

A **Master Widget** can be used at runtime to make selections that **apply a filter** to other Widgets. Widgets that are configured to listen to this filter are called *Listener Widget*.

Internals

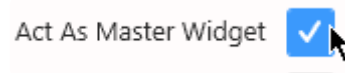
When the user clicks on a shape in a Master Widget, a DataSelect event is generated and sends the selected value into a Dashboard Parameter. Listener Widgets receive the Dashboard Parameter value and add it as a filter to their data.

Last modified: Feb 17, 2022

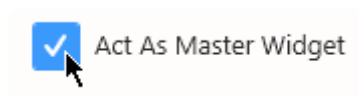
2.9.3.1. Configuring a Widget as Master

Configuration

To turn a Widget into a Master Widget and allow it to filter other Widgets, check *Act As Master Widget* under *Filter* :



There is also a shortcut in the top bar :



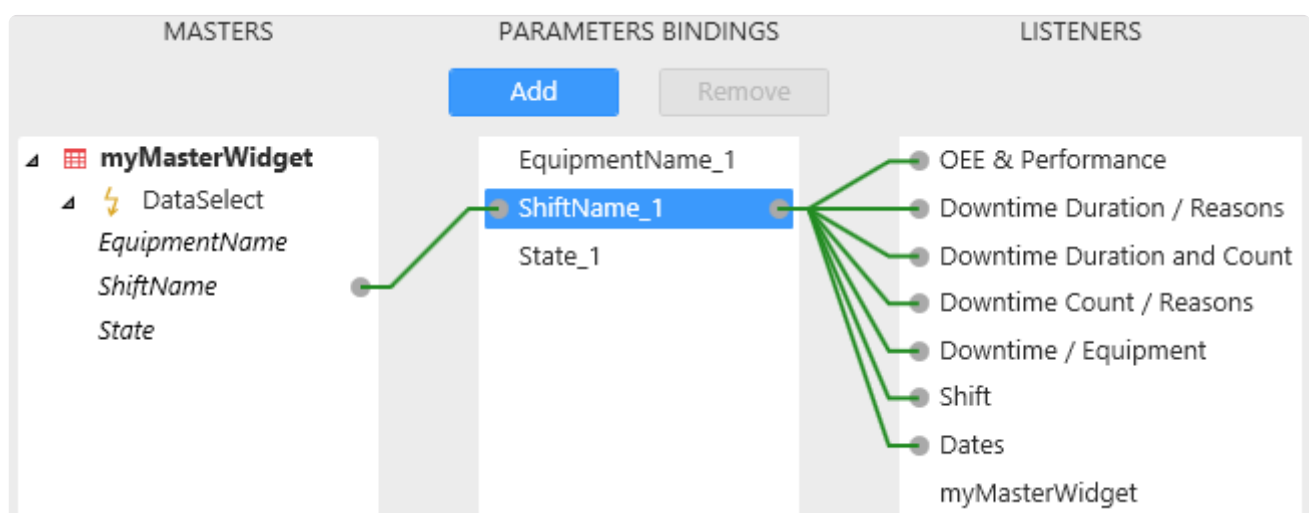
Master Widget by default

Some widgets do not require to perform this setting manually : all Widgets in category "Filter" are configured as Master Widget by default.

Internals

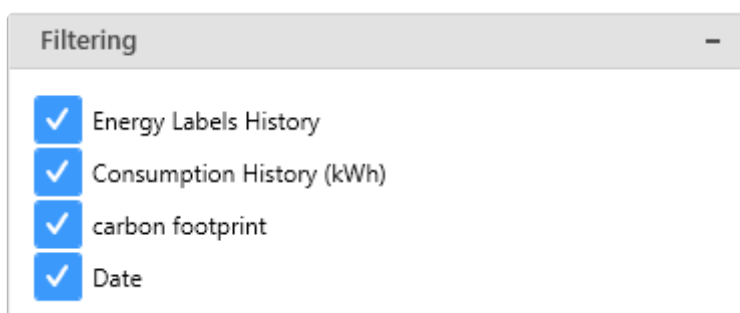
This will automatically :

- make the Widget and its DataSelect events available as "Master" to the left column in the "Parameters Editor" dialog
- generate as many Dashboard Parameters as there are DataSelect events, and name them like `FieldName_index` (example : `Equipment_1`)
- bind the events as Master to the corresponding Parameters
- bind to these Parameters all the Listener Widgets that use the same Data Source as the Master Widget

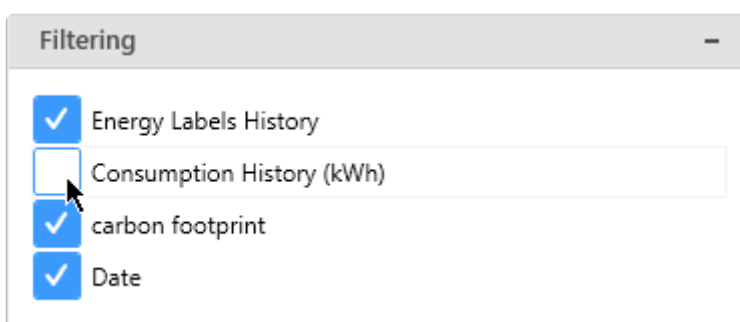


Viewing filtered widgets

When the Master Widget configuration is active, a new section appears at the bottom of the data panel on the left, called *Filtering* :



This is a list of Listener Widgets that are bound to this Master Widget.
The checkboxes are a shortcut to disable the Parameter linking to that listener.



Last modified: Feb 17, 2022

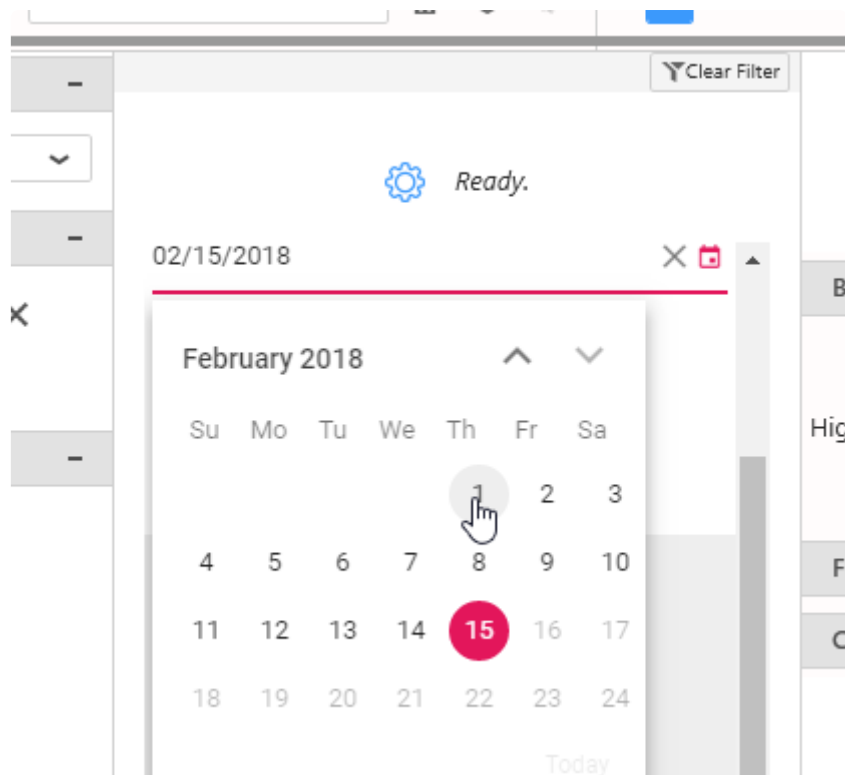
2.9.3.2. Setting a Widget Default Selection

The Master Widget can be configured to generate a selection by default.

This means that every time the Dashboard will load, the Widget will send this default selection into the [Parameter Default Value](#).

Setting a static default selection

In Alpana Designer, use the Widget preview in the middle part of the view to select the desired default value :



Default selection as Relative Date

In addition, some widgets (date/time filter widgets) allow to configure a **relative date range as default selection**.



Note :

This is different from the notion of Widget data filtered based on a Relative Date. If you have a Widget that needs to have its data filtered based on a relative date, see instead the chapter on [Widget-level Filtering](#).

Enabling Relative Date for the Default selection

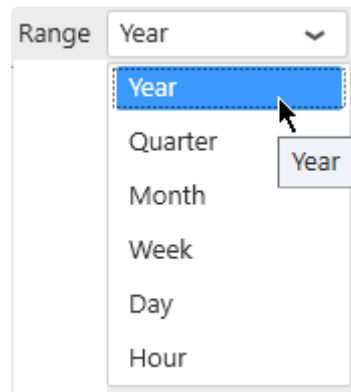
For this, check *Use Relative Date* under Basic Settings and click the pen icon to configure :



Configuring a Relative Date Period

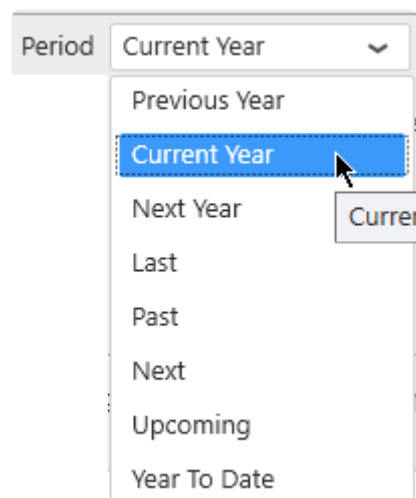
Then for each time range :

Year, Quarter, Month, Week, Day, Hour



... a Period can be selected :

Previous 1, Current, Next 1, Last N, Past N, Next N, Upcoming N, To Date



A preview of the selected date range for the current time appears at the bottom of the window to help you configure :

1/1/2019 12:00:00 AM to 12/31/2019 11:59:59 PM

Last modified: Feb 17, 2022

2.9.3.3. Using filters at runtime

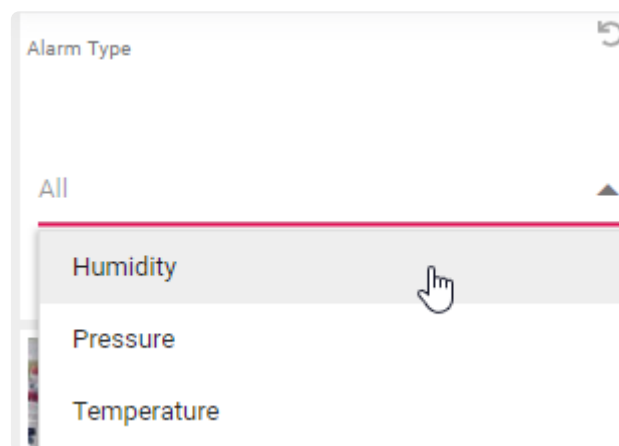
Default values

When a Dashboard loads, all Parameters have their Default Value.

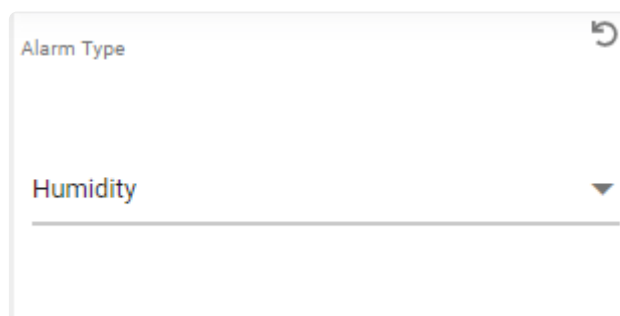
It may be empty (by default) or configured with values (see above in the [Managing Parameters chapter](#)).

Applying a filter

At runtime, clicking a shape in the Widget applies a filter and changes the corresponding Dashboard Parameter values :

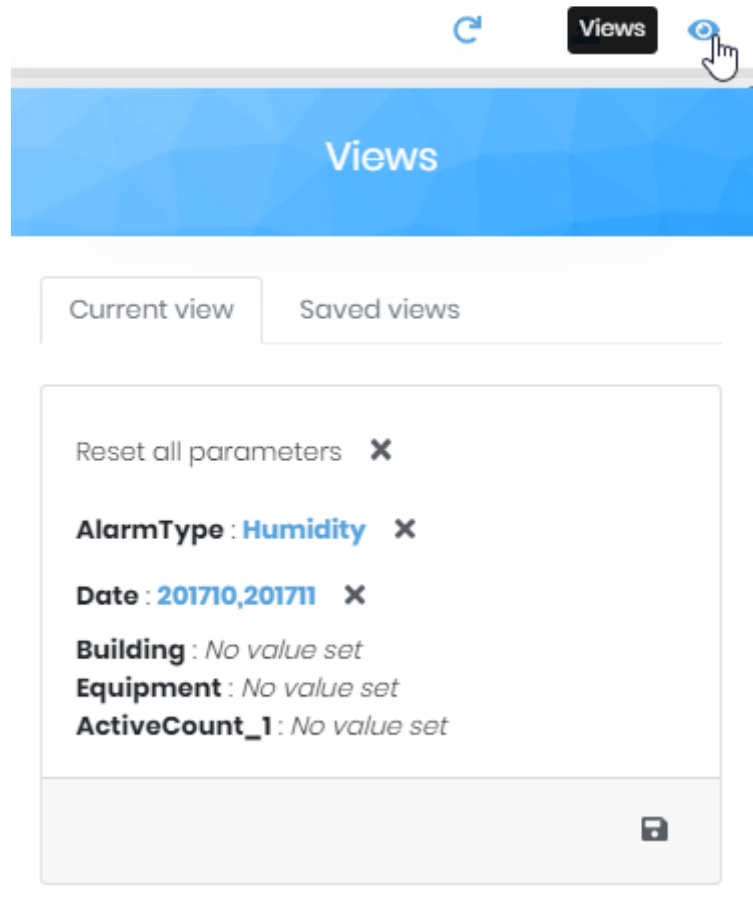


A reset icon  appears in the title bar of the Widget to indicate that the Widget is currently applying a filter :



Filters Overview

When filters are applied, the state of Dashboard Parameters can be listed by clicking *Views* on the top right of the Dashboard :




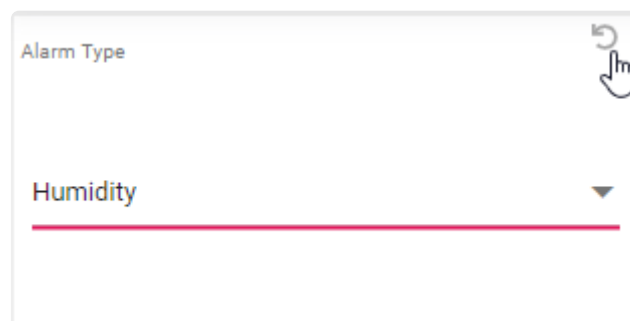
This shows a list of Parameter names and corresponding values.

Clearing filters

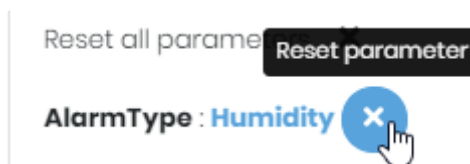
Parameters can be reset to their default values to remove the filter effect.

Clearing single filter

To clear a single filter, click on the reset icon  in the title bar of the Widget :

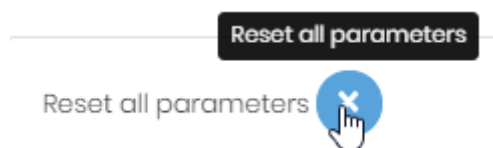


You can also click on the cross on the corresponding Parameter in the *Views* :



Clearing all applied filters

To clear all applied filters at once and reset all Parameters to their default value, open the *Views* and click *Reset All Parameters* :



Last modified: Feb 17, 2022

2.9.4. URL Parameters to receive values

The [default value](#) of any Parameter can be set from a **URL Parameter**.

This means that a particular set of filters can be used when opening the dashboard if the correct URL Parameters are configured.



This can be used to receive context from other tools that will simply link to a Alpana Dashboard and concatenate filter values as context.

See also Wikipedia for more information : https://en.wikipedia.org/wiki/Query_string

Last modified: Feb 17, 2022

2.9.4.1. Example

Your dashboard contains a Parameter called `Parameter1` and another called `Parameter2` which accepts multiple values.

The dashboard is published at `http://yoursite.com/viewer/dashboard/YourDashboardID`

By adding this :

```
http://yoursite.com/viewer/dashboard/YourDashboardID?Parameter1=ValueA&Parameter2=ValueB&Parameter2=ValueC&Parameter2=ValueD
```

It will give a default value for your Parameters :

- `Parameter1` takes the single value `ValueA`
- `Parameter2` takes the multiple values `ValueB, ValueC, ValueD`

Last modified: Feb 17, 2022

2.9.4.2. Reserved words



Important

The following names are reserved and cannot be used as URL Parameters. Please rename the corresponding Parameters.

- Id
- Category
- Comment
- View
- Dashboard
- Tab
- Viewid

Last modified: Feb 17, 2022

2.9.5. Parameter usage

Parameters are a fundamental concept used for many advanced configurations.
See some examples in the following chapters.

Last modified: Feb 17, 2022

2.9.5.1. Label Parameters

Parameters can be used as a placeholder inside a text string : the placeholder is replaced dynamically by the Parameter's value.

Syntax

`${parametername}` will be replaced in-place by the values of the Parameter called "*parametername*".

Example :

```
The high limit is ${parametername} minutes.
```

will get replaced at runtime by :

```
The high limit is 123 minutes.
```

Multiple values

Parameters that return multiple values will return them separated with commas.

So that you can write :

```
The date interval is ${multiDateParameter} for this Dashboard.
```

and it may get replaced at runtime by :

```
The date interval is 2020-08-26T14:50:35,2020-08-26T15:50:35 for this Dashboard.
```

Getting item inside multiple values

When using a parameter with multiple values, it is possible to get each value separately.

```
using the syntax : ${multiDateParameter[ValueIndex]}@ with value index as a number (first value is 0).
```

For example, If your parameter has 3 values : "Building A,Building B,Building C"

Using `MyParameter0` Will give you "Building A"

Using it with time range widget parameter, you will be able to get Start and End Date separately.



Note : In Alpana Designer, the text will be displayed with the default parameter values.

Usage

Label Parameters can be used to replace static text in :

- the [Label widget](#)
- any [widget Header](#)

Last modified: Feb 17, 2022

2.9.5.2. Dynamic calls to Stored Procedures or Table-Valued Functions

Parameters can be used as arguments to **Stored Procedures** or **Table-Valued Functions** : when the Parameter changes, the Stored Procedure or Table-Valued Function is called again with the new values as arguments.

For more information, see in chapter [Stored Procedures](#).

Last modified: Feb 17, 2022

2.9.5.3. Dynamic calls to Custom Queries

Parameters can be used inside **Custom Queries** : when the Parameter changes, the Custom Query is called again with the new values.

For more information, see in chapter [Custom Query Tables](#).

Last modified: Feb 17, 2022

2.9.5.4. Dynamic Expression Values

Expressions can use Parameter values as “Value” : this allows to change the calculation depending on the value of the Parameter.

For more information, see in chapter [Calculating Expressions](#).

Last modified: Feb 17, 2022

2.9.5.5. Dynamic Data Source filters conditions

The value of a **Data Source filter** condition can be a Parameter value : this allows to change the Data Source-level filter depending on the value of the Parameter.

For more information, see in chapter [Filtering Data](#).

Last modified: Feb 17, 2022

2.9.5.6. Dynamic Widget filters conditions

The value of a **Widget-level filter** condition can be a Parameter value : this allows to change the Widget-level filter depending on the value of the Parameter.

For more information, see in chapter [Widget-Level Filtering](#)

Last modified: Feb 17, 2022

2.9.5.7. Dynamic Historian Queries

Parameters can be used inside Historian queries to let users change the query at runtime : when the Parameter changes, the Historian query gets updated.

For more information, see in chapter [Parameter-Based Settings](#)

Last modified: Feb 17, 2022

2.9.5.8. Include Parameter value in a Link to URL

Links To URL can use Parameter values as part of the URL : this allows to include the value of the Parameter inside the URL.

For more information, see in chapter [Link to URL](#).

Last modified: Feb 17, 2022

2.9.6. Widget-specific binding

Some specific Widget types use Parameters in their configuration.
See the following chapters for a reference.

Last modified: Feb 17, 2022

2.9.6.1. Grid conditional formatting

Grid conditional formatting conditions values can be a Parameter value : this allows to change the conditional formatting depending on the value of the Parameter.

(see in the chapter about [Grid conditional formatting](#))

Last modified: Feb 17, 2022

2.9.6.2. Dynamically updating embedded content

Embed widget

The URL displayed in the [Embed widget](#) can be composed dynamically using a Parameter : this allows to change the displayed content depending on the value of the Parameter.

PDF widget

The PDF file displayed in the [PDF widget](#) can be selected dynamically using a Parameter : this allows to change the displayed content depending on the value of the Parameter.

Last modified: Feb 17, 2022

2.10. Dashboard Layout

(new in version 2020 R1)

Widgets are laid out on a bi-dimensional (2D) canvas called a *Layout*.

A single Dashboard can contain **multiple Layouts** that can present the same widgets with a different look-and-feel corresponding to different visualization situations : embedding, viewing on a big screen, etc

By default, there is only one layout called “Default Layout”.

Each Layout automatically contains 3 views :


- *Desktop* : this presentation is displayed when viewing from a desktop web browser
- *Mobile* : this presentation is displayed when viewing from the [Alpana Mobile](#) app
- *Pdf export* : this presentation is used when exporting the Dashboard to a PDF report

For each layout, you can configure different Layout-level options : theme, background options, ...

For each view of each layout, you can configure the layout of Widgets differently :

- any widget may be displayed in a different position and size
- any widget to be visible or hidden

This is only a configuration of the presentation, and is all configured within the same Dashboard, with the same Widgets already configured, and still using the same Data Sources.

 Each dashboard can contains 20 layout configuration maximum

In a published Dashboard, the layout menu will be available, see [Layout chapter](#)

Last modified: Feb 17, 2022

2.10.1. Managing Layouts

By default, only 1 layout configuration exists : *Default Layout*

Its properties can be configured as described below, and it contains 3 different views for *Desktop*, *Mobile* and *Pdf exports*.

Adding a Layout

Click on the *New Layout* button in the top bar to add a new layout to the Dashboard :



By default, it is a copy of the current Layout.

Alternately, you can also click the *Duplicate* button from the desired Layout's properties to duplicate it :



Deleting a Layout

To delete a Layout, click the *Remove* button from its properties :



 **Note :** the Layout configured with the *Is Default Layout* property cannot be deleted

General Layout properties

The Layout's properties can be opened by clicking the *Edit Current Layout* button in the top bar :



Name

The Layout's *Name* can be used to identify it when you have multiple Layouts :

Name

Default Layout

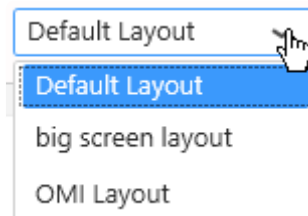
The *Is Default Layout* option defines which Layout will be displayed by default :

- when viewing the Dashboard from a desktop web browser
- when viewing the Dashboard from the Mobile app
- when exporting to PDF
- when opening the Dashboard in the Designer

Is Default Layout ☐

Selecting a Layout in the Designer

To select which Layout you want to edit in the Designer, use the box in the top bar :



Viewing a layout at runtime

By default at runtime, the Default Layout is displayed.

If you want to display other layouts, you can use the URL Parameter `layout`.

For example, `(your dashboard URL)?layout=my_big_screen_layout` will display the layout called "my_big_screen_layout".

Last modified: Feb 17, 2022

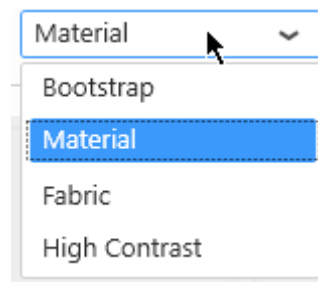
2.10.2. Dashboard Theme and Background

The default visual style for runtime widgets and controls is defined by the currently applied **Theme**.

* This Theme is a Layout property and will only apply to the current Layout of the Dashboard (and all its contained Widgets).

Selecting a Theme

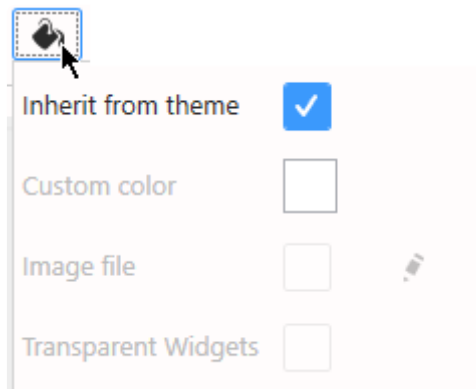
Use the theme Selector in the Layout properties :



Background Settings

The background settings are inherited from the currently selected Theme.

This can be overridden by using the *Background* button in the Layout properties :



* Note : since 2020 R2, these Background options are configured separately for each view : Desktop, Mobile, Pdf Export.

Inherit from theme (default)

The background style is defined by the currently selected Theme.

Un-select this option to allow to customize the following options.

Custom Color

The Background Color can be configured manually using a color picker :

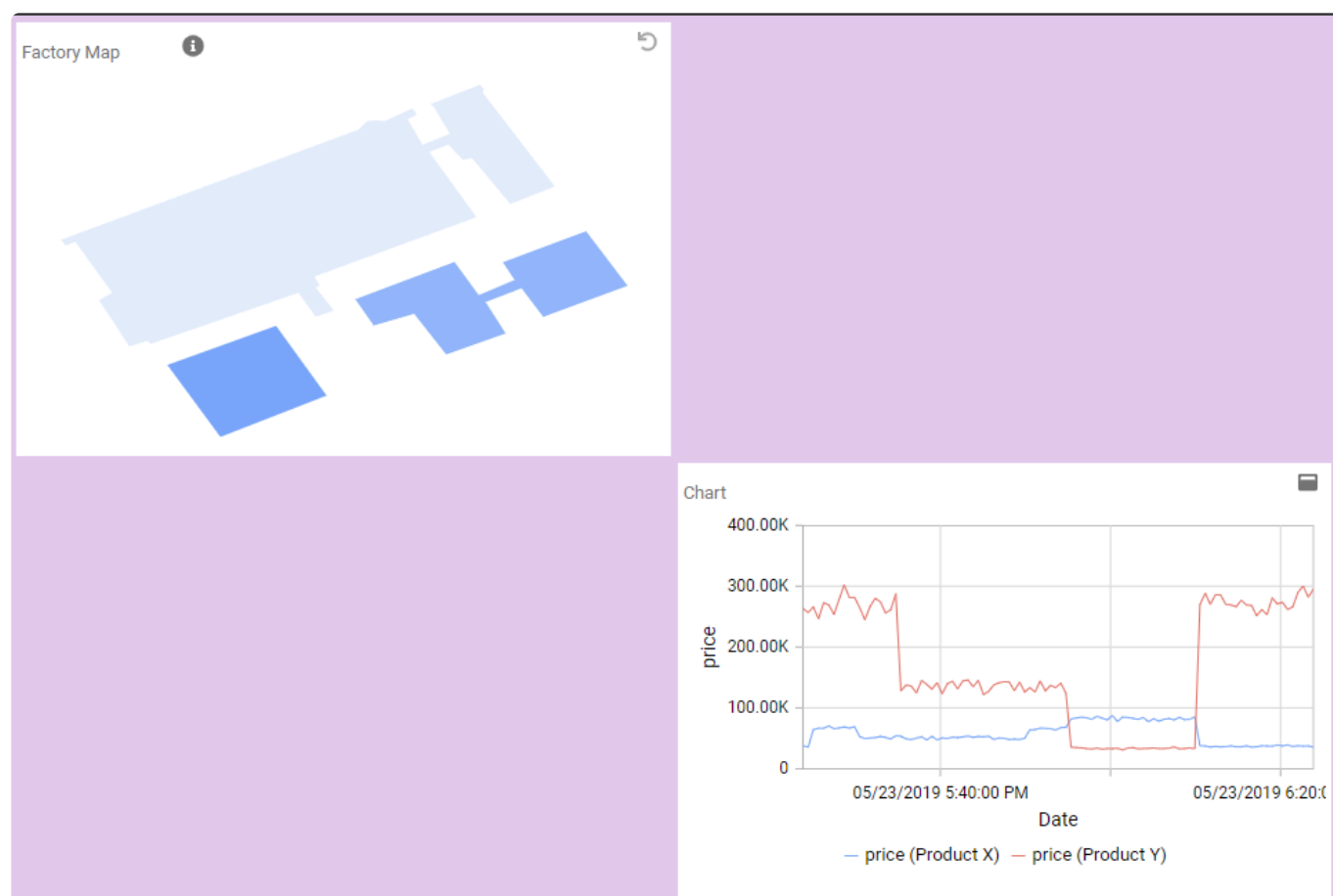
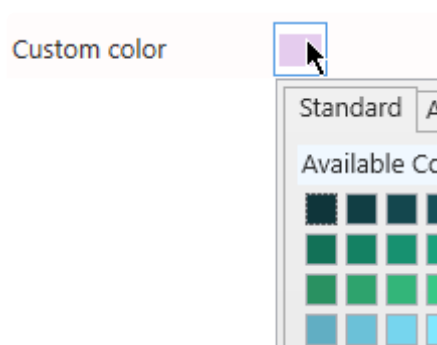


Image file

Instead of a plain background color, you can use an image as background.
Click on the pen icon to select a file.



The maximum size accepted is 1.00Mb

Supported formats are : *.png, *.jpg, *.bmp, *.jpeg, *.gif, *.emf, *.tiff, *.tif, *.ico

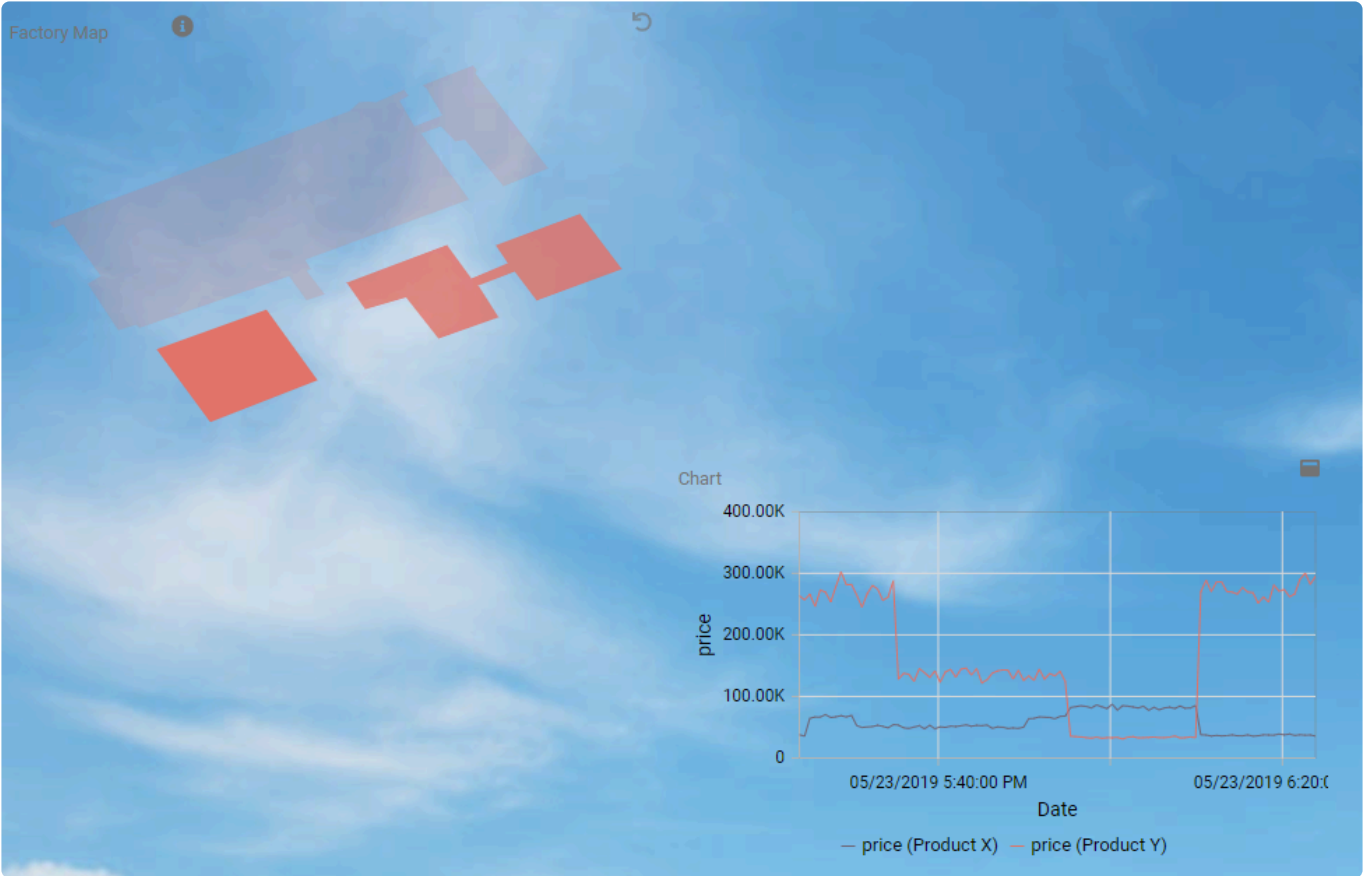


Transparent Widgets

Even when configuring a different background color for the dashboard canvas, the Widgets' background is still inherited from the Theme.

This is in order to maximize readability.

However, you may select *Transparent Widgets* to use the custom background (color or image) as widget background too :



Last modified: Feb 17, 2022

2.10.3. Layout size and Responsiveness

Layout Grid

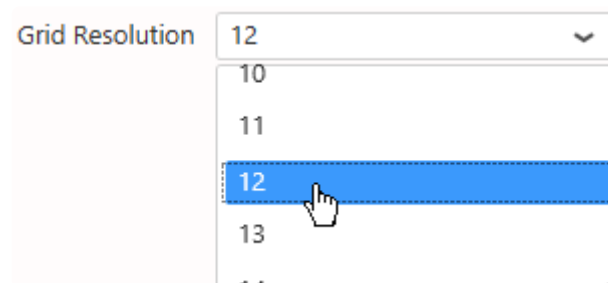
To help for easy alignment and page composition, a layout grid is displayed in Alpana Designer. This grid is drawn in Alpana Designer only to guide the user, but doesn't appear at runtime.

When moving and resizing Widgets, they will snap to this grid.

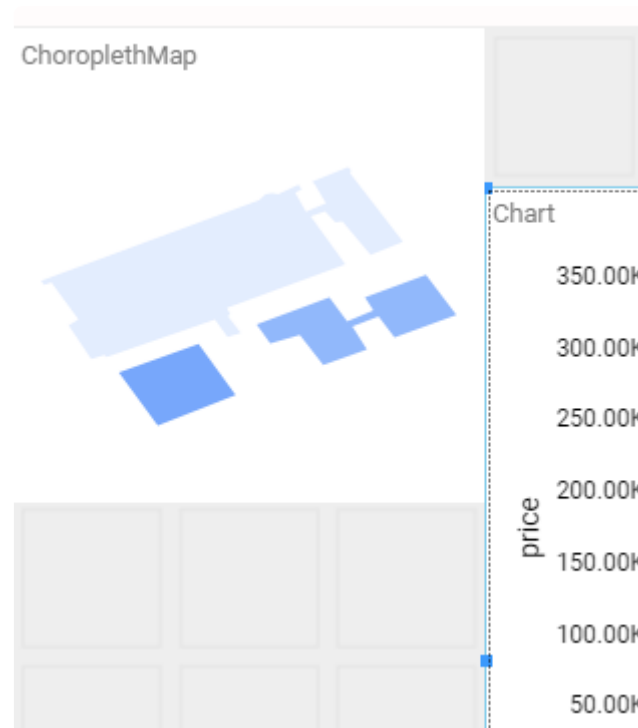
Grid Resolution

By default, the layout grid shows 12 grid tiles horizontally. (this corresponds to 6 vertically on most screens).

This *Grid Resolution* can be configured in the Layout properties :



For example, setting a higher resolution allows for finer Widget alignments and sizes :



Vertical size

Since Alpana v3.0.0, the layout size is not limited vertically : as long as you add Widgets at the bottom, the web page will be scrollable for any length as desired.

Responsiveness

This bi-dimensional layout allows to dispose Widgets horizontally and vertically.

On many systems this is a comfortable way to view Dashboards.

On systems with larger or smaller screens, the layout gets stretched, and maintains a consistent appearance, with some widget elements resizing and gaining/losing details depending on the widget's own responsiveness.

However, when the screen is very narrow (and this is especially the case on mobile devices), the displayed layout will switch from the *Desktop* Layout view to [the Mobile Layout view](#).



Note : the threshold size actually depends on system zoom and browser zoom too.

Last modified: Feb 17, 2022

2.10.4. Configuring Widgets on the Layout

Layout canvas

Widgets are laid out on a bi-dimensional (2D) canvas.

In Alpana Designer, the layout is configurable in the center part of the *Dashboard* activity tab :



This is where you will configure the Widget's position and size.

Navigating the canvas

The canvas (or design area) can be scrolled and zoomed :

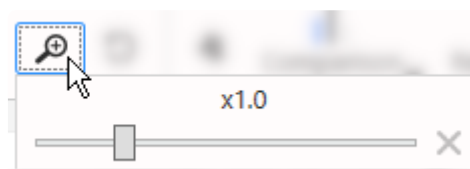
Scrolling

To navigate the canvas vertically, you can use the vertical scroll bar on the right, or your mouse wheel. This is necessary when you have many widgets vertically.

The canvas width always fits the Designer window's width, so there is no need to scroll horizontally.

Zooming

To zoom the canvas in and out, use the *Design Area Zoom* control :



Zooming out allows to have a better view of a multi-page layout (on a PDF for example), and allows to move Widgets quicker.

Zooming in allows to have finer control on a widget position.

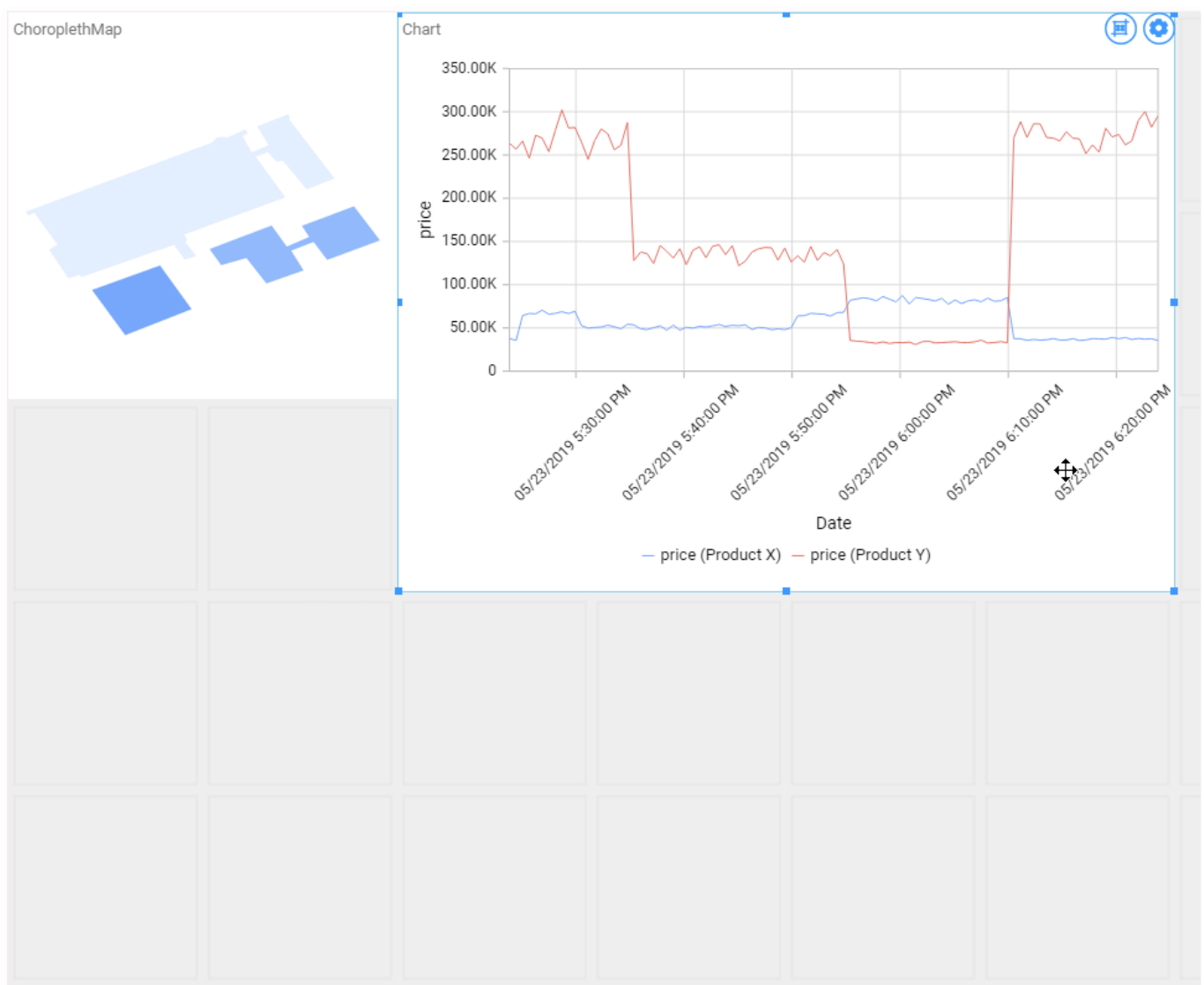
The canvas can be zoomed from $\times 0.1$ to $\times 4.0$.

Use the cross button to reset the zoom level to normal ($\times 1.0$).

Widgets position and size

Moving Widgets

Widgets can be moved on the Dashboard layout by selecting and dragging them :



Re-sizing Widgets

To resize a widget, select it to let the handles appear.

Then drag the corner or side handles to resize :



Hiding Widgets

Hiding Widgets allows to create layouts which are simpler or adapted to smaller screens, or maybe to hide images on the PDF exports, etc.






When a widget is hidden on a specific view of a specific Layout, that means it will not be loaded or displayed at runtime.

On each Widget, the *Toggle Visibility* button allows to hide/show the widget :



This setting is specific to each view of each layout.

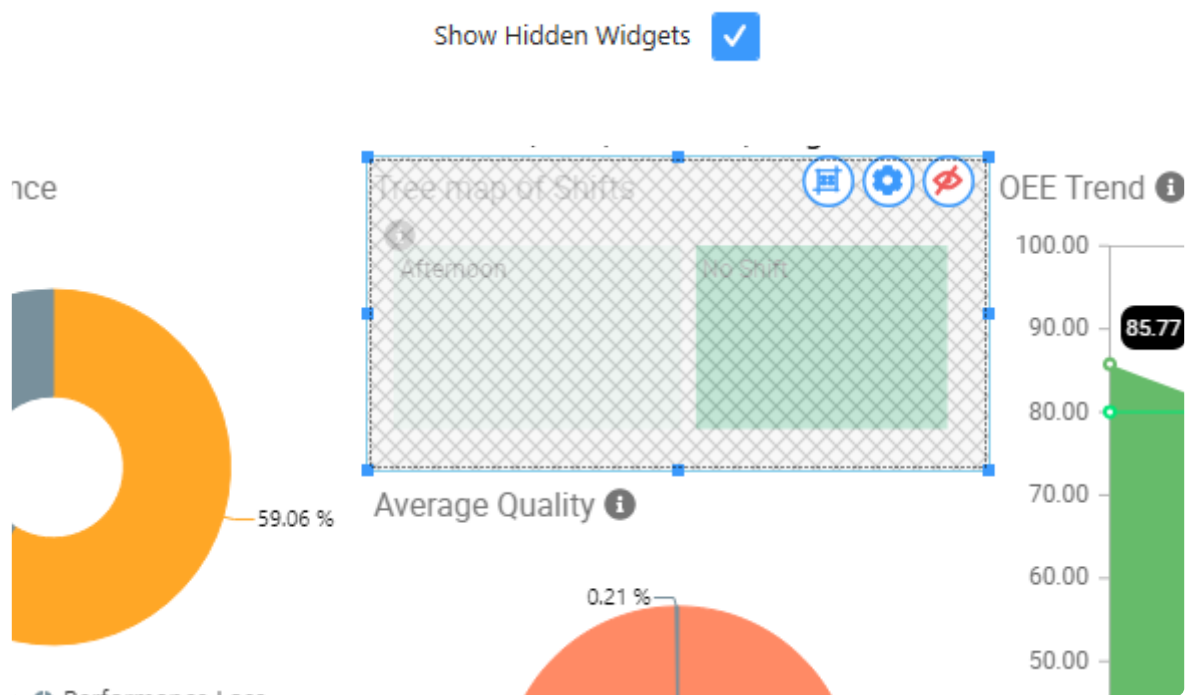
Alternately, you can configure the visibility of each Widget on each view by using the *Widgets Overview* from the Layout properties :

Widgets Overview		Layout Modes		
Show Hidden Widgets <input type="checkbox"/>				
Widget		Desktop	Mobile	PDF
 Logo_Code192		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
 OEE Trend		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
 Shift Filter		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
 Equipment Filter		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
 Quality Doughnut		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

When a Widget is checked on a particular view of this Layout, then it is visible.

When it is unchecked, then it is hidden on that view

When the *Show Hidden Widgets* option is checked, then the hidden Widgets are made visible on the Designer layout :



This can be used to remember that those configured widgets exist, but they will not be displayed at runtime.

Last modified: Feb 17, 2022

2.10.5. Layouts for PDF Exports

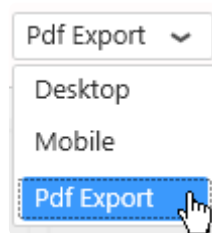
Introduction

The *Pdf export* view of each Layout allows to configure the layout that will be rendered when exporting to PDF

How to edit the PDF view

Selecting the PDF view

Select the desired Layout, then use the view selector to select *Pdf Export* :



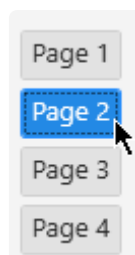
Using pagination

(updated in 2020 R2)

In the *Pdf export*, Widgets are laid out on multiple pages.
The view displays the layout one page at a time.

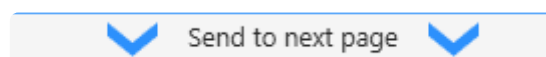
Browsing pages

To browse between pages, you can scroll with the mouse or click on the page number :

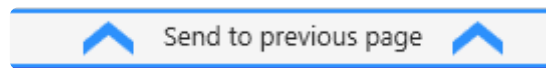


Moving a Widget across pages

To move a Widget to the next page, drag it to the bottom of the view and onto the *Send to next page* message that appears :



To move a Widget to the previous page, drag it to the top of the view and onto the *Send to previous page* message that appears :



Adding a new page

To add a new page, go to the last page and move a Widget to the next page.

Removing a page

To remove the last pages, remove all widgets from the desired pages.

Default behaviors

Automatic layout

When creating Widgets from another view (the *Desktop* view for example), the *Pdf Export* layout is generated automatically depending on available space and widget size.

Often, you may need to later tweak this automatic PDF layout manually in order to create a good-looking PDF export.

✿ It is a good idea to verify the PDF layout before publishing, and after any change. This will ensure that you get a good-looking PDF export.

Overlapping pages

When a Widget is configured to overlap multiple pages, it will be resized automatically during the PDF export, to span a single page only.

Important : Widgets with hidden content

Some widgets have behaviors that allows them to hide some of their content :

- a Grid widget with pagination
- a Doughnut legend with pagination
- etc

! When the PDF generation engine detects that such a situation occurs, then the Widget is removed from its current position in the layout, and moved to its own full page in the PDF.

✿ Note : This is often depending on the responsive behavior of the widget, so it may be

behaving differently with the *Desktop* viewing conditions and the *Pdf export* size and DPI.

Important : Incompatible Widget types

Some Widget types are incompatible with the PDF export functionality.

Those Widgets will simply be ignored during the PDF export, and are automatically made invisible on the *Pdf export* view.

The incompatible Widget types are :

- [PDF Viewer](#)
- [Alpana Runtime Connection Input Grid](#)
- [Embed](#)

Preview

When the selected view is the *Pdf export*, then the *Preview* button shows the actual PDF export.

Last modified: Feb 17, 2022

2.10.6. Layouts for Mobile

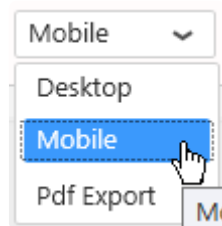
Introduction

The *Mobile* view of each Layout defines how it will be displayed when viewed on a mobile device.

How to edit the Mobile view

Selecting the Mobile view

Select the desired Layout, then use the view selector to select *Mobile* :



Default behaviors

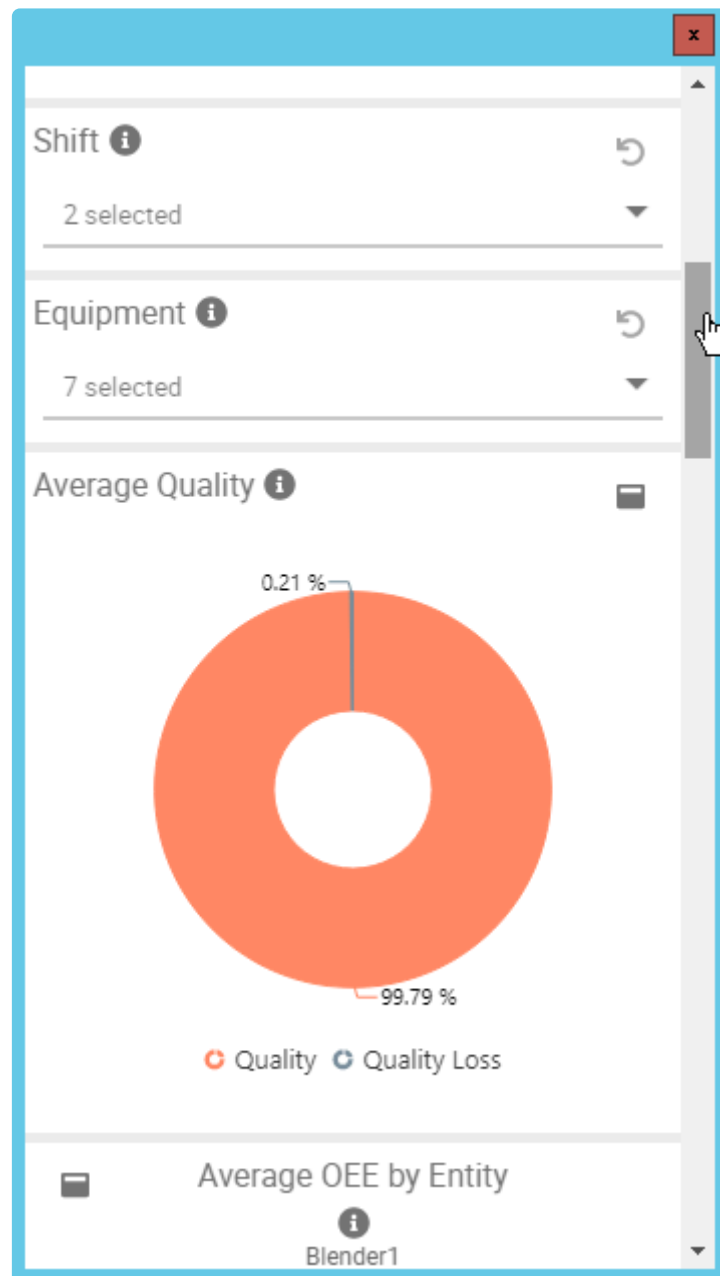
Automatic layout

When creating Widgets from another view (the *Desktop* view for example), the *Mobile* layout is generated automatically depending on available space and widget size.

Often, you may need to later tweak this automatic Mobile layout manually in order to create a good-looking Mobile experience.

Preview

When the selected view is the *Mobile*, then the *Preview* button shows a small pop-up window shaped like a mobile phone.

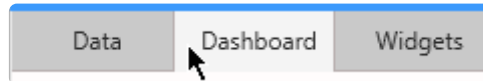


Last modified: Feb 17, 2022

2.11. Dashboard Settings and Publication

Once you prepared data, you can start to compose a Dashboard with Widgets.
There are several ways to proceed, as we will see in this chapter.

Since Alpana Designer v3.0, all the layout and dashboard-level properties are configured inside the *Dashboard* activity tab.



Other Dashboard-level settings are possible, such as :

- theme
- autorefresh
- title
- description
- disabling comments

Last modified: Feb 17, 2022

2.11.1. Dashboard Preview

When working in Alpana Designer, you can easily preview your work in the *Dashboard Preview*.



This is useful for testing interactions and making sure the dashboard layout is correct before Publishing.

This *Dashboard Preview* is local, so you don't need access to *Alpana Server* or Internet.

Starting the Dashboard Preview

To launch the current Dashboard in preview mode, click the *Preview* button in the top toolbar :



The result depends on which layout view you are currently selecting :

Desktop

For the *Desktop* view, the Preview starts your default web browser and displays the fully interactive dashboard as it would look when published.

Mobile

For the *Mobile* view, the Preview shows a small pop-up window shaped like a mobile phone.

Pdf Export

For the *Pdf Export* view, the Preview shows the PDF export.

Refreshing the Dashboard Preview

When the Dashboard is modified, the opened preview is not updated.

To update it, click again the *Preview* button to launch another Preview page.

Last modified: Feb 17, 2022

2.11.2. Create and Export / Import Dashboards


In Alpana Designer, a project is a Dashboard.

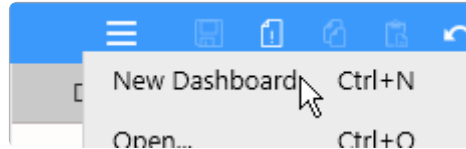
Continue reading to learn how to create/export/import Dashboards.

Last modified: Feb 17, 2022

2.11.2.1. Creating a New Dashboard

When Alpana Designer opens, an empty Dashboard is available for you to start working.

When a Dashboard is already open, you can replace it by a New Dashboard by clicking on the burger menu  at the top and selecting *New Dashboard* (or keyboard shortcut Ctrl+N) :



A confirmation dialog appears, allowing you to save your current dashboard, and a fresh dashboard is created in Alpana Designer.

Last modified: Feb 17, 2022

2.11.2.2. What is a Dashboard file


A complete Dashboard can be saved to a file with format `*.alpd`

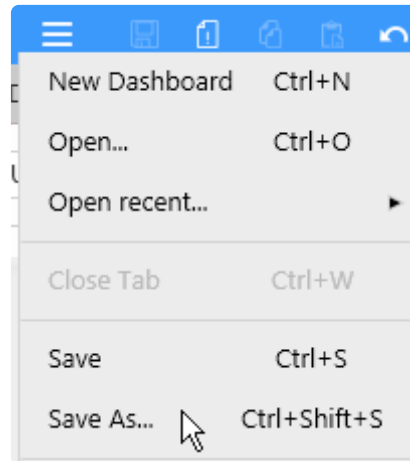
This Dashboard.alpd file contains :

- all Dashboard-level settings (theme, layout, filters, ...)
- all Widgets and their configuration
- all Data Sources
- all Connections, including their credentials
- a copy of the source data files for all file-based Connections
- the map GeoJSON content for all Map widgets
- the image files for all Image widgets

Last modified: Feb 17, 2022

2.11.2.3. Save a Dashboard as file

Click on the burger menu  at the top and use **Save** (keyboard shortcut Ctrl+S) to save the Dashboard with the same file name as currently, or use **Save As...** (keyboard shortcut Ctrl+Shift+S) to specify a file name and location :




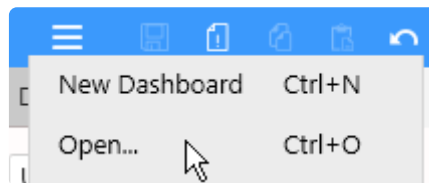
Last modified: Feb 17, 2022

2.11.2.4. Open a Dashboard file

A Dashboard.alpd file can be opened in a few ways :

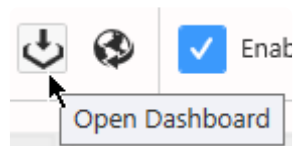
File > Open

To open a Dashboard.alpd file in the currently open Alpana Designer, click on the burger menu  at the top and use *Open...* :

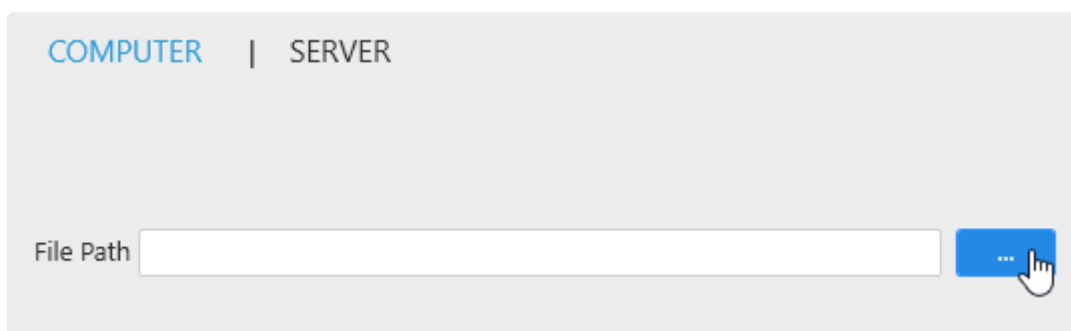


Open / Import

You can also use the top toolbar *Open Dashboard* button :




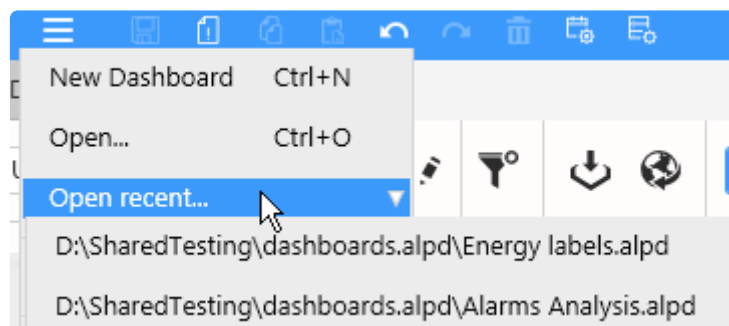
In the *Import Dashboard* dialog, under *Computer*, click ... to browse for a Dashboard file and click *Import* :



Open recent

Alpana Designer also maintains a list of recently opened Dashboards.

Click on the burger menu  at the top, hover the *Open recent...* item to pop-up a list of recent dashboards, and click an item to open it :



Double-click file in Windows

By double-clicking the file in Windows Explorer, a new instance of Alpana Designer opens this file. If Alpana Designer is already open, the window becomes focused and displays a confirmation message to close the current dashboard and open the new one.

Last modified: Feb 17, 2022

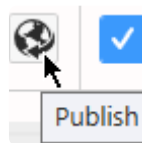
2.11.2.5. Publishing a Dashboard to Alpana Server

“Publishing” means pushing the Dashboard to a Tenant on Alpana Server to make it available to other users.



In order to Publish a Dashboard to a Tenant on Alpana Server, you need to be [logged in](#) from Alpana Designer to that Alpana Server tenant, and have the necessary **permissions** to create Dashboards in a Category.

In the top toolbar, click the *Publish* button :



In the *Publish* dialog, fill in details and click *Publish* :

Publish

Category: Alarms

Dashboard name: Current Alarms

Description: Analysis of the current alarms

Version Comment: updating Alarms Pareto

☐ Mark As Favourite ☐ Mark As Public

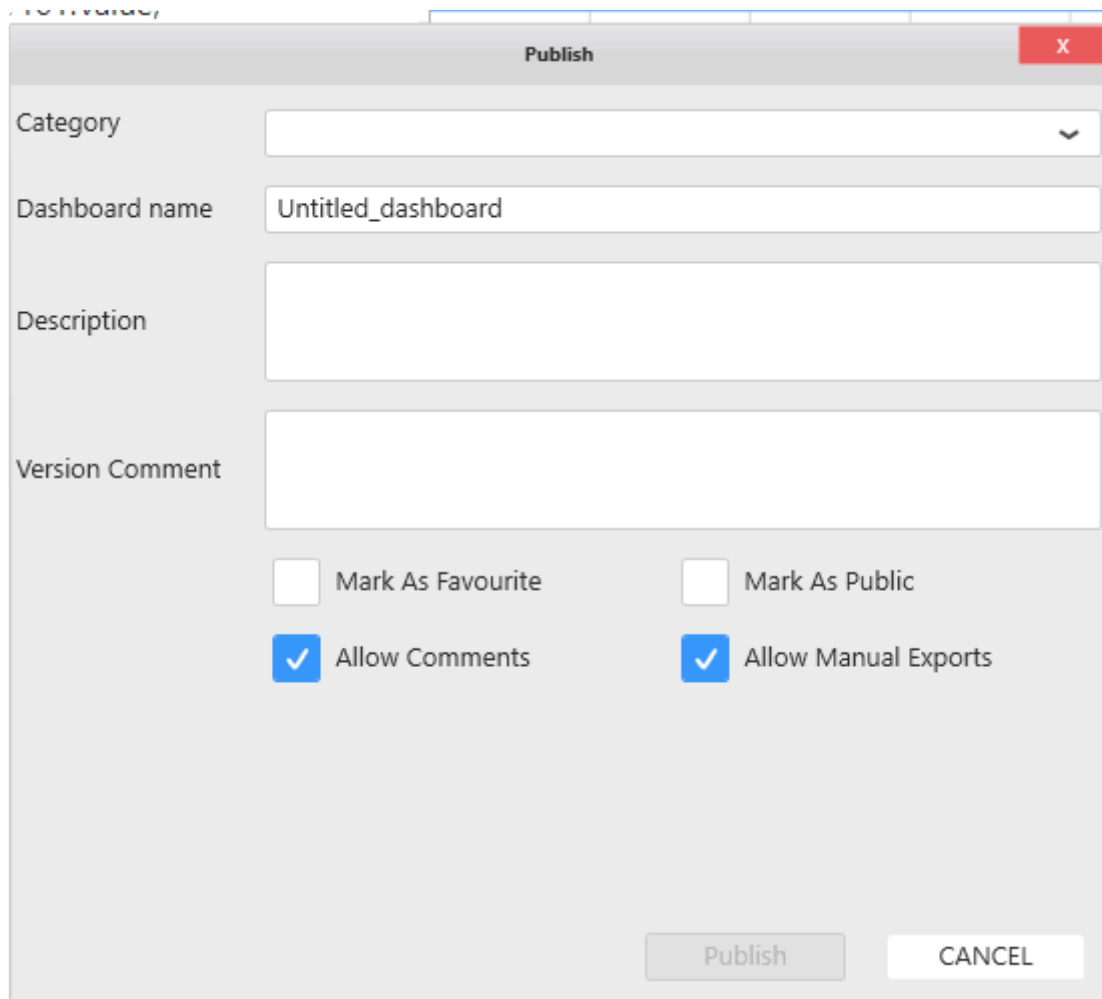
Publish **CANCEL**

The Dashboard is now published to Alpana Server and available to other users depending on

permissions.

Manual export and Comment option

When publishing a dashboard, *Manual export* and *Enable comment* can be disabled from the publish popup.



The image shows a 'Publish' dialog box with the following fields and options:

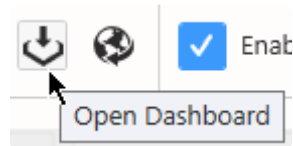
- Category:** A dropdown menu.
- Dashboard name:** A text field containing 'Untitled_dashboard'.
- Description:** A large text area.
- Version Comment:** A large text area.
- Options:**
 - ☐ Mark As Favourite
 - ☐ Mark As Public
 - ☒ Allow Comments
 - ☒ Allow Manual Exports
- Buttons:** 'Publish' and 'CANCEL' at the bottom right.

Last modified: Feb 17, 2022

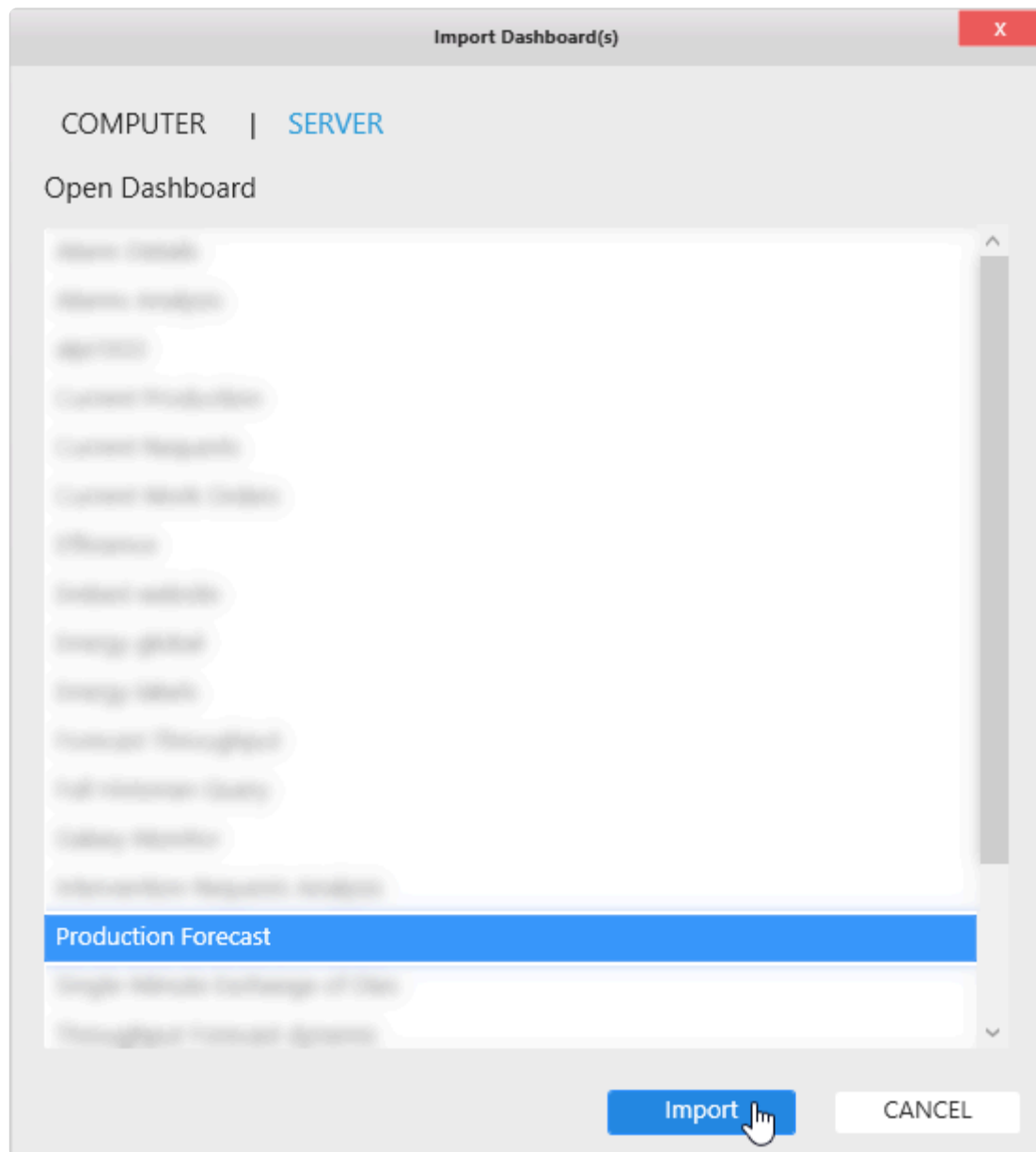
2.11.2.6. Importing a Dashboard from Alpana Server

* In order to Publish a Dashboard to a Tenant on Alpana Server, you need to be [logged in](#) from Alpana Designer to that Alpana Server tenant, and have the necessary **permissions** to access the Dashboard.

Click the top toolbar *Open Dashboard* button :



In the *Import Dashboard* dialog, click *Server*, select a published Dashboard and click *Import* :



The Dashboard is now open in Alpana Designer ready to be edited.

Last modified: Feb 17, 2022

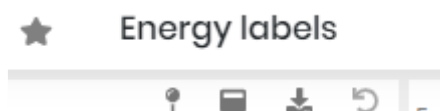
2.11.3. Dashboard-level Settings

Below are documented some settings that are configured at the Dashboard-level.

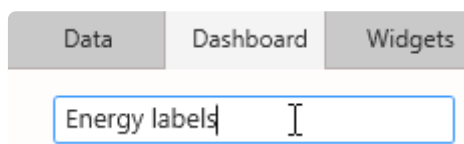
Last modified: Feb 17, 2022

2.11.3.1. Dashboard Title

Dashboards can have a Title displayed at runtime at the top :



To configure a Dashboard Title, edit the Title textbox on the top-left :



Last modified: Feb 17, 2022

2.11.3.2. Widget Auto-refresh

What is Auto-Refresh

At runtime, when the Dashboard loads in the browser, data is fetched from the data sources and Widgets are drawn.

After this, if the user doesn't interact with the Dashboard, no new data is fetched and the data displayed can become outdated.

Instead, when Auto-refresh is configured, new data is fetched at regular intervals without needing user intervention.



This is useful for example when Dashboards are displayed on a TV screen without mouse and keyboard.

Auto-refresh ? Buffer refresh ?

Auto-refresh will perform the same action on data as a manual refresh of the web page.

This may be insufficient to get new data if your Connections are bufferized.

For more information on the Buffer and how to refresh it, see the [relevant Chapter](#) in the [Connecting to Data](#) chapter.

Important note on Performance



Setting a small Auto-refresh interval will make more queries to the data. Your system (databases, network, I/O, ...) needs to be able to support as many queries as $(\text{number of open widgets with Auto-refresh}) \times (\text{frequency of Auto-refresh})$. Make sure to do stress and performance tests for your application to scale appropriately.



The Auto-refresh system will perform decently with simultaneously 20 open Dashboards containing each 20 data measures (data points), and 10 Users, when using the recommended [hardware pre-requisites](#).

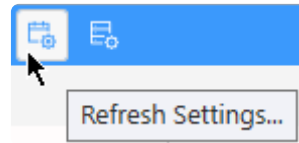
The minimum allowed Time Interval is 30s.

This is for performance reasons on the web server as well as the data server when many users will leave open an auto-refreshed dashboard.

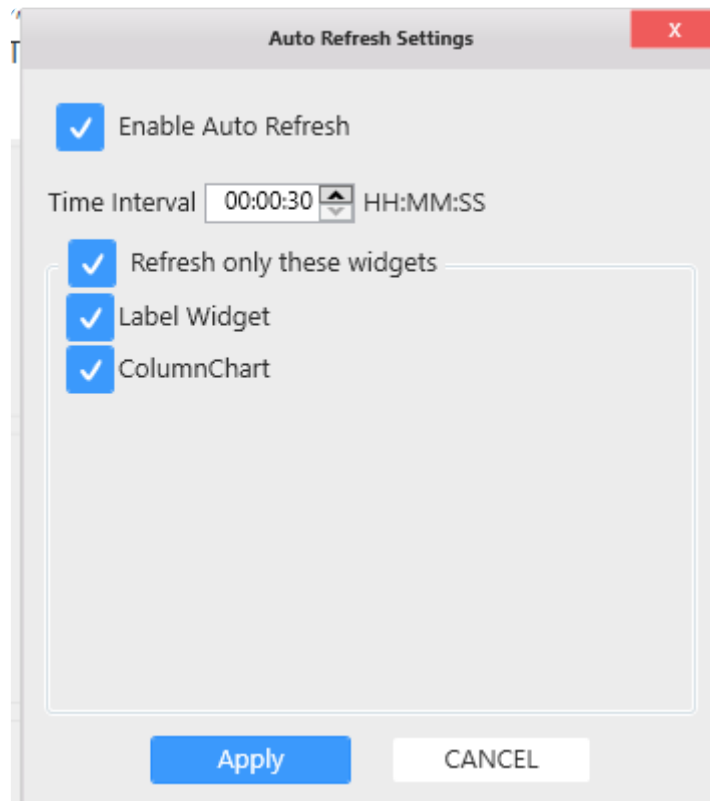
Use this setting sensibly, considering the number of queries that can result from many users leaving the dashboard open on different computers.

Configuring Auto-refresh

To configure Auto-refresh, use the title bar button *Refresh Settings...* :



In the configuration dialog, check **Enable Auto Refresh** and set a time Interval :



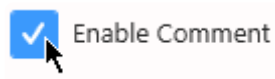
* Each widget can be enabled or not for auto refresh.

Last modified: Feb 17, 2022

2.11.3.3. Disabling Comments

Dashboard-level comments can be Disabled.

To Enable or Disable Dashboard-level comments, use the checkbox Enable Comment :

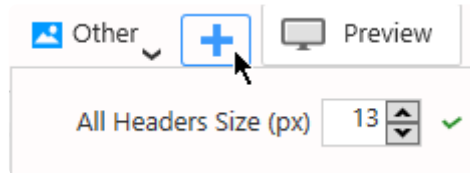


Last modified: Feb 17, 2022

2.11.3.4. Widget Headers size

Widget Headers have a responsive size by default.

If you wish to override the Header size for all Widgets, open the *Additional Options* menu on the top right of the *Dashboard* activity :



Set a Header size in pixels and click the *Apply* button.

This will apply the size at the Dashboard level.

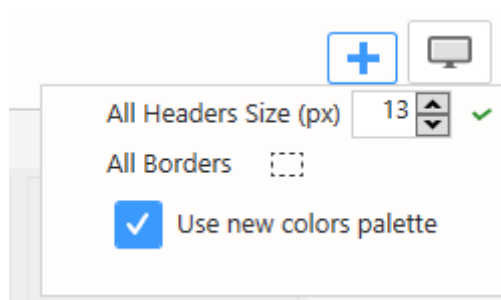
You can override this setting [for each Widget separately](#).

Last modified: Feb 17, 2022

2.11.3.5. Color theme

The dashboard color palette has been improved in the 2021R1 version.
All newly created dashboard will use it by default.

To keep the old style to harmonize dashboard or upgrade old dashboard to new style, open the *Additional Options* menu on the top right of the *Dashboard* activity :



Checking or unchecking the option *Use new colors palette* will change the palette inside your dashboard.

Last modified: Feb 17, 2022

2.11.4. Designer-level Settings

Alpana Designer maintains some application settings.
See the below chapters for more details.

Last modified: Feb 17, 2022

2.11.4.1. Login to Alpana Server

Alpana Designer can log in to Alpana Server.

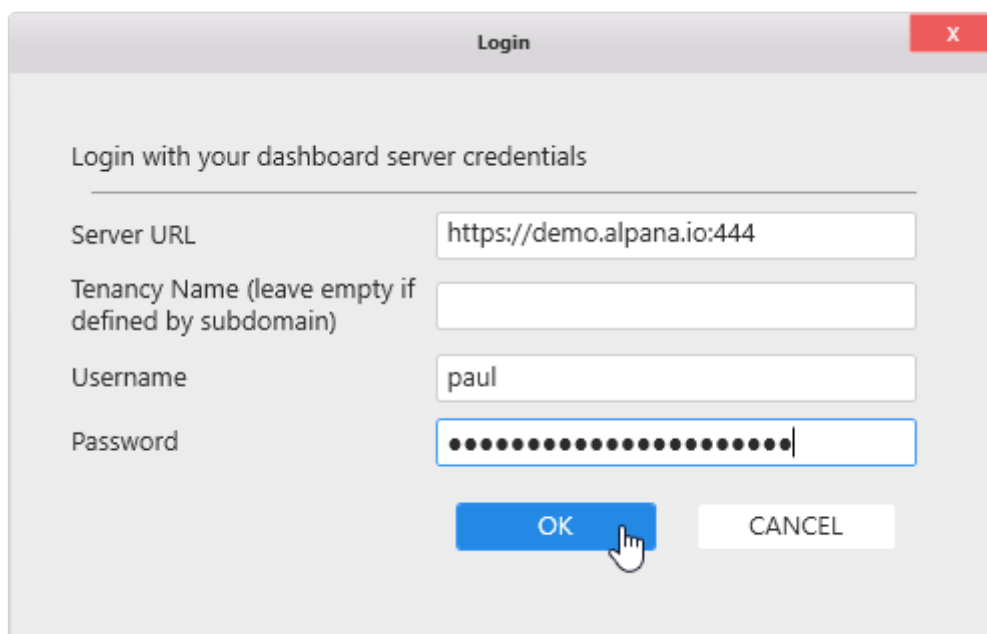
This is useful for importing/exporting objects to Alpana Server from the Alpana Designer interface.

Logging in

To login, click the profile icon on the top right of the Alpana Designer Window and click *Log In* :



The *Login* window pops up and lets you enter your credentials :

A screenshot of a 'Login' dialog box. The title bar says 'Login' with a red close button. The main area has the text 'Login with your dashboard server credentials'. Below this are four input fields: 'Server URL' with the value 'https://demo.alpana.io:444', 'Tenancy Name (leave empty if defined by subdomain)' which is empty, 'Username' with the value 'paul', and 'Password' which is masked with dots. At the bottom are two buttons: 'OK' (blue) and 'CANCEL' (white). A mouse cursor is pointing at the 'OK' button.

* Once you login, you will stay logged in until you explicitly logout (see below). This includes closing Alpana Designer.

Server URL

The full URL to connect to the Alpana Server installation.

This must include :

- the right protocol (HTTP / HTTPS)
- the full name or IP address. If Alpana Server is configured to have Tenants as sub-domains, you can include the sub-domain here too.
- the port number of the Alpana backend website

! Remember : the Alpana Server backend website is usually running on a different port number than the frontend (which you use for viewing dashboards in your web browser)

Tenancy Name

The name of the Tenant you want to connect to.

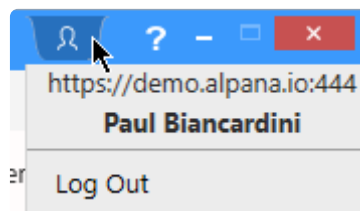
If Alpana Server is configured to have Tenants as sub-domains, you can leave this field empty.

Username / Password

Use the same credentials as for logging in to Alpana Server from the web interface (frontend).

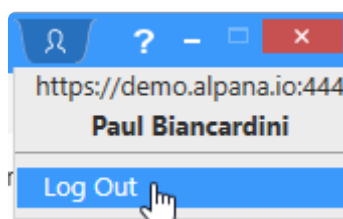
Checking login

To check if you are logged in, click the profile icon on the top right of the Alpana Designer Window and the details window pops up :



Logging out

To logout, click the profile icon on the top right of the Alpana Designer Window and click *Log Out* :

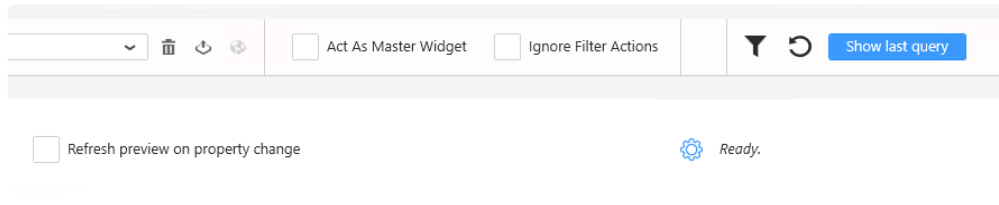


Last modified: Feb 17, 2022

2.11.4.2. Dashboard Autorefresh

In the designer, when changing content of the dashboard (Default parameter value, data source content, etc.) the view will be updated automatically.

To prevent refresh of the view, it is possible to uncheck the refresh option :



Once it is unchecked, the refresh has to be executed manually by click on the refresh button.

* Refresh the dashboards content can also be enabled or disabled in the widget. see [Widget preview refresh chapter](#)

Last modified: Mar 31, 2022

3. Alpana Server

Alpana Server is a website application that allows to make use of the content created with Alpana Designer : display and interact with visualizations, export, notify, socialize.

Securely share your Dashboards and Widgets to any modern web browser. Dashboards can be embedded in your Scada Application, your intranet or presented through our secured Server.

Read below the documentation of Alpana Server to learn more.

Last modified: Feb 17, 2022

3.1. About Alpana server

Alpana Server is a web server that allows to share and manage your Alpana content ([Dashboards](#), [Widgets](#), [Data Sources](#)).

After creating content in [Alpana Designer](#), you simply push it to Alpana Server. This is called Publishing.

Securely share your Dashboards and Widgets to any modern web browser.

Dashboards can be embedded in your Scada Application, your intranet or presented through our secured Server.

The Alpana Server lets you efficiently organize and share Dashboards through a web interface.

Installed on premise or in the cloud, Alpana Server can [host multiple tenants in complete isolation](#).

Use the [web API](#) talk to Dashboards live.

[Embed](#) Dashboards within your application either as web pages, or directly within Wonderware Intouch with our native container.

Last modified: Feb 17, 2022

3.1.1. Architecture

This chapter explains the components of Alpana Server.

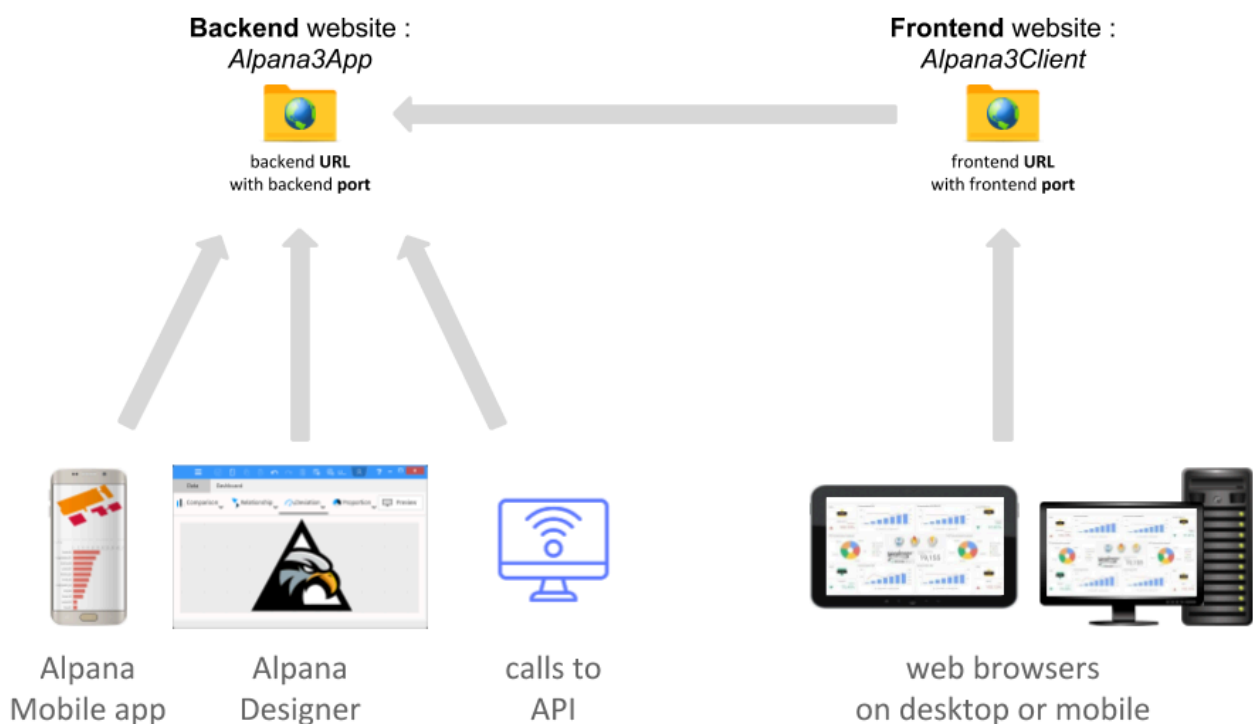
Alpana Server is a website that deploys on Microsoft IIS and stores data to databases in Microsoft SQL Server.

Websites

Alpana Server runs two websites on Microsoft IIS :

- the *Back-End Site*
- the *Front-End Site*

Alpana Website architecture



The application is run under Microsoft IIS by the Windows User called `IIS APPPOOL\Alpana3App`

The *Back-End Site*

The *Back-End Site* is named `Alpana3App` in IIS.

This is where the application runs (this is where everything is actually managed, permissions, dashboards, authentication, etc...).

Any client application needs to connect to this Back-End :

- Users will connect to this site for publishing from Alpana Designer
- Users will log in to this site when using Alpana Mobile
- User-created applications will connect to this site when using the API
- actually, the *Front-End Site* also connects to the Back-End in the background

The *Front-End Site*

The *Front-End Site* is named `Alpana3Client` in IIS.

This is where the web portal is made available.

Users will connect to this site to view dashboards from a web browser.

The Front-End site actually connects to the Back-End site for every action.

Application Databases

Alpana Server also requires two types of databases :

- the actual Alpana Server database
- the Buffer database(s)

These databases are accessed by the Back-End application using SQL Windows Authentication under the Windows User called `IIS APPPOOL\Alpana3App`.

Alpana Server database

The Alpana Server database is named `AlpanaDb` by default.

It stores all information about the application (users, dashboards metadata, logs, ...)

Buffer database(s)

Each Tenant of Alpana Server has its own Buffer database called `AlpanaBuffer_X`, where `X` is the internal ID of the Tenant. (e.g. : on a single-tenant installation, the database is called `AlpanaBuffer_1`).

For more explanations about the Buffer, [see the dedicated chapter](#).

Access to user data

Dashboards point to data through [Connections](#).

When a Dashboard makes a new query to a Connection, new data is fetched by the Back-End application.

This means in particular :

- When using Windows Authentication in connections, they will be run by the corresponding IIS Windows user IIS APPPOOL\Alpana3App. So this user must have appropriate permissions to the data.
- This data access must be allowed by firewalls, port redirection, anti-virus, etc...

Folders

Website folders are by default located inside `C:\inetpub\alpana3\`.

Under this folder, user data relevant for backup is located under `\app\App_Data\`.

In particular, the actual published Dashboards are located inside `\app\App_Data\Published\`.

Ou si vous voulez utiliser sql server pour stocker les données alpana

Third-Party Licensing

Alpana needs Microsoft SQL Server Express to run (or higher version of SQL Server.) If you are using SQL Server to access data or if you store Alpana data inside SQL Server, you have to hold CAL licenses to comply with Microsoft licensing system.

More information can be found [here](#)

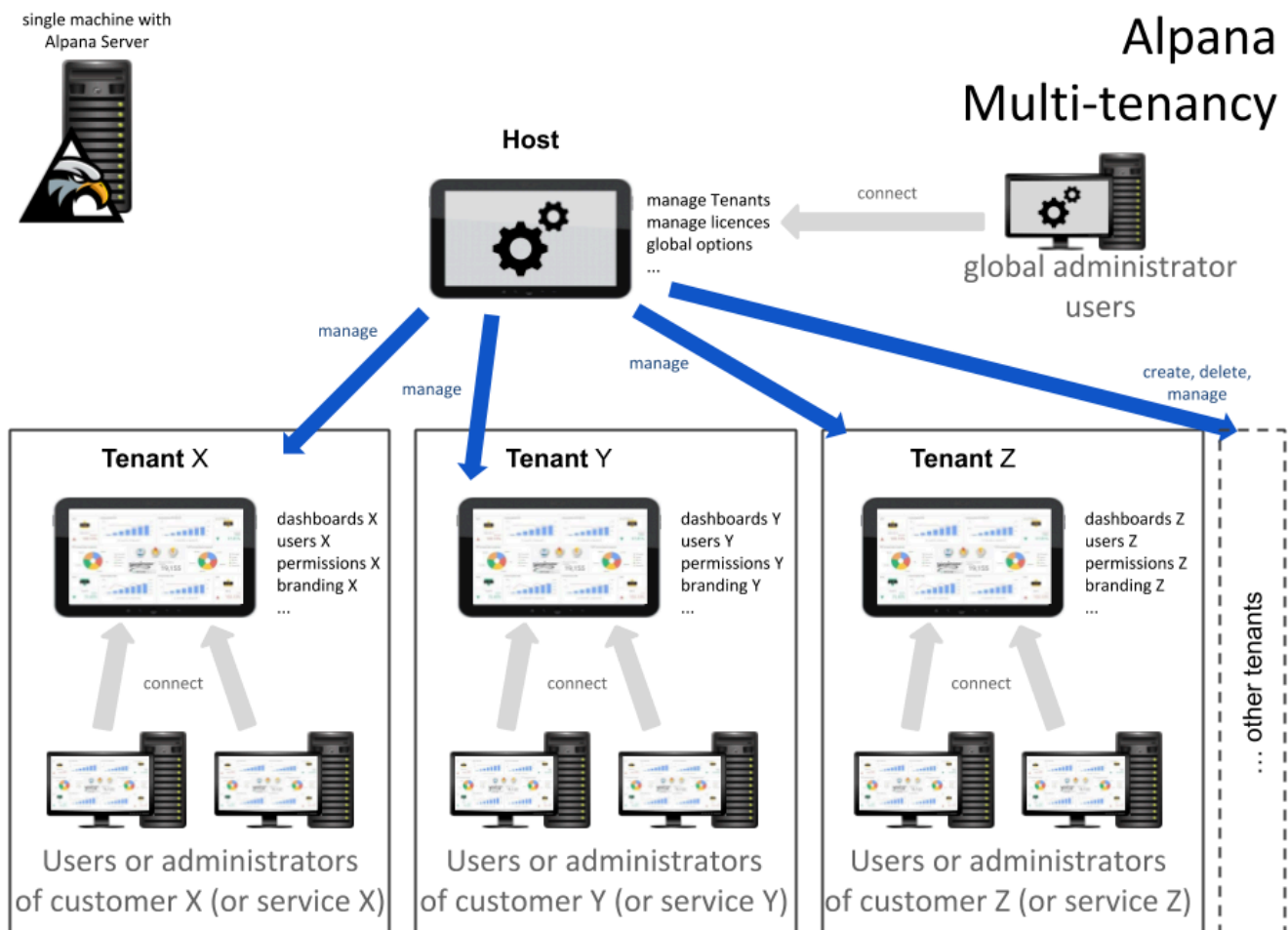
Last modified: Feb 17, 2022

3.1.2. Multitenancy

Alpana Server is a multi-Tenant application.

This means that a single instance of Alpana Server can manage any number of customer-facing isolated instances.

What Is Multi-Tenancy?



The term “software multitenancy” refers to a software architecture in which a single instance of software runs on a server and serves multiple tenants. Systems designed in such manner are often called shared (in contrast to dedicated or isolated).

A tenant is a group of users who share a common access with specific privileges to the software instance. With a multitenant architecture, a software application is designed to provide every tenant a dedicated share of the instance – including its data, configuration, user management, tenant individual functionality and non-functional properties.

Multitenancy contrasts with multi-instance architectures, where separate software instances operate on behalf of different tenants.

([Wikipedia](#))

In short, multi-tenancy is a technique that is used to create **SaaS** (Software as-a Service) applications.

Host > Tenant

We define two notions for a multi-tenant system :

- *Tenant*: A customer which has its own dashboards, users, permissions, settings... and uses the application completely isolated from the other tenants.
A “*tenant user*” is a user owned by a tenant.
- *Host*: There is always a **single** Host. The Host is used for creating and managing tenants.
A “*host user*” is at a higher level : it is independent from all tenants and can control them.

Last modified: Feb 17, 2022

3.2. Installation

To install Alpana Server, please follow the below chapters.

[Pre-Requisites](#) are **very important**, in particular “IIS Configuration”.

Last modified: Feb 17, 2022

3.2.1. Pre-Requisites

This section explains the system requirements to run Alpana Server.

Alpana Server Pre-Requisites : Software

Operating System

Windows OS (x64) :

- Windows Server : 2012 R2, 2016, 2019
- (see note below) Windows 10 (Version 1607+)

! Important : A **server** OS is strongly advised.
Alpana Server runs a web server and should be allowed to handle many incoming connections, but desktop versions of Windows apply hard limitations on those.
In practice, running a web server on Windows 10 will only let you open a few dashboards at the same time.

Database

Microsoft SQL Server is required, with version 2012 or later.

Microsoft SQL Server Express is possible, but see limitations related to this edition of SQL (concurrency, database size, resource usage, etc).

During installation, you will need a login to SQL Server which has the permissions to create users and databases.

! We strongly recommend to install the Alpana Server Database on the same machine that the web application: the web app being constantly communicating with its repository, if the repository and the application are on different machines, it will affect the performance and the user experience.

Other software

The following software needs to be installed and configured as described below.

! The pre-requisites **order** is very important.
If you modify any IIS setting after installing ASP.NET Core, then you will have to Repair ASP.NET Core : see [Installation Troubleshooting](#).



You must restart IIS after installing ASP.NET Core.
You must restart the computer after installing a new version of the .NET Framework.

Pre-requisites must be installed **in the following order** :

1. Microsoft IIS

This must be installed and configured **first**.

The IIS server must be in the “Started” state for installing properly.

How to configure

On server editions of Windows (Server 2012 R2, Server 2016, 2019), IIS can be installed and configured by using the Server Manager, with the menu “Manage > Add roles and features”.

On desktop editions of Windows (Windows 10), Microsoft IIS can be installed and configured by opening “Turn Windows features on or off”

Required IIS configuration

In order to install Alpana Server, Microsoft IIS must be installed and configured with the following options :

- Under *Common HTTP Features* :
 - *WebDAV Publishing*
- Under *Performance Features* :
 - *Dynamic Content Compression*
- Under *Security* :
 - *Windows Authentication*
- Under *Application Development Features* :
 - *.NET Extensibility 3.x*
 - *.NET Extensibility 4.x*
 - *ASP.NET 4.x*
 - *ISAPI Extensions*
 - *ISAPI Filters*
 - *WebSocket Protocol*
- Under *Web Management Tools* :
 - *IIS Management Console*

2. PowerShell

PowerShell must be active.

You can just check that you can run Powershell : Windows+R to run the command : `powershell`

3. Microsoft .NET Framework

Microsoft .NET Framework 4.8 must be installed.

An offline installer exists at the following direct link :

<https://dotnet.microsoft.com/download/dotnet-framework/thank-you/net48-offline-installer>

(Alternately, go to the [download page](#) then download the “Runtime”.)

✿ Installing this component requires to restart the machine.

.NET 6.0

“ASP.NET hosting-bundle 6.0” and “.NET Desktop Runtime 6.0” must be installed.

Installers for latest v6.0.3 can be found at the direct link:

- [Hosting Bundle](#)
- [Desktop Runtime](#)

✿ Both .net components must be installed

(Alternately, go to the [.NET 6.0 download page](#) and select version ASP.NET Core Runtime “Hosting Bundle” for Windows. and .NET Desktop Runtime 6.0)

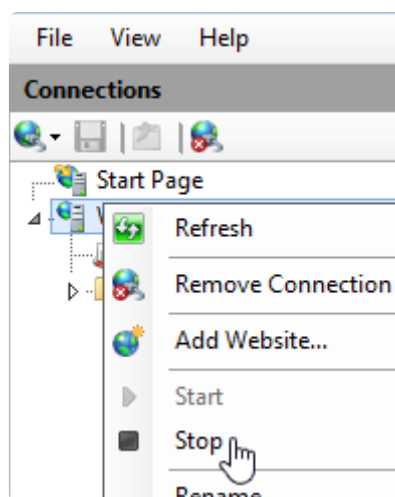
✿ Installing this component requires to restart IIS.

<https://dotnet.microsoft.com/download/dotnet/5.0>

5. Restart IIS

After installing AspNet Core, restart IIS (or the machine altogether) :

Run `inetmgr`, and right-click the machine name to press *Stop* and then *Start* :




6. IIS URL Rewrite

“IIS URL Rewrite” must be installed.

A direct link to the offline installer is available here :

https://download.microsoft.com/download/1/2/8/128E2E22-C1B9-44A4-BE2A-5859ED1D4592/rewrite_amd64_en-US.msi

(Alternately, go to the [URL Rewrite downloads](#) and select your platform and language)

 This should be installed after IIS

Alpana Server Pre-Requisites : Hardware

! Hardware requirements highly depend on usage.
Typically, SQL and IIS will take disk space, disk I/O, RAM and CPU depending on several factors like database usage, dashboards complexity and website traffic.
Please see with your website and database administrators to size your application appropriately.

Hardware Minimum

! Those are the bare minimum that will get you a running installation.
As soon as you will add content, add data, and increase traffic, **you will need more.**

- HDD : 1GB
- RAM : 3GB including OS
- CPU : any dual core CPU, x86 or x64 architecture

Hardware Recommended

To go beyond the minimal installation, you will need evaluate your requirements based on traffic, number of dashboards, number of tenants, other software and databases hosted on the same machine, etc...

Typically, it's recommended to have at least :

- SSD for fast I/O, 50GB+ with free space always available (usual system administrator advice apply)
- RAM : 8GB for a small/medium site with few databases and no other big software installed
- good server CPU, like a recent Xeon with several cores

This can be much more if your application serves many dashboards to many users on many tenants.

3.2.2. Installing

Important

! Before installing, make sure you meet the [Pre-Requisites](#).

* Alpana Server will create folders and SQL databases.

Download installer

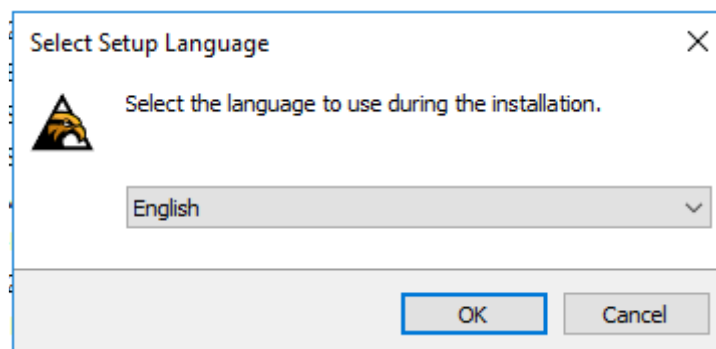
[See here to download the installer.](#)

Running the Alpana Server installer

Login with administrator rights to the machine where you want to install Alpana Server.

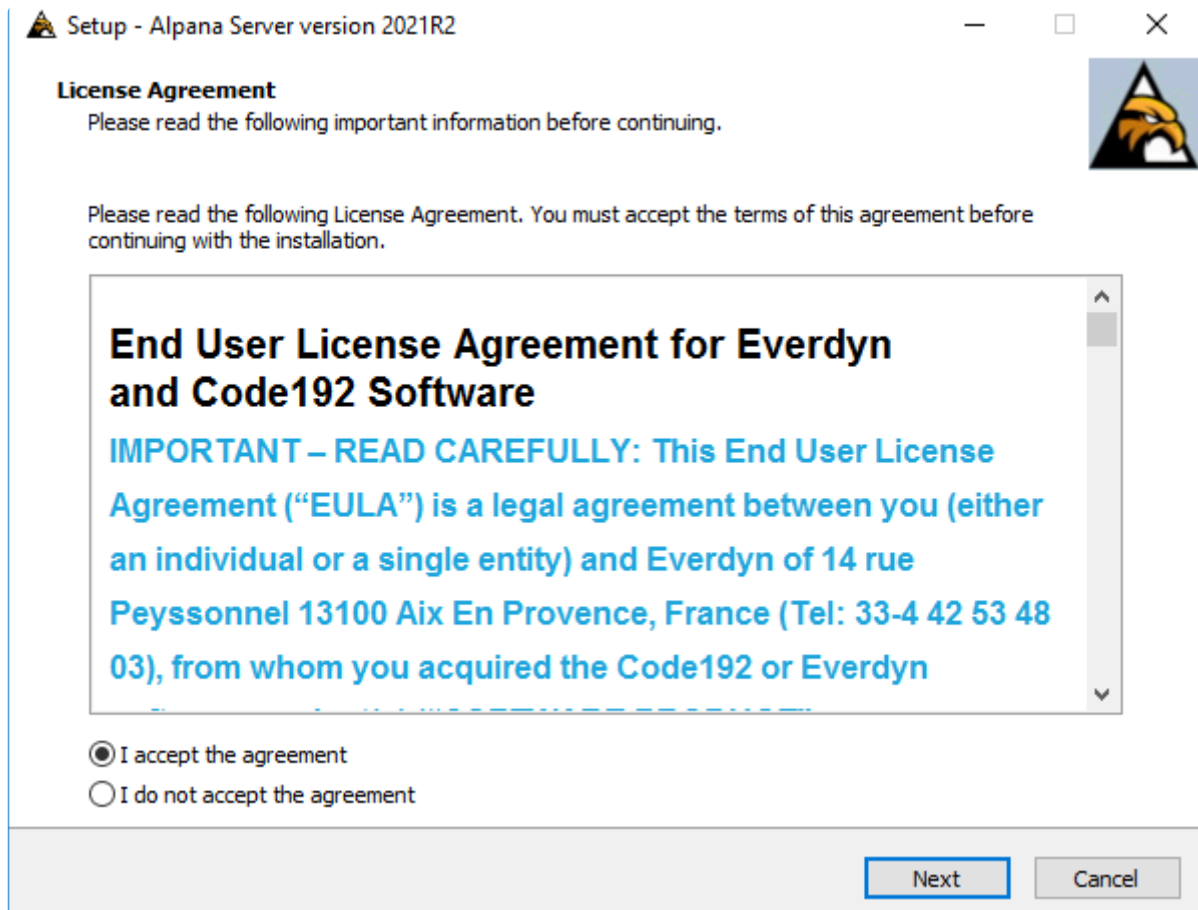
Start the Alpana Server installer .exe file to start the installation.

Choose the installation language :



Accepting EULA

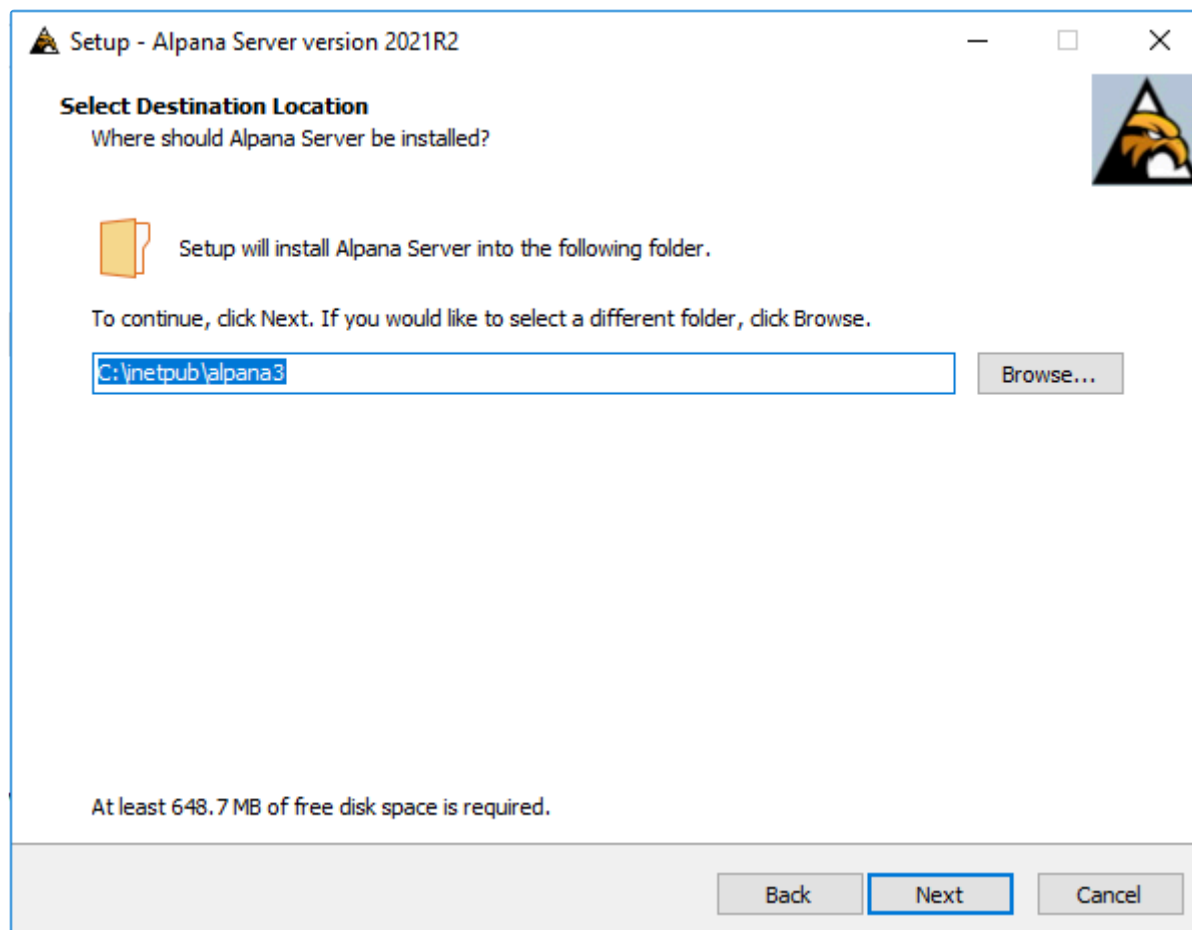
Accept the End User License Agreement and click *Next* :



Configuring website folder

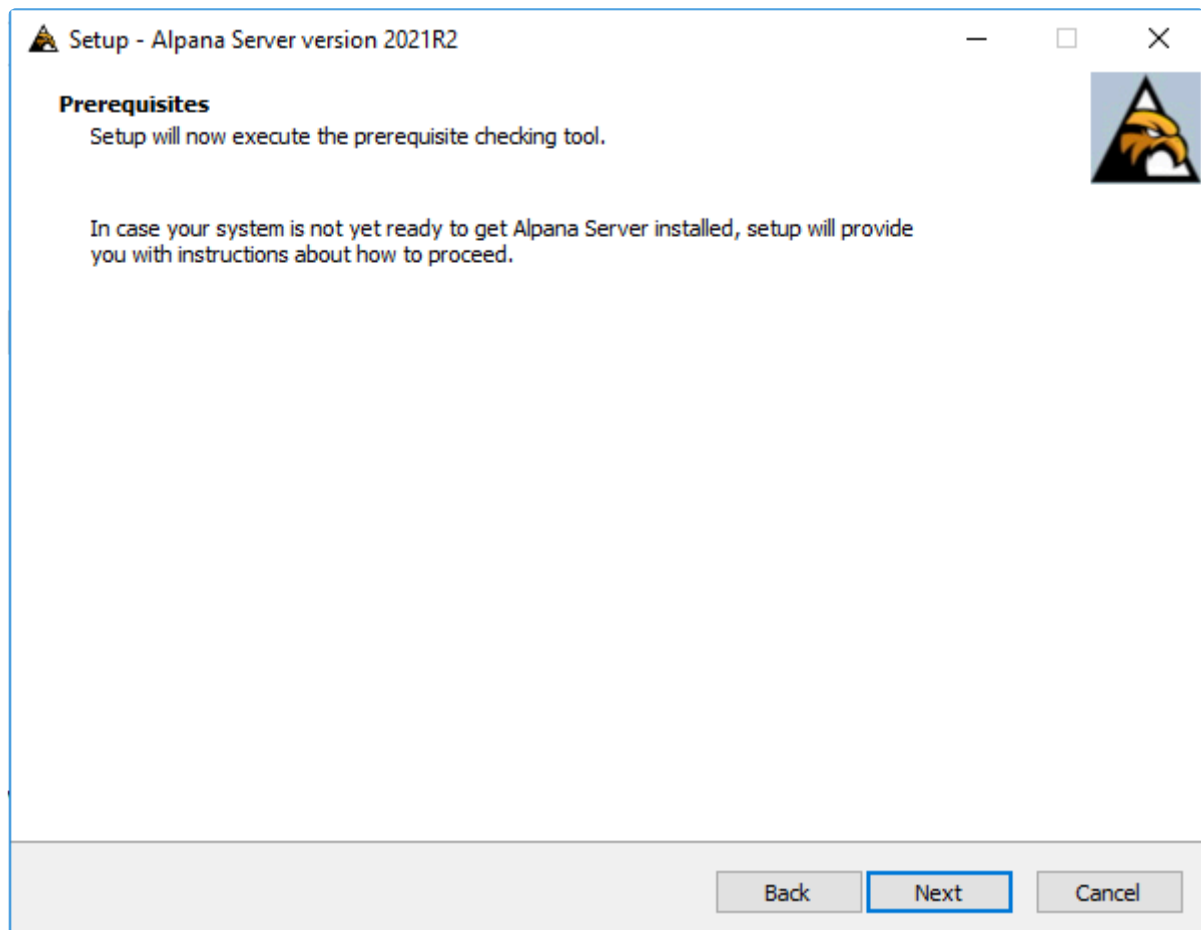
Alpana Server will be installed as IIS websites in this machine.

Use this page to configure the folder on the disk where the website files will be hosted :

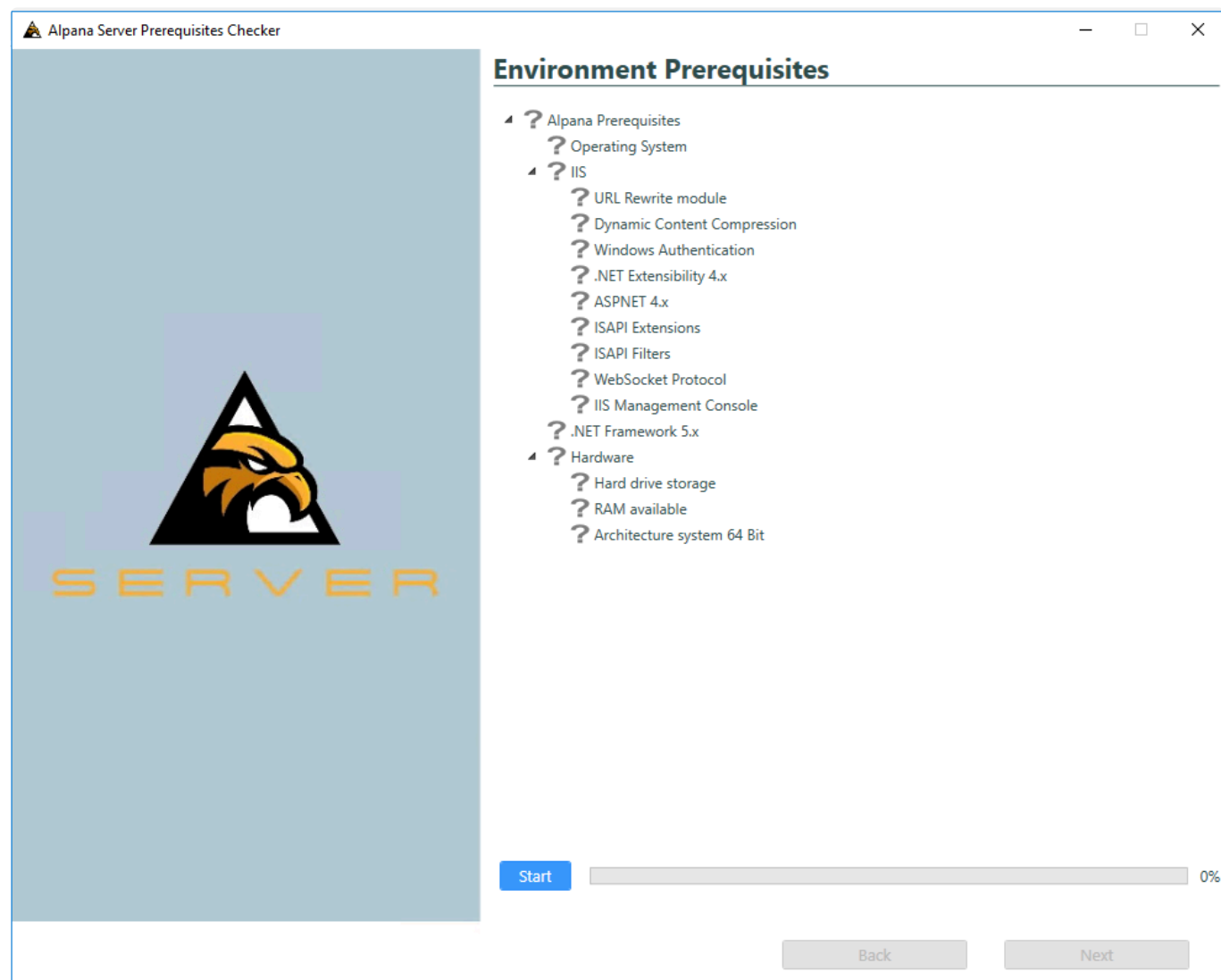


Prerequisites check

Alpana Server installer will check if prerequisites are ok before installation.

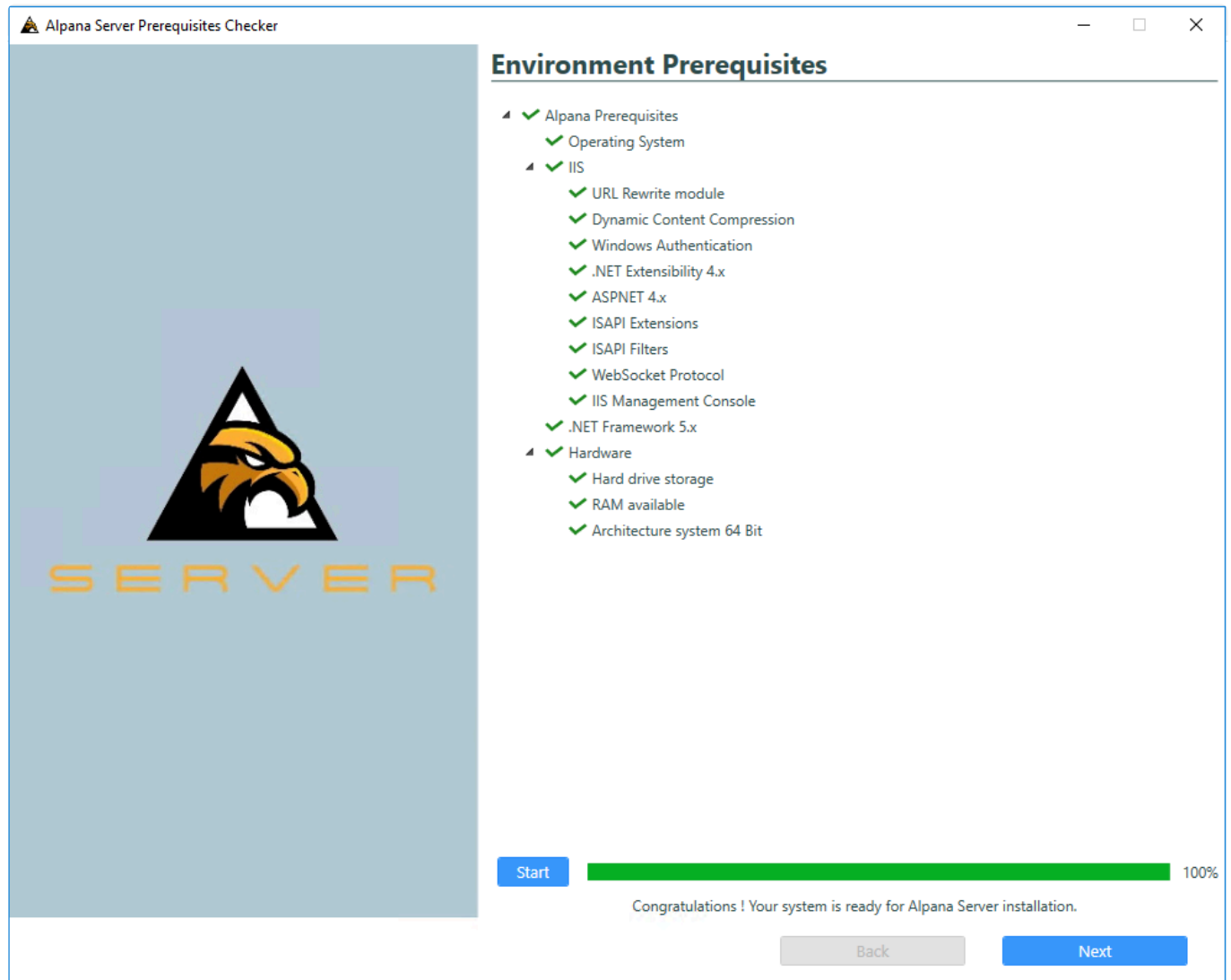


click *Next* to open prerequisites check.



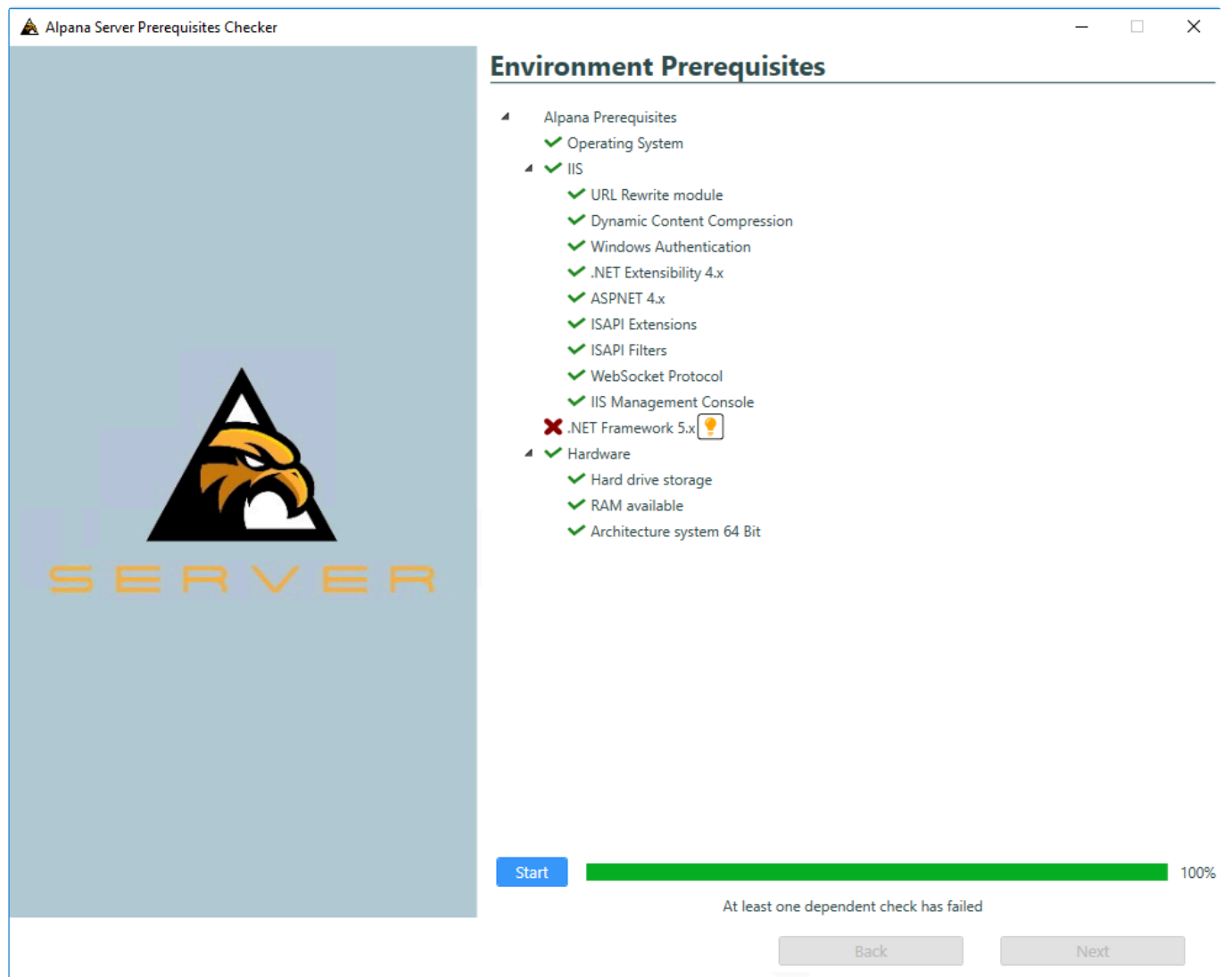
click *Start* button to start check.

Once it is done, all item in the list will show if it passes or not.

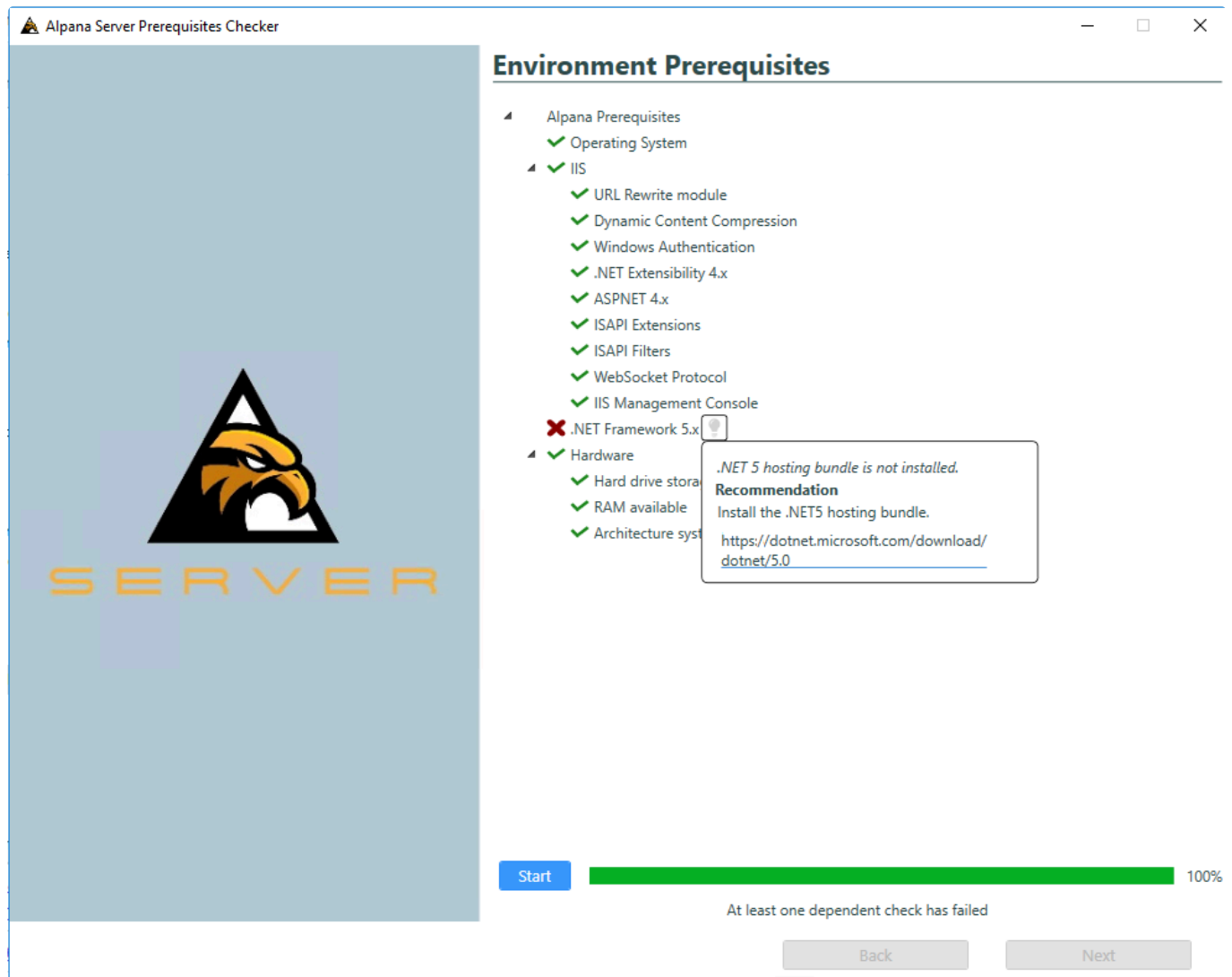


If everything is alright, the setup lets you go to the next step.
click *Next* to continue.

If some items are not validated, you will be able to check why :



The tooltip button will give you more information.



Configuring the SQL connection

Alpana Server stores its state inside a SQL database.

Use this page to configure the server, databasename and credential to connect to it.

This connection string must allow the installer to create databases and give permissions to users.

This is the address of the SQL Server instance you need to access. Possible values are :

- . or localhost : local server
- : server named with a NetBIOS name
- xxx.xxx.xxx.xxx : server accessible through a IP v4 address
- xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx : server accessible through a IP v6 address
- \ : connect to a specific instance. For SQL Express, it may be necessary to use \SQLEXPRESS

Database

The desired name for the Alpana database.

Alpana Server Prerequisites Checker

Sql Server Parameters

Target

Host: .

Database: AlpanaDb

Setup Account ?

Authentication Mode: Integrated (Windows)

Test connection

Runtime Alpana Server Account ?

☐ Use same account than setup

Setup wizard will create the sql login for the application pool's identity, and will grant only the permissions Alpana Server requires to run.

Authentication Mode: Website pool's identity

Test connection

Back Next

You can choose the account that will install SQL content :

- Integrated (Windows): Use the current logged account.
- SQL Server credentials: Use an already created SQL account.

The test button will check if the given information are correct and if credential are valid for the installation.

Target

Host: .

Database: AlpanaDb

Database exists. Setup will update it if necessary (no data will be deleted).

Setup Account ✓

Authentication Mode: Integrated (Windows)

Test connection

You can also configure the Runtime Alpana Server Account.

By default you will use the same account as the one used for installation but you can choose a different user.

A test button allows you to check if the credentials are ok.

! Using SQL default account **SA** is not recommended. The installer won't block you but a warning message will appear.

Runtime Alpana Server Account ?

☐ Use same account than setup

A good practice is to restrict the Alpana account to permissions it really needs. Avoid using special predefined accounts such as 'sa', etc.

Authentication Mode: Sql Server Credentials

Username: sa

Password: [masked]

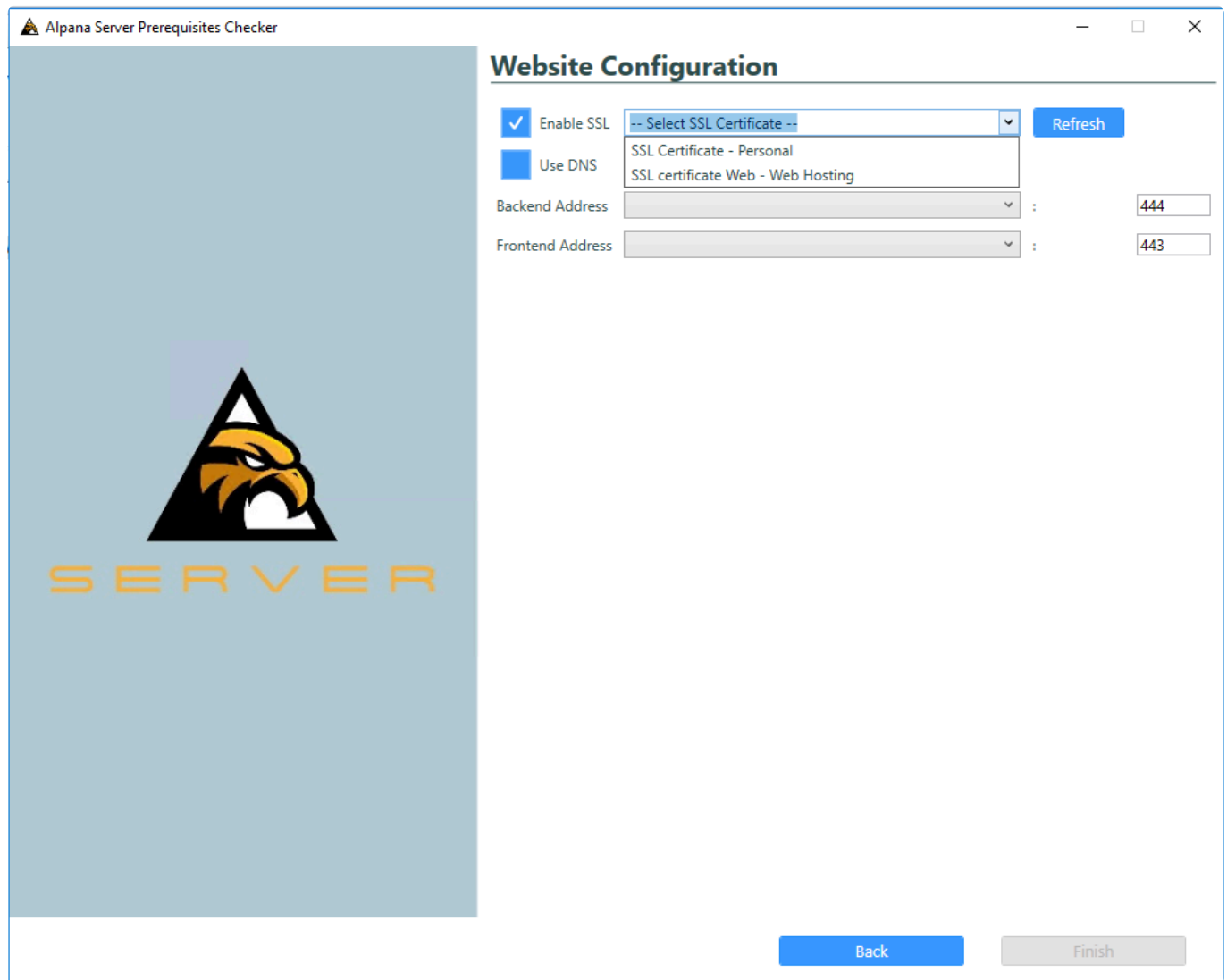
Test connection

! The Alpana Server database is created by default with recovery mode *Simple*.

Configuring SSL or DNS

Use this page to optionally configure :

- SSL : insert a certificate to let users connect to your Alpana Server website using HTTPS
- DNS : bind a domain name to let users connect to your Alpana Server using a friendly name like `www.alpana.io`, or write a static IP address that is not currently available



The image shows a screenshot of the 'Alpana Server Prerequisites Checker' application window. The window has a title bar with the application name and standard Windows window controls. The main area is divided into two sections. On the left, there is a large blue panel featuring the Alpana logo (a stylized bird head inside a triangle) and the word 'SERVER' in large, orange, outlined letters. On the right, the 'Website Configuration' section is active. It contains several configuration options: 'Enable SSL' is checked, and a dropdown menu is open showing 'SSL Certificate - Personal' and 'SSL certificate Web - Web Hosting'. 'Use DNS' is also checked. Below these, there are two rows of configuration: 'Backend Address' with a dropdown and a port field set to '444', and 'Frontend Address' with a dropdown and a port field set to '443'. A 'Refresh' button is located next to the SSL certificate dropdown. At the bottom right of the window, there are 'Back' and 'Finish' buttons.

Tenant names as subdomains

If you use DNS with a domain name, you will be able to create subdomains.

The installer can be configured to automatically generate a subdomain for each created Tenant.

For example, if your domain is “mydomain.com”, and you have 3 Tenants, they each will have the following URL :

- tenant “Default” : URL `http://default.mydomain.com`
- tenant “CustomerX” : URL `http://customerx.mydomain.com`
- tenant “CustomerY” : URL `http://customery.mydomain.com`
- , 1433 : 1433 is the default port for SQL Server, but can be changed like this

Configuring address and ports of websites

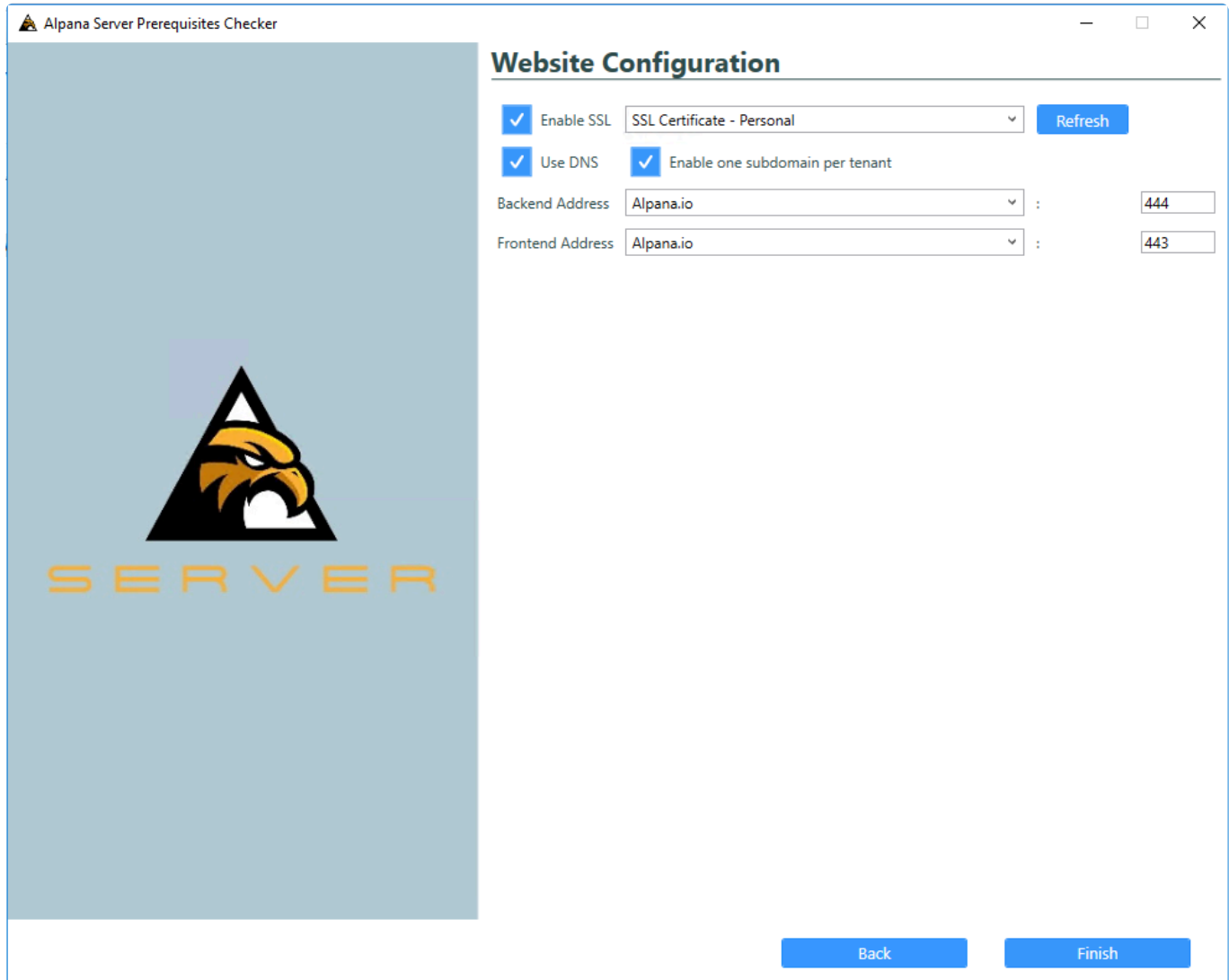
Alpana Server actually consists of two IIS websites :

- the *Back-End Site* is where the application runs. Users will connect to this site for publishing from Alpana Designer, for logging in using Alpana Mobile, or when using the API
- the *Front-End Site* is where the web portal is made available. Users will connect to this site to view

dashboards from a web browser.

This means that you will need two free ports on the host machine. The two ports the installer provides by default are usually unused but if they are already taken by another app or service please select different ones.

If you have several IP addresses (Network Interface Cards), select the desired IP address from the list, or “localhost”.



The screenshot shows the 'Alpana Server Prerequisites Checker' window. On the left is a large blue area with the Alpana logo (a stylized bird head in a triangle) and the word 'SERVER' in orange. On the right is the 'Website Configuration' section. It contains several settings:

- ☒ Enable SSL: A dropdown menu set to 'SSL Certificate - Personal' with a 'Refresh' button.
- ☒ Use DNS: A dropdown menu set to 'Alpana.io'.
- ☒ Enable one subdomain per tenant.
- Backend Address: A dropdown menu set to 'Alpana.io' with a port input field set to '444'.
- Frontend Address: A dropdown menu set to 'Alpana.io' with a port input field set to '443'.

At the bottom right of the window are 'Back' and 'Finish' buttons.



When selecting “localhost”, Alpana Server will not be reachable from another computer.



Please make sure that those ports are open in the firewall and accessible to the client machines.



When using a domain name, Alpana will not respond with the IP address. See [Troubleshooting](#).

Note on Windows Authentication

Please note that **two** Windows users will be using this connection string :

- The Windows user who runs the installer. The installer authenticates to SQL as this Windows user to create databases and transfers rights to the second user below :
- The Windows user who runs the Application Pool of the IIS Website for Alpana Server. Its name is `IIS APPPOOL\Alpana3App`. The Alpana Server app will use this user to connect to its owned databases. The dashboard Connections will use this user to connect to dashboard data if the Connections are configured with Windows Authentication.

! Both Windows users must have the necessary permissions to SQL.
In particular, the Windows user you are using to run the Alpana Server installer must have admin privileges in SQL.

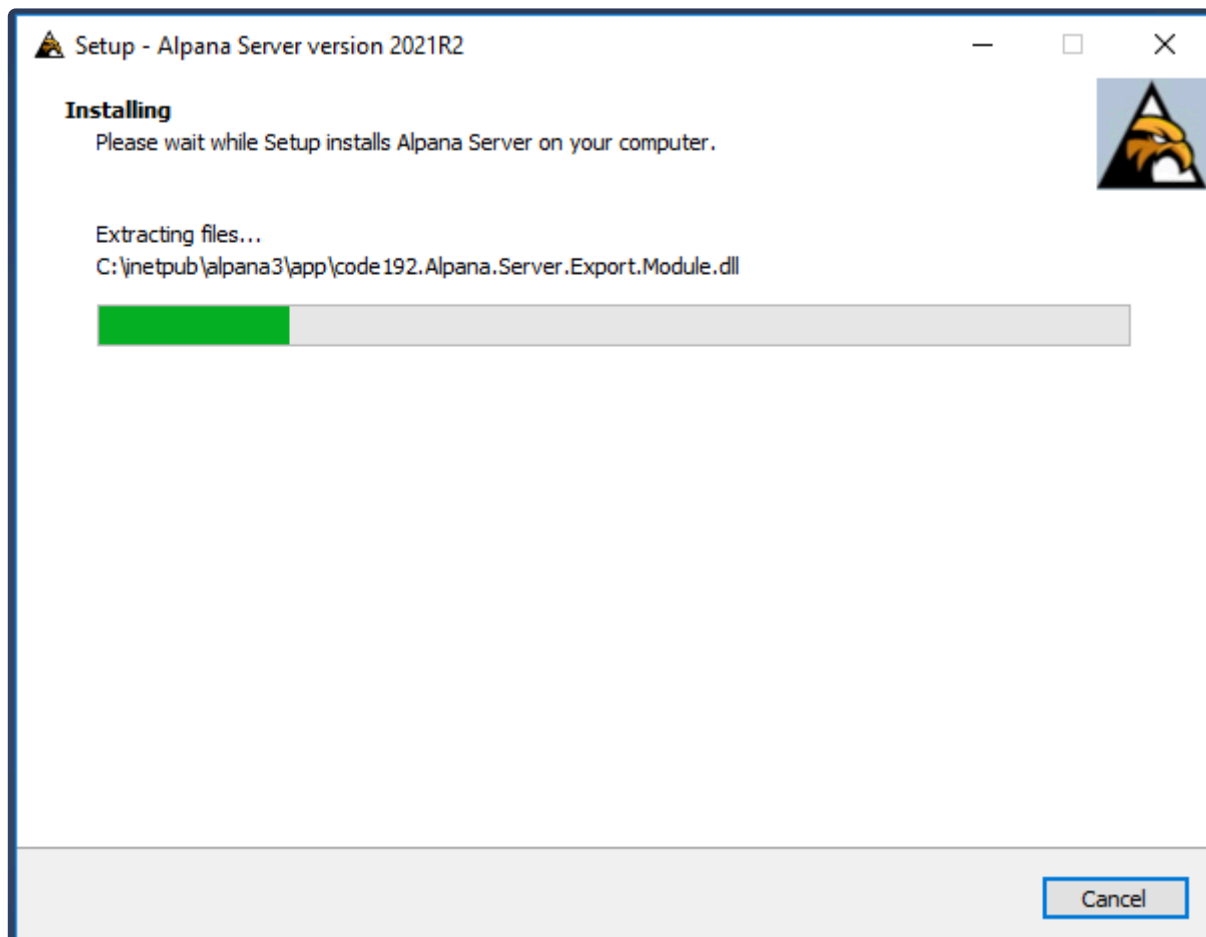
Note on SQL Authentication

Please note that when selecting SQL Authentication, the SQL user for authenticating as the IIS Application Pool of the Alpana Server (`IIS APPPOOL\Alpana3App`) will not be created in the SQL Server.

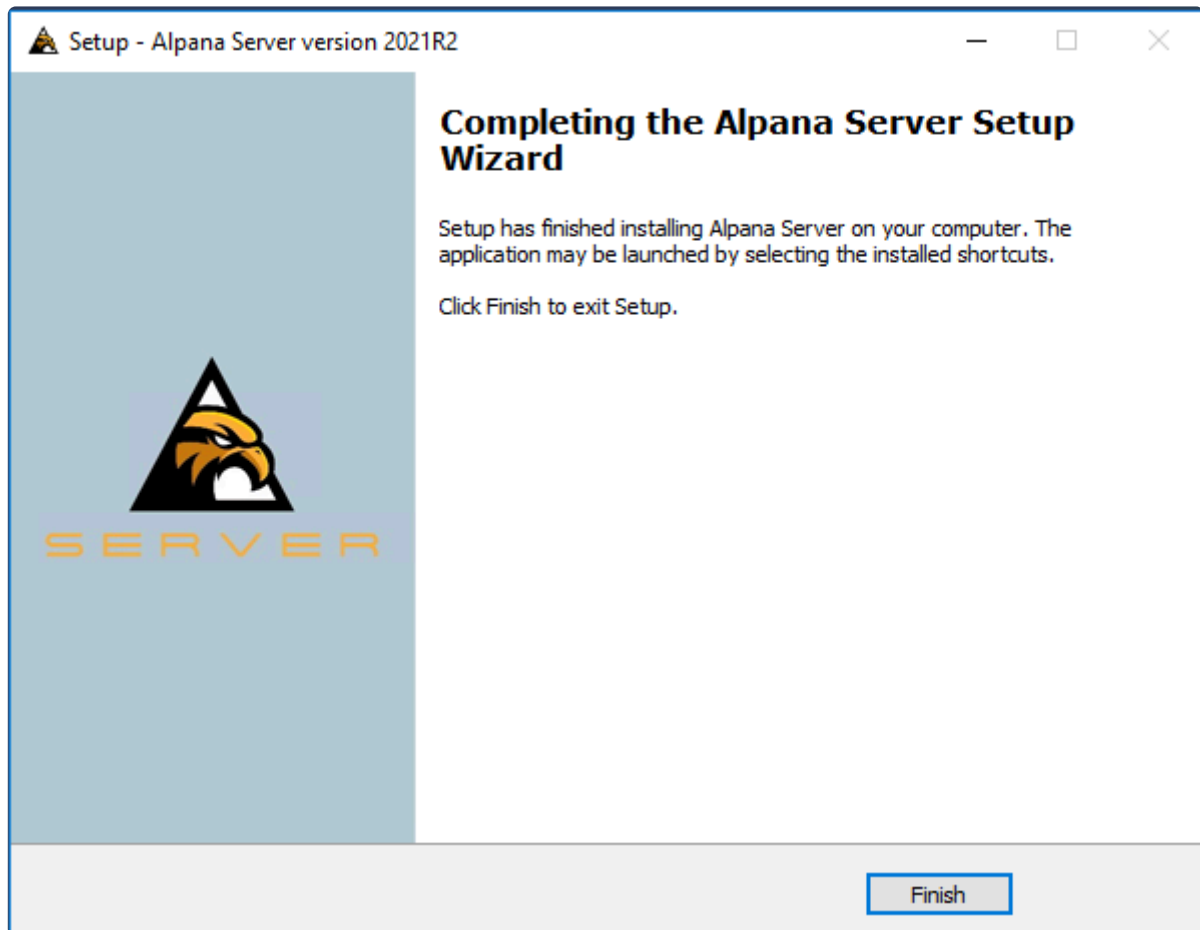
If you need some dashboards to be able to use Windows Authentication in their [database Connections](#), then you will need to manually create the SQL user for `IIS APPPOOL\Alpana3App` and give it the necessary permission to the databases of those Dashboards.

Completing the installation

Confirm the configuration by clicking *Finish* :



If the installation goes well, you will get the end of installation screen :



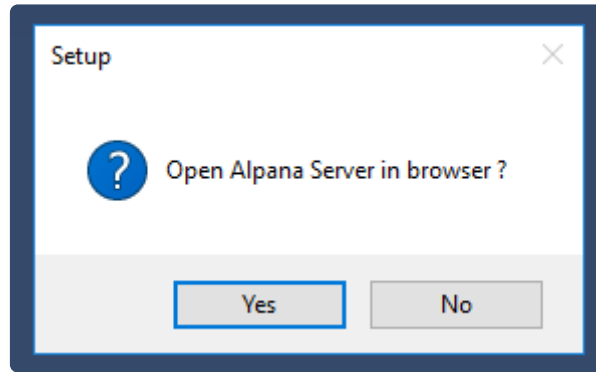
Saving log file

Either finishing successfully or with error, Alpana server installer will ask you if you want to save the installation log file.



Launch Alpana Server

Upon completion, you can opt to *Launch Alpana Server* :



This will open your default web browser to navigate on the Front-End.

If you un-check this option, you may still [start the websites](#) at a later time.

Installation troubleshooting

If you encounter some issues during or after installation, save the log file and contact Support.

Next Steps

After successfully installing, you will have perform the [Post-Installation steps](#).



Application startup takes some time, this is normal.
When starting the IIS website, your browser should display a “loading” animation for some time (usually about 1min).

Last modified: Feb 17, 2022

3.2.3. Anti-virus and Firewall set up

Ports

Reaching Alpana Server

Alpana Server is composed of 2 websites that must both be reachable by the web browser on the client machines : the *_Back-End Site_* and the *Front-End Site*

The ports number are defined during [installation](#).

Allowing Alpana Server to get data

Alpana Server will make queries to data stores, as defined within the [Connections](#) and [Data Sources](#) inside the Dashboards.

Please take the necessary steps to allow this data access (open ports to reach SQL Server or Historian on a distant machine for example).

Anti-virus

Alpana Server may make queries to external IP addresses (for fetching data from data sources, for example on port 1433 for SQL).

This may be detected as suspicious behavior by some security software.

For normal operation, you should let your security software allow this access to Alpana Server.

Last modified: Feb 17, 2022

3.2.4. Post-Installation

The steps required to activate and configure the application after installation are listed below.

Startup

If you didn't start the website during the installation procedure, [manually start](#) the `Alpana3App` and `Alpana3Client` websites from Microsoft IIS Management Console.

Open your web browser to point to the `Alpana3Client` website.

! Application startup takes some time, this is normal.
When starting the IIS website, your browser should display a "loading" animation for some time (usually about 1min).

First login to the Host

When Alpana Server is started for the first time, you can [login to the Host](#) using the following credentials :

User name : `admin`

Password : `123qwe`

! Important : As with any default password, please change this password as soon as possible !

A L P A N A

Current tenant: Not selected ([Change](#))

Log in

admin

...

☐

Remember me

[Forgot password?](#)

Log in



License Activation

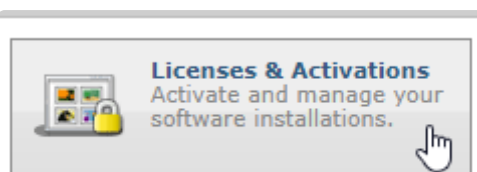
You may now [activate your license](#).

Without this step, you won't be able to use your installation.

Browsing your license portal

Login to the [web License Portal](#).

Navigate to *Licenses & Activations* :



Under *Licenses & Activations*, click the *License ID* you want to activate :

Licenses & Activations

Click on a License ID or Serial listed below to view more

License ID/Serial	Product
[blurred]	Alpana Server Standard : Subscription

Important note

- ! Before starting the license activation, please make sure that you have enough Activations left !
If your *Activations Left* is 0, then your license is probably used elsewhere. Please contact your Software Distributor for support.

License Details for Alp

License Information

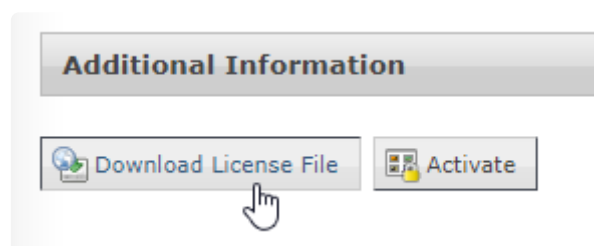
Status:	OK
License ID:	[blurred]
Activation Password:	[blurred]
Activations Left:	0

- ! To continue, the *Activate* button should be clickable.



Getting the License File

At the bottom, click the button *Download License File* :

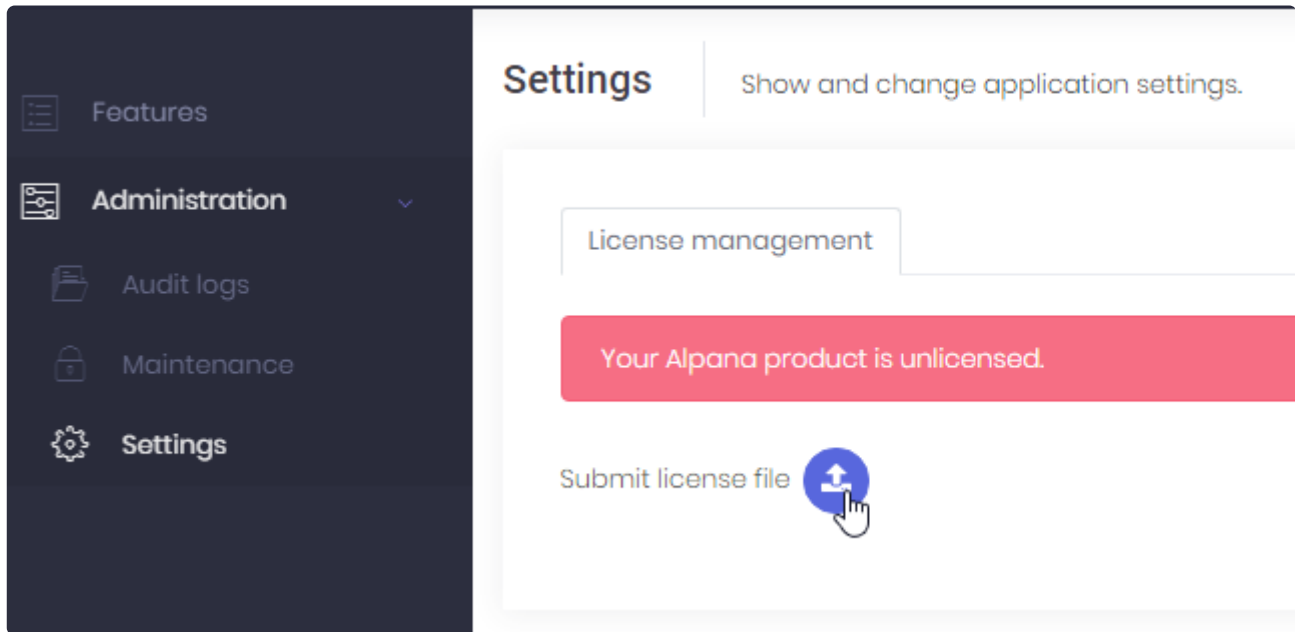


⇒ A file `AlpanaServer.lic` is downloaded.
Move this file to your Alpana Server installation.

✿ You can leave this web page open, it will be used below to complete the Activation.

Activating the License File

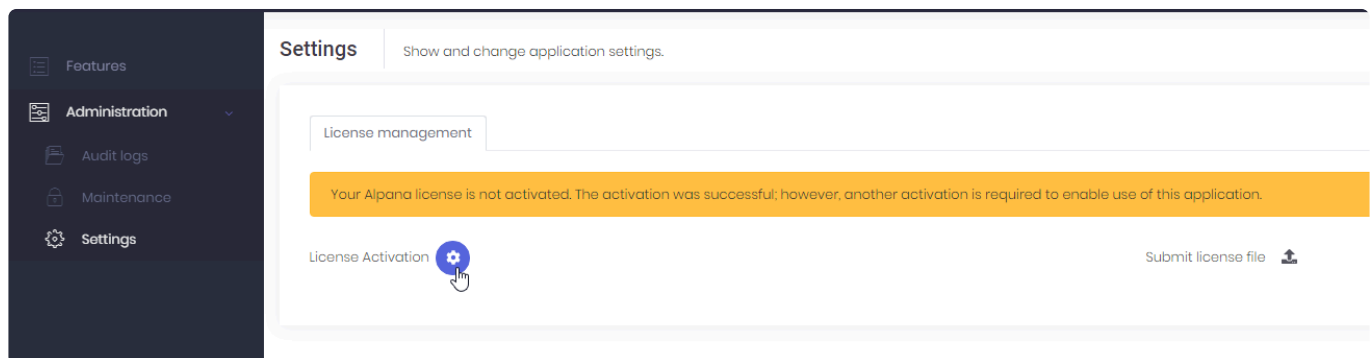
On the Host of your Alpana Server, navigate to *Administration > Settings*, tab *License Management*.
Click *Submit License File* and upload the `AlpanaServer.lic` file :



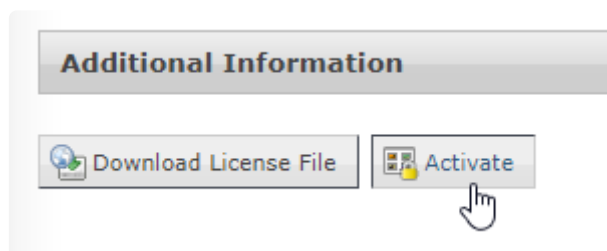
⇒ The first step of license activation is complete, but your license is not yet activated.

Activating the License

On the Host of your Alpana Server, click *License Activation* and leave the pop-up window open :



On the web License Portal, click *Activate* and leave the pop-up window open :



On the Host of your Alpana Server, copy the *User Code 1* and *User Code2* :

License Activation

User Code 1

XXXX

User Code 2

YYYY

Activation Code

...and paste them in the correct fields in the web License Portal, and click *Activate* :

*User Code 1:

*User Code 2:

⇒ As a result, the web License Portal displays an *Activation Code* :

Activation Code 1: **ZZZZ**

Copy the *Activation Code* and in the Host of Alpana Server, paste it and click to save :

License Activation



User Code 1

XXXX

User Code 2

YYYY

Activation Code

ZZZZ



⇒ The License should be activated.



If the License Activation was successful, you may delete the `AlpanaServer.lic` file. It cannot be used later, and keeping it would only create confusion during a later activation.

Enabling the features

Depending on your license type, some features may be activated at the Host level.

Login to the Host and browse to *Features* :



Features



Check the required Features and click **Save** :

Host level features

Enable/disable specific features, accross all tenants.

Save all



Schedulings



Comments



Important : After changing the allocated features, you must restart the application (from IIS Manager).

Then, in order for Tenants to benefit from the features, you must [allocate them](#).

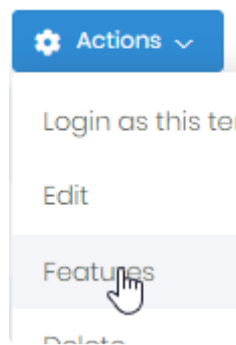
Assigning features to the Tenants

You will have to [assign license features to the 'Default' Tenant](#).

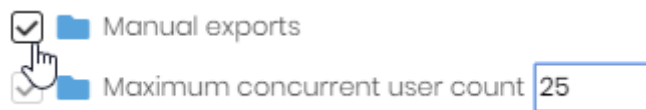
By default, 1 Tenant exists, called “Default”. If your license allows only 1 Tenant, this is it !
Otherwise you may need to [create your other Tenants](#).

On the Host, Navigate to *Tenants* management.

Then on the desired Tenant, select *Action > Features* :



In the *Features* window, check which Features to allocate, including resources, and click *Save* :



✿ don't forget to allocate at least 1 Concurrent User, 1 account, and 1 Dashboard !

What's next ?

Login to a Tenant

By default, 1 Tenant exists, called “Default”.

You can [login to this Default Tenant](#) using the following credentials :

User name : admin

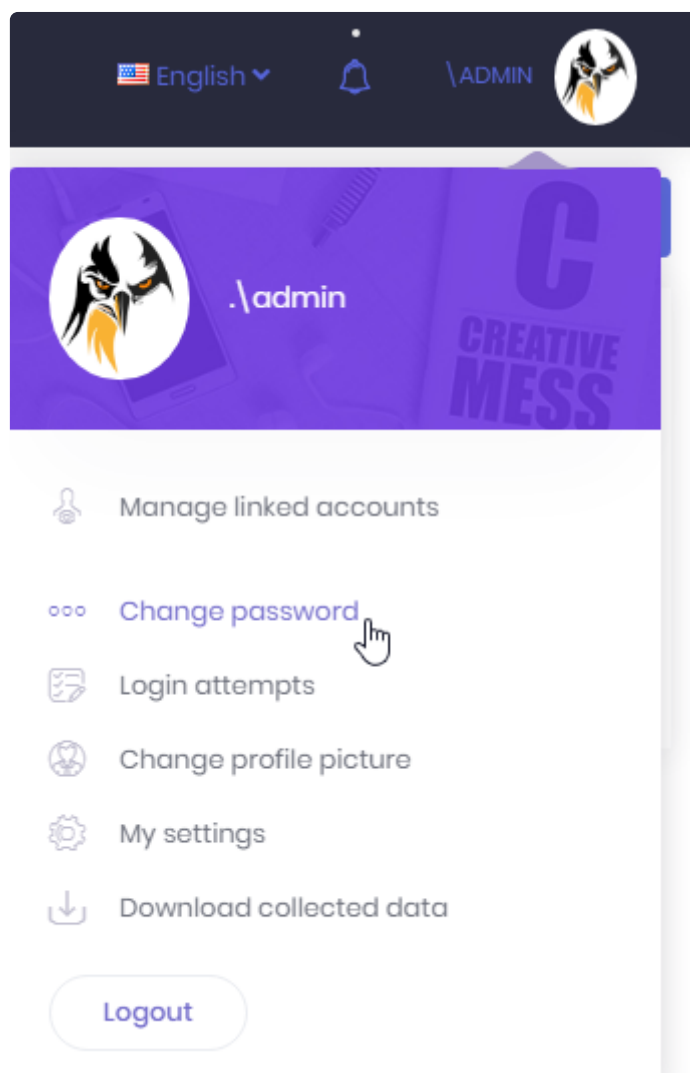
Password : 123qwe

✿ Note : this user is **not the same** as the “admin” user of the Host : it is 2 different accounts.

! Important : As with any default password, please change this password as soon as possible !

Changing default passwords

To [change the password](#), click on your “admin” username on the top right, and in the menu select *Change Password* :



Change password

×

Current password

.....


New password

.....

New password (repeat)

.....

Cancel

 Save



**Note :**

There are 2 accounts called `admin` that have the same default password `123qwe` :

- the admin account of the Host
- the admin account of the “Default” tenant

They are different accounts.

Don't forget to **change both passwords**.

Create Categories

[Create Categories](#) on the Tenant.

This will allow users to publish Dashboards.

Configure the application

There are several configuration options as an Administrator, please see the [Administration](#) pages.

For example, you may wish to [Configure e-mail settings](#).

This will allow to invite users by e-mail, let them recover their passwords, and more.

Create users

Create [Users and Roles](#) to let users access Alpana Server.

Configure the relevant security options.

Last modified: Feb 17, 2022

3.2.5. Un-Installing

Tips

Don't lose your license !

Before un-installing, perform a [license de-activation](#) in order to be able to re-use your license later.

Avoid a reboot

If you don't stop the application, Windows will probably require you to reboot.

If you don't want to reboot, you must stop the application before uninstalling.

To completely stop the application, you may need to [stop the IIS server itself](#).

⇒ If you do this, don't forget to start IIS again after uninstallation.

Uninstall

You can un-install Alpana Server using Windows Control Panel.

Last modified: Feb 17, 2022

3.3. Login and User Profile

Alpana Server allows users to login to the application to share content.
This section explains how to login and how to use the user-specific features.

Last modified: Feb 17, 2022

3.3.1. Selecting a Tenant or the Host

The login screen allows to select which [Tenant](#) to connect to, or allows to connect to the [Host](#).

Selecting a Tenant

To login to a Tenant, you must first enter that Tenant's name on the login screen.

Click on "Current Tenant" : *Change* :

Current tenant: **Default** (Change)

Log in

In the popup, write the name of the Tenant you wish to connect to :

Switch tenant

×

Switch to tenant

☒

Tenancy name

Default

Cancel

→ Switch to the tenant

Selecting the Host

To login to the Host, you must make sure that "Current tenant" is "Not selected".

Not selecting a Tenant means you will login to the Host.

To switch from a Tenant to the Host, click on "Current Tenant" : *Change* :

Current tenant: **Default** (Change)

Log in

Then un-check *Switch to tenant* and click *Switch to the host* :

Switch tenant

Switch to tenant

Tenancy name

Cancel

Switch to the host

Last modified: Feb 17, 2022

3.3.2. Login options

The login screen allows several options :

Current tenant: Not selected ([Change](#))

Log in

☐ Remember me

[Forgot password?](#)

[Log in](#)

 Login with:

[Email activation](#)

Remember Me

Check this box if you want to stay logged-in even when the web browser is closed :

☒ [Remember me](#)

Forgot Password

If you forgot your password, you can click “*Forgot password ?*” and enter your e-mail address to receive a password reset link :

Current tenant: **Default** (Change)

Forgot password?

A password reset link will be sent to your email to reset your password.
If you don't get an email within a few minutes, please re-try.

[← Back](#)[✓ Submit](#)

* Note : your user must already exist with the corresponding e-mail address.

When you click on the *Reset* link in the e-mail, you will be able to provide a new password :

Current tenant: **Default** (Change)

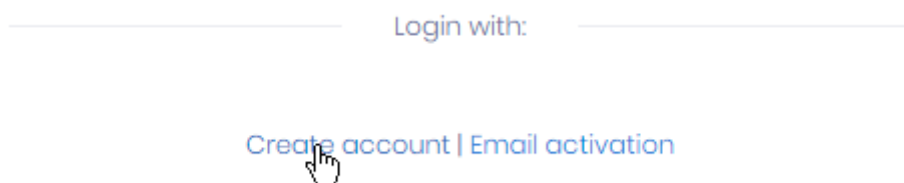
Change password

Please enter your new password.

[← Back](#)[✓ Submit](#)

Creating an account from the login page

Your administrator may have allowed new users to sign up by themselves to create their own account. To do this, click on *create account* :



Then fill-out the form :

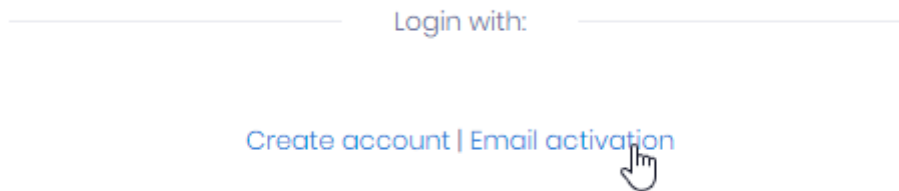
Current tenant: **Default** (Change)

Sign up

Sending email Activation from the login page

Your administrator may require you to confirm your e-mail address before logging-in.
If you didn't receive an activation e-mail, you can re-send it from the login page.

Click *Email activation* :



Then fill-in your e-mail address to receive the activation e-mail :

Current tenant: **Default** (Change)

Email activation

A link will be sent to your email to activate your email address. If you don't get an email within a few minutes, please re-try.

This field is required.

← Back

✓ Submit

* Note : your user must already exist with the corresponding e-mail address.

Last modified: Feb 17, 2022

3.3.3. User Settings and Logout

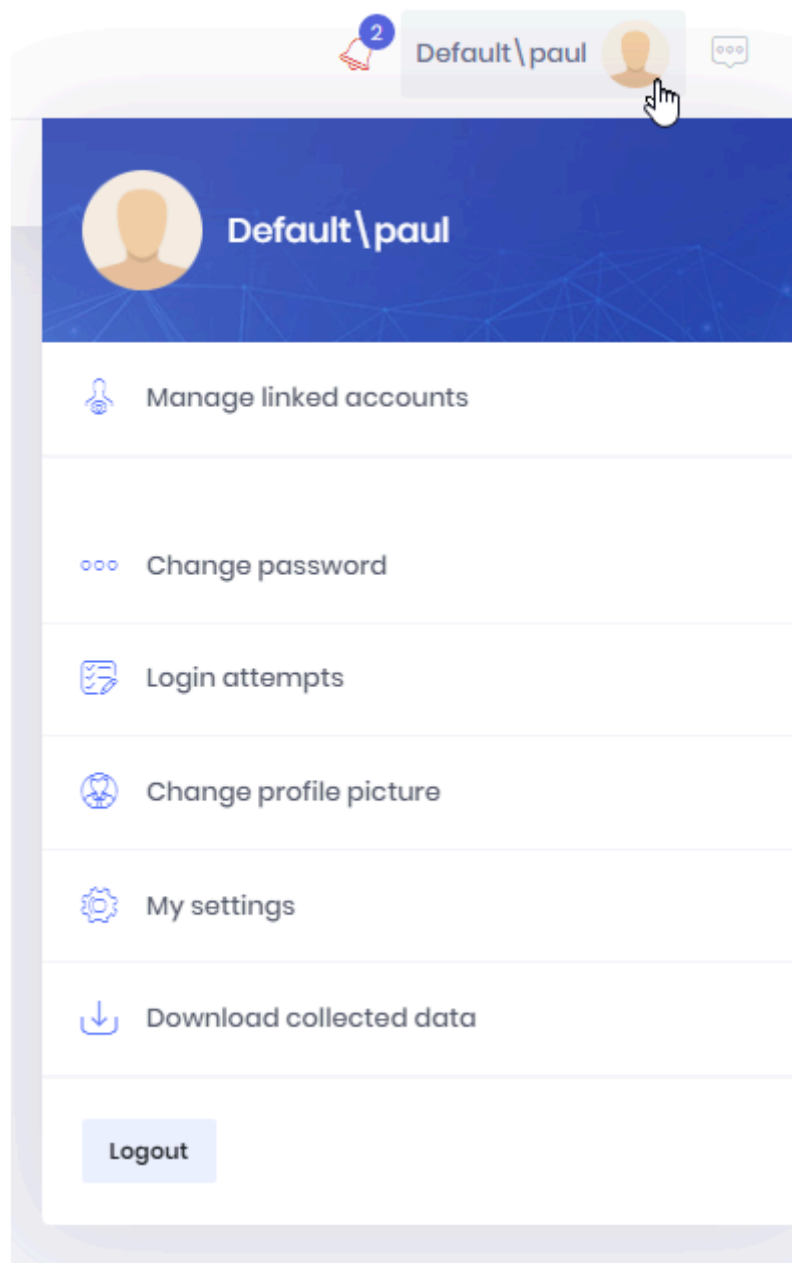
When logged-in, you can see your user name and current tenant like this :

tenant\username

If you are currently logged-in to the Host instead of a Tenant, there is nothing left of the \ :

\username

Click on your user name to open the user profile popup and manage your settings :



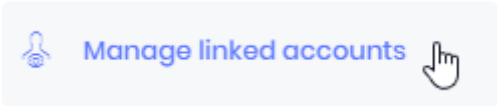
Click on *Logout* to be disconnected.

Last modified: Feb 17, 2022

3.3.4. Linked Accounts

If you have accounts on several Tenants or the Host, you can Link them together.
This allows you to switch between accounts and Tenants without having to logout, enter credentials, and login.

To manage Linked Accounts, open your user settings and click *Manage Linked Accounts* :



This opens the *Linked accounts* pop-up :

Linked accounts

+ Link new account

Actions	User name	Delete
<div>Log in</div>	.\admin	<div></div>
<div>Log in</div>	Default\tester	<div></div>

Total: 2

1

10

Close

Link new account


To add a linked account, click *Link new account*.
Fill-in the form for the account you want to link to :

Link new account ×

Tenancy name

User name *

Password *



CancelSave

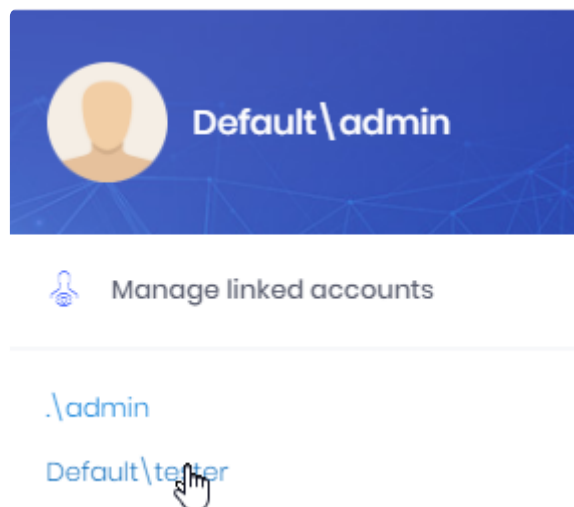
Removing a linked account

If you want to un-link an account, click the trash icon in front of it.

Login as linked account

To login to a linked account, click the *Login* button in front of it in the *Linked accounts* pop-up.

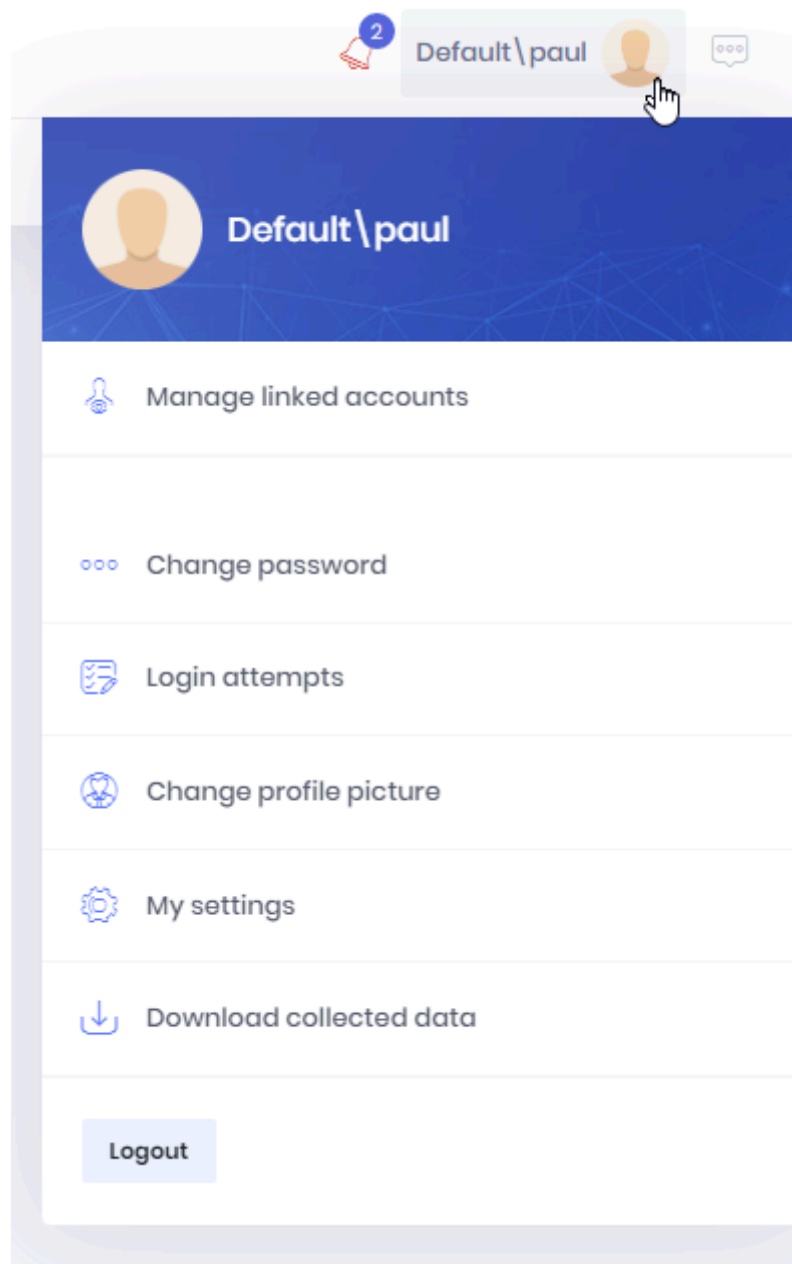
There is also a shortcut in your user settings :



Last modified: Feb 17, 2022

3.3.5. Account details and password

Your user profile popup allows you to manage your settings :



Change Password

Click *Change password* to update your password :

Change password

Current password

New password

New password (repeat)

Cancel

 Save

Update Profile

Click *My Settings* to update your profile (name, e-mail, user name) :

My settings

Profile

Name *

Paul

Surname *

Biancardini

Email address *

paul.biancardini@code192.com

User name *

paul

CancelSave

Change profile picture

Click *Change profile picture* to update your profile picture :

Change profile picture

Choose File No file chosen

You can select a JPG/JPEG/PNG file with a maximum 5MB size.

CancelSave

Last modified: Feb 17, 2022

3.3.6. Account Security and Privacy

Your user profile popup allows you to manage your Security and Privacy settings :

View login attempts

For security purposes, you can review login attempts to your account.

Click *Login attempts* under your profile to view the attempts, with the corresponding IP addresses and User Agent :

Login attempts

IP address

Browser

Mozilla/5.0 (Windows NT 6.3; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/77.0.3865.120 Safari/537.36

Time

8 minutes ago (2019-10-22 08:50:43)

IP address

Browser

Mozilla/5.0 (Windows NT 6.3; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/77.0.3865.120 Safari/537.36

Time

an hour ago (2019-10-22 08:02:49)

Download collected data

For privacy purposes, you can download a comprehensive list of the data that was collected by Alpana Server during your usage (profile information, chat history, ...)

Click *Download collected data* under your profile.

Alpana Server prepares your data, and notifies you when the download is available :

i

Your data is prepared, click here to download.

a few seconds ago set as read

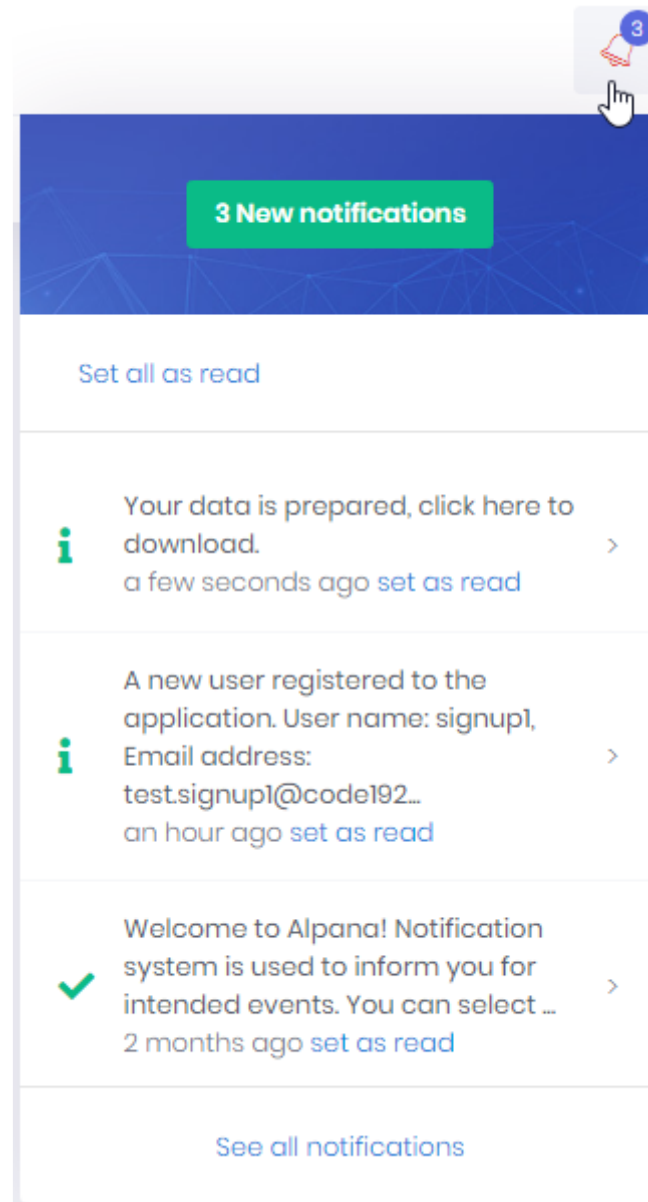
>

Last modified: Feb 17, 2022

3.3.7. Notifications

Alpana Server includes a notification system to let you be aware of events that are relevant to you.

Click the bell icon to open the Notifications pop-up :



Viewing notifications

New notifications appear with a number on the bell icon, and a message in the Notification pop-up.

Click *See all notifications* to see a full list of your notifications in a dedicated page :

Notifications

✓ Set all as read

10/22/2019 - 10/22/2019

All

✕ Delete Listed Notifications

↻ Refresh

Actions	Notification	Creation time
<div><div></div><div></div></div>	Your data is prepared, click here to download.	8 minutes ago
<div><div></div><div></div></div>	A new user registered to the application. User name: signuyl, Email address: test.signuyl@code192.com.	an hour ago

Total: 2

⌂

◀

1

▶

⌂

10

In this page, you can browse notifications and filter by date and “read/unread” status.

Delete / Mark as read

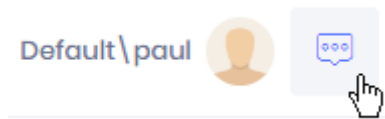
From the Notifications popup or from the Notifications page, you can *Set all as read*, or individually *set as read* a notification.

From the Notifications page, you can *Delete Listed Notifications*, or individually *Delete* a notification.

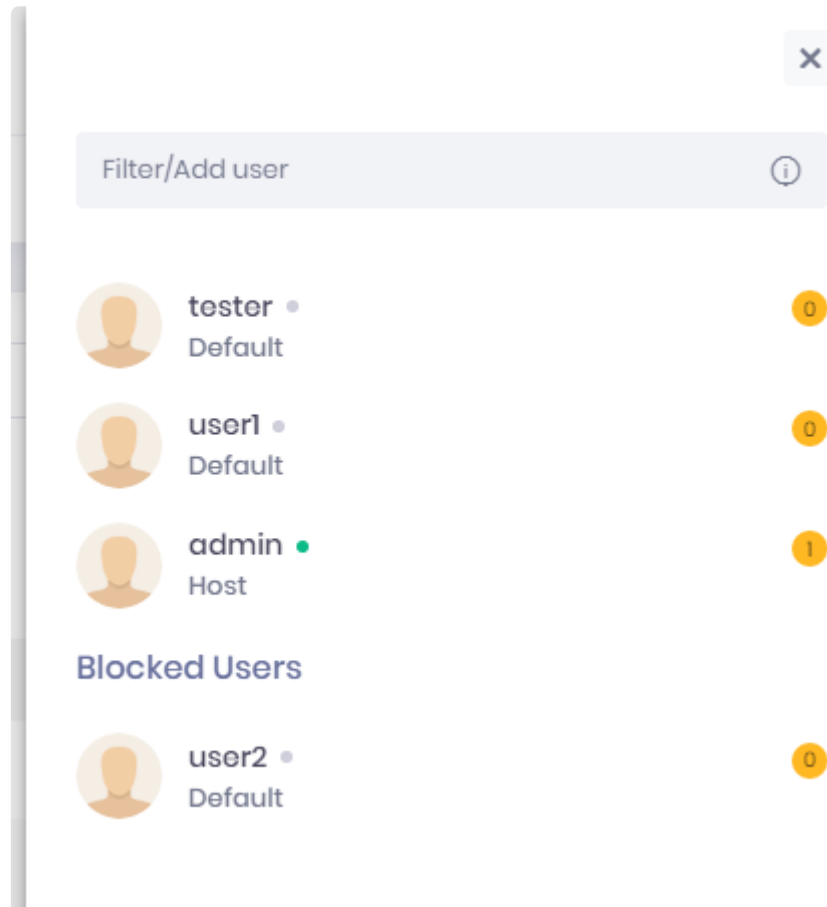
Last modified: Feb 17, 2022

3.3.8. Chat

Next to your user profile, you can click the *Chat* button to open the Chat panel :



The panel opens on the side with your list of contacts :



Click on the cross to close the panel.

Managing Contacts

Contacts list

The contacts list shows :

- your current contacts
- your blocked contacts
- their status (connected or not)
- the number of unread messages from that contact

You can filter your contact list by entering part of their User name or Tenant name in the *Filter/Add user* box.

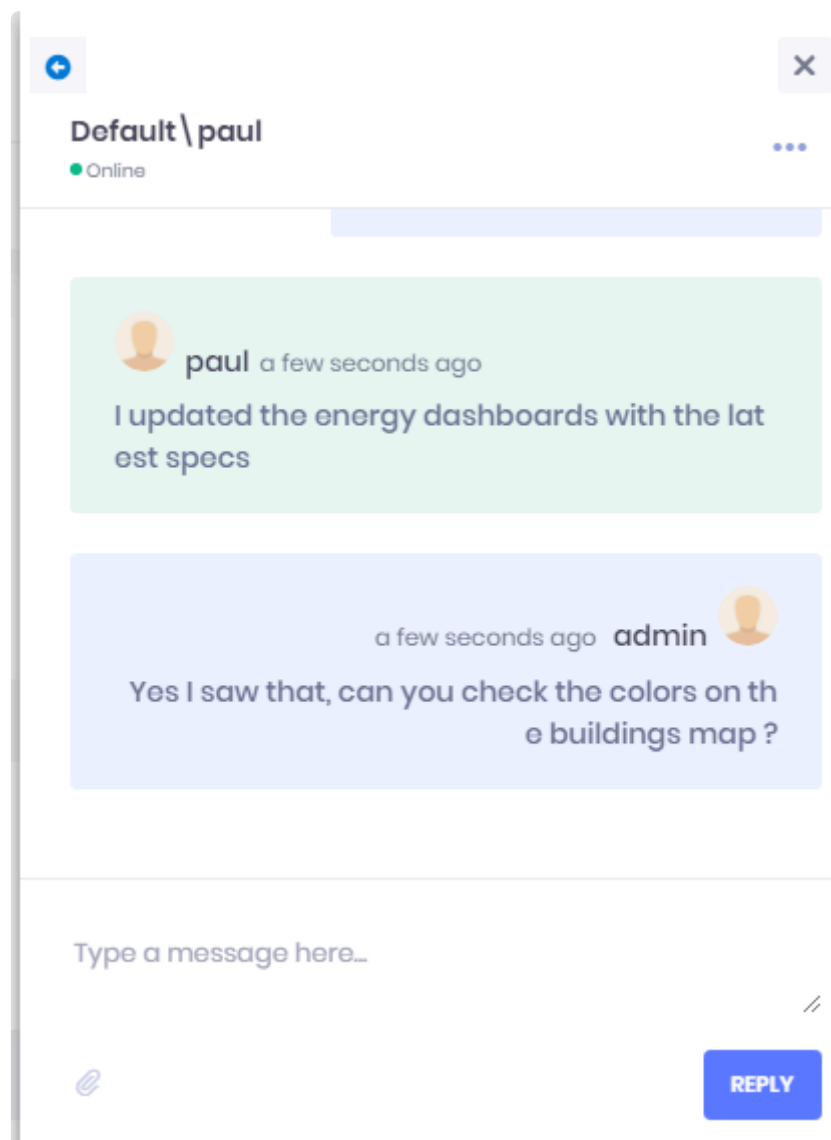
Adding contacts

To add a contact, enter the full Tenant name and User name in the *Filter/Add user* box with the following format :

- `username` : a user on the same Tenant
- `tenant\username` : a user on a different Tenant
- `.\username` : a user on the Host

Conversation

Click on a contact to open the Conversation view for that contact :

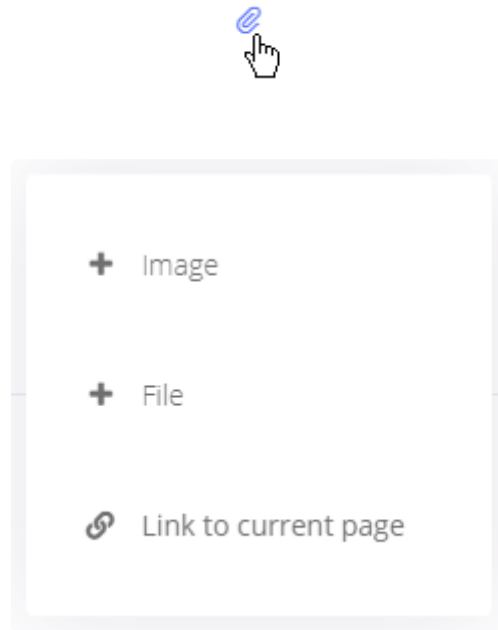


Return to the contacts list by clicking on the left arrow at the top.

Sending messages

You can send a text message by typing in the “Type a message here...” box and hitting *Reply* or the *Enter* key on your keyboard.

Click on the Attachment button to attach content to your message :

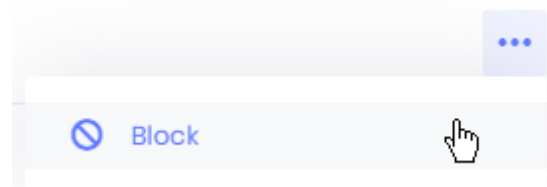


This allows to send :

- an image displayed inline
- a file attached to your message
- a link to the current page

Blocking/Unblocking contacts

Clicking on the ellipsis “...” button allows to *Block* the contact :




You won't receive any more message from this contact.

To unblock a contact, click *Unblock* :

Unblock

Type a message here...



REPLY

//

Last modified: Feb 17, 2022

3.4. Dashboards

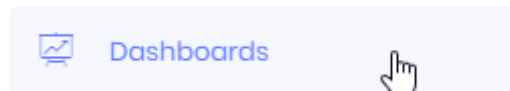
Dashboards are the core concept of Alpana.

They are created using [Alpana Designer](#), and are composed of Widgets that are laid out on a single scrollable page.

“Publishing a Dashboard” means pushing it to Alpana Server to make it available to other users on the platform.

This section describes publishing, viewing and managing Dashboards.

To access Dashboard management, use the *Dashboards* menu :



Last modified: Feb 17, 2022

3.4.1. Categories

Published Dashboards are organized in Categories.
Categories can contain other Categories, like a tree of folders.

This Chapter documents the management of Categories.

Creating Categories

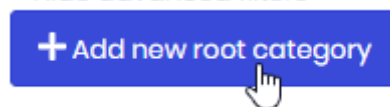
✿ When you install Alpana Server or create a new Tenant, no Categories exist by default.
You will need to create at least one Category for publishing.

Categories are managed like a tree of folders.
There are two types of Categories :

1. *root Categories* are at the root of the tree structure.
2. *sub Categories* are nested under root Categories or other sub Categories

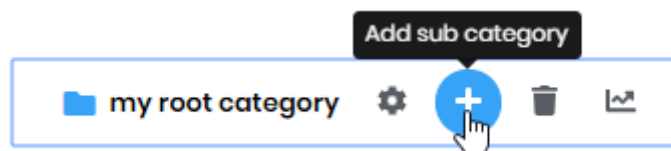
Creating a root Category

To create a root Category, click *Add new root Category* :



Creating a sub Category

To create a sub Category, click on the desired parent Category, then click the *Add sub Category* icon in front of it :



New Category menu

When creating a Category, fill in the desired name and description, and click *Save* :

New category ×

Name *

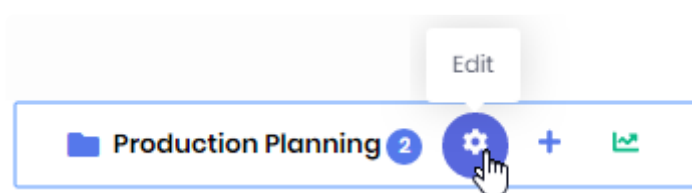
Description

Cancel Save

Managing Categories

Editing a Category

To Edit a Category, click on it, then click the *Edit* icon in front of it :



This allows you to change the Category name and description :

Edit: Production Planning ×

Name *

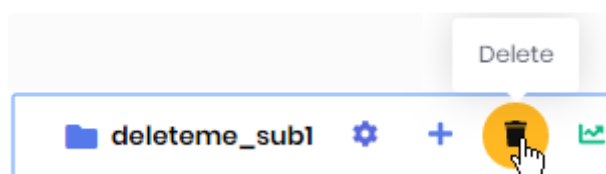
Description

Cancel Save

Deleting an empty Category

* A Category cannot be deleted while it still contains Dashboards, and while any of its Sub Category contains Dashboards.

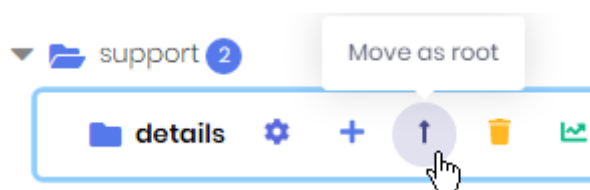
To Delete a Category, click on it, then click the *Delete* icon in front of it :



Moving a Category

To move a Category, drag it and drop it onto another Category.

To move a Sub-Category to become a Root Category, use the dedicated button option on the Category :

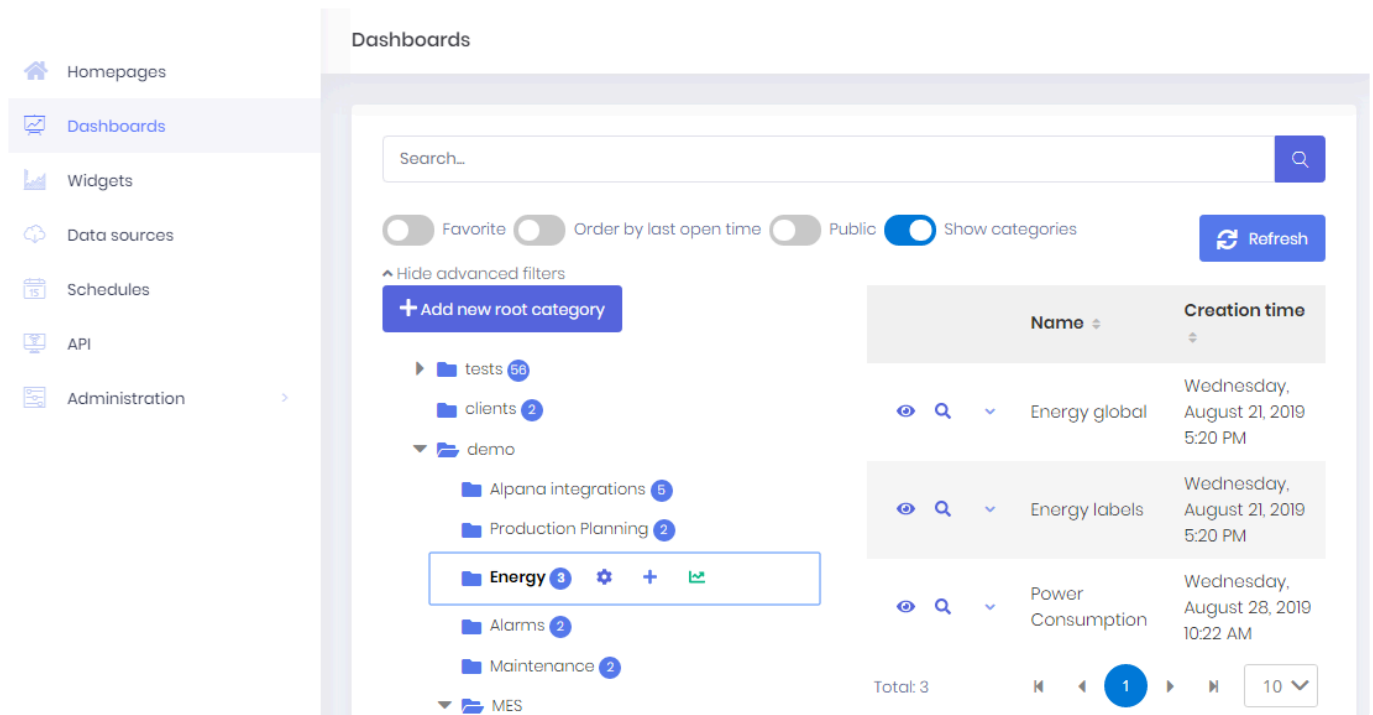


Last modified: Feb 17, 2022

3.4.2. Browsing the Dashboards

The Dashboards list is composed of :

- a Search bar at the top
- the list of Categories on the left
- the list of Dashboards from the selected Category on the right



Browsing Categories and listing Dashboards

Click on a Category to select it.

The Dashboards from that Category will be listed on the right.

The list is paginated and the page size can be configured at the bottom.

The list can be sorted by Dashboard Name or by Creation Time.

Filtering the list of Dashboards

The Search bar allows to filter Dashboards by name.

To clear the filter, just use an empty search.

You can also use options to filter only Public Dashboards, or your Favorites.

Last modified: Feb 17, 2022

3.4.3. Viewing Dashboards

Viewing Dashboards is the core functionality of Alpana.

This section describes how to view Dashboards and what features are available when viewing a Dashboard.

Last modified: Feb 17, 2022

3.4.3.1. Opening Dashboards for Viewing

From the list of Dashboards, you can open any dashboard for viewing using any of the two following options :

- *Open* in a new page
- *Preview* in the current page

Opening to view in new page

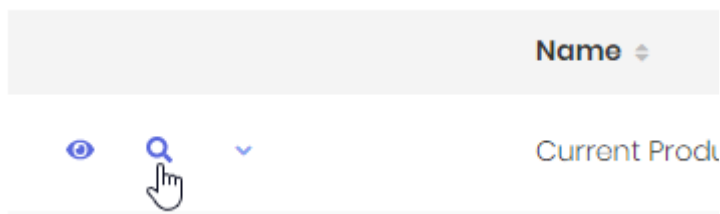
Click the eye button in front of the Dashboard to open the full-page viewer in a new tab of your web browser :



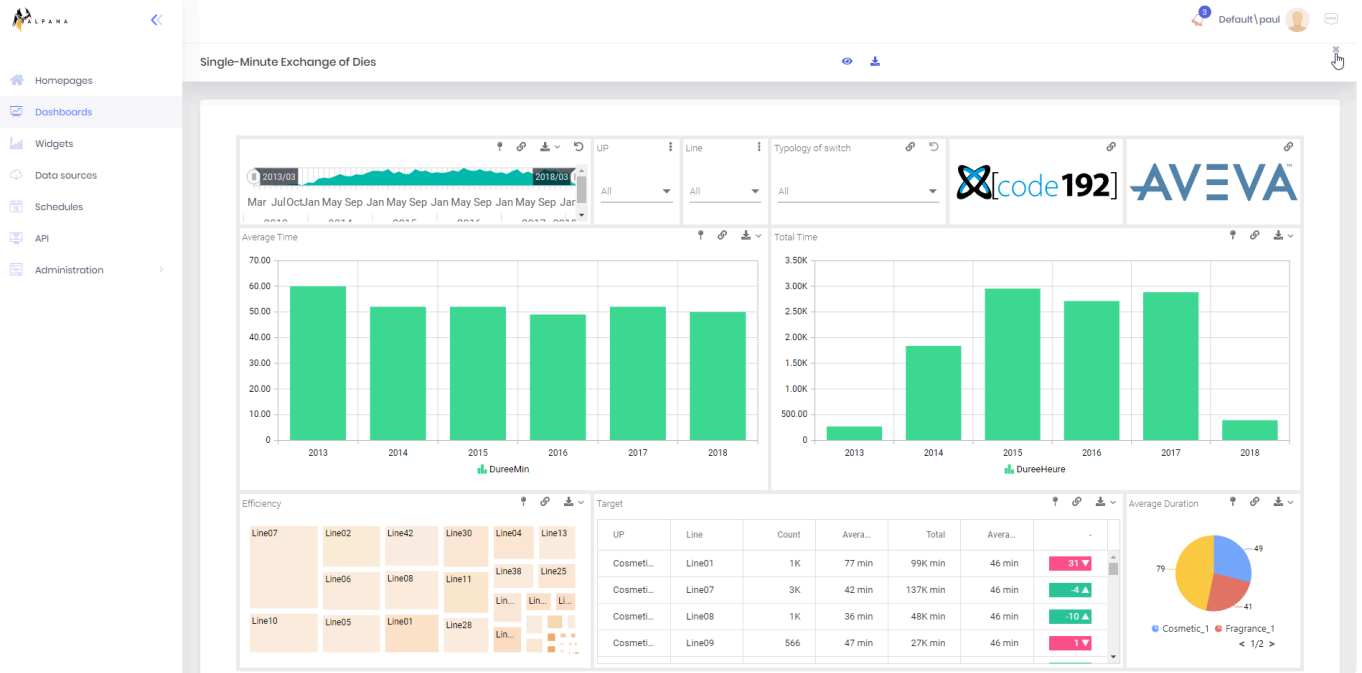
This is the preferred method, as it will include all viewing features.
This is what we will use in the next chapters.

Previewing in the current page

Click the magnifying glass button in front of the Dashboard to open the preview in the same page :



You can close the preview by clicking the cross at the top right :

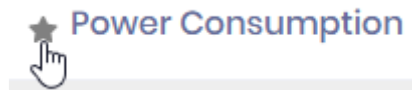


Last modified: Feb 17, 2022

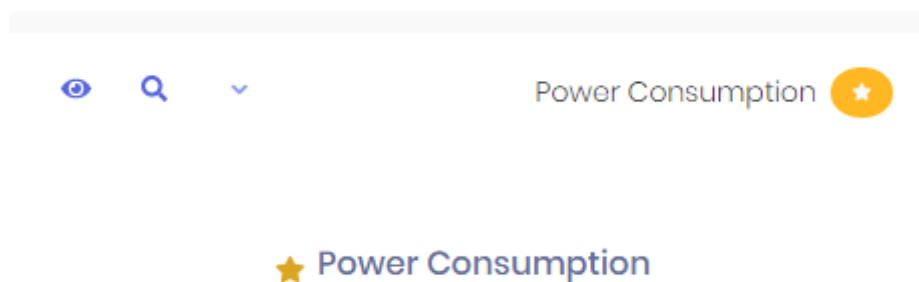
3.4.3.2. Favorite Dashboards

You can mark Dashboards as Favorite to better find them later.

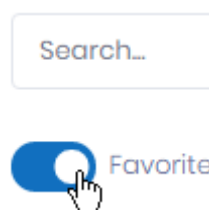
When viewing a Dashboard, click the star next to the title :



Favorite Dashboards are marked with a yellow star :



You can filter the Dashboards list by Favorites, just check the corresponding option in the top bar :



Last modified: Feb 17, 2022

3.4.3.3. Refreshing Dashboards

When a Dashboard page is loaded, each Widget makes a query to its Data Source as described in [Alpana data model](#)

Then, each time an interaction changes the query, a new query is made for the Widgets that need it. For example : using filters or drill-down.

If you want to get new data in the Dashboard without having to interact, you can use the *Reload* button in the top bar of the Dashboard viewer :



This refreshes all widgets as if refreshing the browser page, except you keep the filter state.

If instead you want the Dashboard to refresh automatically, you have several options that developers can implement :

- [Auto-refresh](#)
- [API](#) actions

Last modified: Feb 17, 2022

3.4.3.4. Manual Exports

From the Dashboard viewer, Dashboards can be manually exported to several formats. After completion of the export, a [Notification](#) informs you that your file is ready. Click on the notification, and your web browser proposes a “download” or “save as” dialog.

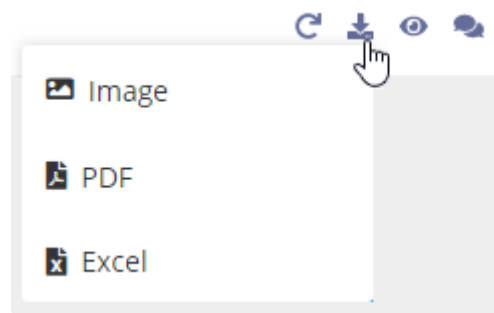
* **Note :** If instead you wish to schedule automated exports, please the chapter on [Schedules](#).

Two levels of exports are possible :

- exporting the full Dashboard
- exporting a single Widget from the Dashboard

Exporting the Dashboard

To export the full Dashboard, click the *Export* button in the top bar :



Several formats are available for exporting :

Image

The Dashboard is exported as an image file.
Choose a *File name*, a *Layout Configuration*, and an *Image Type* :

Layout Configuration

This allows to select which [Layout](#) of the dashboard you wish to export.

Image Type

Supported image types are :

- JPEG (default)
- PNG
- BMP

PDF

The Dashboard is exported as a PDF file.

Choose a *File name*, and a *Layout Configuration* :

Layout Configuration

This allows to select which [Layout](#) of the dashboard you wish to export.

Excel

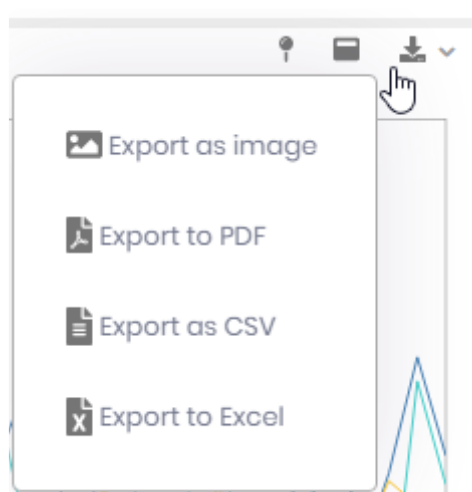
The Dashboard is exported as an Excel XLSX spreadsheet.

The data for each Widget is in a separate sheet of the same file.

Just choose a *File name*.

Exporting a Widget from the Dashboard

To export a single Widget, click the *Export* button on the corresponding Widget :



Note : this may be enabled or disabled for each Widget, see [the corresponding chapter](#).

Several formats are available for exporting :

Image

The Widget is exported as an image file.

Choose a *File name* and an *Image Type* :

Image Type

Supported image types are :

- JPEG (default)
- PNG
- BMP

PDF

The Widget is exported as a PDF file.

Just choose a *File name*.

Excel

The Widget is exported as an Excel XLSX spreadsheet.

Just choose a *File name*.

CSV

The Widget is exported as a CSV text file with comma , separators.

Just choose a *File name*.

Getting your export

Once the export is ready, a popup will show on the exported dashboard page and will stay visible as long as you don't close it manually or download your export.



Your export is ready. Click here to download.



Public Export

By default, the export feature is available for logged in user. A public dashboard doesn't have the export button visible.

But you can set the public export option in the dashboard configuration.

Edit: AlarmAnalyzer Fleeting

Name *

AlarmAnalyzer Fleeting

Description

Enable comments

☒

Enable manual exports

☒


Enable anonymous export


☐

Enabling anonymous export is a security risk.

Version Comment

Select file (.alpd)

 No file selected



By enabling anonymous export, the feature will be accessible in the public dashboard for every visitors.



Be careful, the anonymous export feature can be a security risk in your system since it can be used by unlogged people.

Last modified: Feb 17, 2022

3.4.3.5. Dashboard Views

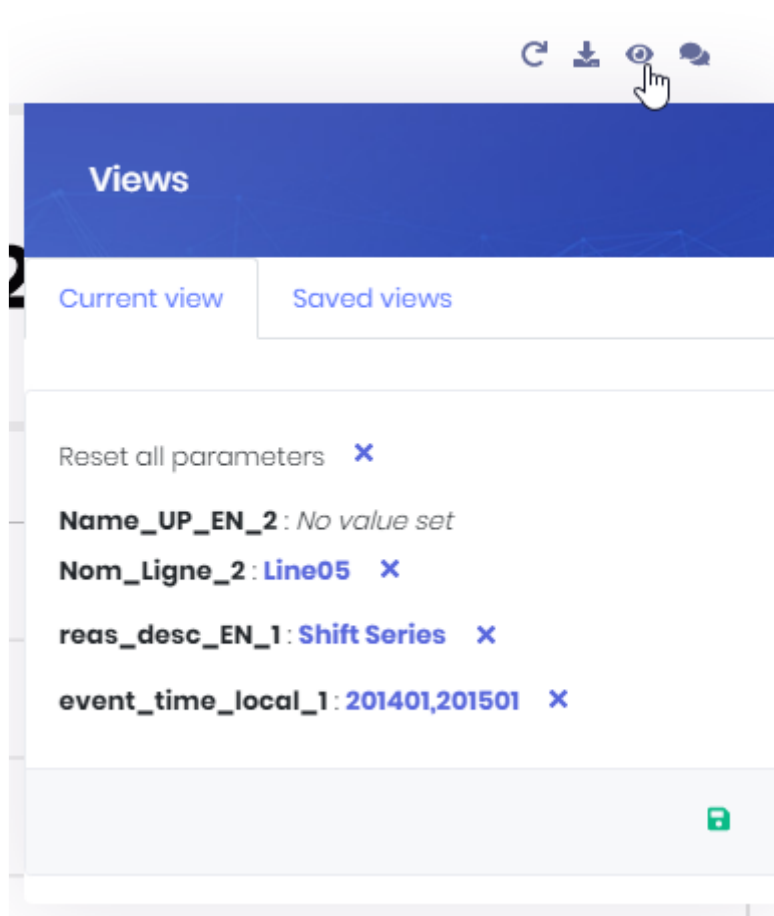
The Dashboard Views popup allows you to manage the current state or [Parameters](#) :

- you can view the current values of Parameters
- you can reset Parameters
- you can save sets of Parameters to reuse them later

This is very useful for example when you have many filters and want to monitor their state, or bookmark them.

Viewing Parameters

The Views pop-up shows the name and value of each Parameter of the Dashboard :



If a Parameter has no value at the time, “No value set” is displayed.

Resetting Parameters

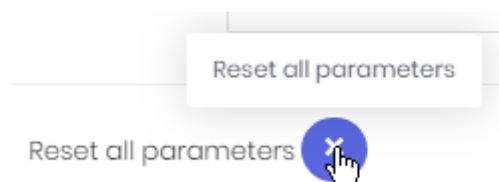
Single Parameter

To reset a Parameter to its default value, click the cross button “Reset parameter” in front of it :



Single Parameter

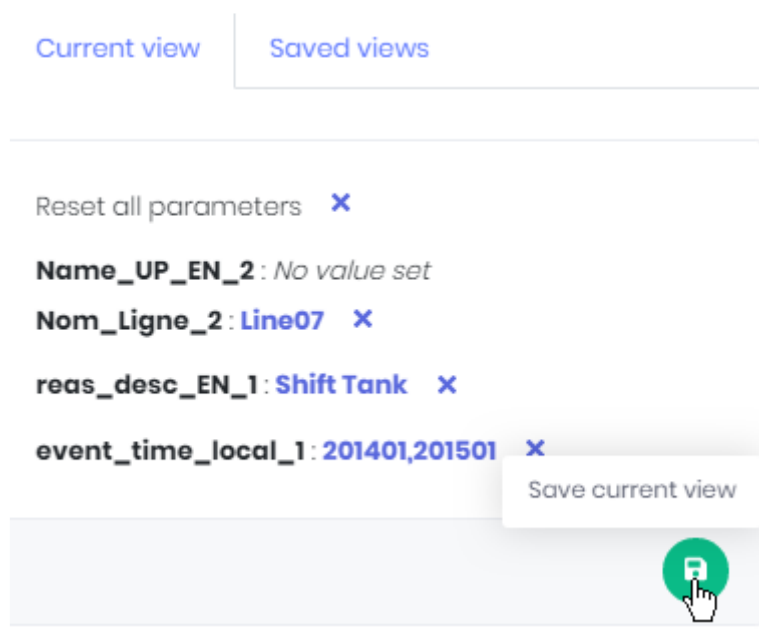
To reset all Parameters to their default value, click the cross button in front of *Reset all parameters* :

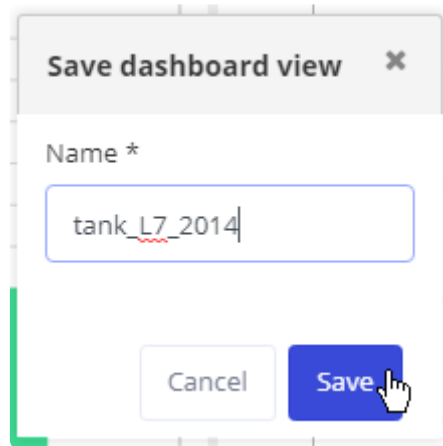


Saving Views

You can save the current state of Parameters to restore it later.

Click on the *Save current view* button :



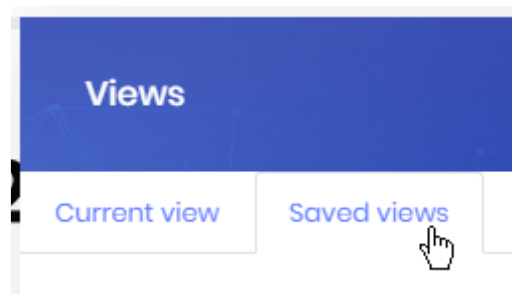


Re-opening saved Views

When a Dashboard contains previously saved Views, you can restore them. This return Parameters to their previous state, like a bookmark.

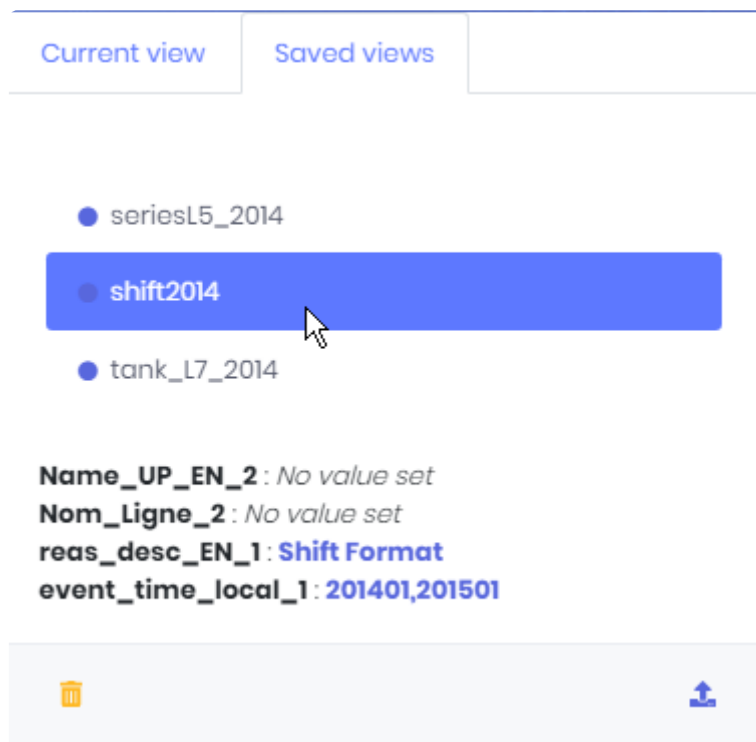
From the Views pop-up

In the Views dialog, switch to the *Saved views* tab :

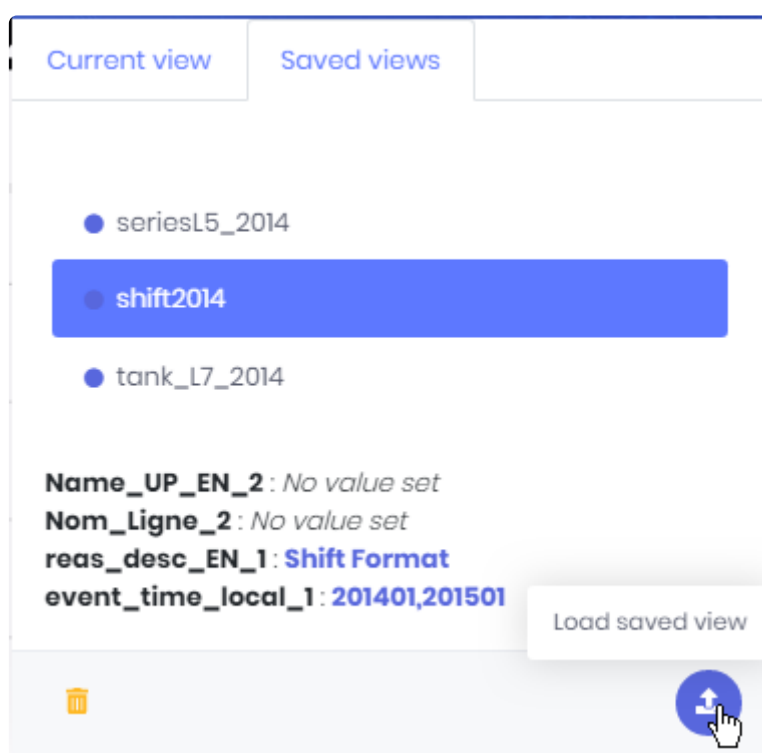


This tab lists all saved Views.

Click a View name to see the corresponding Parameters values at the bottom of the dialog :

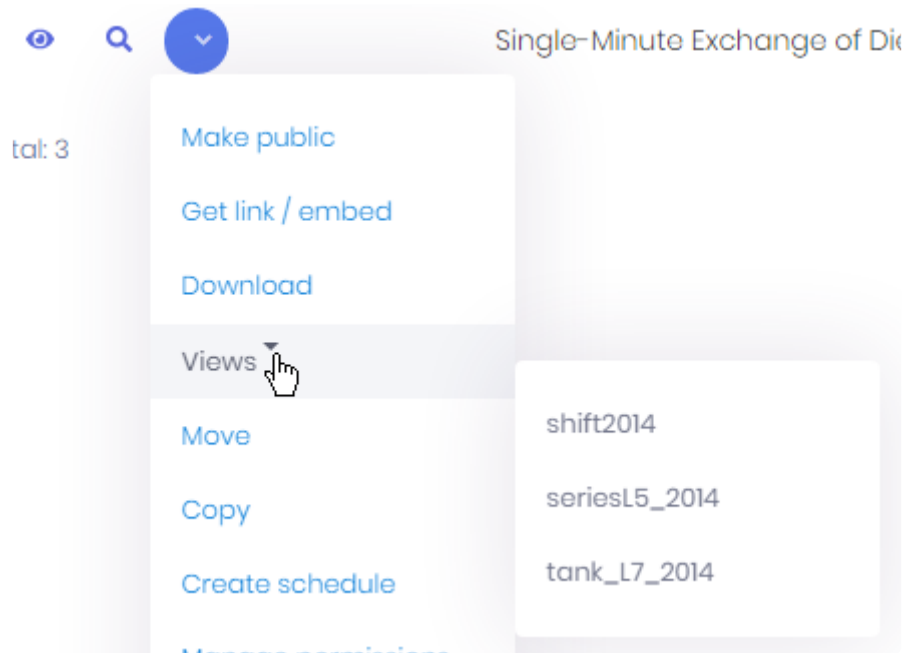


Click the *Load saved view* button to restore the Parameters state in the Dashboard :



From the Dashboards list

In the [Dashboards list](#), in the Dashboard's actions menu, hover the *Views* item.

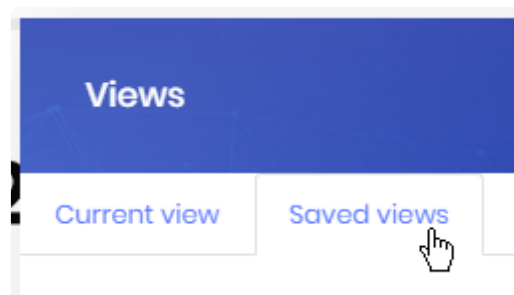


This unfolds the list of Views of this Dashboard.

Click an item in the list to open the Dashboard and restore the corresponding View.

Deleting Views

In the Views dialog, switch to the *Saved views* tab :



This tab lists all saved Views.

Click a View name to see the corresponding Parameters values at the bottom of the dialog.

Click the *Delete view* button to delete that View :

2

Current view

Saved views

● seriesL5_2014

● shift2014

● tank_L7_2014

Name_UP_EN_2: No value set

Nom_Ligne_2: No value set

reas_desc_EN_1: Shift Format

ne_local_1: 201401,201501

Delete view

Last modified: Feb 17, 2022

3.4.3.6. Comments

When viewing Dashboards, you can leave comments and have discussions with other users.

You can create comment threads and choose to be notified.

This is a good way to have your analysis and discussion in the same place.

Opening the Comments

To open the Comments panel and start commenting or reading comments, click the *Comments* button in the top bar or in the menu of widgets :



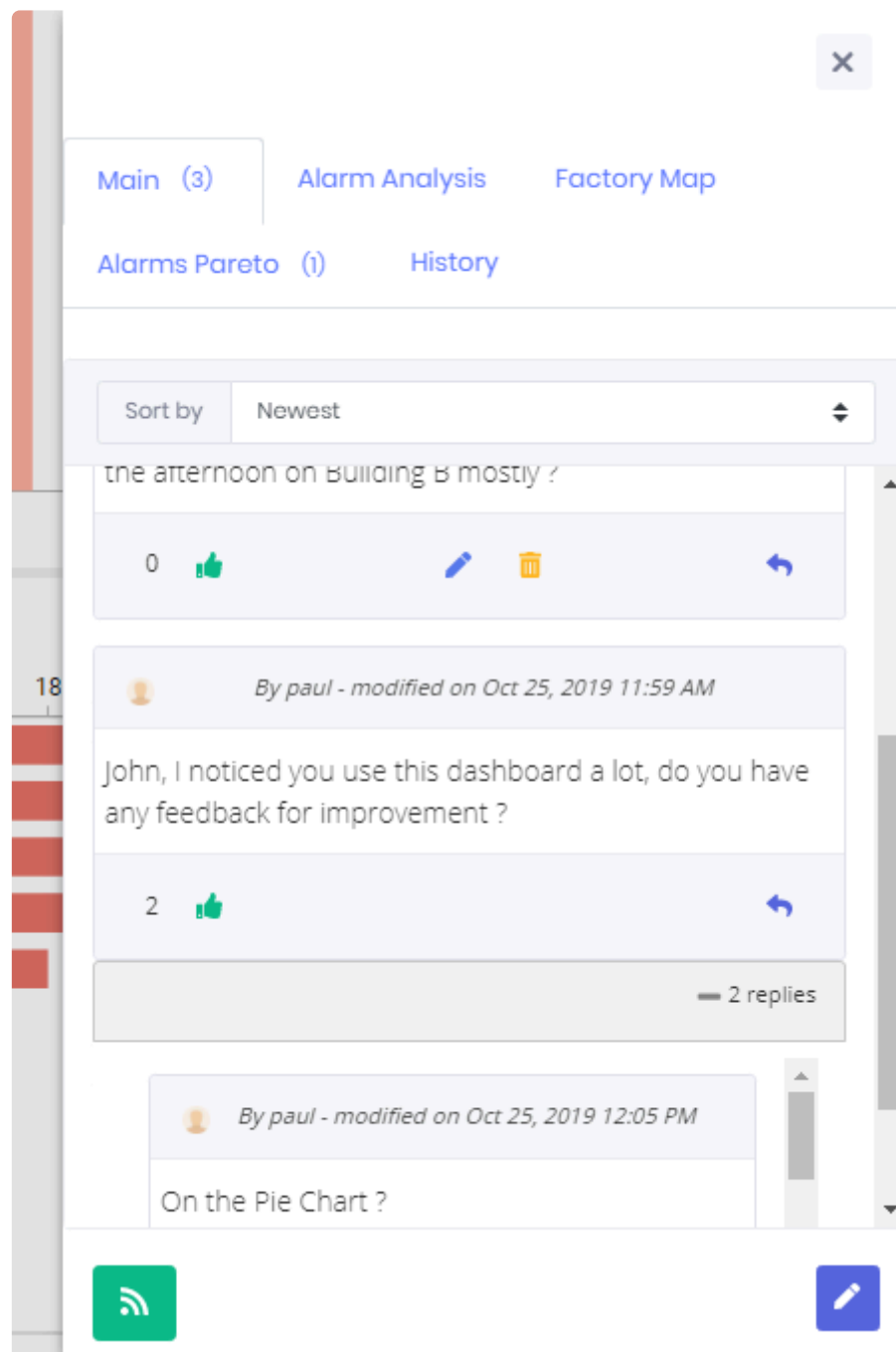
To close the panel, click the cross at the top right.

Viewing Comments

The Comment panel is divided in Threads, with :

- one Thread for each Widget in the Dashboard that [has Comments enabled](#).
- one Thread for each [Dashboard View](#), that can be viewed only when loading this View.
- one Thread called *Main* for the Dashboard itself.

Each Thread is inside a tab.



Each Comment shows :

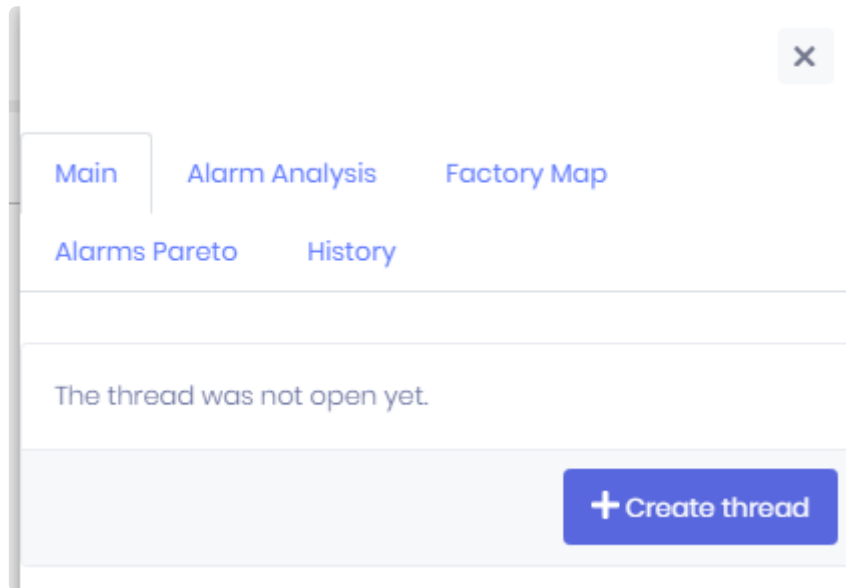
- the user's name and profile image
- the last modified date
- the number of Likes
- the Comment-level controls (see below for a description)

Comments can be sorted by date or by top Likes.

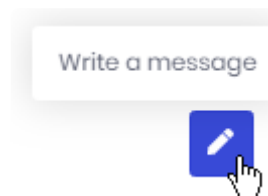
Commenting

New Comment

To open a Thread, click the *Create Thread* button.

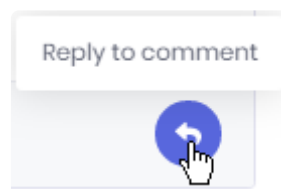


To write a new Message, click *Write a message* at the bottom of the Comments panel :



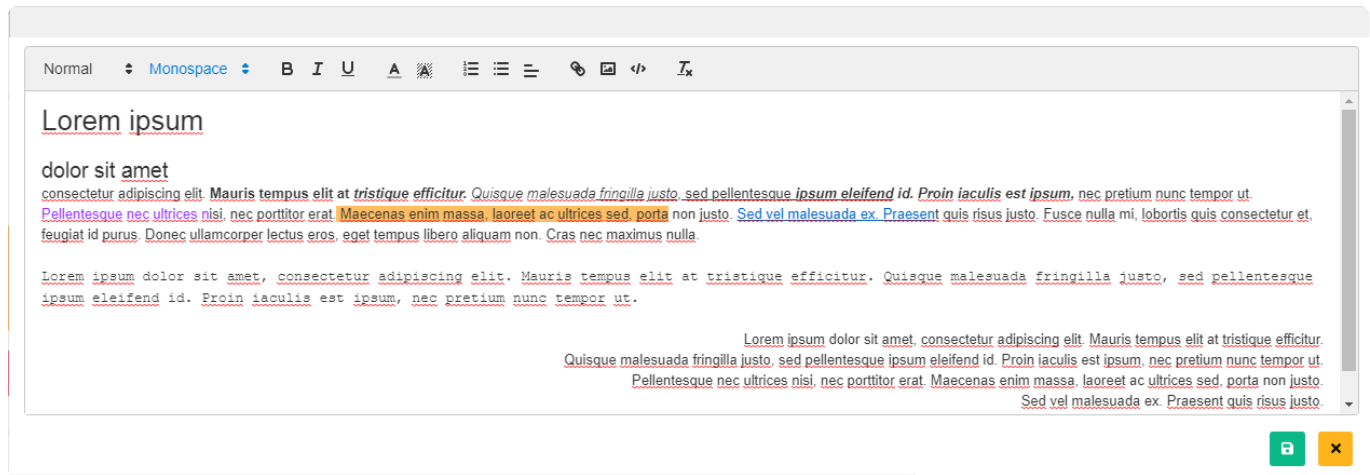
Replies

To attach your Comment to an existing comment, you can Reply to it.
Locate the desired Comment and click *Reply to comment* :



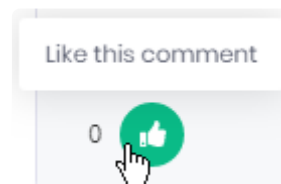
Comment editor

When creating or editing a Comment, the text editor allows you to write rich text spanning multiple lines (style, links, alignment, etc) :

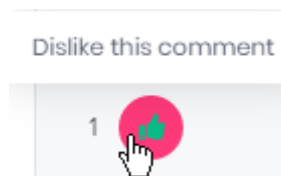


Liking Comments

You can Like Comments by clicking the *Like* button :



You can remove your Like by clicking again the same button :

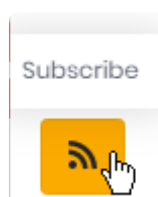


Getting notified

For each Comment thread, you can choose to be notified of new Comments. This will send a new [Notification](#) to you when a new Comment is added to the Thread. A link in the Notification will take you to the Dashboard and Comment itself.

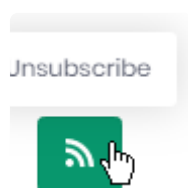
Subscribing

Click the *Subscribe* button to be notified :



Unsubscribing

Click the same button to *Unsubscribe* :

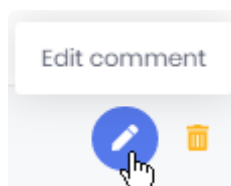


Modifying Comments

You can modify your own Comments :

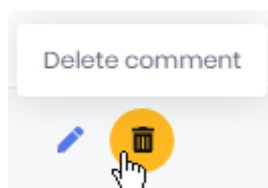
Editing

Click *Edit comment* to edit your Comment :



Deleting

Click *Delete comment* to delete your Comment :



Last modified: Feb 17, 2022

3.4.3.7. Pinning Widgets

Widgets can be configured to show a “*Pin*” control.
This control allows to Pin the Widget to a Homepage.

To learn how to use Homepages and Widget Pinning, please see [the dedicated chapter](#).

Last modified: Feb 17, 2022

3.4.3.8. Changing Dashboards layout

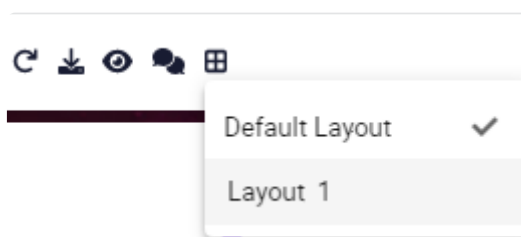
From the opened Dashboards, you can change the configured layout.

Opening the layout menu

In the top right corner, the layout button appears if your dashboard has multiple layout defined.



Once clicked, the list of layout will be visible.



Last modified: Feb 17, 2022

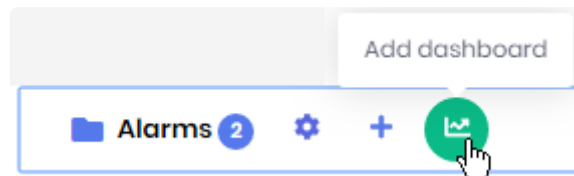
3.4.4. Managing / Publishing Dashboards

Publishing from Alpana Server

Dashboards can be [published from Alpana Designer](#)

Alternately, you can publish a dashboard `.alpd` file directly to the Server.

Click on the destination Category and click the *Add Dashboard* button :



This opens the *Upload New* dialog :

A screenshot of a dialog box titled 'Upload new' with a close button (X) in the top right corner. The dialog contains three input fields: 'Name *' (required), 'Description', and 'Select file (.alpd) *' (required). Below the 'Select file' label, there is a blue circular button with a white upload icon and the text 'No file selected'. A mouse cursor is pointing at this button. In the bottom right corner of the dialog, there is a blue square button with a white save icon.

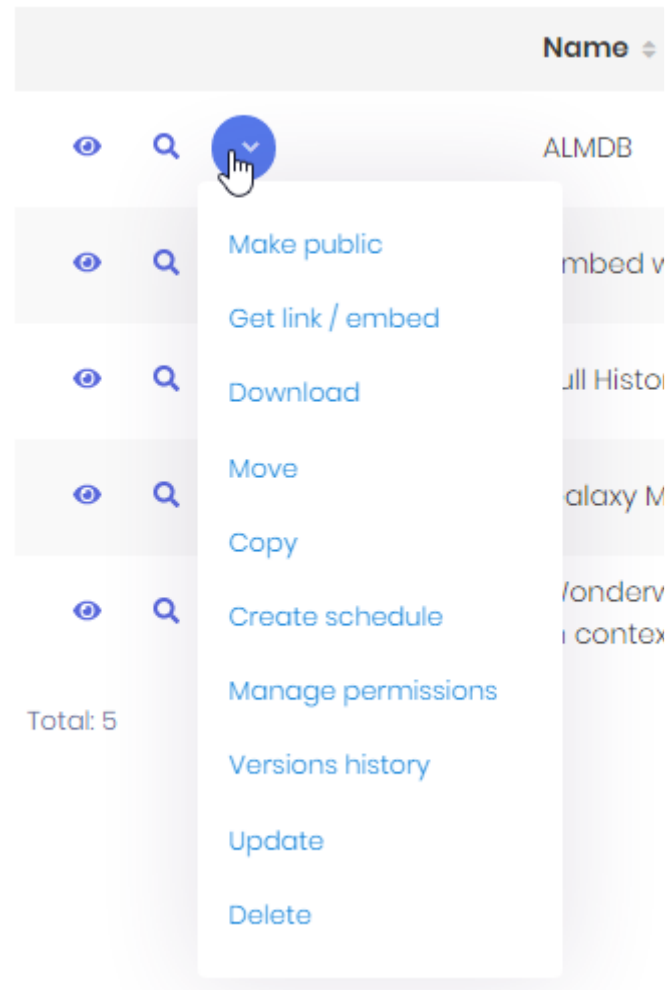
Click the *Select File* button to browse your filesystem for a dashboard `.alpd` file.
Fill-in a *Name* and optionally a *Description*.

When you click the *Save* button, the Dashboard is published to the Category.

Actions menu

Each published Dashboard has a set of actions available.

To list those actions, open the dashboard menu next to the Dashboard's name :



Some of those actions are detailed in the corresponding chapter :

- *Make public / Make private*
- *Get link / embed*
- *Download*
- *Move*
- *Copy*
- *Create schedule*
- *Manage permissions*
- *Versions history*
- *Update*
- *Delete*

Update

This opens the *Edit* dialog to update the Dashboard's name and description.

You can also upload a new dashboard `.alpd` file to replace the current one.

If you do so, this will create a new version, so you can input a *Version Comment*.

Edit: Alarm Details

Name *

Alarm Details


Description


Details on the alarm analysis


Version Comment

update chart style

Select file (.alpd)



Alarms details v4.alpd 0.027 MB 



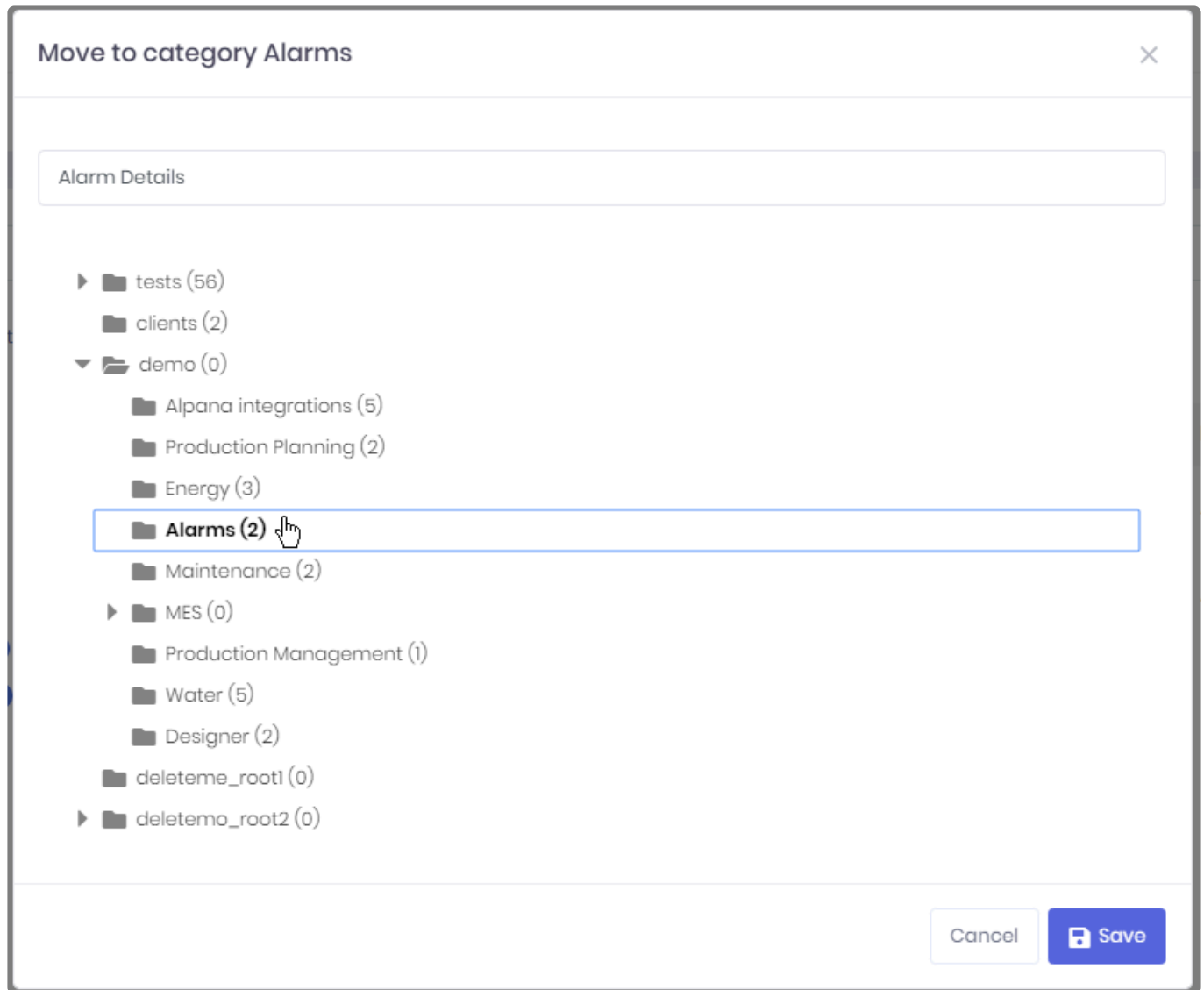
Download

This downloads the dashboard .alpd file.

This allows for example to [open it in Alpana Designer](#).

Move

This opens the *Move* dialog which allows to select a destination Category for moving this Dashboard to :



Copy

This opens the *Copy* dialog which allows to select a destination Category for copying this Dashboard to.

Delete

This deletes the selected Dashboard.

Make public / Make private

(see [corresponding chapter](#))

Manage permissions

(see [corresponding chapter](#))

Get link / embed

(see [corresponding chapter](#))

Create schedule

(see [corresponding chapter](#))

Versions history

(see [corresponding chapter](#))

Last modified: Apr 13, 2022

3.4.5. Dashboard Version History

Every time you over-write an existing Dashboard, the previous version is saved also.

The Version History allows you to see the changes applied to a Dashboard, and restore a previous state.














Opening the Versions History

From each Dashboard action menu, select *Versions history* to open the dialog.






Viewing Version History

The Versions History dialog shows a paginated list of Versions :

Versions History ✕

Version# ▼	Creation time ▲	Version Comment	
5 - Active version	Wednesday, June 5, 2019 5:36 PM		
4	Tuesday, May 28, 2019 7:09 PM	fix connection	  
3	Friday, May 17, 2019 5:42 PM	fix data source	  
2	Tuesday, April 23, 2019 10:44 AM		  
1	Tuesday, March 26, 2019 5:25 PM	Created	  

Total: 5

5 ▼

Each Version displays :

- a Version Number
- its Creation Time
- an optional Version Comment

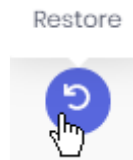
You can sort the list by version number and creation time by clicking on the corresponding column headers.

You can browse versions pages and choose a page size at the bottom of the dialog.

Restoring an older Version

By default, the Active Version of a Dashboard is the latest published. However, you can manually restore any previous Version.

Click the `_ Restore_` button in front of the selected Version :

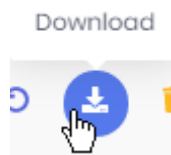


The *Active version* indicator will move back to that older version.

So if you want to restore the latest Version again (or any other Version), just do the same process again.

Downloading an older Version

Click the *Download* button to download the corresponding Version :



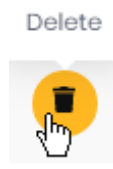
This will download the corresponding dashboard `.alpd` file.

This is useful for example for studying a previous version, and maybe turning it into a separate Dashboard.

Deleting an older version

You can delete any previous version.

Click the *Delete* button in front of the corresponding Version :



Last modified: Feb 17, 2022

3.4.6. Public / Private Dashboards and Dashboard-level Permissions

Dashboard access can be managed through the Permissions system, or by making it public. Both items are listed in the actions menu of the Dashboard.

Make public / Make private

What is a Public dashboard

By default, content on Alpana Server is secured behind the authentication and permissions system. However, in some cases you may wish to share content to users without requiring a login.

When you turn a Dashboard *Public*, it becomes accessible for viewing to everyone who can access the URL.

! This means that Alpana can no longer protect unwanted access to this Dashboard. If the Dashboard contains sensitive data, you will have to find other means to prevent unwanted access.

This is useful for example if you want to share this dashboard to many users on a public website.

Making it public/private

From the Dashboard's action menu, select *Make public* to make the Dashboard Public. The Dashboard becomes marked with the *Public* icon :



To make the Dashboard private again, select *Make private* from the Dashboard's action menu.

Managing Public Dashboards

You can filter the Dashboards list to see only Public Dashboards, just check the corresponding option in the top bar :



Manage permissions

! When managing permissions, be careful not to remove access to your own user. If this happens, you can work around it by : creating a new Role with all permissions, assigning this as the only Role to a User, and letting that User remove the Permissions restriction.

From the Dashboard's action menu, you can manage its Permissions.
Select *Manage permissions* to open the corresponding dialog :

Manage permissions on Alarm Details
×

Add permission

☒ Search for user
☐ Select role

Permission
No access

☒

Name	Type	Permission
No data		

Total: 0

⏮ ⏪ 1 ⏩ ⏭

5

The existing Permissions are listed at the bottom of the dialog.

Adding a permission

If you want to override the default permissions, fill-in the *Add permission* form :

1. select a User or Role
2. select the desired Permission
3. click the validation button :

Add permission

☒

John Doe (john.doe@coc)

☐ Select role

Permission

Read / Write

✓

Removing Permissions

If you want to remove a Permission, click the *Remove* (trash) icon in front of it in the list :

Name	Type	Permission	
John Doe	User	Read / Write	<div><div><div><div></div></div></div><div><div></div></div></div>
Total: 1			<div><div><div><div></div></div><div><div></div></div><div><div>1</div></div><div><div></div></div><div><div></div></div></div><div><div>5</div></div></div>

Last modified: Feb 17, 2022

3.4.7. Linking / Embedding Dashboards

Get link / embed

When opening a Dashboard from its URL, or when embedding it into another tool, you can pass options to control how the Dashboard is displayed.

From the Dashboard's action menu, select *Get link / embed* to open the corresponding dialog :

Embed Alarm Details
×

Theme

High Contrast

Parameters

<input checked="" type="checkbox"/> Building	Building C
<input checked="" type="checkbox"/> Equipment	Blender_001,Blender002
<input type="checkbox"/> Date	
<input type="checkbox"/> AlarmType	

Server url

Use the server url to display the element in full page (link to server viewer)

http://192.168.1.48:81/viewer/dashboard/23914811-35bb-4be9-80ad-d4c51f1619bc?theme=highcontrast&Building=Building%20C&Equipment=Blender_001&Equipment=Blender002
Copy

Embed link

Use the embed link to display the element inside iFrame

http://192.168.1.48:81/embed?dashboardId=23914811-35bb-4be9-80ad-d4c51f1619bc&theme=highcontrast&Building=Building%20C&Equipment=Blender_001&Equipment=Blender002
Copy

Code

Embed in code (requires jQuery)

<!-- Inside <HEAD> section (and/or after jQuery) -->
<script src="http://192.168.1.48:81/assets/embed/embed.js"></script>

<!-- The element where to render your dashboard -->
<div data-host="http://192.168.1.48:81/"
data-dashboard="23914811-35bb-4be9-80ad-d4c51f1619bc">

Copy

This dialog generates URL's and code to link or embed the Dashboard.

Options

Select the below options to update the URL and code :

Theme

You may choose to override the Dashboard's [Theme](#).
Select the desired Theme from the list.

Parameters

You may choose to override the Dashboard's [Parameter's default values](#).
Check the Parameters you wish to override, and fill-in the desired values.

Results

After configuring the desired options, you can *Copy* the results from the text boxes at the bottom of the dialog :

Server URL

This will display the Dashboard with the same visuals as when normally viewing with Alpana Server's dashboard viewer.

Embed link

This is a clutter-free version of the dashboard viewer : there is no top bar, no controls, no logo.
This is useful for embedding because the Dashboard will fit better in smaller spaces, and because the controls (like Pin Widget) are usually not meaningful in this context.

Code

This is for embedding inside another web page that uses jQuery.



Note : the containing element needs to specify a size, otherwise the Alpana div will have a 0px size.



Important : when embedding, you will need to let Alpana [whitelist your site for CORS requests](#).
Otherwise, Alpana content will not appear.

Embedding Dashboard with different domain

Due to **cyber security policies** from web browsers, the embedding capability with different domain has some restraints: It must be used with HTTPS – both host site and Alpana.

Some steps has to be executed on the server to make it works :

- Modify web.config file in IIS->Alpana3->Client and delete one line inside it :

```
</rewrite>
<httpProtocol>
  <customHeaders>
    <remove name="X-Powered-By" />
    <add name="X-Content-Type-Options" value="nosniff" />
    <add name="X-Frame-Options" value="SAMESITE"/>
  </customHeaders>
</httpProtocol>
</custom_webServer>
```

- Go in the administration page -> parameter -> Security Tab and enable this option :

Allow cross-domain embedding

☒ Enable embedding Alpana dashboards in an external (different origin) site

This will modify the cookies SameSite attribute. You will have also to modify the frontend web.config file to remove the X-Frame-Options header. Both are considered as high security vulnerabilities, if your Alpana Server is exposed to public internet. Note that will work only if your site is serving over https ; otherwise you will not be able to login to Alpana.

- Click on save button.
- Clean cookies in client web browsers.



Alpana server must be in *https *to enable this feature

Last modified: Apr 04, 2022

3.4.8. Dashboard Aliases

Dashboard Alias is a unique name to link dashboard together. Instead of using the URL to open Dashboard that can change when deleting and publishing it.

Using the Alias will give a better and more flexible way to link them.

In the dashboard settings, the alias can be defined with simple rules :

- Using standard character for alias name
- Alias must be unique
- Alias can contain space

Setting an alias from the dashboard menu :

Edit: Layout ✕

Name *

My Dashboard

Description

Description of my dashboard

Enable comments

☒

Enable manual exports

☒

Enable anonymous export

☐


Enabling anonymous export is a security risk.


Alias

MyDashboardAlias

Version Comment

Select file (.alpd)

 No file selected





If the target dashboard is deleted, the link will open an error page

See [link to url chapter](#) to configure link in dashboard

Last modified: Feb 17, 2022

3.5. Widgets

Widgets are basic bricks of construction for Dashboards..

They are created using [Alpana Designer](#).

“Publishing a Widget” means pushing it to Alpana Server to make it available to other users on the platform.

Publishing Widgets can be useful for several reasons :

- Re-use : Published Widgets are a library of visualizations that can be downloaded to compose new Dashboards.
- Embed : When embedding inside another application, you may need a single Widget instead of a full Dashboard.

This section describes publishing, viewing and managing Widgets.

To access Widget management, use the *Widgets* menu :



✿ A Dashboard can contain up to 50 widgets.

Last modified: Feb 17, 2022

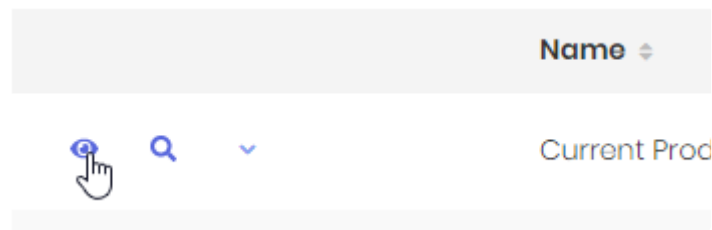
3.5.1. Viewing Widgets

From the list of Widgets, you can open any widget for viewing using any of the two following options :

- *Open* in a new page
- *Preview* in the current page

Opening to view in new page

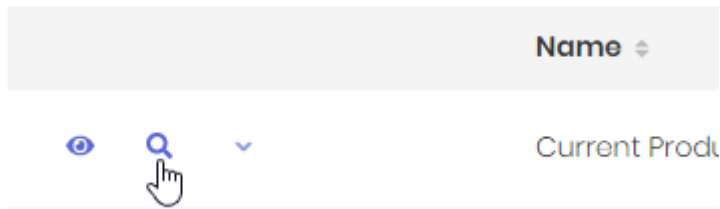
Click the eye button in front of the Dashboard to open the full-page viewer in a new tab of your web browser :



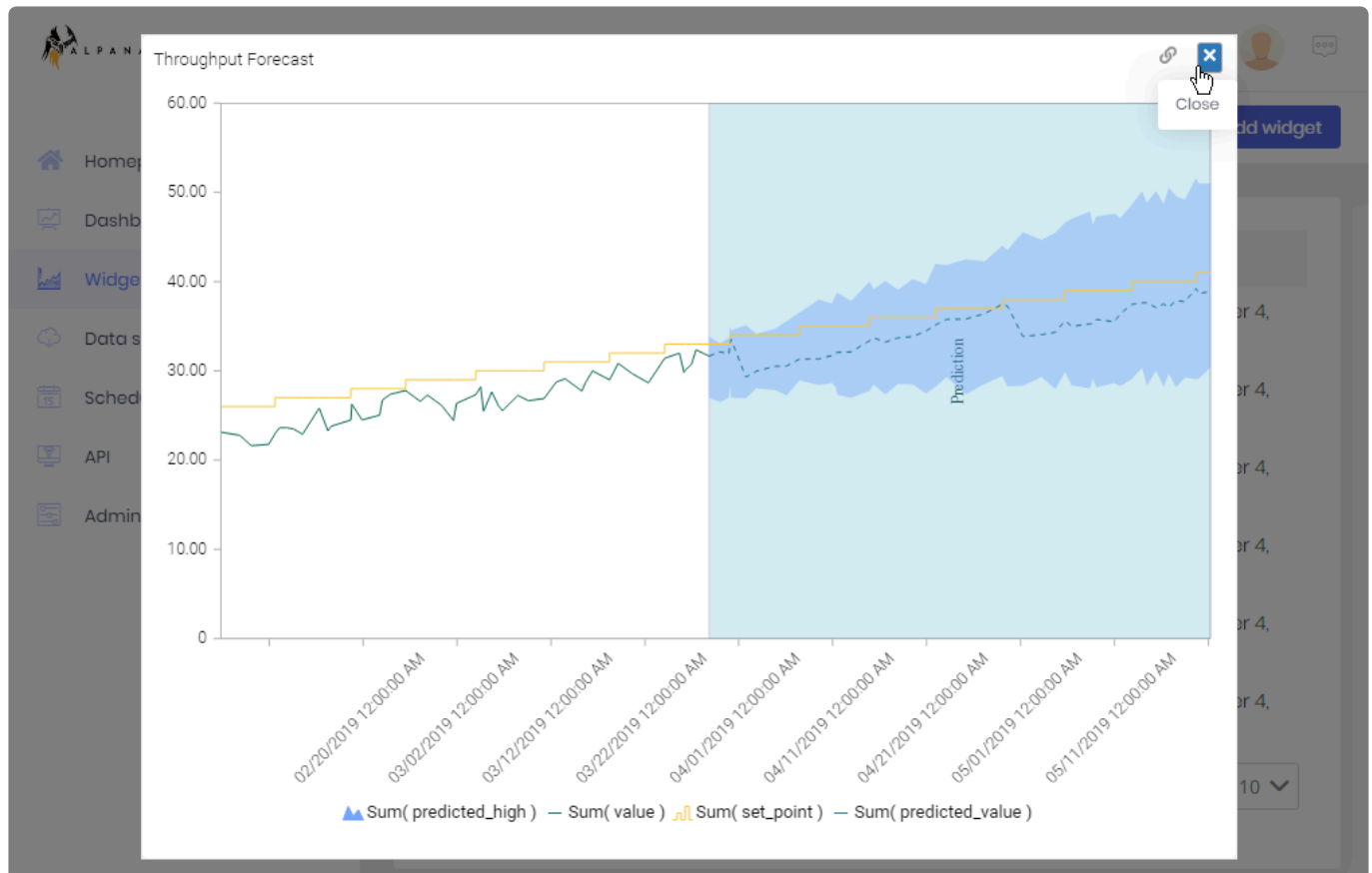
This is the preferred method, as it will include all viewing features.
This is what we will use in the next chapters.

Previewing in the current page

Click the magnifying glass button in front of the Widget to open the preview in the same page :



You can close the preview by clicking the cross at the top right :



Pinning Widgets

Widgets can be configured to show a “*Pin*” control. This control allows to Pin the Widget to a Homepage.

To learn how to use Homepages and Widget Pinning, please see [the dedicated chapter](#).

Last modified: Feb 17, 2022

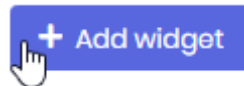
3.5.2. Managing / Publishing Widgets

Publishing from Alpana Server

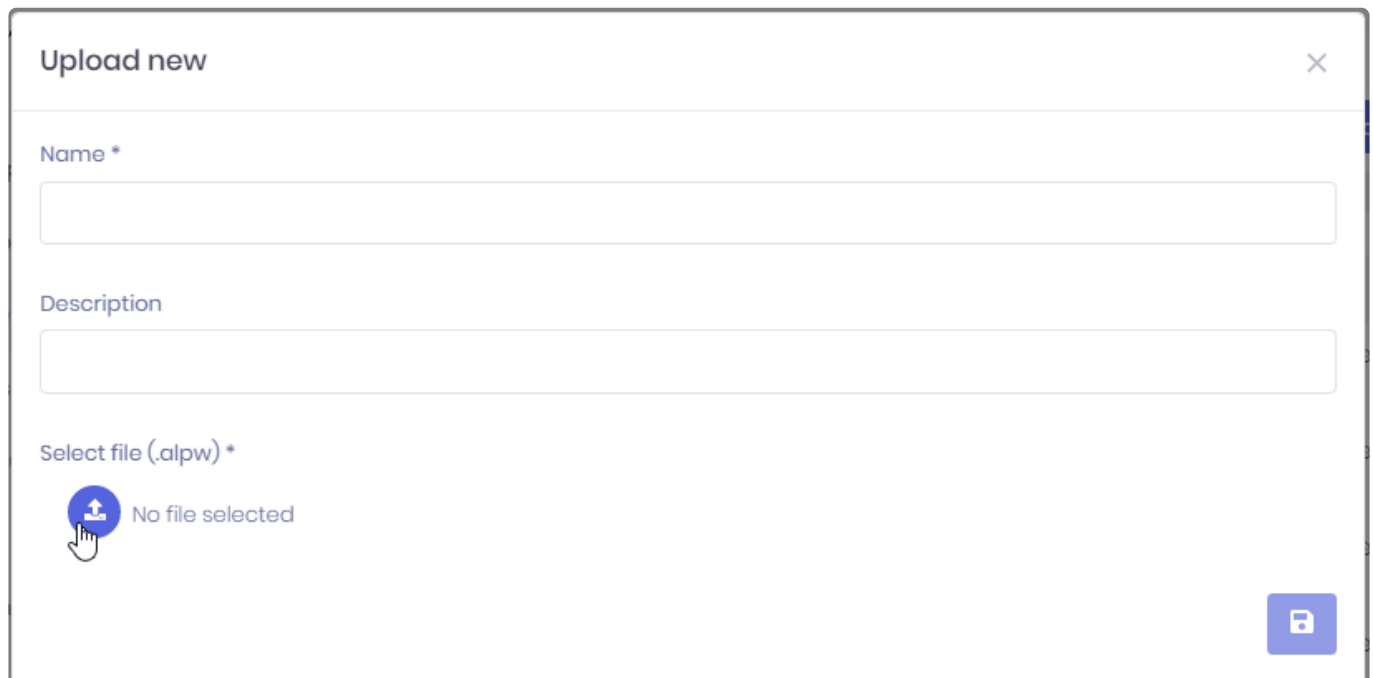
Widgets can be [published from Alpana Designer](#).

Alternately, you can publish a widget@.alp@ file directly to the Server.

Click the *Add widget* button :



This opens the *Upload New* dialog :

A dialog box titled "Upload new" with a close button (X) in the top right corner. It contains three input fields: "Name *" (required), "Description", and "Select file (.alp@) *" (required). Below the "Select file" label is a blue circular button with a white upload icon and the text "No file selected". A hand cursor is pointing at this button. In the bottom right corner of the dialog is a blue square button with a white save icon.

Click the *Select File* button to browse your filesystem for a widget .alp@ file.

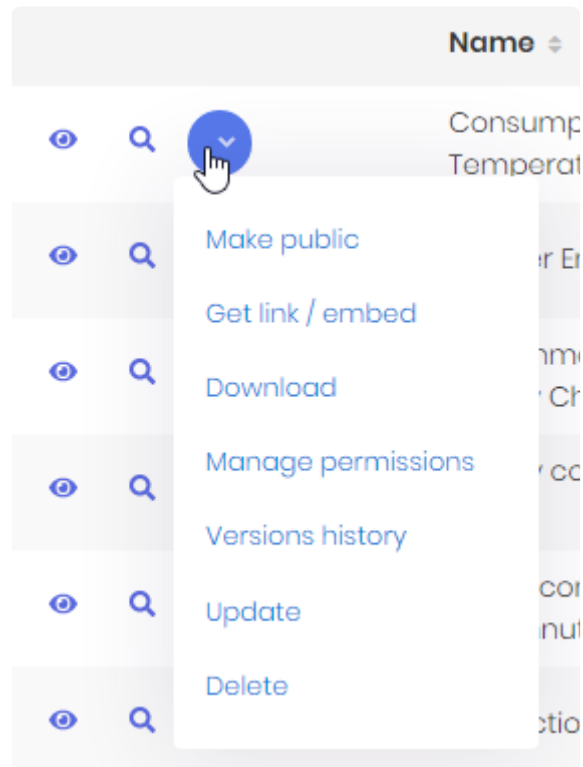
Fill-in a *Name* and optionally a *Description*.

When you click the *Save* button, the Widget is published.

Actions menu

Each published Widget has a set of actions available.

To list those actions, open the widget menu next to the Widget's name :



Some of those actions are detailed in the corresponding chapter :

- *Make public / Make private*
- *Get link / embed*
- *Download*
- *Manage permissions*
- *Versions history*
- *Update*
- *Delete*

Update

This opens the *Edit* dialog to update the Widget's name and description.

You can also upload a new widget `.alpw` file to replace the current one.

If you do so, this will create a new version, so you can input a *Version Comment*.

Edit: Energy consumption details table

Name *

Energy consumption details table


Description


energy consumption details for each equipment

Version Comment

update date format

Select file (.alpw)


Energy consumption details table.alpw 0.036 MB



Download

This downloads the widget .alpw file.

This allows for example to [import it in Alpana Designer](#).

Delete

This deletes the selected Widget.

Make public / Make private

(see [corresponding chapter](#) for Dashboards)

Manage permissions

(see [corresponding chapter](#) for Dashboards)

Get link / embed

(see [corresponding chapter](#))

Versions history

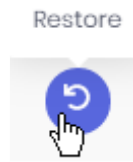
(see [corresponding chapter](#))

Last modified: Feb 17, 2022

Restoring an older Version

By default, the Active Version of a Widget is the latest published. However, you can manually restore any previous Version.

Click the `_ Restore_` button in front of the selected Version :

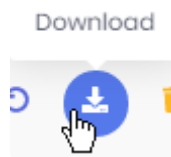


The *Active version* indicator will move back to that older version.

So if you want to restore the latest Version again (or any other Version), just do the same process again.

Downloading an older Version

Click the *Download* button to download the corresponding Version :



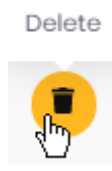
This will download the corresponding widget `.alpw` file.

This is useful for example for studying a previous version, and maybe turning it into a separate Widget.

Deleting an older version

You can delete any previous version.

Click the *Delete* button in front of the corresponding Version :



Last modified: Feb 17, 2022

3.5.4. Linking / Embedding Widgets

Get link / embed

When opening a Widget from its URL, or when embedding it into another tool, you can pass options to control how the Widget is displayed.

From the Widget's action menu, select *Get link / embed* to open the corresponding dialog :

Embed Energy consumption details table
×

Theme

High Contrast

Parameters

<input checked="" type="checkbox"/> Equipment	Packaging_001,Packaging_002
<input type="checkbox"/> Shift	
<input checked="" type="checkbox"/> Building	Building D

Server url

Use the server url to display the element in full page (link to server viewer)

http://192.168.1.48:81/viewer/widget/31bfa9b0-9c3f-4da8-a7a0-7624f53aee61?theme=highcontrast&Equipment=Packaging_001&Equipment=Packaging_002&Building=Buildi

Copy

Embed link

Use the embed link to display the element inside iFrame

http://192.168.1.48:81/embed?widgetId=31bfa9b0-9c3f-4da8-a7a0-7624f53aee61&theme=highcontrast&Equipment=Packaging_001&Equipment=Packaging_002

Copy

Code

Embed in code (requires jQuery)

```

<!-- Inside <HEAD> section (and/or after jQuery) -->
<script src="http://192.168.1.48:81/assets/embed/embed.js"></script>

<!-- The element where to render your widget -->
<div data-host="http://192.168.1.48:81/"
data-widget="31bfa9b0-9c3f-4da8-a7a0-7624f53aee61"

```

Copy

This dialog generates URL's and code to link or embed the Widget.

Options

Select the below options to update the URL and code :

Theme

You may choose to override the Widget's [Theme](#).
Select the desired Theme from the list.

Parameters

You may choose to override the Widget's [Parameter's default values](#).
Check the Parameters you wish to override, and fill-in the desired values.

Results

After configuring the desired options, you can *Copy* the results from the text boxes at the bottom of the dialog :

Server URL

This will display the Widget with the same visuals as when normally viewing with Alpana Server's dashboard viewer.

Embed link

This is a clutter-free version of the dashboard viewer : there is no top bar, no controls, no logo.
This is useful for embedding because the Widget will fit better in smaller spaces, and because the controls (like Pin Widget) are usually not meaningful in this context.

Code

This is for embedding inside another web page that uses jQuery.



Note : the containing element needs to specify a size, otherwise the Alpana div will have a 0px size.



Important : when embedding, you will need to let Alpana [whitelist your site for CORS requests](#).
Otherwise, Alpana content will not appear.

Last modified: Feb 17, 2022

3.6. Data Sources

Data Sources are basic bricks of construction for Dashboards..

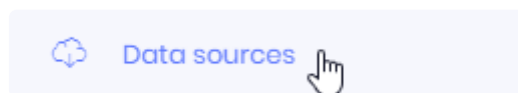
They are created using [Alpana Designer](#).

“Publishing a Data Source” means pushing it to Alpana Server to make it available to other users on the platform.

Publishing Data Sources can be useful for re-use : published Data Sources are a library of prepared queries that can be downloaded to compose new Dashboards.

This section describes publishing, viewing and managing Data Sources.

To access Data Source management, use the *Data Sources* menu :



Last modified: Feb 17, 2022

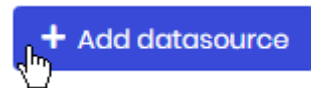
3.6.1. Managing / Publishing Data Sources

Publishing from Alpana Server

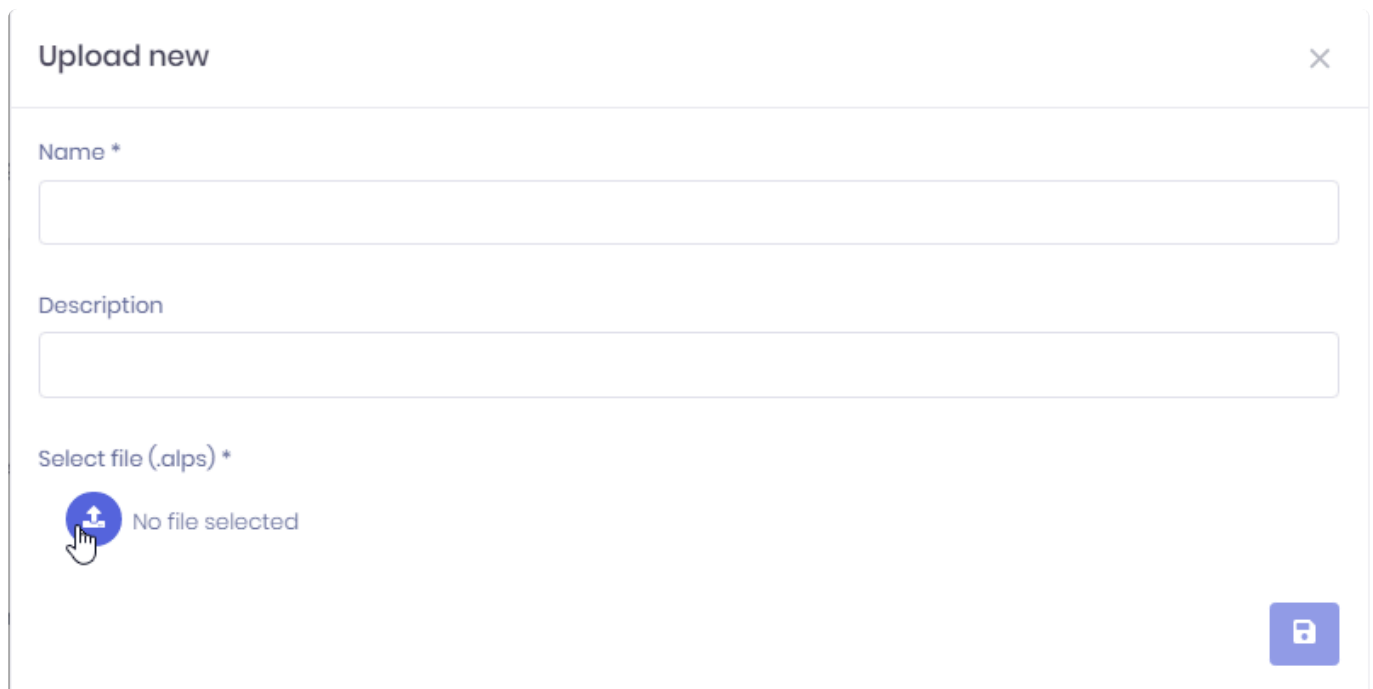
Data Sources can be [published from Alpana Designer](#).

Alternately, you can publish a Data Source `.alps` file directly to the Server.

Click the *Add datasource* button :



This opens the *Upload New* dialog :

A dialog box titled "Upload new" with a close button (X) in the top right corner. It contains three input fields: "Name *" (required), "Description", and "Select file (.alps) *" (required). Below the "Select file" label is a blue circular button with a white upload icon and the text "No file selected". A mouse cursor is pointing at the upload icon. In the bottom right corner of the dialog is a blue square button with a white save icon.

Click the *Select File* button to browse your filesystem for a datasource `.alps` file.

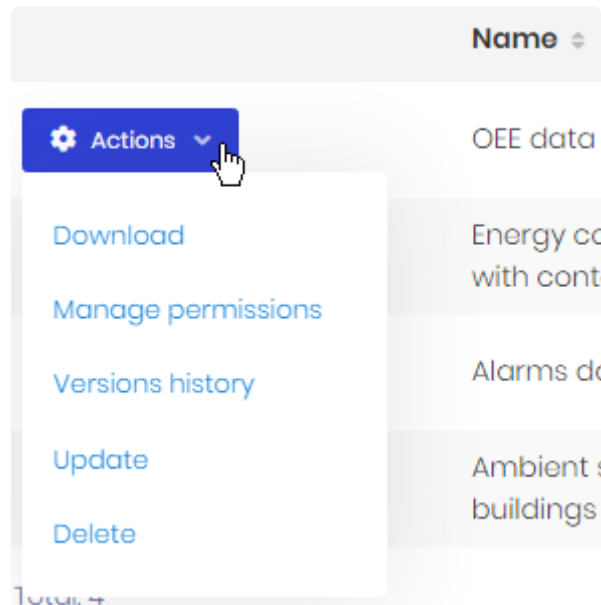
Fill-in a *Name* and optionally a *Description*.

When you click the *Save* button, the DataSource is published.

Actions menu

Each published DataSource has a set of actions available.

To list those actions, open the datasource menu next to the DataSource's name :



Some of those actions are detailed in the corresponding chapter :

- *Download*
- *Manage permissions*
- *Versions history*
- *Update*
- *Delete*

Download

This downloads the datasource `.alps` file.

This allows for example to [import it in Alpana Designer](#).

Update

This opens the *Edit* dialog to update the DataSource's name and description.

You can also upload a new widget `.alps` file to replace the current one.

If you do so, this will create a new version, so you can input a *Version Comment*.

Edit: Alarms data in context



Name *

Alarms data in context

Description

All the alarms, with all available context

Version Comment

add Building information

Select file (.alps)



Alarms data in context.alps 0.027 MB ✕



Delete

This deletes the selected Widget.

Manage permissions

(see corresponding chapter)

Versions history

(see corresponding chapter)

Last modified: Feb 17, 2022

3.6.2. Data Sources Version History

Every time you over-write an existing Data Source, the previous version is saved also.

The Version History allows you to see the changes applied to a Data Source, and restore a previous state.














Opening the Versions History

From each Data Source action menu, select *Versions history* to open the dialog.





Viewing Version History

The Versions History dialog shows a paginated list of Versions :

Versions History ✕

Version# ▼	Creation time ▲	Version Comment	
5 - Active version	Wednesday, June 5, 2019 5:36 PM		
4	Tuesday, May 28, 2019 7:09 PM	fix connection	  
3	Friday, May 17, 2019 5:42 PM	fix data source	  
2	Tuesday, April 23, 2019 10:44 AM		  
1	Tuesday, March 26, 2019 5:25 PM	Created	  

Total: 5

  1  

5 ▼

Each Version displays :

- a Version Number
- its Creation Time
- an optional Version Comment

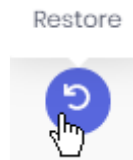
You can sort the list by version number and creation time by clicking on the corresponding column headers.

You can browse versions pages and choose a page size at the bottom of the dialog.

Restoring an older Version

By default, the Active Version of a Data Source is the latest published. However, you can manually restore any previous Version.

Click the `_ Restore_` button in front of the selected Version :

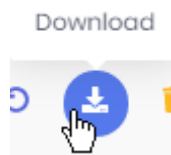


The *Active version* indicator will move back to that older version.

So if you want to restore the latest Version again (or any other Version), just do the same process again.

Downloading an older Version

Click the *Download* button to download the corresponding Version :



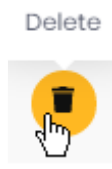
This will download the corresponding Data Source `.alps` file.

This is useful for example for studying a previous version, and maybe turning it into a separate Data Source.

Deleting an older version

You can delete any previous version.

Click the *Delete* button in front of the corresponding Version :



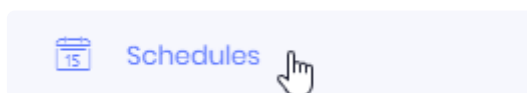
Last modified: Feb 17, 2022

3.7. Schedule Management

Alpana Server integrates a schedule management that allows to automate tasks.

This chapter describes those Schedules and their usage.

To access Schedule management, use the *Schedules* menu :




Last modified: Feb 17, 2022

3.7.1. Schedules management

Actions menu

Each Schedule has a set of actions available.

To list those actions, open the schedule menu next to the Schedule's name :

Name	Creation time	Last run	Next run	Enabled	
refresh screens	Monday, October 28, 2019 9:07 AM		Tuesday, October 29, 2019 12:00 AM	✗	<div>  Actions </div> <div> Edit </div> <div> Run now </div> <div> Enable </div> <div> Delete </div>
my export	Wednesday, September 4, 2019 2:00 PM	Monday, October 28, 2019 8:30 AM	Wednesday, October 30, 2019 8:30 AM	✓	

Total: 2

Navigation: ⏪ ◀ 1 ▶ ⏩

Some of those actions are detailed in the corresponding chapter :

- *Edit*
- *Run now*
- *Enable / Disable*
- *Delete*

Edit

This opens the *Edit* dialog to update the Schedule.

This dialog is detailed in the chapter dedicated to [Creating a Schedule](#).

Run now

This forces the Action to run now, instead of waiting for the Trigger to happen.

Enable / Disable

This allows to enable or disable the Schedule.

The Schedule will only run if it is Enabled.

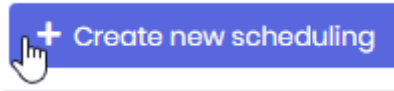
Delete

This deletes the selected Schedule.

3.7.2. Creating a Schedule

This chapter describes creating a new Schedule or editing an existing Schedule.

To create a new Schedule, click the *Create new scheduling* button :



A Schedule is composed of 4 types of properties that correspond to the 4 steps of creating the Schedule :

1. *Main* : the source of the Schedule (which Dashboard)
2. *Trigger* : the event that will trigger the Schedule
3. *Actions* : what the Schedule will do
4. *Targets* : who will receive the result

To navigate across the steps, you can use the *Previous / Next* buttons :



..., or you can click on the corresponding step :



Last modified: Feb 17, 2022

3.7.2.1. Main

 Enabled

Name *

Alarms export

Dashboard *

Alarms Analysis

Select dashboard

Enabled

This allows to enable the Schedule as soon as it will be created.

Name

The Schedule *Name* is used for identifying it in the list.

It can also be used as a placeholder inside the e-mail sent to users.

Dashboard

This is the dashboard that will be used as a Trigger (if using the “Data condition” mode) and as an attachment Action (when exporting the Dashboard to send as a e-mail).

If you opened the “Create Schedule” dialog from the Dashboards action menu, then the Dashboard is already selected.

Otherwise, click the *Select dashboard* button.

This opens the *Select dashboard* dialog to let you find the desired Dashboard :

Select dashboard



Search...

▶ Alpana integrations (5)

▶ Production Planning (2)

▶ Energy (3)

▼ Alarms (2)

Alarms Analysis

Alarm Details

▶ Maintenance (2)

Cancel

Save

Last modified: Feb 17, 2022

3.7.2.2. Trigger

The Trigger defines the event that will trigger the Action.

There are two types of Triggers :

- *Timer* : the event happens on a regular time-based schedule
- *Data condition* : the event happens when a condition is met

Last modified: Feb 17, 2022

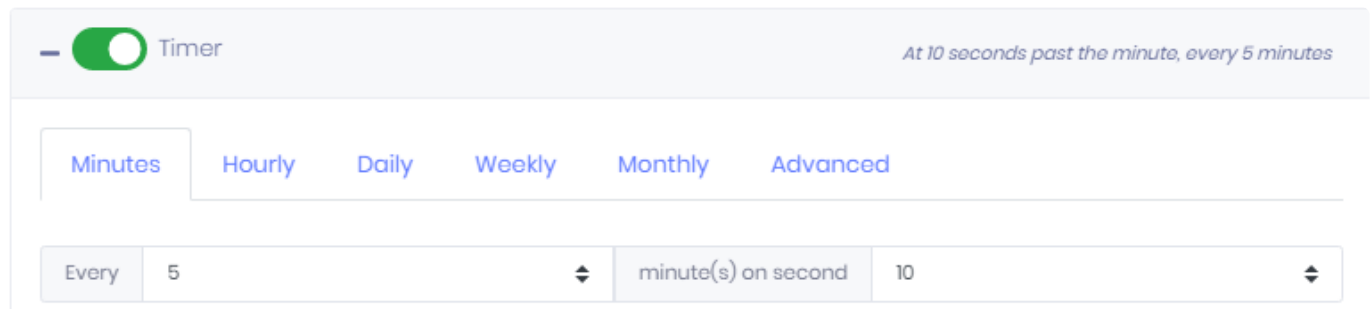
3.7.2.2.1. Timer

Timed triggers can be defined in several ways depending on the desired time scale.

You can select a time scale from the corresponding tabs :

Minutes

Select a frequency in minutes :



The screenshot shows the 'Timer' configuration interface. At the top, there is a toggle switch labeled 'Timer' which is turned on. To its right, the text 'At 10 seconds past the minute, every 5 minutes' is displayed. Below this, there are six tabs: 'Minutes', 'Hourly', 'Daily', 'Weekly', 'Monthly', and 'Advanced'. The 'Minutes' tab is selected. Under the 'Minutes' tab, there is a configuration row with three main sections: 'Every' with a value of '5', a unit dropdown showing 'minute(s) on second', and a value dropdown showing '10'.

You can also specify a “second”. This means that the trigger will happen when the second is equal to the selected second.

Example :

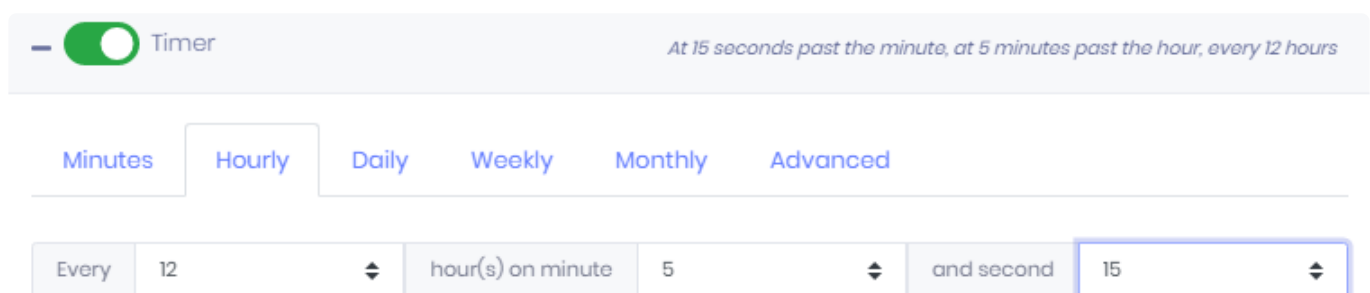
I configured “Every 5 minutes on second 10”.

This means the trigger will happen at :

- 11:00:10
- 11:05:10
- 11:10:10
- 11:15:10
- 11:20:10
- ...

Hourly

Select a frequency in hours :



The screenshot shows the 'Timer' configuration interface with the 'Hourly' tab selected. The toggle switch 'Timer' is on, and the text 'At 15 seconds past the minute, at 5 minutes past the hour, every 12 hours' is displayed. The configuration row shows: 'Every' with a value of '12', a unit dropdown showing 'hour(s) on minute' with a value of '5', and a section labeled 'and second' with a value of '15' highlighted by a blue border.

You can also specify a “minute” and a “second”. This means that the trigger will happen when the minute:second is equal to the selected minute:second.

Example :

I configured “Every 12 hours on minute 5 and second 15”.

This means the trigger will happen at :

- 2019-10-28 at 11:05:15
- 2019-10-28 at 23:05:15
- 2019-10-29 at 11:05:15
- 2019-10-29 at 23:05:15
- ...

Daily

Select a frequency in days :

Timer

At 08:30:15 AM

Minutes

Hourly

Daily

Weekly

Monthly

Advanced

Every

1

day(s) at

8

:

30

:

15

You can also specify a “hour”, a “minute” and a “second”. This means that the trigger will happen when the hour:minute:second is equal to the selected hour:minute:second.

Example :

I configured “Every 1 day on hour 8 on minute 30 and second 15”.

This means the trigger will happen at :

- 2019-10-01 at 08:30:15
- 2019-11-01 at 08:30:15
- 2019-12-01 at 08:30:15
- ...

Weekly

Select desired days of the week :

- 2019-12-02 at 09:15:30
- 2020-01-02 at 09:15:30
- ...

Advanced

For more complex trigger expressions, you can use [CRON expressions](#)

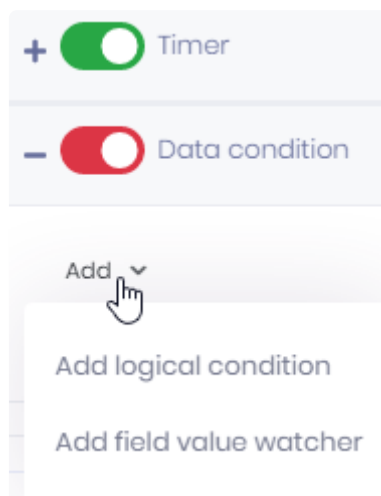
The supported expressions are documented here : <https://www.quartz-scheduler.net/documentation/quartz-3.x/tutorial/crontrigger.html>

Data condition

✿ Note : to define a *Data condition* trigger, you must also set a *Timer*. This is needed to define when the condition will be checked.

To add a Data Condition, select the desired type :

- *Add logical condition* : this allows to compare a widget field value to a target for example
- *Add field value watcher* : this allows to follow a field value over time



Logical Condition

Field value watcher

=====

condition add logical condition add field value watcher configure criteria for combining conditions list conditions remove condition logical condition select widget from dashboard select truth criteria configure comparison with Field, Operator, Const configure comparison with Field, Operator, Field combine comparisons with boolean operators : add/remove branches, add child comparison or boolean operator filter condition with Field, Operator, Const filter condition with Field, Operator, Field field value watcher select widget from dashboard select field from widget watch value changes watch value does not change

configure deadband with widget date/time field configure change thresholds low/high, in absolute or percentage of value filter condition with Field, Operator, Const filter condition with Field, Operator, Field

Last modified: Feb 17, 2022

3.7.2.2.2. Data condition



Note : to define a *Data condition* trigger, you must also set a *Timer*.
This is needed to define when the condition will be checked.

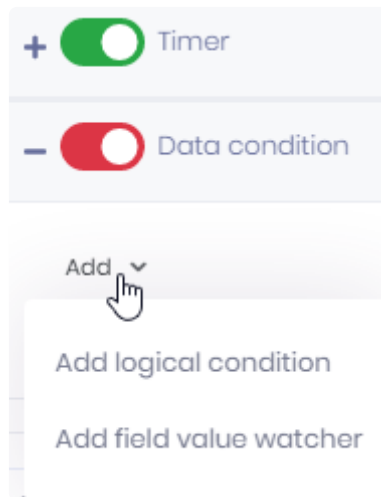
Last modified: Feb 17, 2022

3.7.2.2.1. Managing conditions

Adding a condition

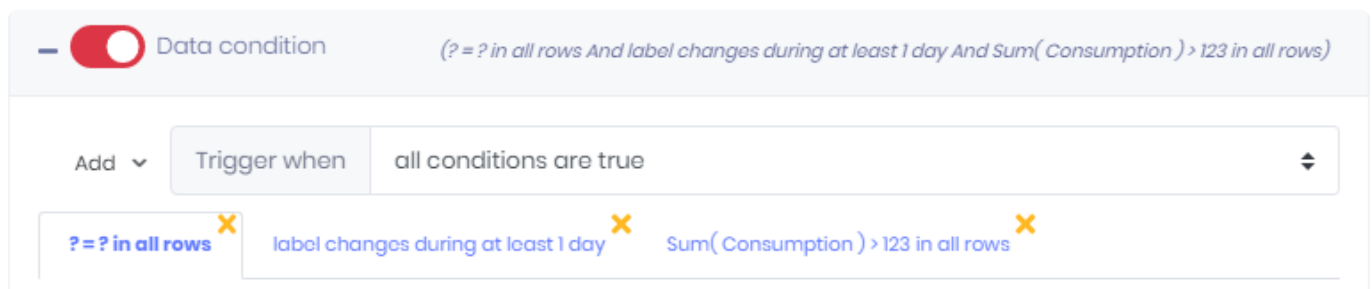
To add a Data Condition, select the desired type :

- *Add logical condition* : this allows to compare a widget field value to a target for example
- *Add field value watcher* : this allows to follow a field value over time



Combining conditions

When several Conditions are combined, you can browse them using tabs, and delete them using the cross icon on the corresponding tab :



You can also define how the Conditions will be combined.

Select a rule from the *Trigger when* list :

- *Trigger when all conditions are true*
- *Trigger when at least one condition is true*
- *Trigger when non conditions are true*
- *Trigger when exactly one condition is true*

Last modified: Feb 17, 2022

3.7.2.2.2. Logical condition

Logical conditions have three tabs to configure :

Data selection



Data selection Condition details Filter

Source widget *

Alarm Analysis

To consider condition as true *

All rows must match

This is where you define which Widget will be used to get the data : the *Source Widget*.
The list contains all Widgets of the selected Dashboard.

You can also define the rule to consider the condition to be true :

- *All rows must match*
- *At least one row must match*
- *No rows must match*
- *First row must match*
- *Last row must match*
- *A minimum number of rows must match* (you must also configure the minimum number of rows to match)
- *A minimum number of rows must match, without break* (you must also configure the minimum number of rows to match)

This means that when the Widget query returns several rows of data, you are able to define a truth rule more precisely.

✿ **Note :** on widgets that aggregate data (for example with fields configured as `SUM(myField)`), then the result is only a single row of data, aggregated over all the widget.

Condition details

This is where you configure the condition itself.

The condition is composed of Comparisons : boolean expressions that compare Widget fields to another value.

Configuring a Comparison

To configure a Comparison, you need to configure :

Data selection **Condition details** Filter

Select widget field =

☐ Field
☒ Const

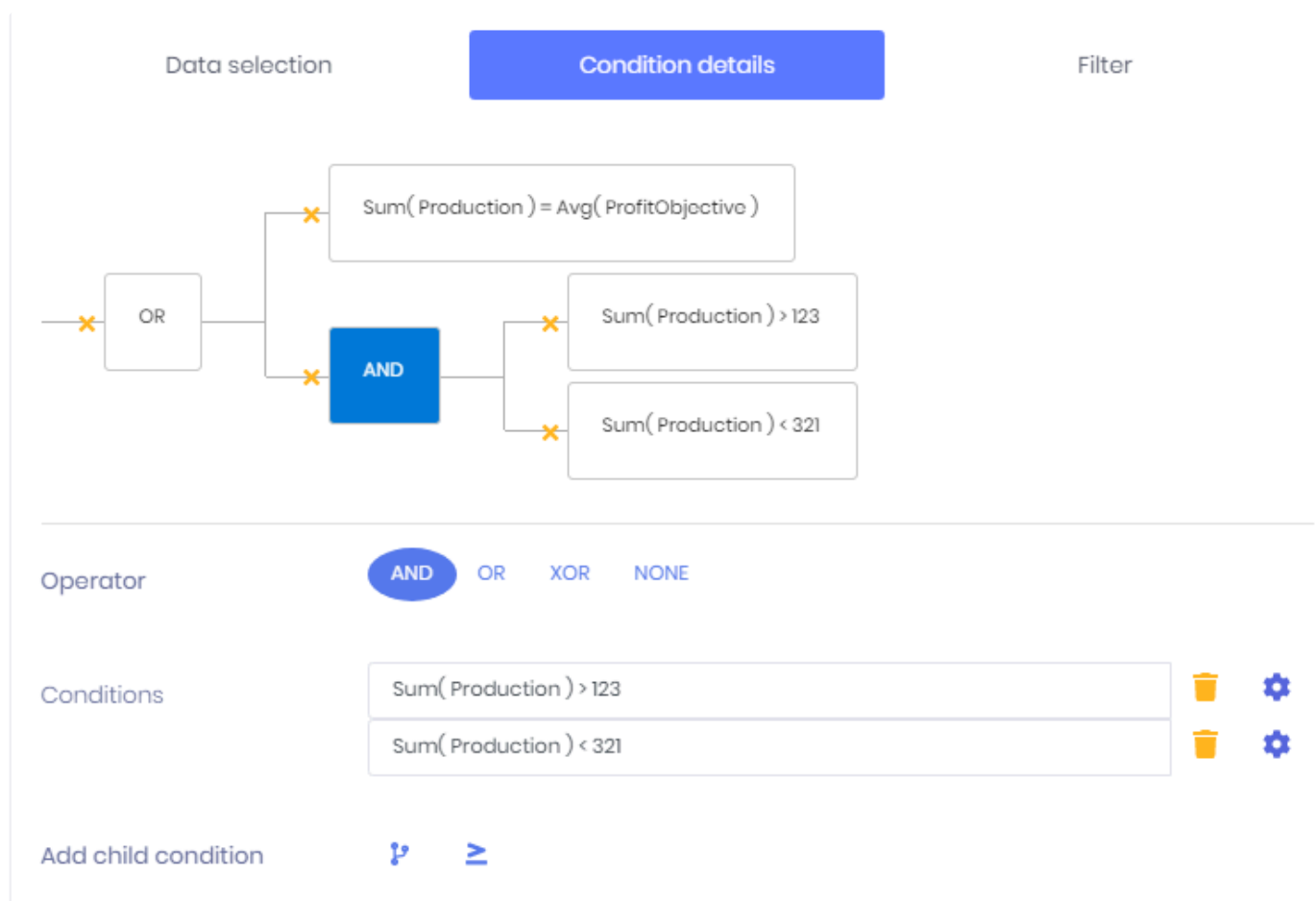
*AND *OR *XOR *NONE

Enter value

- a Widget field (belonging to the Widget selected in the *Data selection*)
- a boolean operator (=, <>, >, >=, <, <=)
- a reference value. This can be a constant (*Const*) that you enter manually now, or another *Field* from the Widget (like a target or threshold value)

Combining Comparisons

Optionally, you can use logical Operators (AND, OR, XOR, NONE) to combine several Comparisons together :



The Comparisons are linked together by Operators inside a tree.
To delete a node of the tree, click the corresponding cross icon.
To configure a node, click on it.

On an Operator, you can :


- modify the Operator to select a different Operator
- modify or delete children Conditions
- add a child Conditions, which can be another Operator or a Comparison

Filter

You can also filter the result to only accept some data :

Data selection

Condition details

 Filter

☒ Perform condition check only on rows matching following statement

FactoryName

=

☐ Field

☒ Const

Paris,Aix

You can create a filter on a string field for example.

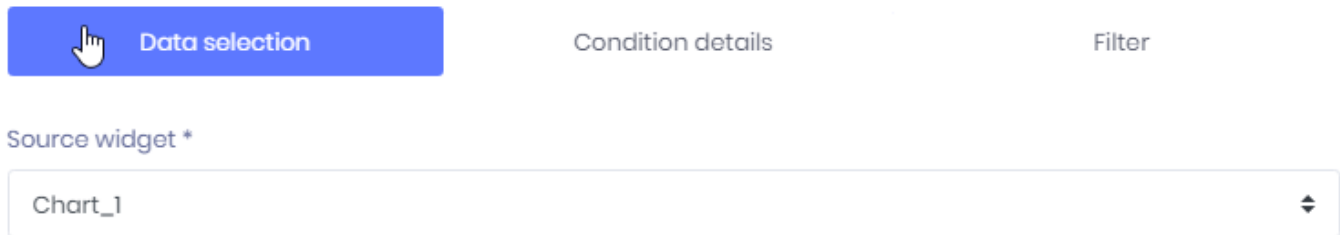
Last modified: Feb 17, 2022

3.7.2.2.2.3. Field value watcher

The Field Value Watcher will look at data changes over time to detect when a KPI goes out of a normal state.


Field value watchers have three tabs to configure :

Data selection



The screenshot shows the 'Data selection' tab of the Field Value Watcher configuration. It features three tabs: 'Data selection' (active, highlighted in blue), 'Condition details', and 'Filter'. Below the tabs, there is a label 'Source widget *' and a dropdown menu with 'Chart_1' selected. A small up/down arrow is visible on the right side of the dropdown.

This is where you define which Widget will be used to get the data : the *Source Widget*.
The list contains all Widgets of the selected Dashboard.

 The Field Value Watcher requires a Date field, so you must have at least one in your widget.

Condition details

This is where you configure the condition itself.

Data selection
Condition details
Filter

Sum(Production)

☒ Value does not change
☐ Value changes

Duration deadband

Value
1

Unit
Hour(s)

Source field
Date(Date)

☒ Consider value changed when outside of following bounds

Low threshold
95

High threshold
105

☒ As percent of target value

Select field to watch

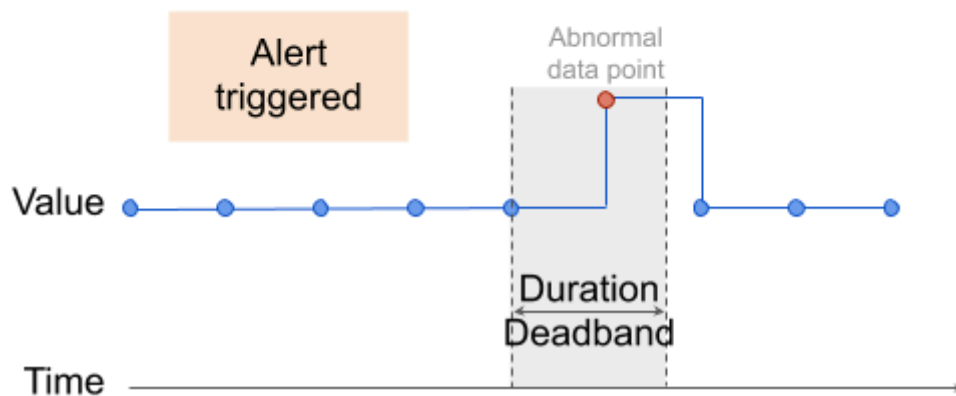
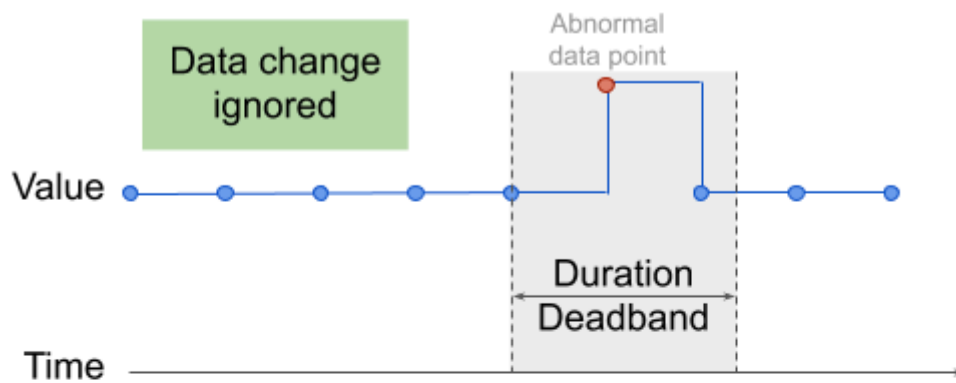
Select which measure field from the data of the Widget you need to watch.

Value does not change / Value changes

Select if you want to be alerted when the value stays the same, or when the value changes.

Duration deadband

Allows to define a deadband to ignore changes that happen too fast.
This requires a date field from the Widget.



If the duration between two consecutive constant values is always smaller than the Deadband, then the abnormal values are ignored.

Consider value changed when outside of following bound

This allows to define a value interval to consider that the value really changed.
This can be expressed in absolute value, or *As percent of the target value*.

Filter

You can also filter the result to only accept some data :

Data selection
Condition details

Filter

Perform condition check only on rows matching following statement

FactoryName

=

Paris,Aix

☐ Field
☒ Const

You can create a filter on a string field for example.

Last modified: Feb 17, 2022

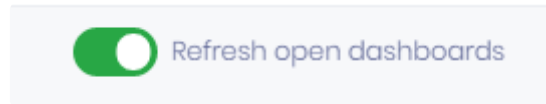
3.7.2.3. Actions

The Action defines what will be executed when the Trigger happens.

There are two types of Actions :

Refresh open dashboards

This will force open the Dashboards of the *Target* users to refresh.



This is useful for implementing **even-based refresh** :

You have a Dashboard on a TV screen logged with `UserTV`.

You want to refresh the data in the Dashboard only when a new batch has been completed.

You set up :

- a *Trigger* that is based on a *Data Condition* corresponding to “batch was completed”.
- an *Action* to *Refresh open dashboards*
- as *Target*, User `UserTV`

Send email

This will send an e-mail to the *Targets* with an export of the Dashboard as attachment :



Attachment format

Select the desired file format for the attachment :

- *Image*
- *PDF*
- *Excel*

The Dashboard will be exported to the corresponding format and attached to the e-mail.

Layout Configuration

Image and *PDF* exports require to choose a [Layout](#).

Subject









Write the subject field of the e-mail.

Content

Write the content of the e-mail using a rich text editor.

Subject *

automated export of {DASHBOARD}

Normal ▾ Sans Serif ▾ **B** *I* U A        

Hello,

This is an automated export of {DASHBOARD} triggered by {SCHEDULING}
Please find attached the export.

Best regards,
Alpana

Placeholders

In the content and Subject, you can use some placeholders for displaying some variables values :

{SCHEDULING} : the name of the Schedule that is running
{DASHBOARD} : the name of the Dashboard exported

Last modified: Feb 17, 2022

3.7.2.4. Targets

The *Targets* are the intended recipients of the Schedule : the *Action* will be performed for them only. You can see this as a mailing list for example.

The interface displays two main sections: Roles and Users. Each section has an 'Available' list on the left and a 'Subscribed' list on the right, connected by four blue arrow buttons: a single right arrow (>), a double right arrow (>>), a single left arrow (<), and a double left arrow (<<).

Available roles

- User

Subscribed roles

- Admin

Available users

- admin
- tester
- paul
- user1

Subscribed users

- user2
- user4
- user6

External mail addresses, separated by a comma (,) *

information@code192.com ,support@code192.com

Adding/removing Targets

To add an item (Role, User) from the list of Available items, select it and click the **>** icon.

To add all items from the list of Available items, click the **>>** icon.

To add an item from the list of Subscribed items, select it and click the **<** icon.

To add all items from the list of Subscribed items, click the **<<** icon.

Roles

You can target a list of Roles.

All users who have this Role will be a Target.

This is the most efficient way to maintain the Targets, because you won't have to edit the Schedule anymore, only the Role.

For example, if you want to add or remove users as Targets of this Schedule, you can just add or remove the dedicated Role to them.

Users

You can target a list of Users.

All individually selected users will be a Target.

External e-mails

You can target a list of e-mails.

This allows to send e-mails to users who are not registered Users on Alpana Server.

To include several e-mails, use the comma , character.

This is the least efficient way to manage it, because you will have to edit the Schedule every time the e-mail changes.

Also, you won't be able to force a Refresh as an *Action*.

Last modified: Feb 17, 2022

3.8. Homepages and Pinning Widgets

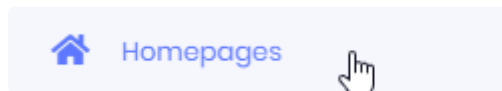
Homepages are visual bookmarks of Widgets that can come from any Dashboard.

The action of selecting a Widget for adding it to a Homepage is called “Pinning the Widget to the Homepage”.

Your default Homepage is the first page that is displayed when you connect to Alpana Server.

This is useful for easily recomposing Dashboards based on existing visualizations and monitoring KPIs easily as soon as you connect.

To access Homepages, use the *Homepages* menu :

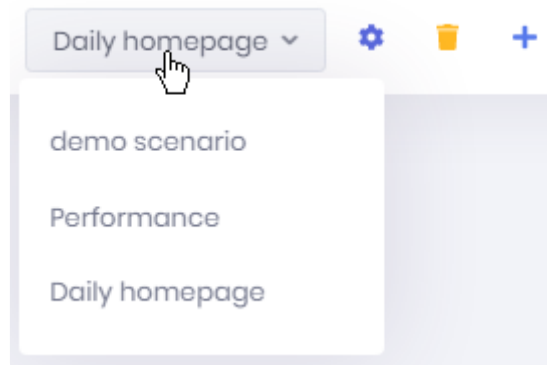


Last modified: Feb 17, 2022

3.8.1. Viewing Homepages

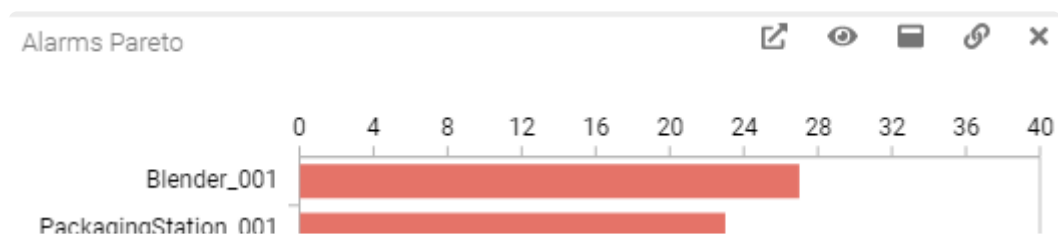
By default, your *Default* Homepage is displayed.

To select a different Homepage, use the list :



Widget controls

Each widget has a set of controls attached :



Open Dashboard

This button allows you to open in a new tab the Dashboard that originally contained this Widget :



This allows to see the Widget in the context of its full Dashboard and get more context information where it came from.

Open in new tab

This button opens the selected Widget as a full page in a new tab :



Maximize

This button opens the selected Widget as maximized in the current page :



Embed

This button opens [the Get Link / Embed dialog](#) for the corresponding Widget :



Last modified: Feb 17, 2022

3.8.2. Creating Homepages

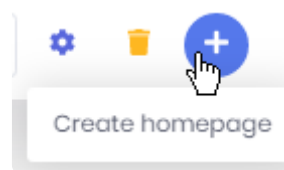
To create a new Homepage, you can either :

- add an empty Homepage from the *Homepages*
- create a new Homepage on the fly when Pinning a Widget from a Dashboard

Create Homepage

Create an empty Homepage

Click the *Create homepage* button to add a new empty homepage :



Fill-in the desired *Name* and [Theme](#), optionally, select this to be your Default Homepage (opened first) :

Create homepage

×

Name *

Weekly homepage

Set as default

☒

Theme *

Material

⌵

Pin dashboard

☐

Cancel

Save

Click **Save**, and your Homepage is ready to be used for Pinning Widgets to it.

Pin dashboard

Instead of an empty Homepage that could be used for pinning Widgets, you can choose to pin a fill Dashboard.

Check *Pin dashboard* and click *Select dashboard* to browse for the desired Dashboard :

Pin dashboard ☒

Select dashboard

Search...

- ▶ Alpana integrations (5)
- ▶ Production Planning (2)
- ▶ Energy (3)
- ▶ Alarms (2)
- ▼ Maintenance (2)
 - Intervention Requests Analysis
 - Current Requests**

Cancel Save

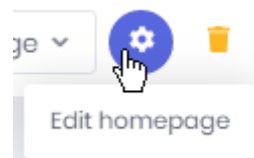
The selected Dashboard will be pinned entirely to the Homepage.

✿ When a Homepage contains a Pinned Dashboard, it cannot have any other content (like Pinned Widgets)

Edit homepage

Once created, the Homepage can be edited.

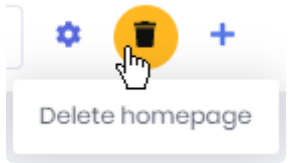
Click the *Edit homepage* button to open the dialog again and change the *Name*, *Theme* and *Default* status of the Homepage :



Delete homepage

Once created, the Homepage can be deleted.

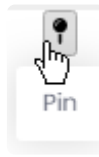
Click the *Delete homepage* button to delete it :



Last modified: Feb 17, 2022

3.8.3. Pinning Widgets

Widgets can be configured to show a “*Pin*” control.
This control allows to Pin the Widget to a Homepage.



This opens the *Pin widget to homepage* dialog where you can :

Pin to existing homepage

This sends the widget to an existing Homepage :

Pin widget to homepage ×

☒ Pin to existing homepage ☐ Pin to new homepage

Target homepage *

Daily homepage ▼

Cancel Save

Select the desired Homepage from the list, and click **Save**.

Pin to new homepage

This creates a new Homepage and sends the Widgets there :

Pin widget to homepage

☐ Pin to existing homepage☒ Pin to new homepage

Name *

Set as default



Theme *



Give a *Name* to this new Homepage, select a [Theme](#), and decide if you want it as your Default Homepage.

Last modified: Feb 17, 2022

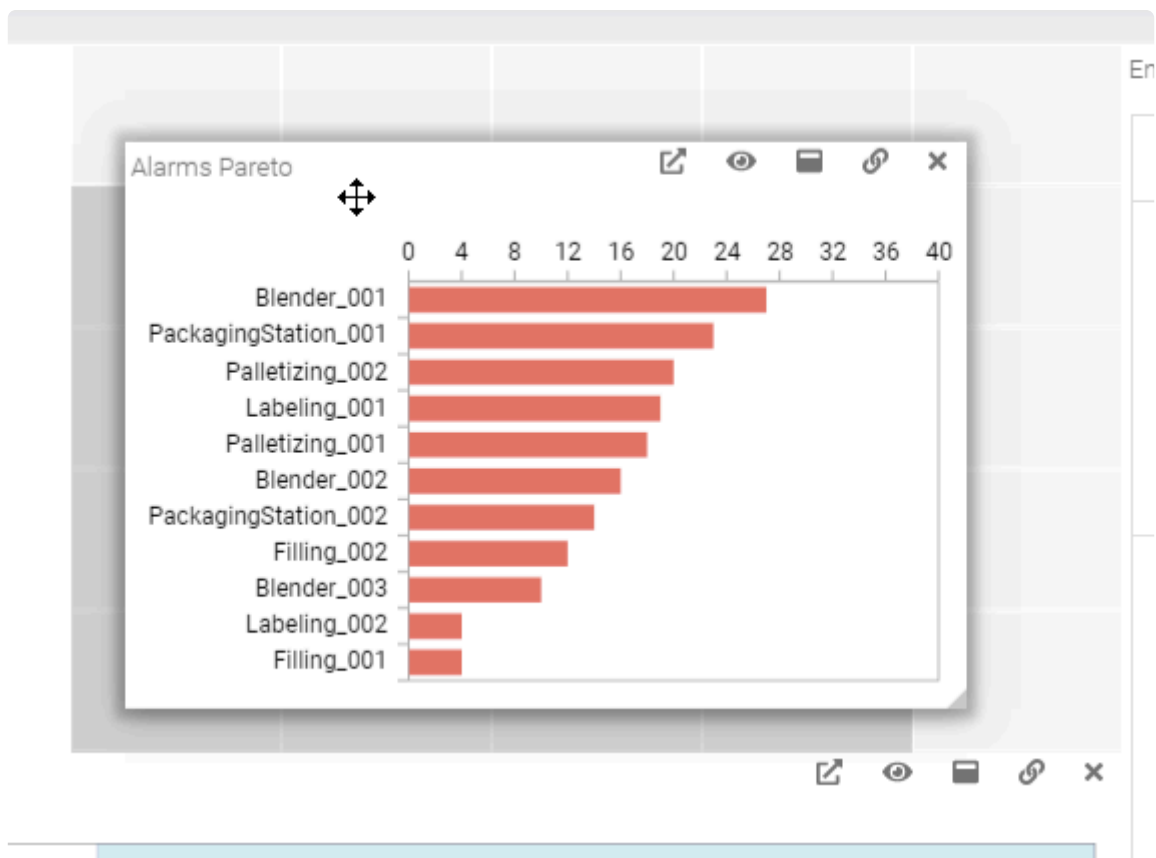
3.8.4. Editing the Homepage Layout

After Pinning Widgets to the Homepage, you can manually arrange the layout.

✿ Note : If a full Dashboard is pinned, the layout cannot be modified.

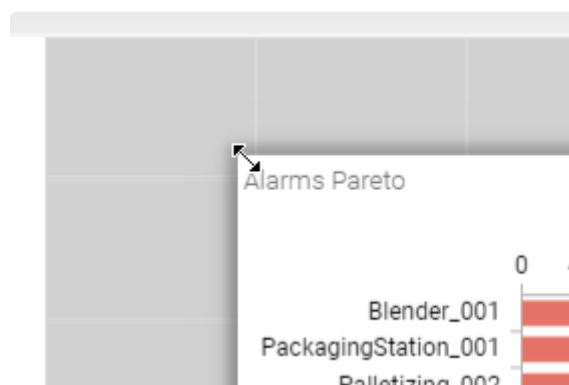
Moving a Widget

To move a Widget to the desired place, grab it by the title and drag it :



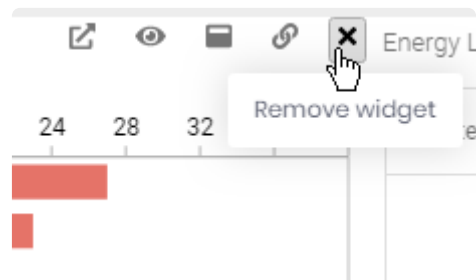
Resizing a Widget

To resize a Widget, use the sides and corners :



Removing a Widget

If you wish to remove the Widget from the Homepage, click the cross icon in the controls of the Widget :



Last modified: Feb 17, 2022

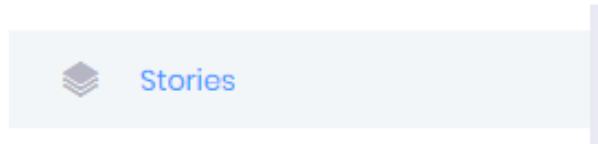
3.9. Stories

Alpana Stories are a collection of item displayed in a slideshow.

You can include in a story multiple Dashboards and images to create a page where all items will cycle automatically.

It can be used for entrance site screen to show relevant informations to visitors or inside factory to display production kpi.

Stories can be found in the alpana server menu

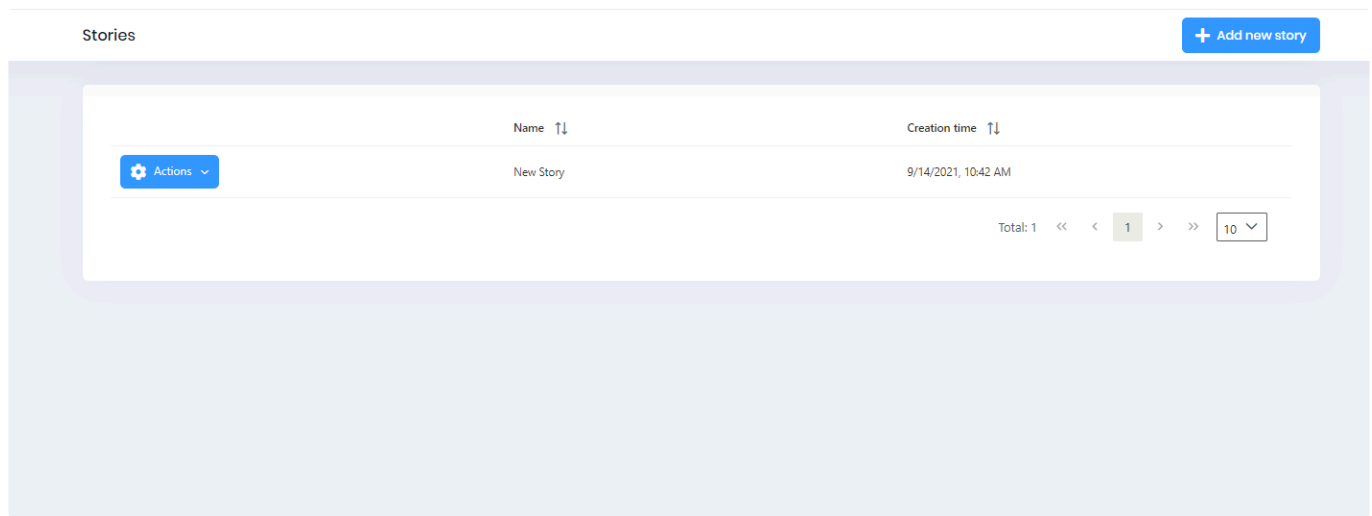


This feature has to be enabled in your tenant, you can find information [here](#).

Last modified: Feb 17, 2022

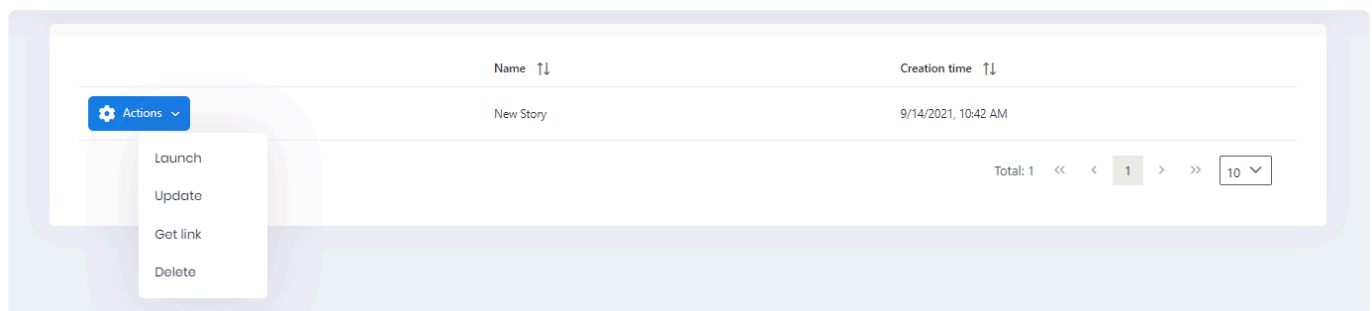
3.9.1. Viewing Stories

Once the Stories is opened, you will get the list of created Stories. You can Manage your Stories or launch them.



In the action menu, you will manage the selected story :

- Launch : To start viewing the story
- Update : To edit the story
- Get Link : To get the URL of the story to start it on other computer
- Delete : To delete the selected story



Launching a story

Either by getting the link and use it in the adress bar of your web browser or using the launch button, the story will start.

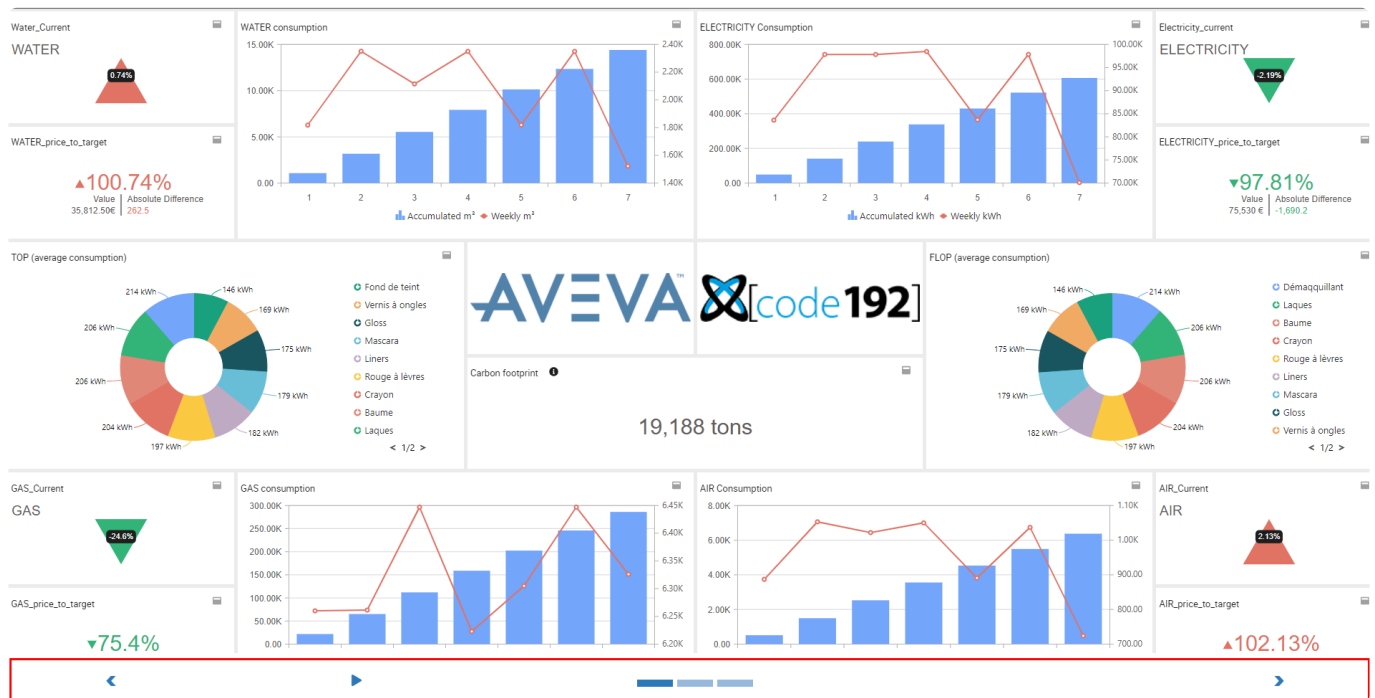
All slides created will cycle one after others taking the maximum space inside the web browser.



A private dashboard will stay private in a story, so you will have to check private/public status of your dashboard to prevent starting stories with private dashboard without being logged to Alpana.

Story view

Once the story is started you can control it with the control bar visible when your mouse go on the bottom part of your slideshow.



The control bar contains possible actions:

- Previous : Go back to the previous slide.
- Play/Pause : To play or pause the slideshow.
- Slide view : you can check which slide is displayed and browsing slide.
- next : Go to the next slide.

✿ The control bar is not visible if your mouse is not over the bottom part of the view.

The story will always loop as long as the slideshow is in play.

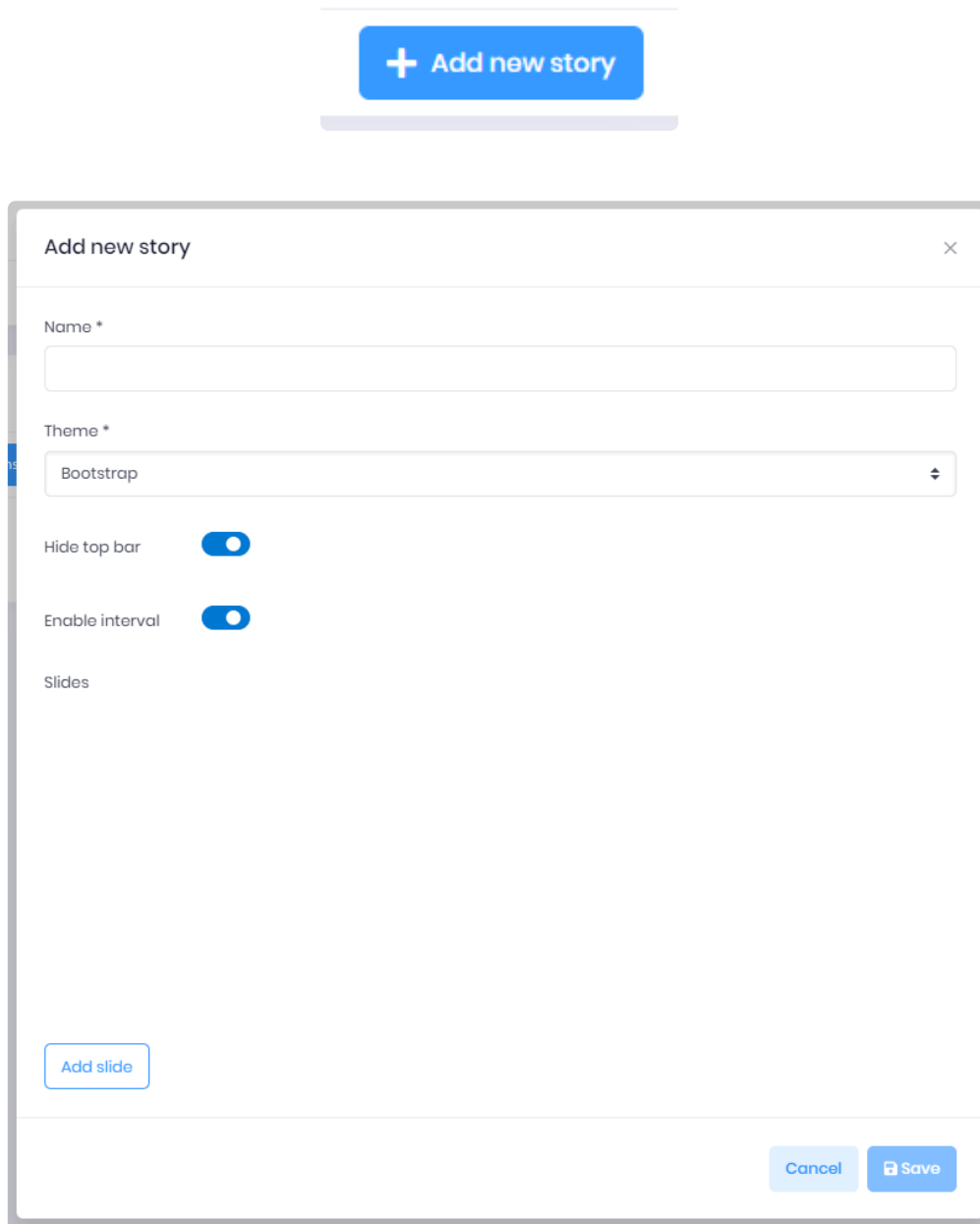
Last modified: Feb 17, 2022

3.9.2. Creating / Editing Stories

In order to show Stories, you will have to create or modify them.

Creating New Story

using the Add new story button will open the creation popup.



The image shows a blue button with a white plus icon and the text '+ Add new story'. Below it is a modal window titled 'Add new story' with a close button (X) in the top right corner. The form inside the modal has the following fields and controls:

- Name ***: A text input field.
- Theme ***: A dropdown menu with 'Bootstrap' selected.
- Hide top bar**: A toggle switch that is currently turned on.
- Enable interval**: A toggle switch that is currently turned on.
- Slides**: A section for adding slides, containing an 'Add slide' button.
- Buttons**: 'Cancel' and 'Save' buttons at the bottom right.

The popup contains :




- **Name** : The name that will be displayed in the Stories list.
- **Theme** : What theme will be used for your slide.
- **Slide list** : All slide configured in the story.
- **Hide Top Bar** : To hide the alpana server topbar when viewing the story.
- **Enable interval** : If disabled, the default interval time will be used.

Adding slide

Using the Add slide button will create item in the story.

You can add item without configuring them and once the quantity of slide is ok, set all information at once.

Slides

None		Dashboard	↕	20	seconds	↑	↓	×
None		Dashboard	↕	20	seconds	↑	↓	×
None		Dashboard	↕	20	seconds	↑	↓	×

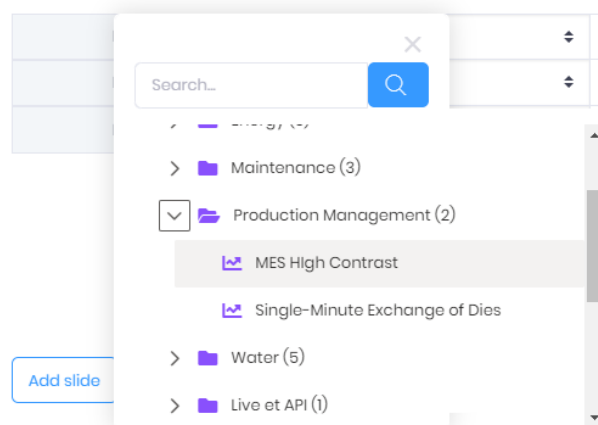
Add slide

The added item contains informations and actions (from left to right) :

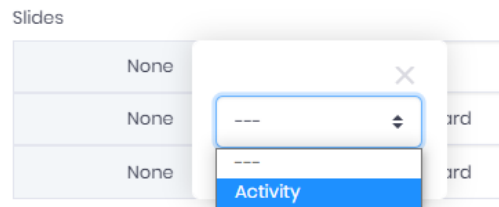
- The content of the slide (the selected dashboard or widget or uploaded image)
- The add content button
- The type of content (Dashboard or Widget or Image)
- The time the slide will be visible
- The Up button, to change slide order
- The Down button, to change slide order
- The delete button, to remove slide from the story

The content of the slide will depend of the type selected :

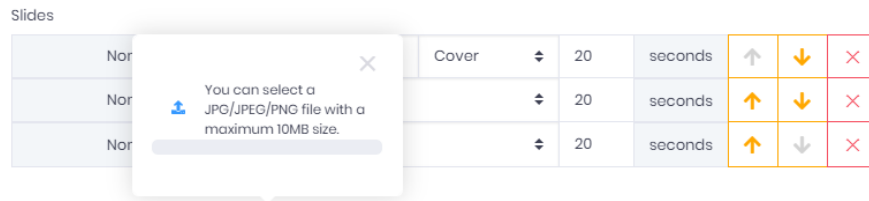
- Dashboard : You will get the dashboard list to select the one you want to show.



- Widget : You will get the widget list.



- Image : You can upload image to your story.



* Consider the network speed before uploading huge image since client will have to download them.

Editing Story

Through the action button you will be able to edit the story.
All action available from the create story popup is available.
You will have to save the change to update your Story.

* Once updated, the running story need to get a refresh (F5) of the web browser.

Last modified: Feb 17, 2022

3.10. Runtime Connections

(new in Alpana 2020 R1)

Alpana Runtime Connections are tables of data hosted within Alpana Server.

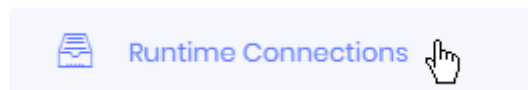
Dashboards can connect to this data to display it inside widgets (see [Alpana Runtime](#) Connection from the Designer).

Dashboards can present data input forms to allow users to fill these tables.

The table's schema and data can be configured in Alpana Server.

A typical use-case is to replace Excel-based data input with a solution that is scalable, secure, and compatible with the usage within a web server.

To access Runtime Connections management within Alpana Server, use the *Runtime Connections* menu :



Last modified: Feb 17, 2022

3.10.1. Folders

Runtime Connections are organized in Folders.
Folders can contain other Folders.

This Chapter documents the management of Folders.

Creating Folders



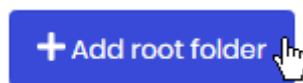
When you install Alpana Server or create a new Tenant, no Folders exist by default.
You will need to create at least one Folder for creating a Runtime Connection.

There are two types of Folders :

1. *root Folders* are at the root of the tree structure.
2. *sub Folders* are nested under root Folders or other sub Folders

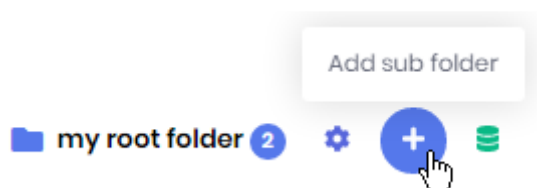
Creating a root Folder

To create a root Folder, click *Add root Folder* :



Creating a sub Folder

To create a sub Folder, click on the desired parent Folder, then click the *Add sub Folder* icon in front of it :




New Folder menu

When creating a Folder, fill in the desired name and click *Save* :

New folder ×

Name *

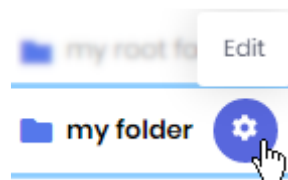
Cancel

 Save

Managing Folders

Editing a Folder

To Edit a Folder, click on it, then click the *Edit* icon in front of it :




This allows you to change the Folder name :

Edit: my folder ×

Name *

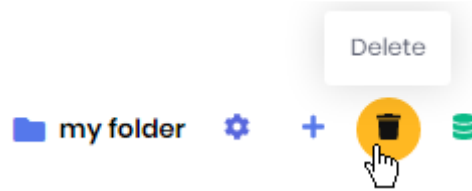
Cancel

 Save

Deleting an empty Folder

* A Folder cannot be deleted while it still contains Runtime Connections, and while any of its Sub Folders contains Runtime Connections.

To Delete a Folder, click on it, then click the *Delete* icon in front of it :



Moving a Folder

To move a Folder, drag it and drop it onto another Folder.

Last modified: Feb 17, 2022

3.10.2. Browsing the Runtime Connections

The Runtime Connections list is composed of :

- a Search bar at the top
- the list of Folders on the left
- the list of Runtime Connections from the selected Folder on the right

The screenshot shows the 'Runtime Connections' interface. At the top is a search bar labeled 'Search...'. Below it is a toggle switch for 'Show folders' (currently on) and a 'Refresh' button. A section labeled 'Hide advanced filters' contains a '+ Add root folder' button. On the left, a folder tree is displayed with folders: 'test' (2 items), 'my root folder', 'scheduling', 'reasons' (expanded), 'downtime', and 'quality'. At the bottom of the tree, a 'logbook' folder is highlighted with 3 items. On the right, a table lists runtime connections under the headers 'Name' and 'Creation time'. The table contains three entries: 'I.T. logbook', 'Maintenance logbook', and 'Operation logbook', all created on 'Tuesday, May 5, 2020 6:41 PM'. Below the table, it says 'Total: 3'. At the bottom right, there are pagination controls showing '1' of 10 items.

Browsing Folders and listing Runtime Connections

Click on a Folder to select it.

The Runtime Connections from that Folder will be listed on the right.

The list is paginated and the page size can be configured at the bottom.

The list can be sorted by Name or by Creation Time.

Filtering the list of Runtime Connections

The Search bar allows to filter Runtime Connections by name.

To clear the filter, just use an empty search.

Last modified: Feb 17, 2022

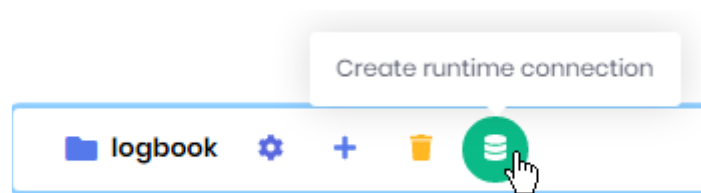
3.10.3. Creating a Runtime Connection table schema

This chapter describes creating the schema for a Runtime Connection table.

This is similar to creating a template form for the user input, or defining a schema for the hosted table.

Creating a new Runtime Connection

Select a folder and click the *Create Runtime Connection* icon :



The *Create Runtime Connection* dialog appears, and lets you configure the name, schema and options of the table.

See below for the detailed properties

Name and Description

The *Name* (compulsory) will be used to identify this Runtime Connection.

The *Description* allows you to optionally add some complementary information.

Create runtime connection

Name *

operator logbook

Description

logging information during shifts

Behavior when adding data

Data push mode



The *Data push mode* defines how new data will be added to the table :

- *Append* : each a new entry will be appended to the existing table. The first (oldest) entries will be removed if they exceed the *Max rows count* parameter.
- *Replace* : each a new entry will completely replace the previous data in the table : all previous rows are removed.

Note : With the *Replace* mode, you can add multiple rows at the same time if you push data using the web API.

Max rows count

Max rows count

This defines a limit to the table size.

Auto fields

Auto fields

Last Edition Date, Last Editor Username

✓ Last Edition Date

✓ Last Editor Username

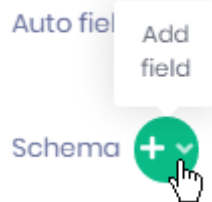
☐ Input Dashboard

Some fields can optionally be included in the data and filled automatically by Alpana :

- *Last Edition Date* : will always contain the date/time when the row was last created or edited
- *Last Editor Username* : will contain the username of the last User who created or edited the row
- *Input Dashboard* : if the row was created from a Dashboard directly, this will contain the Dashboard name

Adding/Removing fields to the schema

Adding a field



To add a new field to the schema, click the *Add Field* button, and select the desired field type in the dropdown menu (see below for details on each field type) :

- *String*
- *Number*
- *Boolean*
- *Date/Time*
- *List of choices*

Editing a field

After adding a field, a new foldable section is created accordingly.
You can click on the arrow icon to fold/unfold the section :



The section will contain properties detailed below.

Field name

Each field must have a name.

Removing a field

To remove a field, click the trash icon in the section header :



Field configuration properties

Each field can be configured with some properties listed below.
These properties and their meaning depend on the field type.

String

A *String* field will contain a free-form text value.

Allow null



When a field is configured to *Allow null* values, then the user can omit filling-in the field in the form, and the data row will contain a `NULL` value for this field.

If this is configured to be false, then the field is compulsory, and the user must input a value.

Default value

A *Default value* can pre-filled when opening the input form :



Max length

The limit on the length of the input string can be configured :



Number

A *Number* field will contain a real or integer number.

Allow null



When a field is configured to *Allow null* values, then the user can omit filling-in the field in the form, and the data row will contain a `NULL` value for this field.

If this is configured to be false, then the field is compulsory, and the user must input a value.

Default value

A *Default value* can pre-filled when opening the input form :

Default value

**Min value / Max value**

A minimum and/or maximum value can be enforced for the number input :

Min value

Max value

Boolean

A *Boolean* field will contain a true/false value.

Allow null

Allow null



When a field is configured to *Allow null* values, then the user can omit filling-in the field in the form, and the data row will contain a `NULL` value for this field.

If this is configured to be false, then the field is compulsory, and the user must input a value.

Default value

A *Default value* can pre-filled when opening the input form :

Default value

☒

(none)

False

True

Date/Time

A *Date/Time* field will contain a timestamp composed of a date and a time.

Allow null

Allow null

☒

When a field is configured to *Allow null* values, then the user can omit filling-in the field in the form, and the data row will contain a `NULL` value for this field.
If this is configured to be false, then the field is compulsory, and the user must input a value.

Default value

A *Default value* can pre-filled when opening the input form, and configured by selecting from a calendar :

Default value

☒

Min date

Max date

Allow full date

☐

<

June

2020

>

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
23	31	1	2	3	4	5	6
24	7	8	9	10	11	12	13
25	14	15	16	17	18	19	20
26	21	22	23	24	25	26	27
27	28	29	30	1	2	3	4
28	5	6	7	8	9	10	11

Min date / Max date

A minimum and/or maximum date can be enforced for the input.

This means that the user will not be able to input dates before or after these limits :

Min date

Max date

Allow future

This parameter decides if it is allowed to select dates from the future or not :



List of choices

A *List of choices* field will contain a list of possible values from which the user can select.

The list of values can be entered in free-form during the configuration, or use a published Data Source to point to data from a database.

Use datasource : getting the list from a Data Source

When this is true, the list of possible values proposed to the user during input will be collected from the field of a published Data Source.

You must select a *Datasource* from the published Data Sources :

Use datasource

☒

Datasource

downtime reasons

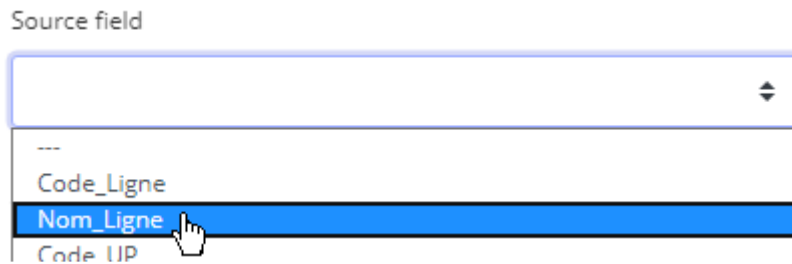
employees

equipments

factory hierarchy

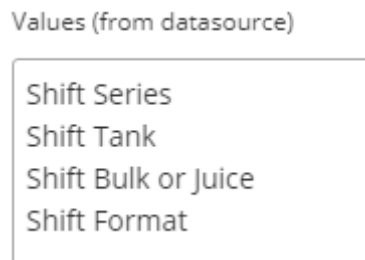
Then select a field from that Data Source, which will be use to retrieve the list of proposed values for input :

Source field



Finally, you can view the current list of *Values* that would be proposed to the user :

Values (from datasource)

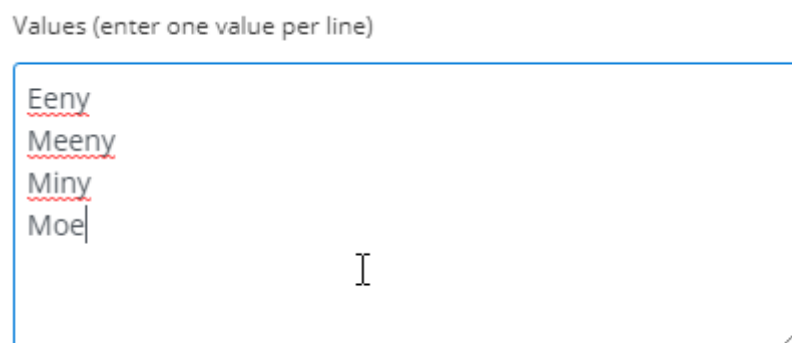


* Note : this query will be executed every time the input form is opened by a user, so that the list of values will always remain current to the data.

Don't Use *datasource* : using a custom list

When the *Use datasource* option is set to false, the list of choices proposed to the user can be configured using the multi-line text input called *Values* :

Values (enter one value per line)



Each separate line of text defines a separate choice proposed for entry.

Default value

A *Default value* can pre-filled when opening the input form, and selected from the available choices :

Default value



(none)

Eeny

Meeny

Miny

Moe

Allow null

Allow null



When a field is configured to *Allow null* values, then the user can omit filling-in the field in the form, and the data row will contain a `NULL` value for this field.

If this is configured to be false, then the field is compulsory, and the user must input a value.

Last modified: Feb 17, 2022

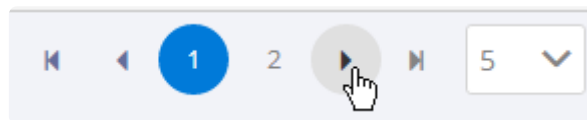
3.10.4. Inputting and Managing data

The *Show Data* button opens the Runtime Connection table in a full web page to let you view current data, and add/update/delete entries :



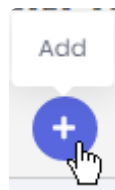
Viewing data

The page displays the content of the Runtime Connection in a paginated table. Use the controls to change page if necessary.



Adding data

To add a single entry of data, click the *Add* button at the bottom of the table :



This opens the dialog to the full input form, to let you input a new data row.

Note : if the update mode is set to *Replace*, then this view only allows to enter a single data row. To enter multiple rows, you need to use the API.

Updating data

At the end of each row, the *Update* button allows to update the data of the entry :



This opens the dialog to the full input form, to let you update the data row.

Deleting data

At the end of each row, the *Delete* button allows to delete the data row :



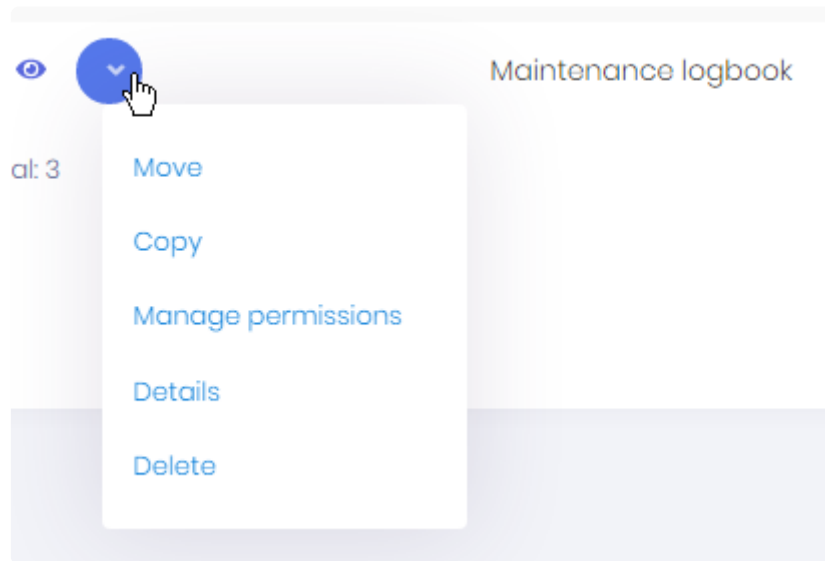
! This deletes the data irrevocably.

Last modified: Feb 17, 2022

3.10.5. Runtime Connections Management

Each Runtime Connection has a set of actions available.

To list those actions, open the runtime connection menu next to the Runtime Connection's name :



Some of those actions are detailed in the corresponding chapter :

- *Move*
- *Copy*
- *Manage permissions*
- *Details*
- *Export to file*
- *Delete*

Move

This opens the *Move* dialog which allows to select a destination Folder for moving this Runtime Connection to :

Move to folder logbook



Maintenance logbook

test (2)

my root folder (0)

scheduling (0)

▶ reasons (0)

logbook (3)

Cancel

Save



Copy

✿ Copy allows to copy the schema of the Runtime Connection, but data is not copied.

This opens the *Copy* dialog which allows to select a destination Folder for copying the **schema** of this Runtime Connection to :

Copy to folder my root folder



I.T. logbook - copy

test (2)

my root folder (0)

scheduling (0)

▶ reasons (0)

logbook (3)

Cancel

Save



Manage permissions

This allows to manage access to the Runtime Connection.
(see [corresponding chapter](#))

Details

This allows to edit the schema of the Runtime Connection.
See [Creating a Runtime Connection table schema](#) for details.

Export to file

This allows to export the Runtime connection to an .alpr file.
You can choose to keep data in the file or just getting the architecture.



Exporting and importing Runtime Connections is a good way to transfer form from one server to another.

Delete

This deletes the selected Runtime Connection.



Important : the schema and data are lost.

Last modified: Feb 17, 2022

3.10.6. Managing Permissions of Runtime Connections

Manage permissions



When managing permissions, be careful not to remove access to your own user. If this happens, you can work around it by : creating a new Role with all permissions, assigning this as the only Role to a User, and letting that User remove the Permissions restriction.

From the Runtime Connection's action menu, you can manage its Permissions. Select *Manage permissions* to open the corresponding dialog :

Manage data permissions

×

Add permission

☒ Search for user

☐ Select role

Permission

No access

☒

Name	Type	Permission
No data		

Total: 0

⏮

⏪

1

⏩

⏭

5

⌵

The existing Permissions are listed at the bottom of the dialog.

Adding a permission

If you want to override the default permissions, fill-in the *Add permission* form :

1. select a User or Role
2. select the desired Permission
3. click the validation button :

Add permission

☒ John Doe (john.doe@coc)



Permission


Read only

☐ Select role

Removing Permissions

If you want to remove a Permission, click the *Remove* (trash) icon in front of it in the list :

Name	Type	Permission	
John Doe	User	Read / Write	
Total: 1			<div>5</div>

Name	Type	Permission	
John Doe	User	Read only	

Available permissions

Possible permissions are :

- *No Access* : user has no permission to the Runtime Connection
- *Read Only* : user has only the permission to read data from the Runtime Connection
- *Read/Insert* : user has the permission to read data and insert data to the Runtime Connection
- *Full* : user has all permissions to the Runtime Connection : Read, Insert, Update, Delete

Last modified: Feb 17, 2022

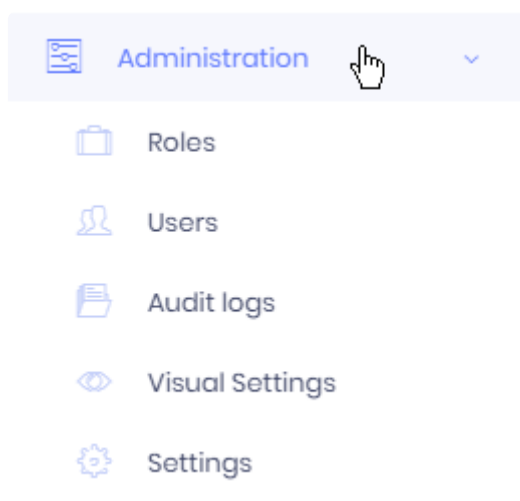
3.11. Administration

Administrators can use the web interface from Alpana Server to manage their users and configuration.

Note that [the Host and each Tenant](#) both contain useful administration activities :

- on the Host, you can manage the Tenants themselves and all system-wide settings like the license, the e-mail settings, etc
- on each Tenant, you can manage the Tenant's objects and properties like users, theme, etc

To access Administration options, use the *Administration* menu and its sub menus :



Last modified: Feb 17, 2022

3.11.1. License Management

License is managed at the Host level for all Tenants.

[Login to the Host](#) of your Alpana Server and navigate to *Administration > Settings*, tab *License Management*.

See the below chapters to manage your license.

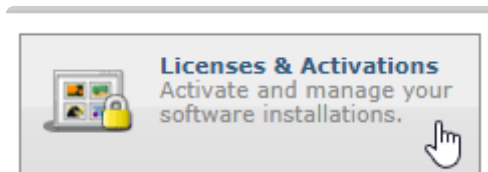
Last modified: Feb 17, 2022

3.11.1.1. License Activation

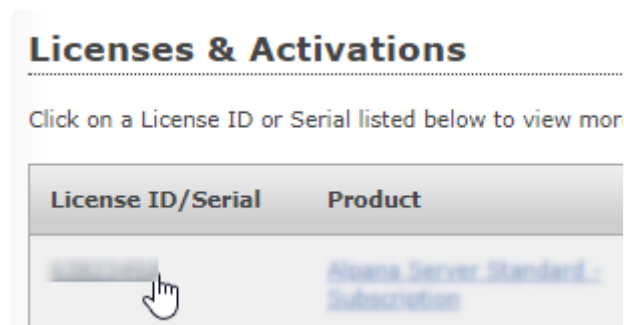
Browsing your license portal

Login to the [web License Portal](#).

Navigate to *Licenses & Activations* :

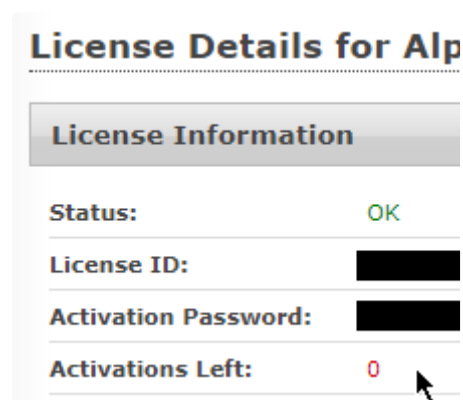


Under *Licenses & Activations*, click the *License ID* you want to activate :



Important note

- ! Before starting the license activation, please make sure that you have enough Activations left !
If your *Activations Left* is 0, then your license is probably used elsewhere. Please contact your Software Distributor for support.

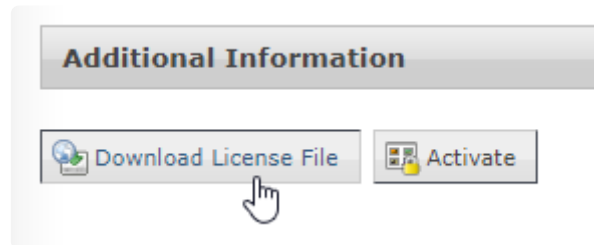


- ! To continue, the *Activate* button should be clickable.



Getting the License File

At the bottom, click the button *Download License File* :

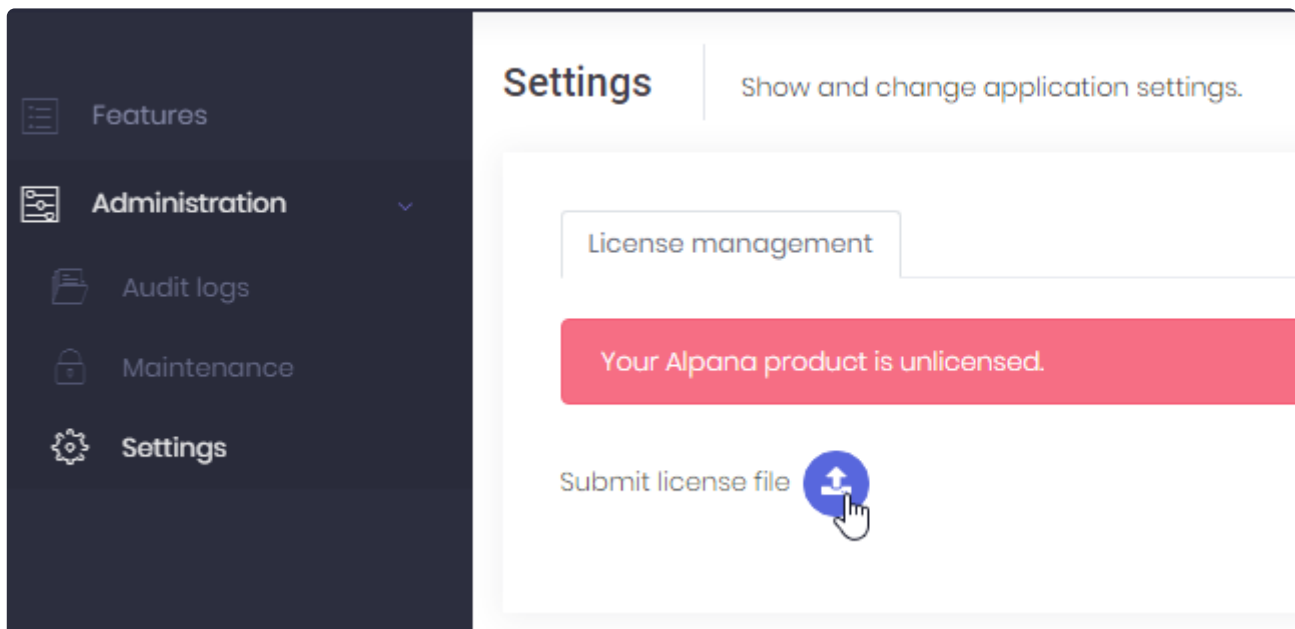


⇒ A file `AlpanaServer.lic` is downloaded.
Move this file to your Alpana Server installation.

✿ You can leave this web page open, it will be used below to complete the Activation.

Activating the License File

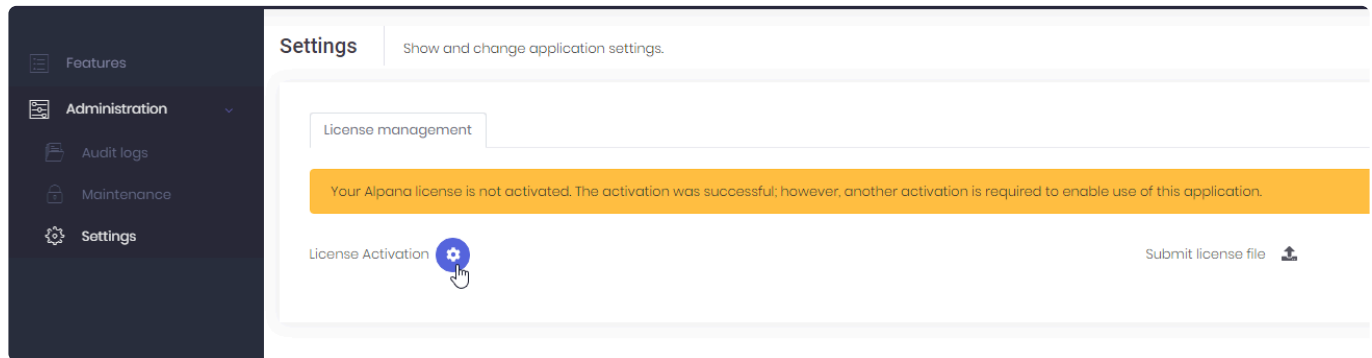
On the Host of your Alpana Server, navigate to *Administration > Settings*, tab *License Management*.
Click *Submit License File* and upload the `AlpanaServer.lic` file :



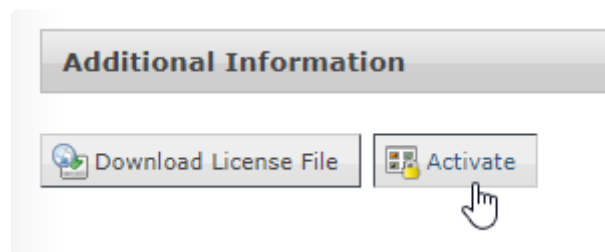
⇒ The first step of license activation is complete, but your license is not yet activated.

Activating the License

On the Host of your Alpana Server, click *License Activation* and leave the pop-up window open :



On the web License Portal, click *Activate* and leave the pop-up window open :



On the Host of your Alpana Server, copy the *User Code 1* and *User Code2* :

License Activation

User Code 1

XXXX

User Code 2

YYYY

Activation Code

...and paste them in the correct fields in the web License Portal, and click *Activate* :

*User Code 1:

*User Code 2:

⇒ As a result, the web License Portal displays an *Activation Code* :

Activation Code 1:

Copy the *Activation Code* and in the Host of Alpana Server, paste it and click to save :

License Activation ×

User Code 1


XXXX

User Code 2

YYYY

Activation Code

ZZZZ



⇒ The License should be activated.

✿ If the License Activation was successful, you may delete the `AlpanaServer.lic` file. It cannot be used later, and keeping it would only create confusion during a later activation.

Last modified: Feb 17, 2022

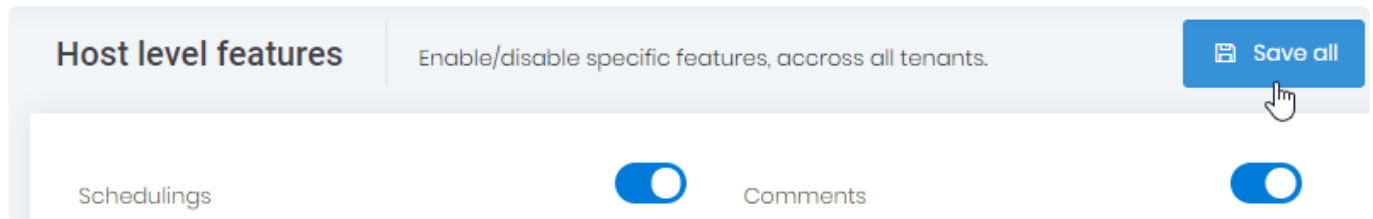
3.11.1.2. Host-level Features

Depending on your license type, some features may be activated at the Host level.

Login to the Host and browse to *Features* :



Check the required Features and click **Save** :



Important : After changing the allocated features, you must restart the application (from IIS Manager).

Then, in order for Tenants to benefit from the features, you must [allocate them](#).

Last modified: Feb 17, 2022

3.11.1.3. License Deactivation

Why Deactivate

You may want to return the license from a Host in order to decommission the Host and use the license on another Host.

For example, before moving the installation to a new hardware, **you must de-activate**.

Note of warning

Deactivate is not the same as *Clear license*.

This page is documenting Deactivation only.



! Do not use *Clear license data* unless instructed by Support.

How to Deactivate a License

! Warning : This will remove the license from the current Alpana Server installation. Until a new license is activated, you users won't be able to login or view dashboards.

***** Note : You may at a later time activate again a license on this installation if needed.

On the Host of your Alpana Server, navigate to *Administration > Settings*, tab *License Management*.


Click *Deactivate License* :



Read the warning and confirm the deactivation :

Deactivate license


By clicking button below, your Alpana license will be definitively discarded. Please copy and keep the deactivation code that will be returned by the system.

DEACTIVATE 

Please copy and keep the *Deactivation code*

Deactivate license

By clicking button below, your Alpana license will be definitively discarded. Please copy and keep the deactivation code that will be returned by the system.

Deactivation code
XXXX 



If you fail to keep your *Deactivation code*, you may not be able to re-use your license at a later time.

Contact Support

Contact Support with your *License ID* and *Deactivation Code* to allow to free your license.

Last modified: Feb 17, 2022

3.11.2. Tenant Management

Note : For a better understanding of Tenants, you can see the [Multitenancy](#) chapter.

Tenants are managed at the Host level (that's the main purpose of the Host).

By default, only one Tenant exists and is called *Default*.

To manage Tenants, see the below chapters.

To access Tenants management, use the *Tenants* menu of the Host :



Last modified: Feb 17, 2022

3.11.2.1. Browsing the Tenants

Tenants list

The Tenants list shows all Tenants :

Tenants

Manage your tenants.

+ Create new tenant

Tenant name / tenancy code

☐ Creation time

10/21/2019 - 10/28/2019

Actions	Tenancy code name	Tenant name	Active	Creation time
<input type="button" value="Actions"/>	XXXX	XXXX	Yes	05/13/2019
<input type="button" value="Actions"/>	XXXXX	XXXXX	Yes	12/17/2018
<input type="button" value="Actions"/>	XXXX	XXXX	Yes	04/17/2019
<input type="button" value="Actions"/>	XXXX	XXXX	Yes	09/27/2019
<input type="button" value="Actions"/>	XXXXXX	XXXXXX	Yes	04/23/2019
<input type="button" value="Actions"/>	XX	XXXX	Yes	03/28/2019
<input type="button" value="Actions"/>	XXXXXX	XXXXXX	Yes	05/02/2019
<input type="button" value="Actions"/>	XXXXXX, XXXXXX	XXXXXX, XXXXXX	Yes	03/21/2019
<input type="button" value="Actions"/>	XXXXXX	XXXXXX	Yes	04/16/2019
<input type="button" value="Actions"/>	XX	XX activity	Yes	03/06/2019

Total: 18

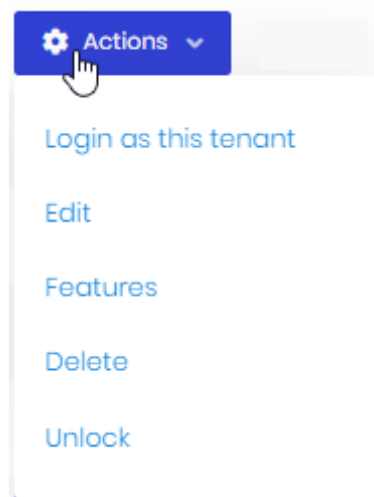
Tenants can be searched by name and/or creation time by using the search bar at the top.

The paginated list can be sorted by :

- *Tenancy code name*
- *Tenant name*
- *Active status*
- *Creation time*

Actions menu

Each Tenant has an *Actions* menu that allows to configure it :



Some of those actions are detailed in the corresponding chapter :

- *Login as this tenant*
- *Edit*
- *Features*
- *Delete*
- *Unlock*

Login as this tenant

This allows to impersonate a User from this Tenant and log in as them.

The *Select a user* dialog opens and lets you select a User from that Tenant :

Select a user
×

Search...

Select	Name
<input type="checkbox"/>	admin:admin (admin@tenant1.com)
<input checked="" type="checkbox"/>	admin:admin (admin@tenant1.com)
<input type="checkbox"/>	admin:admin (admin@tenant1.com)
<input type="checkbox"/>	admin:admin (admin@tenant1.com)

Edit

This allows to modify the Tenants properties that were selected when creating it.
The *Edit tenant* dialog opens and lets you rename the Tenant and set it *Active* or not :

Edit tenant: Default
×

Tenancy name *

Default

Tenant name *

Default

☒ Active

Cancel Save

Features

(see [corresponding chapter](#))

Unlock

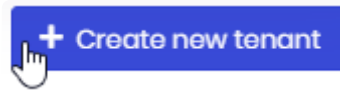
When the `admin` user of the Tenant has been locked out (too many incorrect login attempts), and admin on the Host can unlock it through this action.

Last modified: Feb 17, 2022

3.11.2.2. Creating a Tenant

✿ By default, 1 Tenant is already created after installing. It is called `Default`.

To create a Tenant, click *Create new tenant* :



This opens the *Create new tenant* dialog_ :

Create new tenant

×

Tenancy name *

SiteB

Tenant name *

SiteB

admin email *

SiteB_admin@code192.com


☒ Set random password.

☒ Should change password on next login.

☒ Send activation email.

☒ Active

Cancel

 Save

Fill-in the required information :

- *Tenancy name / Tenant name* : the name of the Tenant.
- *Set random password* : if you don't have an e-mail server configured, un-check this option and specify a password explicitly
- *Should change password on next login* : force the admin user to change password when logging in next time
- *Send activation e-mail* : send an activation e-mail with the random password and a link to login
- *Active* : only an active user can login



After creating a new Tenant, the default Roles (Admin, User, ...) may not have all required permissions checked. Please make sure that you check all the permissions of the static Roles.

Last modified: Feb 17, 2022

3.11.2.3. Tenant Features

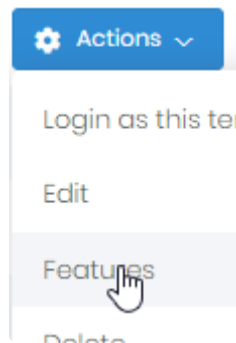
Depending on your license type, some features may be activated [at the Host level](#).

In addition, your license contains some limited resources (number of users, dashboards, etc)

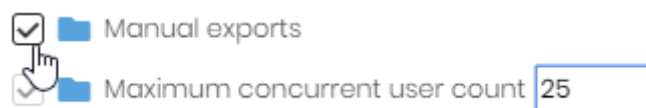
Then, in order to benefit from those features or resources, they must be allocated to each Tenant as desired :

On the Host, Navigate to *Tenants* management.

Then on the desired Tenant, select *Action > Features* :



In the *Features* window, check which Features to allocate, including resources, and click *Save* :



Last modified: Feb 17, 2022

3.11.3. Users, Roles and Permissions

Access to Alpana Server is secured through user accounts.

Users [login](#) to Alpana Server and can access content according to their permissions.

Administrators can manage users permissions by using Roles.

This section details the management of Users, Roles and Permissions

Last modified: Feb 17, 2022

3.11.3.1. Permissions descriptions

User and Roles can be assigned Permissions to Alpana Server.

Below is the list of existing permissions and their description.

Host permissions

On the Host, the possible Permissions are as follows :

- *License management* : User can manage the license (activate, deactivate, enable/disable features)
- *Pages* : the web Pages that the User can access on the Host :
 - *Administration* : User can access the Host Administration pages
 - *Audit Logs* : User can read the Audit logs
 - *Maintenance* : User can access the Maintenance page
 - *Roles* : User can access the Host's Roles page
 - *Creating a new role* : User can create a new Role
 - *Deleting role* : User can delete any Role
 - *Editing role* : User can edit any Role
 - *Settings* : User can access the Host Settings page
 - *Users* : User can access the Users page to view existing users of the Host
 - *Changing permissions* : User can change Permissions of other Host users
 - *Creating a new user* : User can create other users
 - *Deleting user* : User can delete users
 - *Editing user* : User can edit other users' properties
 - *Login for users* : User can impersonate other users of this Tenant to login as them
 - *Unlock* : User can unlock users that have been locked following too many incorrect login attempts
 - *Visual settings* : User can access the Visual Settings page
 - *Tenants* : User can access the Tenants page
 - *Changing features* : User can assign/remove features to any Tenants
 - *Creating new tenant* : User can create Tenants
 - *Deleting tenant* : User can delete Tenants
 - *Editing tenant* : User can edit Tenants' properties
 - *Login for tenants* : User can impersonate Tenants users to login on any Tenant

Tenant permissions

On each Tenant, the possible Permissions are as follows :

- *API* :
 - *Manage API* : (permission not used)
 - *Use API* : User can access the API snippets page
- *Pages* : the web Pages that the User can access on the Tenant :
 - *Administration* : User can access the Tenant Administration pages
 - *Audit Logs* : User can read the Audit logs

- *Roles* : User can access the Tenant's Roles page
 - *Creating a new role* : User can create a new Role
 - *Deleting role* : User can delete any Role
 - *Editing role* : User can edit any Role
- *Settings* : User can access the Tenant Settings page
- *Users* : User can access the Users page to view existing users of the Tenant
 - *Changing permissions* : User can change Permissions of other users of the Tenant
 - *Creating a new user* : User can create other users
 - *Deleting user* : User can delete users
 - *Editing user* : User can edit other users' properties
 - *Login for users* : User can impersonate other users of this Tenant to login as them
 - *Unlock* : User can unlock users that have been locked following too many incorrect login attempts
- *Visual settings* : User can access the Visual Settings page
- *Categories* : User can view Categories
 - *Manage Categories* : User can create/edit/delete Categories
- *Dashboard Viewer* : User can view Dashboards
 - *Comments* : User can access the Comments panel of Dashboards
 - *Embedding* : User can access the Get Link / Embed page of Dashboards
 - *Export Dashboards* : User can manually export Dashboards to files
- *Dashboards* : User can access the list of Dashboards
 - *Download dashboards* : User can download published Dashboards
 - *Manage dashboards* : User can move/copy/delete Dashboards
- *Datasources* : User can access the list of Data Sources
 - *Download datasources* : User can download published Data Sources
 - *Manage datasources* : User can create/delete Data Sources
- *Homepages* : User can view their Homepages
 - *Manage homepages* : User can create/edit/delete their Homepages
- *Manage entities permissions* : User can manage individual permissions of Dashboards, Widgets, Data Sources
- *Manage entities versions history* : User can manage the version history of Dashboards, Widgets, Data Sources
- *Schedulings* : User can view the Schedules page
 - *Manage schedulings* : User can create/edit/run/delete Schedules
- *Widgets* : User can access the list of Widgets
 - *Download Widgets* : User can download published Widgets
 - *Manage widgets* : User can manage widgets
- *Schedulings* :
 - *Subscribe to schedulings* : User can be added as target to a Schedule

Last modified: Feb 17, 2022

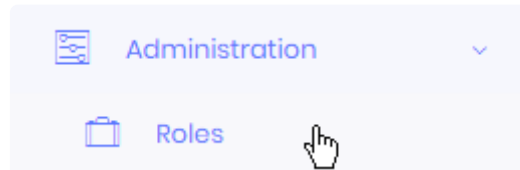
3.11.3.2. Roles

Roles allow to easily manage Users and their permissions :

- you can assign multiple Roles to a User
- adding/removing Permissions is just adding/removing the Role to the User

Note : Additionally, Roles can be used as [mailing lists for Schedules](#).

To manage Roles, go to the *Administration > Roles* page :



Assigning Roles

To assign Roles to Users, you must edit the Users, see the corresponding chapter.

Some roles are assigned by default thanks to the *Default* property (see below).

Default Roles

Some Roles exist by default in Alpana Server.
They cannot be deleted.

Host default Roles

When installing Alpana Server, some default Roles exist on the Host :

Admin

! Be very careful when removing permissions from the *Admin* Role.
Make sure that you still have at least some users with enough permissions to restore access to features.
If you want to create administrators with restricted access, you can create dedicated Roles.

The *Admin* Role is added by default to new users of the Host.
By default, it gives full permissions.

Tenants default Roles

When creating a Tenant, some default Roles are created on the Tenant :

Admin

! Be very careful when removing permissions from the *Admin* Role. Make sure that you still have at least some users with enough permissions to restore access to features. If you want to create administrators with restricted access, you can create dedicated Roles.

Users with the *Admin* Role have **read/write access** to all objects by default (Dashboards, Data Sources, Widgets).

These permissions can then be overridden at the object level.

User

The *User* Role is added by default to new users of the Host.

Users with the *User* Role have **read access** to all objects by default (Dashboards, Data Sources, Widgets).

These permissions can then be overridden at the object level.

Guest

Users with the *Guest* Role have **no access** to any objects by default (Dashboards, Data Sources, Widgets).

These permissions can then be overridden at the object level.

Example : If UserX is Guest and you add permission “Dashboard Viewer” to this UserX, then they will be able to view every dashboard where you explicitly add permission “Read” for this UserX, and no other Dashboard.

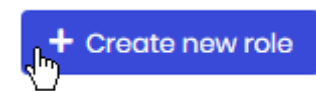
Reserved Connection

Users with the *Reserved Connection* Role are **guaranteed that they can login**, because no other concurrent user can take their token for logging in.

This means that they automatically and permanently count as users inside the *Maximum concurrent access count* license property of the Tenant.

Creating a Role

To create a new Role, click *Create new role* :



Then fill-in the Role form (see below *Edit Role*).

Viewing Roles

Role attributes

Some Role attributes are displayed as a tag in the list :

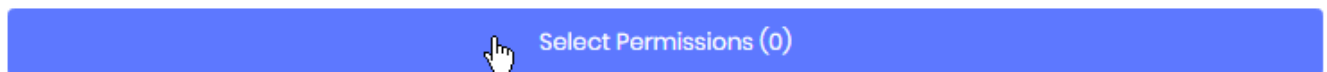
Role name	
Admin	Static
User	Static Default
Guest	Static

- *Static* : this Role exists by default and cannot be deleted (see above)
- *Default* : this Role is assigned to new Users by default

Filtering the list

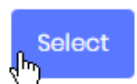
You can filter Roles by which permissions are active :

Click *Select permissions* in the top bar :



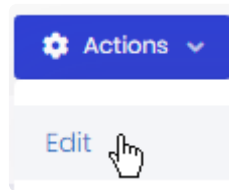
Then select the required Permissions and click *Select* :

- ☐ Comments
- ☒ Export dashboards
- ☐ Embedding
- ☒ Homepages
 - ☒ Manage homepages
- ☐ API
 - ☐ Manage API
 - ☐ Use API
- ☐ Scheduling
 - ☐ Subscribe to schedulings



Editing a Role

To Edit a Role, click the *Actions > Edit* button :

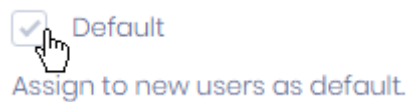


Role name

Use a descriptive role name.

Default

Check this option if you want to Role to be assigned to all new Users by default :

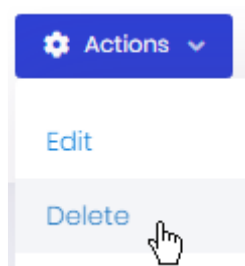



Permissions

Check the desired permissions, as described in [the corresponding chapter](#).

Deleting a role

To delete a Role, click *Action > Delete* :



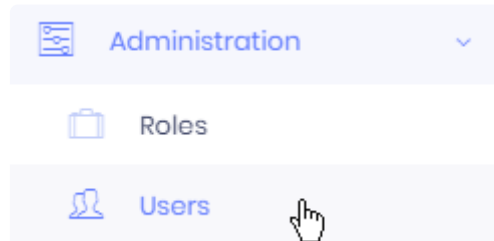
 **Note :** The Roles that exist by default in Alpana Server cannot be deleted.

Last modified: Feb 17, 2022

3.11.3.3. Users

A User represents an access to Alpana Server, with its associated Roles and Permissions. Users can manage some of their own properties by editing their [Profile](#).

To manage Users, go to the *Administration > Users* page :



* Note : Users at the Host level are different from Users at the Tenant's level. In the same way, Users are managed separately on each Tenant (they could have the same name but are still managed as different Users)

Default Users

Some Users exist by default in Alpana Server. They cannot be deleted.

Host default User

When installing Alpana Server, an administrator user is created with some default credentials :
username : admin

Tenants default User

When creating a Tenant, an administrator user is created with some default credentials :
username : admin

Creating a User

Manual User creation

To create a new User, click *Create new user* :



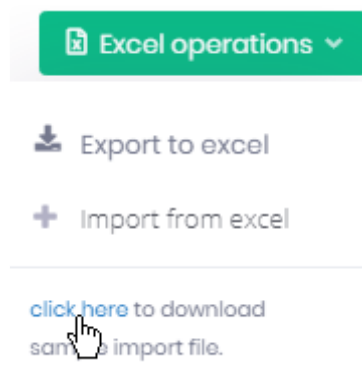
Then fill-in the User form (see below *Edit User*).

Mass import of Users

Instead of manually creating Users one by one, you may wish to import many Users at once. Alpana Server allows to import a list of Users from an Excel file.

Download a sample Excel file

To prepare your User import, you can download a sample Excel file. Click *Excel operations* > *click here to download sample import file* :



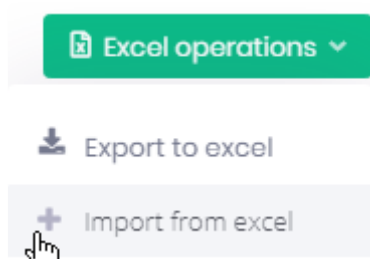
This downloads an Excel file called `ImportUsersSampleFile.xlsx` inside your web browser. This file contains the correct field names and some sample import.

Prepare your Excel file

Delete the sample import and add your own users' informations. To assign multiple Roles, write the desired list of Roles separated by commas , .

Import Users from Excel




Click *Excel operations* > *Import from excel* :



Viewing Users

List

The list of Users are presented in a paginated table displaying their main properties, which all can be used to sort the list :

Actions	User name	Name	Surname	Roles	Email address	Email confirm	Active	Creation time
 Actions	admin	admin	admin	Admin, Reserved Connection	admin@defaulttenant.com	Yes	Yes	08/13/2019
 Actions	...	...	...	User	...	No	Yes	10/25/2019
 Actions	...	...	...	Admin, Reserved Connection	...	Yes	Yes	09/04/2019

Filtering the list

The top bar also contains filters and advanced filters :

Searching names

Using the *Search...* bar, you can search users by username, name or e-mail :


Locked users

You can search for Users who are currently *Locked*.

This can let you as an admin to unlock them quickly.

Filter Roles

You can filter the list by Roles :


Filter by role 

Filter by role
 Admin
 User
 Guest
 Reserved Connection
 myCustomRole











Filter by Permissions

You can filter Users by which permissions are active :

Click *Select permissions* in the top bar :

Select Permissions (0) 


Then select the required Permissions and click *Select* :

- ☐  Comments
- ☒  Export dashboards
- ☐  Embedding
- ▼ ☒  Homepages
 - ☒  Manage homepages
- ▼ ☐  API
 - ☐  Manage API
 - ☐  Use API
- ▼ ☐  Scheduling
 - ☐  Subscribe to schedulings


 [Select](#)

Editing a User

To Edit a User, click the *Actions* > *Edit* button :

 **Actions** ▼

[Login as this user](#)

[Edit](#) 

[Permissions](#)

[Unlock](#)

[Delete](#)

User properties contain two tabs :

Edit user: paul

[User informations](#) 

[Roles](#) 2

- *User informations* : all the User's properties, see below
- *Roles* : the Roles assigned to the User

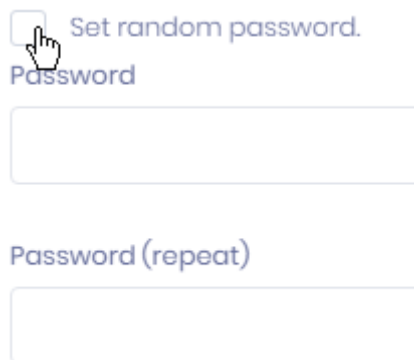
Name and profile properties

User profiles have the following properties to describe them :

- *Name* : the first/given/forename
- *Surname* : the last/family/surname
- *Email address* : a valid e-mail address
- *Phone number*
- *User name* : the name the User will use for logging in

Password

You can *Set random password* or specify a password explicitly yourself :



☐ Set random password.

Password

Password (repeat)

The option *Change password on next login* forces the user to change their password the next time they will log in :



☒ Should change password on next login.

Active / Activation e-mail

You can select if the User is already *Active* and/or if they should receive an *Activation email* that will confirm their account creation :



☐ Send activation email.

☒ Active

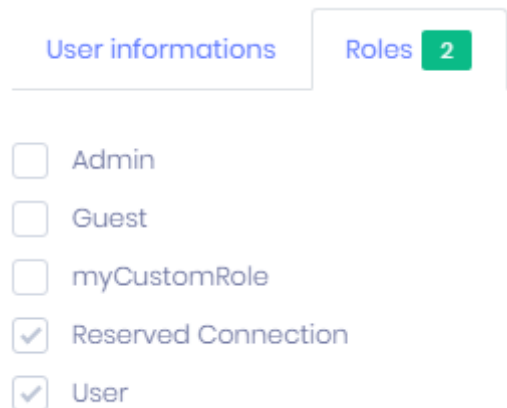
Lockout enabled

A User goes on *Lockout* when they have tried to connect with an incorrect password too many times in a row.

This is a security measure that can be disabled individually for users.

Assigning *Roles*

From the *Roles* tab, you can assign the desired roles to the User :



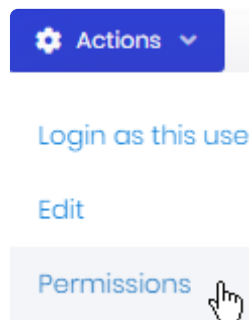
The screenshot shows a user management interface with two tabs: 'User informations' and 'Roles'. The 'Roles' tab is active, indicated by a green badge with the number '2'. Below the tabs, there is a list of roles with checkboxes:

- ☐ Admin
- ☐ Guest
- ☐ myCustomRole
- ☒ Reserved Connection
- ☒ User

Overriding Permissions

Users' permissions can be overridden from their Role.

Click *Action* > _Permissions_ :

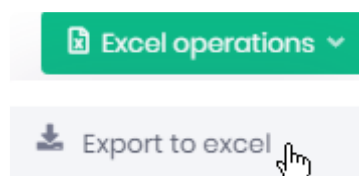


Check the desired permissions, as described in [the corresponding chapter](#).

Exporting Users lists

For administrative purposes, it can be useful to export the list of Users. Alpana Server lets you export the list of created Users to an Excel file.

Click *Excel operations* > *Export to Excel* :

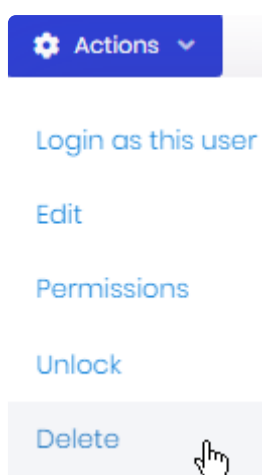


Your web browser will download the Excel file with the full list of Users and their properties :

- Name
- Surname
- User name
- Phone number
- Email address
- Email confirm
- Roles
- Active
- Creation time

Deleting a User

To delete a User, click *Action > Delete* :



* Note : The Users that exist by default in Alpana Server cannot be deleted.

Last modified: Feb 17, 2022

3.11.3.4. User Lockout

A User goes on *Lockout* when they have tried to connect with an incorrect password too many times in a row.

This is a security measure that can be configured globally and disabled individually for users.



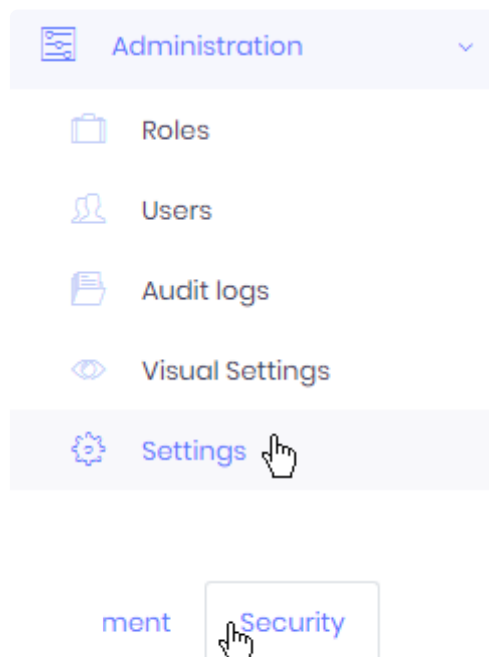
Login failed!

The user account has been locked out. Please try again later.

Ok

Configuring Lockout

Lockout is configured at the Tenant level under *Administration > Settings*, in tab *Security* :



User Lock Out

☒ Enable user account locking on failed login attempts

Maximum number of failed login attempt count before locking the account

5

Account locking duration (as seconds)

300

Enable user account locking on failed login attempts

This setting enables or disables the feature.

Maximum number of failed login attempt count before locking the account

This setting defines how many times **in a row** a user must fail to login (incorrect password) to trigger the Lockout.

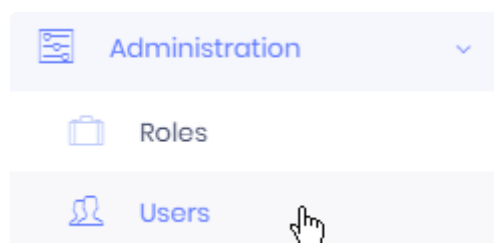
Account locking duration

Number of seconds that the account will stay Locked.
After this duration, the User can try again to login.

How to Unlock a User

When a User has been locked, they must wait for the timeout to complete.
They can also ask an administrator to unlock them.

To manage Users, go to the *Administration > Users* page :



Finding Users on Lockout

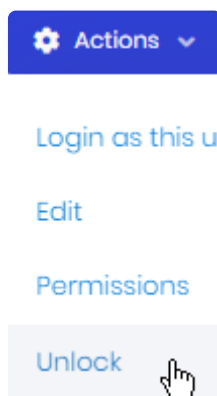
You can search for Users who are currently *Locked*.

In advanced filters, check *Only locked users* :



Unlocking a User

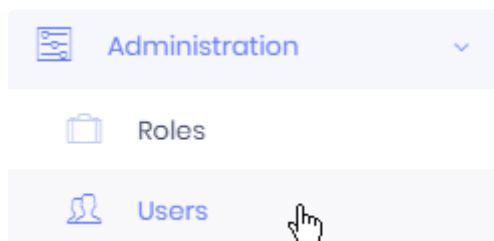
When you have found the locked User, click *Aciton > Unlock* :



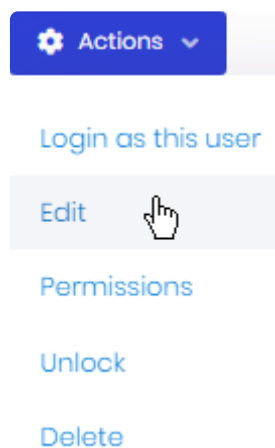
Exceptions

You can exclude some users from the Lockout : those Users can attempt to login as many times as they want and will never be locked out.

To manage Users, go to the *Administration > Users* page :



To Edit a User, click the *Actions > Edit* button :



Lockout enabled

Un-check *Lockout enabled* create an exception for this User :



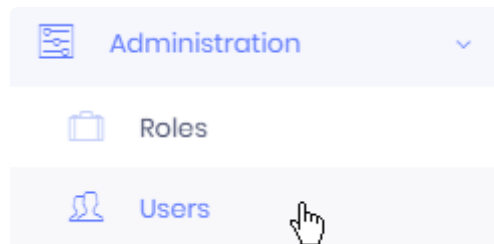
Last modified: Feb 17, 2022

3.11.3.5. User Impersonation

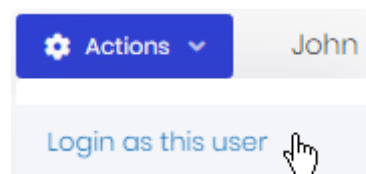
Administrators can impersonate other Users.
This is useful for support.

Impersonating a User

To impersonate another User from the same Tenant (or Host), go to the *Administration > Users* page :



Find the desired User, and click *Actions > Login as this user* :



This will log you as the target User.

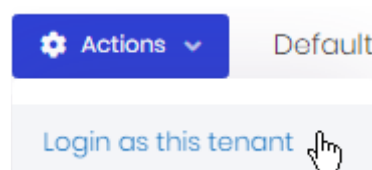
Impersonating a User from a specific Tenant

From the Host, you can impersonate Users from Tenants.

Go to the *Tenants* page :



Find the desired Tenant and click *Actions > Login as this tenant* :



A dialog opens with the list of Users from that Tenant.

Find the desired User of that Tenant, and click the *Select* button :

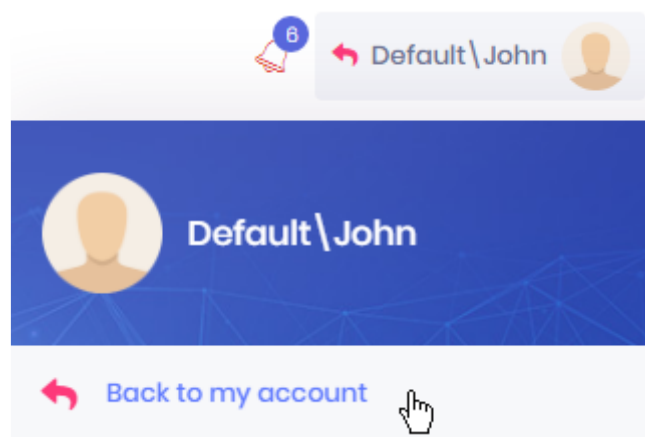
Select a user

Select	Name
<input type="radio"/>	admin admin (admin@defaulttenant.com)
<input checked="" type="radio"/>	John Doe (john.doe@code192.com)
<input type="radio"/>	...

This will log you as the target User on the target Tenant.

Returning to your account

After impersonating a User, you can return to your own account without logging out. Click the User's profile button and select *Back to my account* :

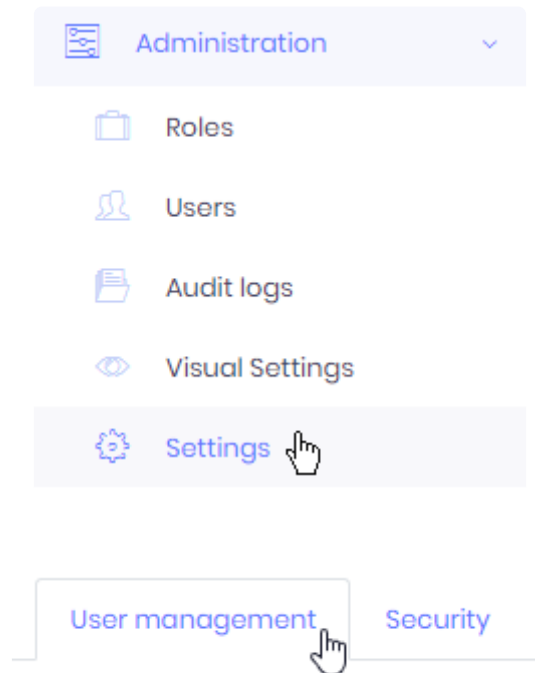


Last modified: Feb 17, 2022

3.11.3.6. User Settings

As administrator of the Host or of a Tenant, you can configure user account and login features on a global level.

To manage user account and login features of a Host or Tenant, go to the corresponding *Administration* > *Settings* and browse to the tabs *User management* and *Security* :



User management

Allowing users to Sign Up

You can allow users to create their own account :

Form Based Registration

☒ Allow users to register to the system.

If you disable this, users will only be added by admin using user management page.

☒ New registered users are active by default.

If you disable this, new users will not be active (and can not login) until admin manually activate the account.

- *Allow users to register to the system* : users will be able to create a new account by filling-out [a form on the Login page](#)
- *New registered users are active by default* : users will be active immediately without administrator intervention

Inform of cookie use

You can inform users that the Alpana Server website uses cookies :

Cookie consent

☒ Cookie consent enabled

Users will see an information message when they login, which they can validate by clicking “Got it!” :

This website uses cookies to ensure you get the best experience on our website.

Got it!

Session timeout

You can force users to logout on inactivity.

This is useful if you want to limit the un-necessary use of concurrent licenses.

Check *Session Time Out Control enabled* :

Session Timeout Control

☒ Session Time Out Control Enabled

Timeout Second.

60

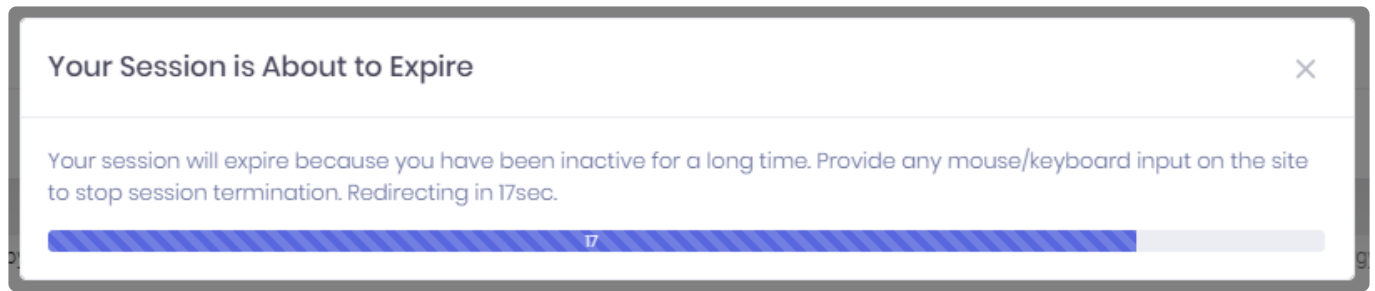
Countdown Modal Wait Time (Seconds)

20

- *Timeout Second* : how many seconds to wait for inactivity and start displaying the inactivity countdown message
- *Countdown Modal Wait Time (Seconds)* : how many seconds to display the inactivity countdown message before actually forcing the user to logout

When the User has been inactive for *Timeout Second*, the below inactivity countdown message is displayed.

If the User moves the mouse or keyboard, the message disappears and the *Timeout Second* is reset. Otherwise, the user is logged out.



Note : Changes to this setting don't apply to users that are currently logged-in. To apply the change, users must logout, then login again.

LDAP

You can let users from an Active Directory domain connect to the Tenant.

Pre-Requisite

For this option to appear, you must first enable the “LDAP” Feature at the Host level, then assign it to the desired Tenant.

Finally, **you must restart the Alpana Server app** to apply the change (restart the BackEnd website).

Configuring

On the desired tenant, check the option *Enable LDAP Authentication*, then fill-in the form :

- *Domain name* : Active Directory domain
- *User name* : user on the Active Directory with permissions to get the user list
- *Password* for that User.

Using

When configured, users can login using their Active Directory username and password, and the Alpana account will automatically be created for them, like a new User.

Email confirmation

You can require users to confirm their e-mail address before they can login for the first time :

Other Settings



Email confirmation required for login.

Security

Password complexity

You can force user to include a minimal complexity in their choice of password :

Password complexity

☐ Use default settings

☒ Require digit

☒ Require lowercase

☒ Require non alphanumeric

☒ Require uppercase

Required length

8

Un-check *User default settings* and check the required character sets and password length.

User Lock Out

You can configure Alpana Server to lock user accounts for a while when they have entered a wrong password several times.

See [User Lockout](#)

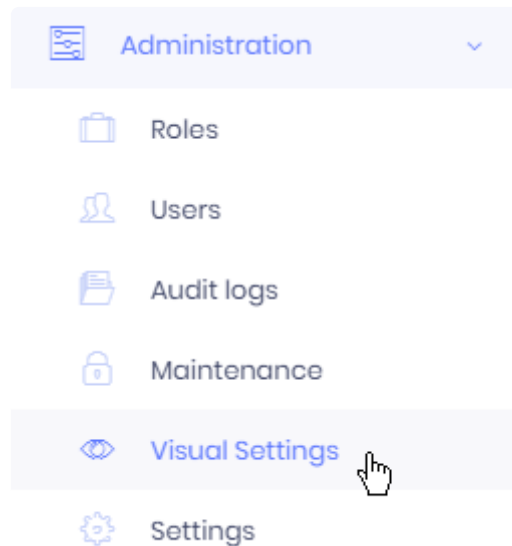
Last modified: Feb 17, 2022

3.11.4. Theme and Appearance

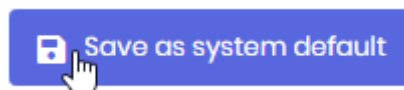
The visual theme of the Alpana Server web interface can be configured in many ways. You can configure a different look and feel for each Tenant and the Host separately.

Theme configuration

Go to *Administration > Visual Settings* :

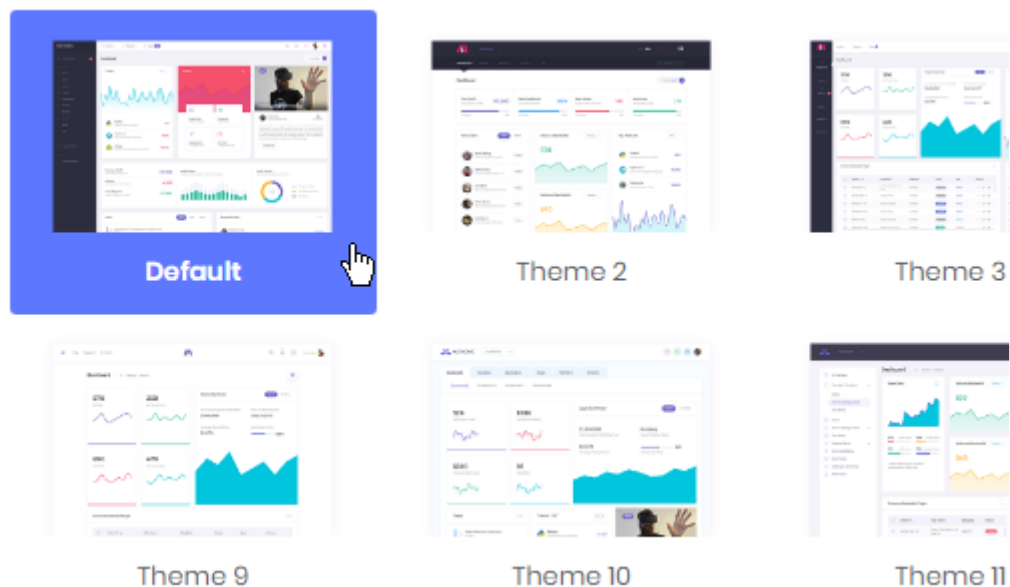


Make the required changes, then click *Save as system default* :



Select a Theme

To select a Theme, click on the corresponding thumbnail :



Configure a Theme

To configure the selected Theme, use the options at the bottom of the page :


Header bar
Subheader
Menu
Footer

Skin

Light

Desktop
☒ Fixed header

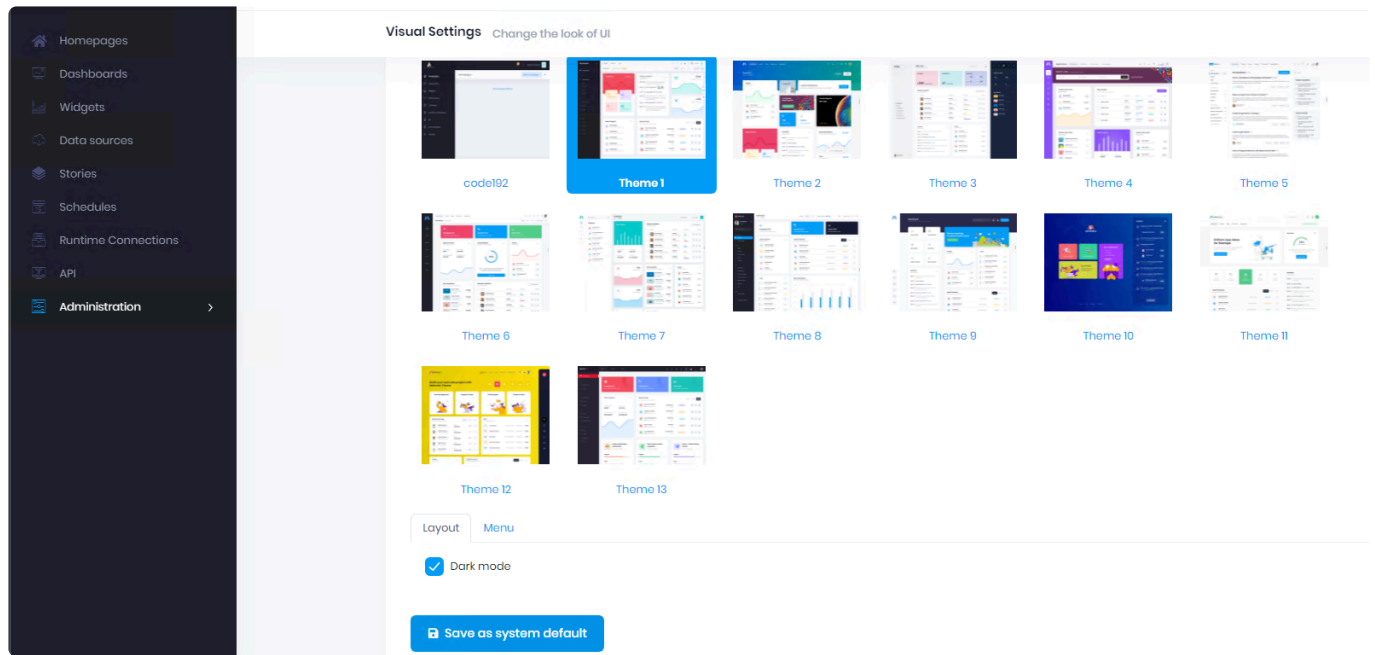
Mobile
☐ Fixed header

 Save as system default

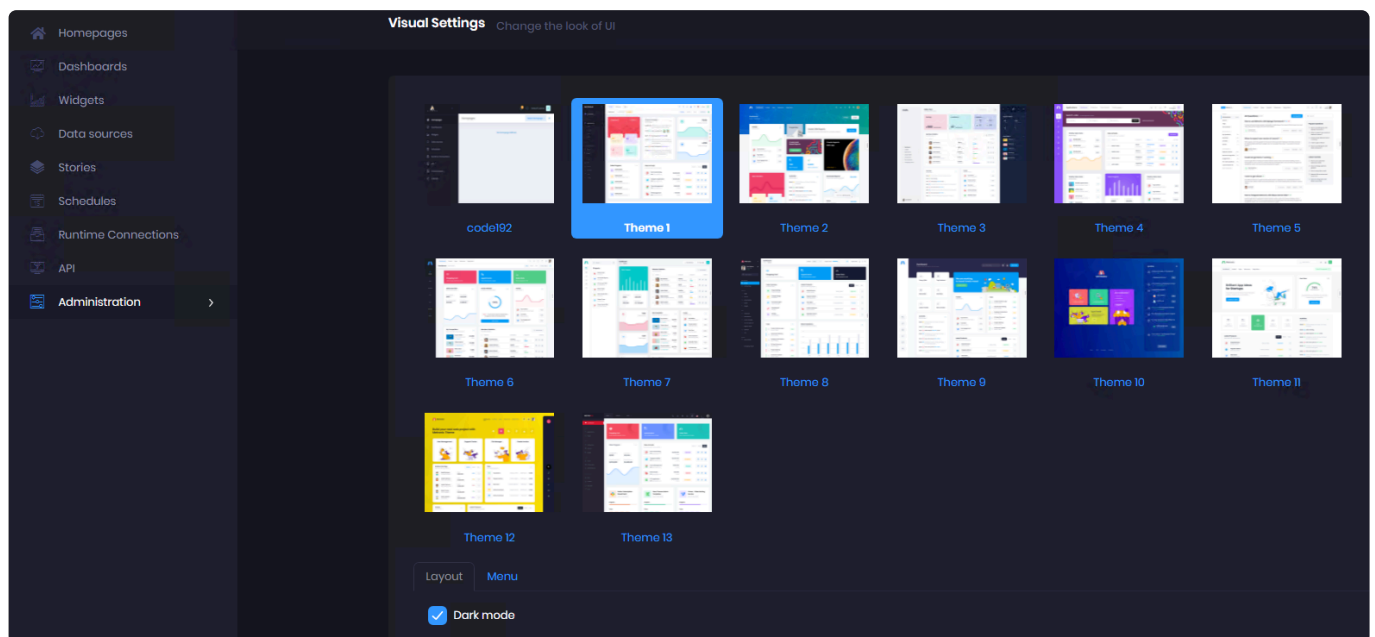
Depending on the selected Theme, you may configure many properties, like menu behavior, header colors, etc.

Dark Mode

Some theme have a Dark mode available for the layout and the menu :



After the option is checked, click Save on the button “as system default” and the dark mode should apply :

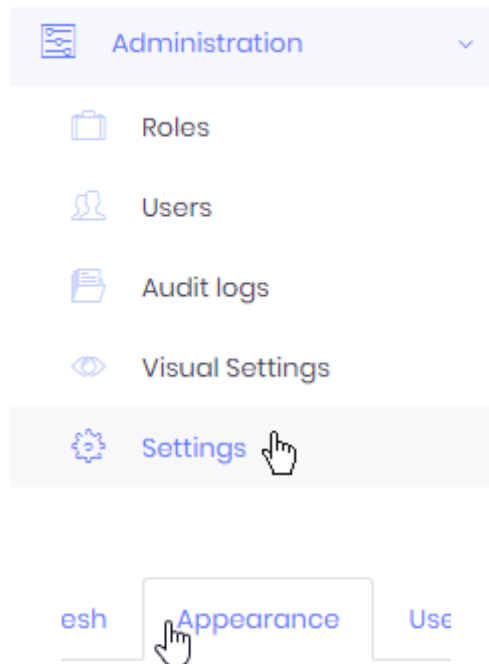


code192 theme and Theme4 doesn't have Dark mode.

Custom Logo

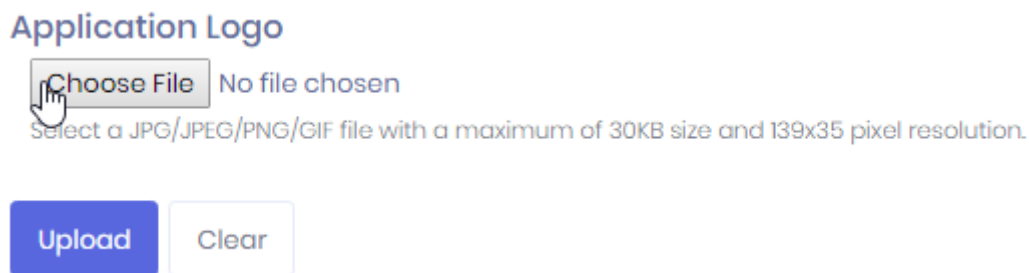
Instead of using the default Alpana logo, you may use your own.

Go to *Administration > Settings*, in the *Appearance* tab :



Customize logo

Under *Logo*, click *Choose file* and browse your filesystem :



You must select a *JPG / JPEG / PNG / GIF* file with a maximum of 30KB size and 139×35 pixel resolution.

Then click *Upload*.

Remove custom logo

to remove the custom logo and recover the original Alpana logo, click *Clear*.

Overriding the Theme CSS and colors

You can override the Theme [CSS](#) to include your own colors.

This is described in the next chapter [How to Use a Custom CSS](#)

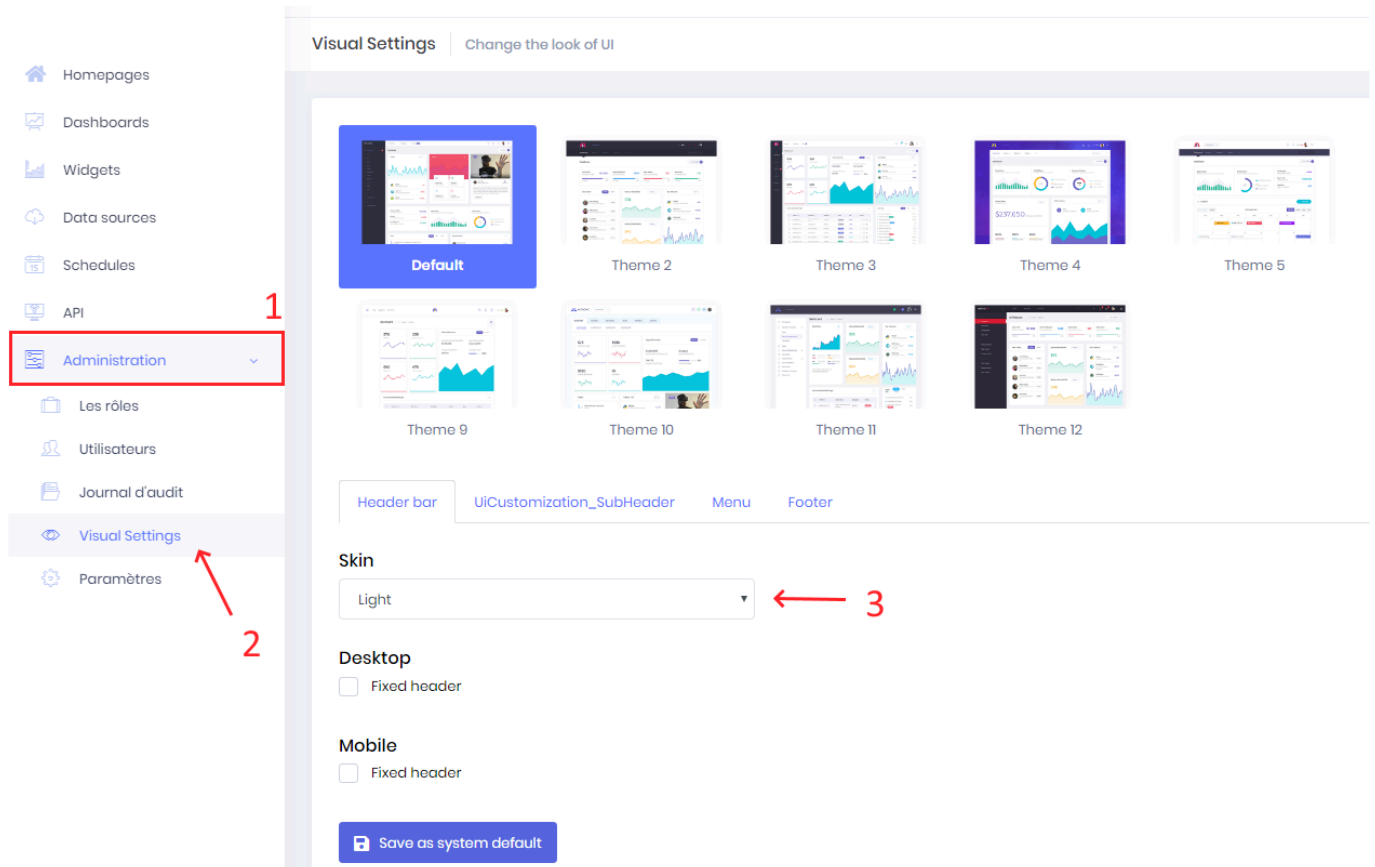
Last modified: Apr 04, 2022

How to Use a Custom CSS

Applying a Custom CSS

To apply your Custom CSS theme to Alpana Server please follow the below steps:

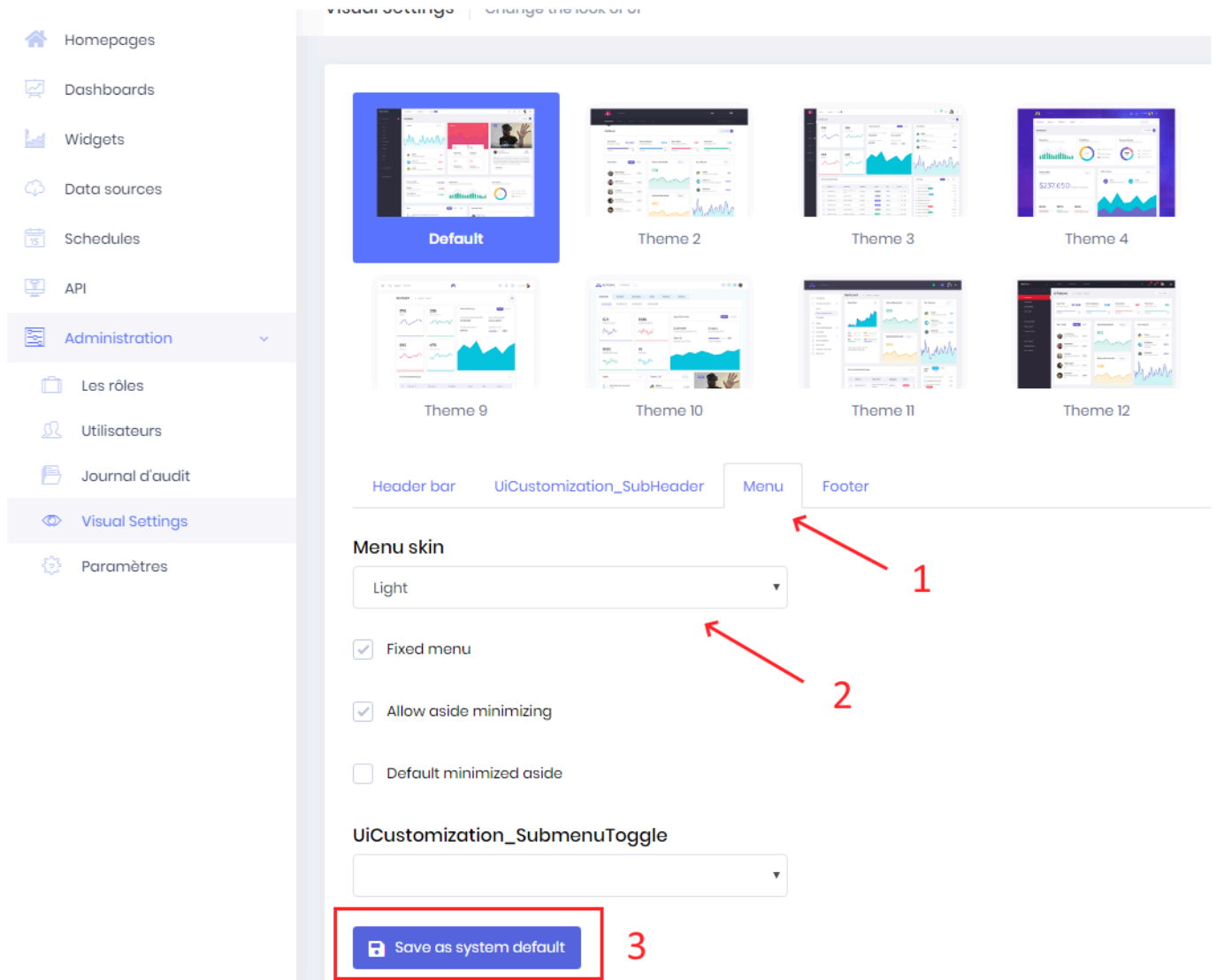
Prepare the Theme



First, you need to go to the Visual Settings Page by clicking on Administration (Step 1 on screenshot), then click to Visual Settings (Step 2 on the screenshot).

Then, Select the Light Skin in the Skin Combobox. (Step 3 on the screenshot)

Once done, click on the menu tab like the step 1 on the following screenshot:



Then, select Light in the Menu Skin Combobox like Step 2 on the screenshot.

Once done, please ensure the DEFAULT theme is selected like on the screenshot and click on the “Save as system default” button which is Step 3 on the screenshot.

Create the CSS file

After this; you will need to prepare your custom CSS file.

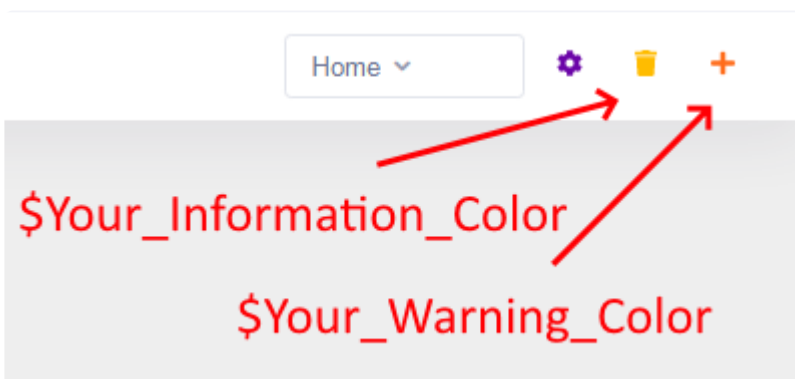
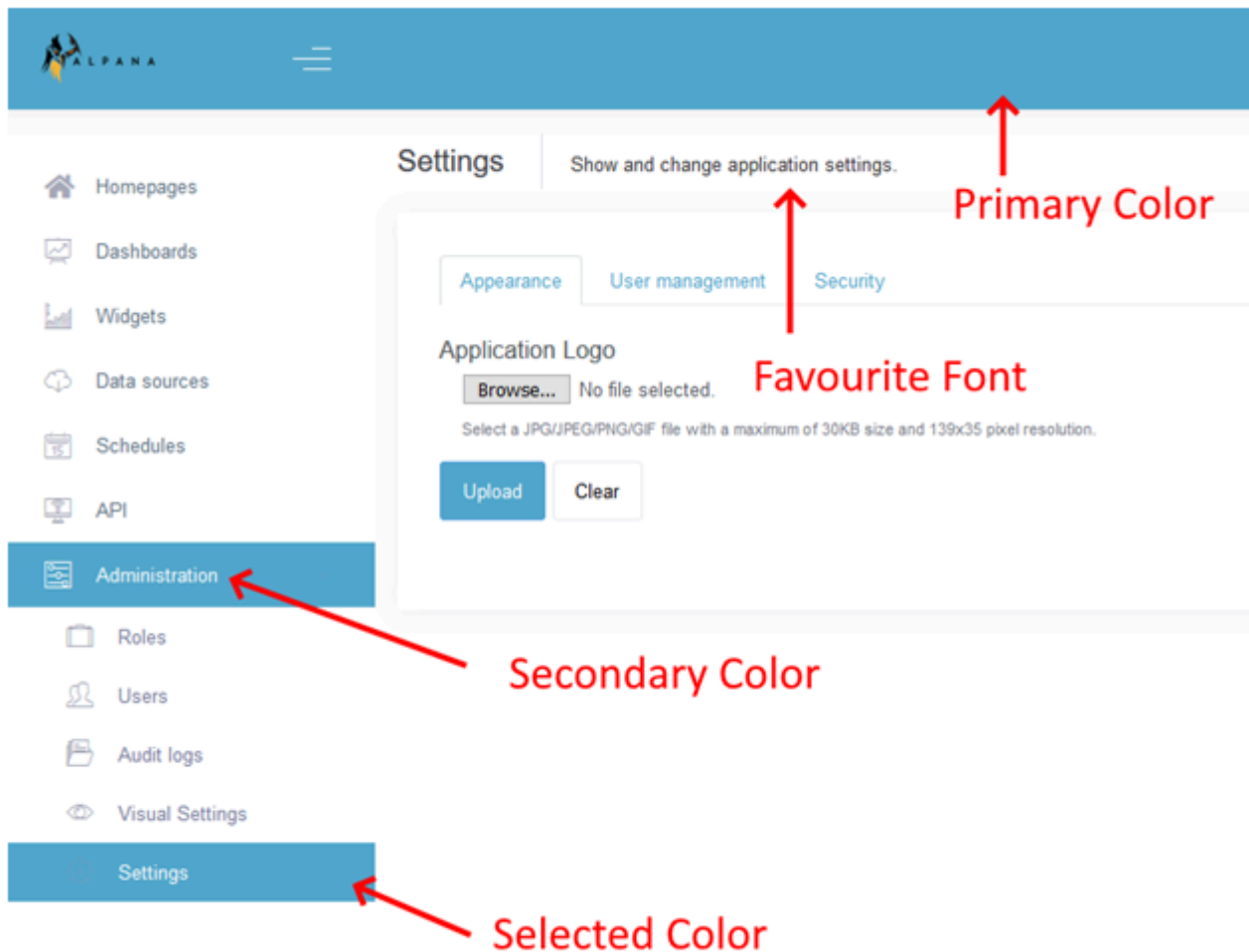
To help you with this step, we prepared a template file, please download the following file: [Alpana Server Custom CSS Placeholders File](#)

Then, you need to edit this file with your favorite text editor by changing the following placeholders by your custom values:

```
$Your_Primary_Color
$Your_Secondary_Color
$Your_Selected_Item_Color
$Your_favourite_font
$Your_Information_Color
```

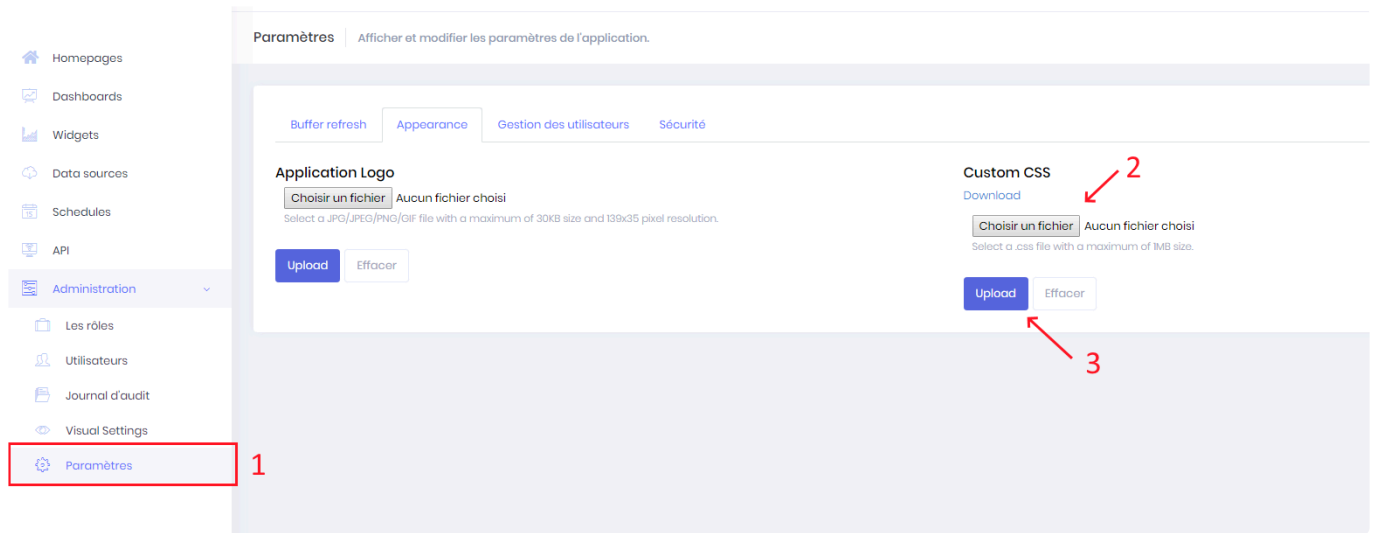
```
$Your_Warning_Color
$Your_Error_Color
```

Please take a look at the placeholders description in the following screenshots:



Upload the CSS

When it's done, you need to go to the Parameter Section shown in the screenshot below by clicking on Parameter (Step 1)

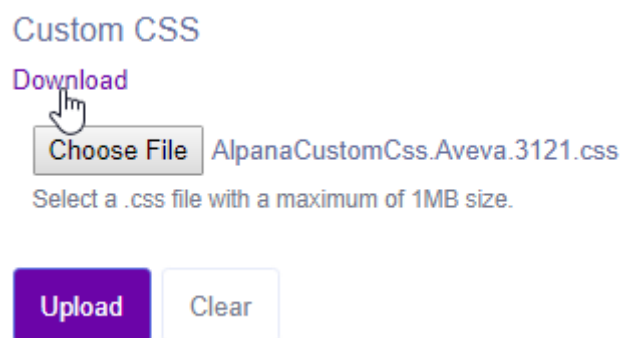


Then click on the Browse button (Step 2). From there, you need to select on your computer the previous edited file with your custom values and click “open” from the dialog box.

Finally click on the Upload button (Step 3) and you should have your selected theme applied.

Modifying the existing CSS

Once you have applied a Custom CSS, you can download it by clicking *Download* :



This allows you to modify it and re-upload it.

Removing the Custom CSS

If you wish to remove the custom CSS, click *Clear* :

Custom CSS

Download

AlpanaCustomCss.Aveva.3121.css

Select a .css file with a maximum of 1MB size.

Upload

Clear

Last modified: Feb 17, 2022

3.11.5. Host-level Settings

Some Alpana Server settings are managed at the Host level only, and impact all Tenants.
The following chapters detail how to configure those settings.

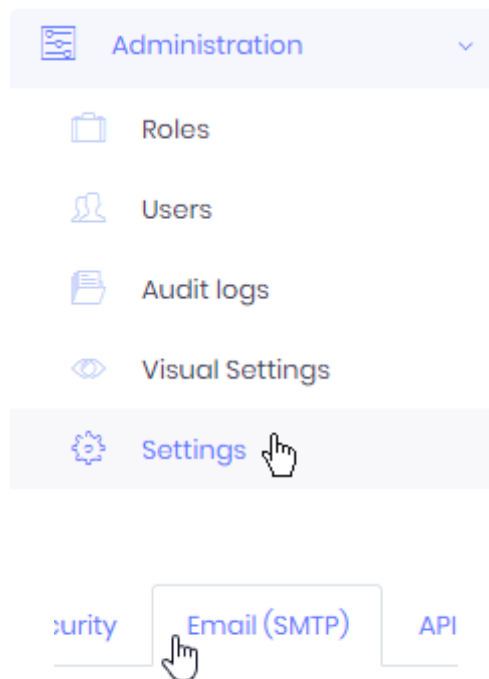
Last modified: Feb 17, 2022

3.11.5.1. Email (SMTP)

Alpana can send e-mails to users, and requires to configure the e-mail sending for the following usage :

- [user activation](#)
- [recovering forgotten passwords](#)
- sending exports through [Schedules](#)
- receiving [notifications](#)

To manage e-mail settings, go to the Host, in *Administration* > *Settings* and browse to the tab *Email (SMTP)* :



Configure E-mail sending

Configure Sender

You can configure which e-mail address and display name will be used for sending e-mails :

- *Default from (sender) email address* : the email address that will be used for sending e-mails on behalf of Alpana Server
- *Default from (sender) display name* : the full name that will be displayed on e-mails originating from Alpana Server

Default from (sender) email address

admin@mydomain.com

Default from (sender) display name

mydomain.com mailer

Configure SMTP Server

You must configure a [SMTP](#) Server with ability to send e-mails on behalf of Alpana Server :

SMTP host

smtp.gmail.com

SMTP port

587



Use SSL



Use default credentials

Domain name

code192.com

User name

clara.bellevue@code192.com

Password


[REDACTED]

- *SMTP host* : the hostname where the SMTP server is running
- *SMTP port* : the port where the SMTP server is running
- *Use SSL* : check if the communication with the SMTP server is encrypted
- There are two alternative authentication options :
 - check *Use default credentials* : let Alpana Server connect anonymously to the SMTP server. Some SMTP server configurations don't allow this.
 - uncheck *Use default credentials* : fill-in a *Domain name*, *User name*, *Password* to let Alpana Server authenticate to the SMTP server

Test E-mail sending

To verify that the configuration works, you can tell Alpana Server to send a test e-mail to your e-mail address :

Test Email Settings

 Send Test Email

If you receive the e-mail correctly, then the configuration is valid.

Save settings

Once the configuration is good, you must save it by clicking the *Save all* button on the top right :



Last modified: Feb 17, 2022

3.11.5.2. API Origins Whitelist

Why

Querying or embedding a content from Alpana into another website requires to be allowed from Alpana. This is called [Cross-origin resource sharing](#) , see also [Same-origin policy](#).

If you fail to do so, you won't be able to query or embed Alpana content from your application, and you will get a typical CORS error like :

```
Access to XMLHttpRequest at 'http://xxx.xxx.xxx.xxx:xxx' from origin 'http://yy.yyy.yyy.yyy:yyy' has been blocked by CORS policy: Response to preflight request doesn't pass access control check: No 'Access-Control-Allow-Origin' header is present on the requested resource.
```

This is a normal thing, for security purposes.

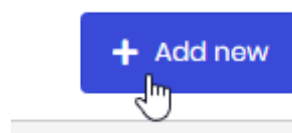
For example, the <https://www.google.com/> URL currently refuses to be embedded inside an iframe of another website.

In Alpana, you can create an exception, to allow a specific “foreign website” to access Alpana content.

✿ If you are making queries from Javascript code in a local HTML file open in your browser, you won't be able to make a query and your browser will probably block you. If you really just want to test that your code works, then your browser may let you disable security for this.
Check your browser documentation or [internet](#) (e.g. `Chrome.exe --disable-web-security`)

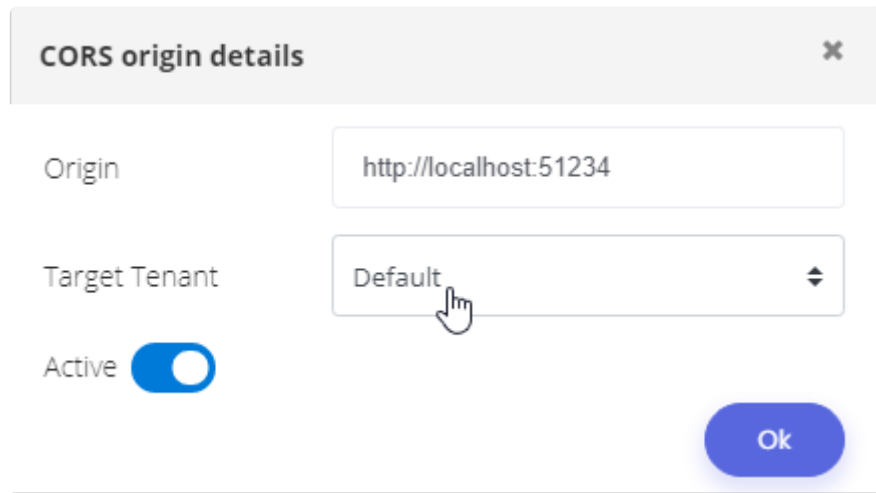
Creating an exception

On the Host of the Alpana Server; go under *Administration > Settings > API Origins Whitelist* and click *Add New* :



Configuration

In the configuration window, fill in the details :



CORS origin details

Origin:

Target Tenant:

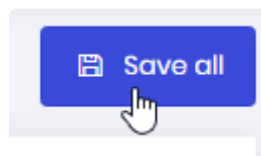
Active: ☒

Ok

- **Origin** : this is the URL of your application. The format is (protocol):(site):(port) with no trailing slash /. Examples : `https://www.google.com:80`, `http://123.456.789:81`
- **Target Tenant** : the tenant that will accept the queries or embedding
- **Active** : the exception is Active or not

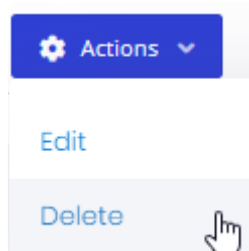
Click OK.

At the top of *Administration > Settings > API Origins Whitelist*, don't forget to click *Save All* :



Deleting an exception

To delete the desired exception from the list, click *Action > Delete* in front of it :



Last modified: Feb 17, 2022

3.11.5.3. External Login

You can let users login using external authentication authorities, through [SSO](#).

This allows :

- to create Alpana Server accounts from external authorities, and from a single click
- to login to those Alpana Server accounts by relying on external authorities, and from a single click



Note : After the account has been created through SSO, it will have default Roles and may not be Active by default.

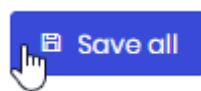
The Alpana administrator may need to [Activate the newly created user account](#), and assign [Roles](#) and [Permissions](#).

Alternately, the administrator may wish to [set up new accounts to be Active by default](#), and to define some appropriate default Roles.

To configure these external login configurations, go to the Host, in *Settings* and browse to the tab *External Login Settings* :



When configured, click *Save all* at the top right :



Facebook

To use authentication through Facebook, fill-in the corresponding form :

☒ Facebook

App ID

App Secret

* Facebook connection requires verified user.

Google

To use authentication through Google, fill-in the corresponding form :

☒ Google

Client ID

Client Secret

User Info Endpoint

<https://www.googleapis.com/oauth2/v2/userinfo>

Microsoft

(updated in 2020 R2)

Configuring on the Microsoft side

Create the app in Microsoft Developer Portal

Navigate to the [Azure portal – App registrations](#) page and create or sign into a Microsoft account:

If you don't have a Microsoft account, select Create one. After signing in, you are redirected to the App registrations page:

- Select New registration
- Enter a Name.
- Select an option for Supported account types : “all accounts”, or equivalent (“All Microsoft account users”, etc)
- Under *Redirect URI*, enter the Alpana Server front-end URL including the port. An IP address is not supported, you must have a domain name (or optionally “localhost” for test purposes). For example : `http://mydomainname:123` or `http://localhost:4200`
- Under “Implicit grant”, enable both *Access tokens* and *ID tokens*
- Select Register

Create client secret

- In the left pane, select Certificates & secrets.
- Under Client secrets, select New client secret
 - Add a description for the client secret.
 - Select the Add button.
- Under Client secrets, copy the value of the client secret, and **store it**.

Configuring on the Alpana side

In Alpana Server, use the client secret created above to fill in the values :

- *Client Id* : paste the *Application (client) ID* of your application from Microsoft
- *Client Secret* : paste the client secret copied above

Microsoft

Client Id*

Client Secret*

Show

WsFederation

(updated in 2020 R2)

To use authentication through a WS-Federation authentication provider like Active Directory Federation Services (ADFS) or Azure Active Directory (AAD)., fill-in the corresponding form.

Below are some instructions to help with this.

Configuring on the Microsoft side

Follow the [Microsoft documentation](#) for ADFS and AAD.

As “Sign-on URL”, configure the Alpana Server Front-End URL.

Configuring on the Alpana side

In Alpana Server, use the values from the Active Directory client created above to fill in the values :

- **Client Id** : paste the *Application (client) ID* of your application from Microsoft. Example : a1b2c3d4-xxxx-xxxx-xxxx-xxxxxxxxxxxx
- **Tenant** : paste the *Directory (tenant) ID* of your application from Microsoft. Example : a1b2c3d4-yyyy-yyyy-yyyy-yyyyyyyy
- **Meta data address** : paste the *Endpoints > Federation metadata document* URL from Microsoft. Example : `https://login.microsoftonline.com/a1b2c3d4-yyyy-yyyy-yyyy-yyyy/federationmetadata/2007-06/federationmetadata.xml`
- **Wtrealm** : paste the *Application ID URI* from Microsoft. Example : `api://a1b2c3d4-xxxx-xxxx-xxxx-xxxxxxxxxxxx`
- **Authority** : paste the `https://sts.windows.net/<tenantid>/` using the *Tenant* above. Example : `https://sts.windows.net/a1b2c3d4-yyyy-yyyy-yyyy-yyyyyyyy/`

WsFederation

Client Id

Tenant

Meta data address

Wtrealm

Authority

Claims Mapping

<input type="text"/>	<input type="text"/>	<input type="button" value="Add"/>
----------------------	----------------------	------------------------------------

OpenId Connect

To use authentication through [OpenId Connect](#), fill-in the corresponding form :

OpenIdConnect

Client Id

Client Secret

Authority

LoginUrl

☐ Validate Issuer

Claims Mapping

<input type="text"/>	<input type="text"/>	<input type="button" value="Add"/>
----------------------	----------------------	------------------------------------

Twitter

To use [authentication through Twitter](#), fill-in the corresponding form :

Twitter

Consumer Key*

Consumer Secret*

Apple Id

(new in 2022 R1)

To use “authentication through Alpana Id, an Apple developer account is needed.

Using this account, some step has to be done.

Configuring on the Apple side

- Get the *Team ID* from the Apple developer account
- Create an *App ID*
- Register a *Service ID* linked to the *App ID*
- Enable “*Sign in with Apple*” for the *Service ID*
- Fill your Alpana website Domain
- Fill a Callback address with a https URL (i.e. https:// [AlpanaServerDnsAddress](#) : [backendport](#) /api/Apple/signin)
- Created a Key
- Save the **.p8** file (This file should be stored in a safe place since it can be recreated)
- Link the key to the *App ID*

Configuring on the Alpana side

- Fill the *Client ID* field with the *Service ID*
- Fill the *Team ID* field
- Fill the *Key ID* field
- Fill the *Callback URL* field
- Fill the Private Key field with the content of **.p8** file : Open it as text file and copy the content between Private key Markup

Apple

☐ Use Host Settings

☐ Deactivate

This external login option will be disabled for your tenant.

Client ID*

Team ID

Key ID*

Callback Url*

Private key (*.p8 file contents)*



Some changes may require a restart of IIS websites. To prevent the restart, cleaning cache from the maintenance menu. Option `AppExternalLoginInfoProvidersCache`

Last modified: Apr 01, 2022

3.11.5.4. Concurrent Login

By default, each specific User of the Tenants can be logged-in from multiple browser simultaneously. As an administrator, you can change this behavior.

Go to the Host, in *Administration > Settings* and browse to the tab *Security*. Then check the *Only one concurrent login per user* option.

Now, when a User logs in on a new browser, the other open sessions will be closed automatically.

Last modified: Feb 17, 2022

3.11.5.5. Language

Description

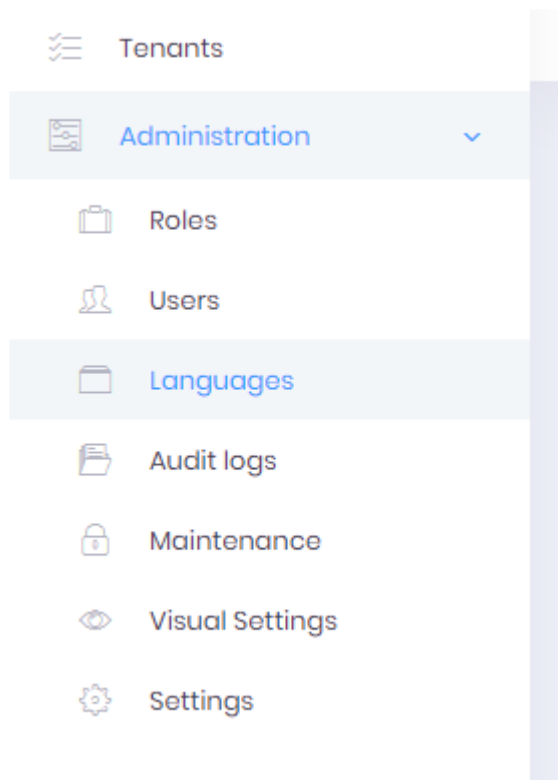
Alpana server interface is now available in different language. It affects only the Interface of the server and doesn't change anything inside the dashboard or in the designer.

Available language :

- 2021R1 : English, French

Configuration

Under the administration menu at the host level. Language can be configured for the whole server.






All language available will be displayed in the view.

Languages | Manage user interface languages.

Actions	Name	Code	Is enabled
Actions ▾	English (Default)	en	
Actions ▾	French	fr	
Total: 2			

In the Action button you can choose the default language that will be used in the Alpana server interface.

Actions	Name	Code
<div><div> Actions</div><div><div>Set as default language</div></div></div>	 English (Default)	en
<div><div> Ac</div></div>		fr
Total: 2		

Last modified: Feb 17, 2022

3.11.6. Background Jobs

(new in version 2020 R1)

Introduction

Long-running tasks are managed by a Background Jobs manager : manual dashboard exports, manual data import from files, etc

If the job fails, it is retried once.

Results are communicated through the [Notifications](#).

This allows a better handling of simultaneous exports



Job data is retained for 1 week. After that it becomes deleted, and you cannot download your old PDF export for example.

Jobs Overview

On each tenant, there is an administration interface to ti the Jobs.

Go to *Administration > Background Jobs* to view :

- *Execution History*
- *Processing Jobs* that are currently running
- *Enqueued Jobs* that are ready to run
- *Next Executions* which are upcoming

Hangfire dashboard

For advanced administration/debugging and support, the internal background job manager exposes a dashboard.

It is called “Hangfire”, and the dashboard is available on the web page of the Back-End website of Alpana Server.

To access it, simply use your web browser to navigate on the Back-End website of Alpana Server.

Login with your **Host** credentials, and use the Hangfire web page to view internals of the Background Jobs.

Last modified: Feb 17, 2022

3.11.7. Webhook Subscriptions

(new in version 2020 R2)

Introduction

You can use events in Alpana Server to trigger workflows in external tools, thanks to [Webhooks](#). When the event happens, Alpana Server sends a query to your web API and includes information about the event.

✿ Note : Hosting and programming this external web API needs to be done by the developer.

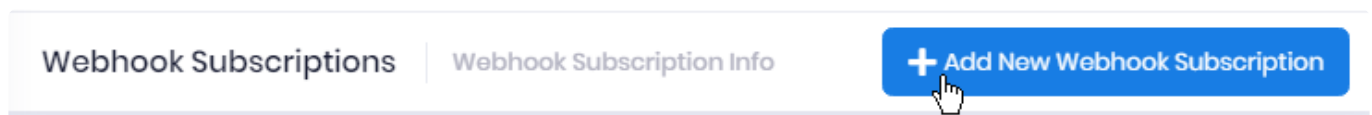
✿ Note : If you want to do the opposite (trigger an action in Alpana when something happens in an external tool), then you can make use of [Alpana Server's own web API](#).

Creating and Managing a Webhook Subscription

In order to manage Webhook Subscriptions, go to *Administration > Webhook Subscriptions* on the desired Tenant.

Creating a Webhook Subscription

Click button *Add New Webhook Subscription* :



Fill-in the “Add New Webhook Subscription” dialog :

Webhook Endpoint

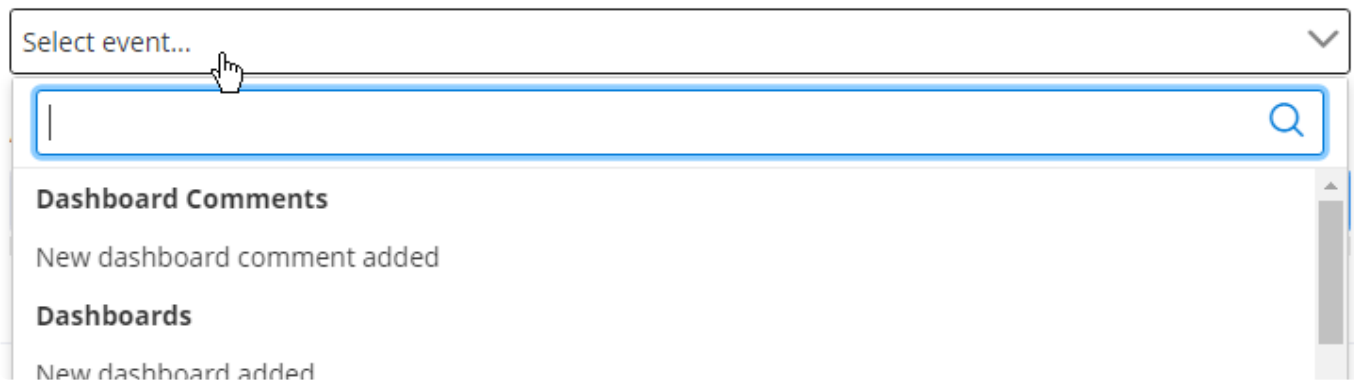
Provide the URL of the external API endpoint that you want to call when the Event happens.

Webhook Endpoint *

Webhook Event

Select the desired Alpana Server event that will trigger the webhook and send a query to the Endpoint.

Webhook Event *



Select event...

Search

Dashboard Comments

New dashboard comment added

Dashboards

New dashboard added

Supported Events are :

- Dashboard [Comments](#)
 - *New dashboard comment added* : triggered when a new Comment is added. The payload includes the Dashboard or Widget name, and a URL to the comment itself.
- Dashboards
 - *New dashboard added* : triggered when a new Dashboard is added, or when one is copied. The payload includes the Dashboard Id, name, and URL.
 - *Dashboard deleted* : triggered when Dashboard is deleted. The payload includes the Dashboard Id and name.
 - *Dashboard updated* : triggered when a Dashboard is updated, but only if the Dashboard itself changes (new version or version restored), and not if only the name changes. The payload includes the Dashboard Id, name, and URL.
- Datasources
 - *New datasource added* : triggered when a new Datasource is added. The payload includes the Datasource Id and name.
 - *Datasource deleted* : triggered when a Datasource is deleted. The payload includes the Datasource Id and name.
 - *Datasource updated* : triggered when a Datasource is updated. The payload includes the Datasource Id and name.
- Widgets
 - *New widget added* : triggered when a new Widget is added. The payload includes the Widget Id, name, and URL.
 - *Widget deleted* : triggered when Widget is deleted. The payload includes the Widget Id and name.
 - *Widget updated* : triggered when a Widget is updated, but only if the Widget itself changes (new version or version restored), and not if only the name changes. The payload includes the Widget Id, name, and URL.

Additional Webhook Headers

Additionally to the payload body, you can optionally add some [headers](#) to the query.

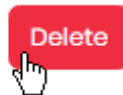
Additional Webhook Headers

Header Key	Header Value	
Authorization		Add

Enter a *Header Key* and a *Header Value* and click the button *Add*.

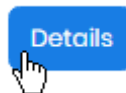
Deleting a Webhook Subscription

To delete a Webhook Subscription, locate it in the list and click the *Delete* button in front of it :



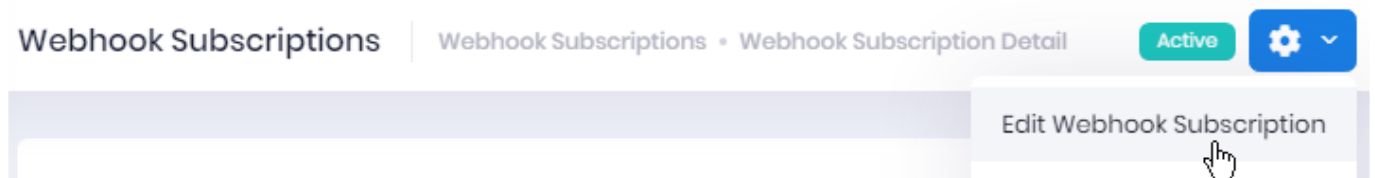
Editing a Webhook Subscription

To view details of a Webhook Subscription, locate it in the list and click the *Details* button in front of it :



In the *Webhook Subscription Detail* view, you can view its configuration details.

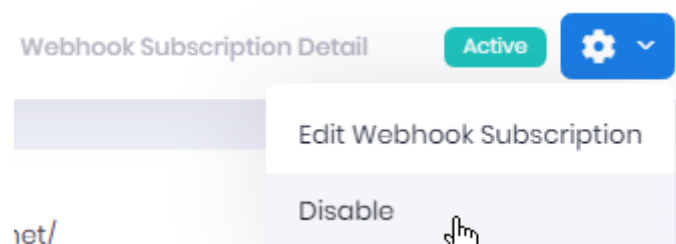
Open the menu “Edit Webhook Subscription” to make changes to its configuration.



Disabling a Webhook Subscription

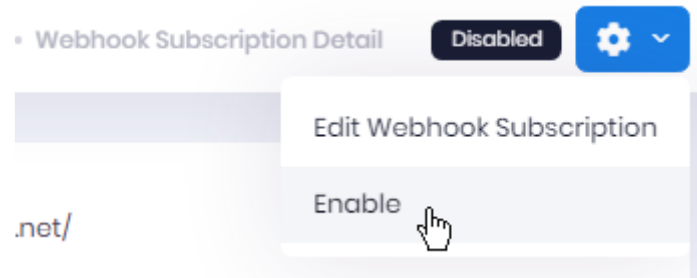
Open the menu *Disable* to disable the webhook.

The state will be displayed as *Disabled* and the Event will no longer trigger the configured query.



Open the menu *Enable* to enable the webhook again.

The state will be displayed as *Active* and the Event will again trigger the configured query.



Viewing and Managing Send Attempts

For each Webhook Subscription, in the *Webhook Subscription Detail* view, you have a list of all the events under *Webhook Send Attempts*.

Every time an event happens and Alpana Server tries to send the query to your Endpoint, a new entry appears here.

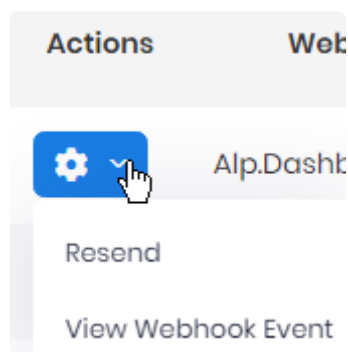
You may use the *Refresh* button if you want to see changes live.

Actions	Webhook Event	Webhook Event Id	Creation time	Http Status Code	Response	Data
	Alp.Dashboards.Updated	cecd8d2c-cc74-4eed-b286-41ddc591c2e6	2020-11-03 17:25:00	200	{"success":true}	Show Data
	Alp.Dashboards.Updated	3420228c-13e4-471f-1c15-7101b410c500	2020-11-03 17:11:32	200	{"success":true}	Show Data

For each Send Attempt, you can view the following information :

- *Webhook Event* : internal name for the Event that triggered the Attempt
- *Webhook Event Id* : internal Id of the Event that triggered the Attempt
- *Creation time* : time of the Attempt
- *Http Status Code* : [Http Status Code](#) returned by the target Endpoint
- *Response* : body of the response returned by the target Endpoint
- *Data* : click button *Show Data* to view the payload (the body of the sent query)

For each Send Attempt, you can also perform the following *Actions* :



Resending

Click *Resend* to send again the query to the Endpoint.

Details

Click *View Webhook Event* to view details about the event

Webhook Event Detail

Webhook Event

Alp.Dashboards.Updated


Creation time

11/03/2020 5:25 PM

Data

```
{
  "Id": "7c1a0d25-b3b5-4b33-8e05-8d9f26c82e5b",
  "Name": "imagemixl_v33111",
  "Url": "http://localhost:4200/viewer/dashboard/7c1a0d25-b3b5-4b33-8e05-8d9f26c82e5b"
}
```

Webhook Send Attempts



Last modified: Feb 17, 2022

3.12. API

Alpana Server exposes a web API that exposes many actions and properties.
The following chapters document how to use this API.

Last modified: Feb 17, 2022

3.12.1. General API help and troubleshooting

Permissions

To work with the API, the user must have the required permissions on the Tenant :

- API permissions
- desired object permissions : for example, for API queries on Schedules, the user must have permissions on Schedules

API location

The API responds on the [Back-End website](#) (Alpana3App).

Resources

API Code snippets on Alpana Server

On your Alpana Server tenants, users with permissions to the API have access to auto-generated code snippets to help you make common requests.

So use this utility, login to the desired tenant (to the Front-End) and navigate to menu *API* :



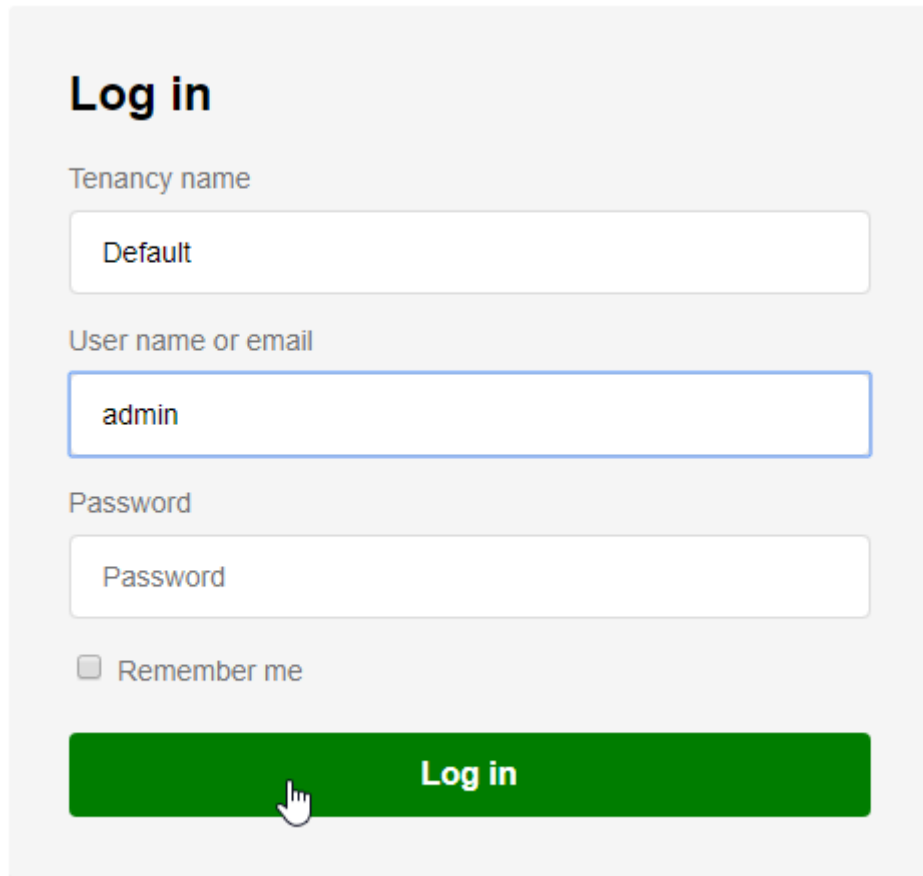
Swagger UI : Automatic documentation and test

Swagger UI allows you to access the full list of API endpoints, along with some auto-generated documentation, and an interface for testing queries.

To access it, simply use your web browser to navigate on the Back-End website of Alpana Server.

Login with your tenant credentials, and use the Swagger web page to browse endpoints, unfold their documentation, and try them from the browser.

✳ Due to cyber security improvement, the Swagger access is disabled by default. If you want to enable it. go to the appsettings.production.json file in Alpana App folder in IIS and change IsEnabled parameter in the swagger section: "Swagger": { "IsEnabled": true,



Log in

Tenancy name

Default

User name or email

admin

Password

Password

☐ Remember me

Log in

Testing with Postman

You can easily test your API queries with a third-party tool called [Postman](#) .

This allows you to configure all parameters of the queries, and generate code in your programming language.

Common issues

If your application is a web application running in a browser, it will need to be allowed to make queries to the API. Otherwise, you will encounter CORS errors.

In order to do this, see [API Origins Whitelist](#).

Last modified: Feb 17, 2022

3.12.2. Authentication to the API

Getting code snippets for authentication

Getting an authentication token

Authentication to the API is documented in each Tenant under the menu *API > Authentication*

Perform the documented query with a valid username/password combination in order to get an **authentication token**.

API Generate code templates to use the remote API.

Authentication Remote actions Update Dependencies

Request access token

Supply account credentials to get access token

Perform a POST request to following endpoint

`https://[REDACTED]/api/TokenAuth/Authenticate`

Include following body in request

```
{  "userNameOrEmailAddress": "myUserName",  "password": "myPassword"}
```

Set the following request headers

`Abp.TenantId: 1`

The response result has the following structure. Extract the access token and the expiring information.

```
{  "success": "true | false",  "error": {    "code": "number",    "message": "string",  }
```

* It's up to you to keep the access token safe. If you're running the request from a website, consider storing it in an encrypted cookie or at server-side ; from a desktop application or middleware, follow the best practices and guidelines for your development platform.

Token validity

The access token lifetime is 7 days.

The refresh token lifetime is 1 year.

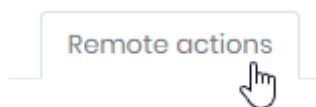
Important note on Security

If you need to perform authenticated queries programmatically from your application, you will need to consider the best practices for handling these credentials safely, without storing passwords for example.

Last modified: Feb 17, 2022

3.12.3. Remote Actions

Remote Actions are some commonly used API actions that trigger actions to clients. You can find the corresponding snippets by navigating to *API > Remote actions*.



Last modified: Feb 17, 2022

3.12.3.1. Refreshing / Updating Filters

Scenarios

Refreshing

You want to remotely force a refresh on any widget from any dashboard currently open in a browser.

This can be because you want event-based refresh.

This can be because you want very fast refresh (almost “live”) on some widgets.

You may want to filter target users who see this refresh.

This can be because you only want to force a refresh on the TV screen on the plant floor, and not disturb other users.

Updating Filters

You want to remotely send Parameters values inside any dashboard currently open in a browser.

This can be because you embedded the Alpana dashboard inside your application, and you want to send filter values from your application.

You may want to filter target users who see this filtering.

This can be because you want only the user currently browsing the application to see the filtering.

Code snippets

You can find code snippets by navigating to *API > Remote Actions* and selecting *Action Refresh / Filter* :

Action

Select API action to generate code for

Refresh / Filter

Fill in the desired information as *Target* on the left pane (like the desired Dashboard, Parameters, etc) :

Authentication

Remote actions

Update Dependencies

Target

Perform actions against following target

☒ Dashboard ☐ Published widget

Refresh_SysTime

Select dashboard

Select widgets to refresh (select none to refresh whole dashboard)

Grid 2 Header



Perform actions against target displayed by following connected users

☐ Filter users by role

☐ Filter users individually

Then copy to your application the code snippets generated on the right.

Last modified: Feb 17, 2022

3.12.3.2. Real Time Widgets Data

Scenario

You want to instantly send values inside a Widget, but you don't want to configure this Widget with a Data Source.

For example, the data does not exist in storage, but your application holds it and sends it *live* into the published Widget.

Example :

You have a Circular Gauge widget that is published on Alpana Server, but configured with no Data Source.

You have an ArcestraA object with some UDA that is not stored to Historian.

The object has a script that runs periodically every 3s to send the value from the UDA into the Circular Gauge widgets.

This value is immediately displayed to users who have the dashboard open at that time.

Preparing the target Widget

First, you need to configure the Widget.

See [Binding to Real-Time Data](#) to configure the Widget to accept the real-time data.

In this configuration, you define the Widget graphical properties and which fields will receive data. You don't actually connect the Widget to a Data Source.

Generating Code snippets

Finally, you need to send data through the API.

You can find code snippets by navigating to *API > Remote Actions* and selecting Action *Real Time Widgets Data* :

Action

Select API action to generate code for

Real Time Widgets Data

Fill in the desired information as *Target* on the left pane (like the desired Dashboard, Parameters, etc) :

Authentication

Remote actions

Update Dependencies

Target

Perform actions against following target

☒ Dashboard ☐ Published widget

Refresh_SysTime

Select dashboard

Select widgets to refresh (select none to refresh whole dashboard)

Grid 2 Header



Perform actions against target displayed by following connected users

☐ Filter users by role

☐ Filter users individually

Then copy to your application the code snippets generated on the right.

Replace the "values" with the desired values.

Last modified: Feb 17, 2022

3.12.4. Client-Side Hooks

Alpana provides hooks to let you implement custom behavior when you embed inside your application. You can subscribe to be notified of the event in Javascript, and get event properties.



Authentication is not explained here, and should be managed by your application in a secure manner.

First, [embed the Dashboard](#) in your application by using the “Embed in code (use jQuery)” code snippet.

Then in your code, you can do something like :

```
window.addEventListener('message', function (e) {
    if (e.data && e.data.name) {
        switch (e.data.name) {
            case 'onParametersChanged':
                const parameters = e.data.arguments;
                if (parameters && parameters.length) {
                    alert(parameters[0].name
                        + ' value changed : '
                        + (parameters[0].values && parameters[0].values.length ? parameters[0].values.join() : 'null'));
                }
                break;
        }
    }
}, false);
```

Last modified: Feb 17, 2022

3.13. Maintenance and Migration

This chapter describes commonly needed maintenance operations.

Last modified: Feb 17, 2022

3.13.1. Start / Stop IIS websites

Alpana Server deploys websites in Microsoft IIS :

- `Alpana3App` : the back-end site
- `Alpana3Client` : the front-end site

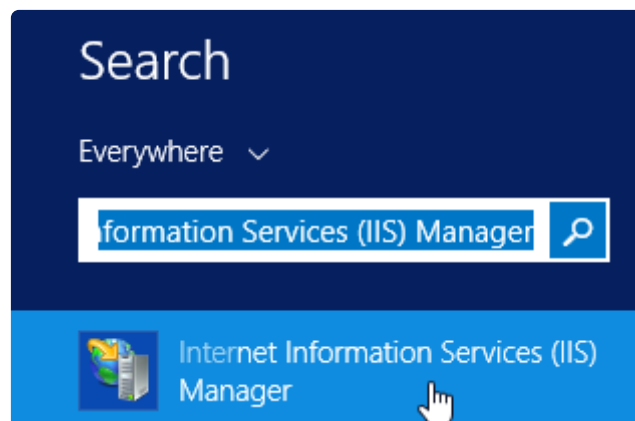
You can start/stop/restart those websites by using the IIS management tools.

When the machine restarts, the started/stopped state of the sites is maintained by IIS.

IIS Management Console

To open IIS Manager, run the program `inetmgr`

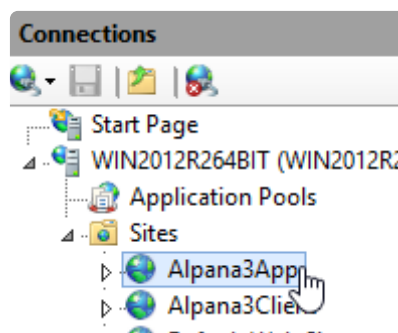
Alternately, you can search for the program name “Internet Information Services (IIS) Manager” :

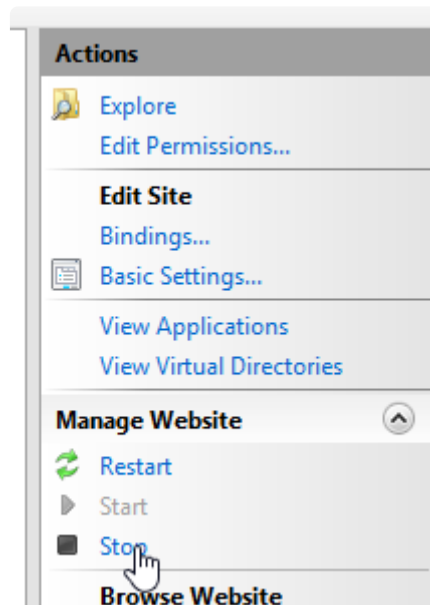


Starting/Stopping/Restarting websites

The websites may be started from the Alpana Server installer, as a final option (default).

If you wish to start/stop/restart the websites manually, open IIS Manager, click on the website and click *Start* (or *Stop* or *Restart*) :

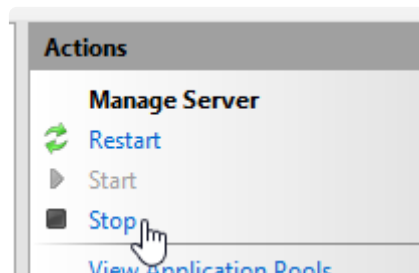
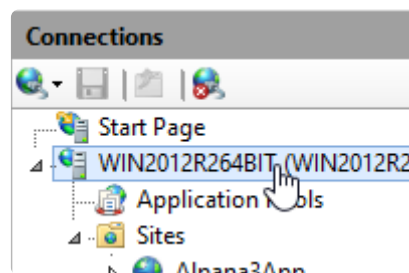




* Note : even after stopping the `Alpana3App`, the application `code192.Alpana.Server.Web.Host.exe` may still be left running in memory.
To completely stop it, it may be required to stop IIS altogether (see below).

Stopping/Restarting IIS

To stop IIS completely, select the server name, and click *Stop*.
Wait that the animation progress stops.
Click *Start* to start IIS again.



Last modified: Feb 17, 2022

3.13.2. Backup

Introduction

Two elements of Alpana Server must be backed up :

- the Alpana Server database, named `AlpanaDb` by default
- the dashboards folder located in the installation folder, by default `C:\inetpub\alpana3\`, inside `\app\App_Data\Published\`

Backup

- * To perform a backup, it is recommended to stop the websites first in order to ensure consistency between the database and the folders. (e.g. : a dashboard is uploaded between the database backup and the folder backup)
If this is not desired, one should at least backup the folder **after** the database.

Database backup

Locate the Alpana Server database, named `AlpanaDb` by default.

Use standard Microsoft SQL procedure to perform a full backup of the Alpana Server database.

- * The Alpana Server database is created by default with recovery mode *Simple*.
If you wish for a different setting, you are free to change it.

Folder backup

Locate the installation folder, by default `C:\inetpub\alpana3\`.

Copy and compress the `\app\App_Data\Published\` folder.

Restore

- * Before deleting any item, make sure you make a backup first.

! Restoring requires to stop the websites, so this will incur downtime to your users.

Stop the websites

Open the IIS Management Console with : Windows > Run... `inetmgr`.

Select the two Alpana Server websites and click *Stop* for each of them.

Restore the folder

Locate the installation folder, by default `C:\inetpub\alpana3\`.

Replace the `\app\App_Data\Published\` folder by the backup.

Restore the database

Use standard Microsoft SQL procedure to perform a full backup of the Alpana Server database.



Use the same database name as previously on this installation.

Start the websites

Open the IIS Management Console with : Windows > Run... `inetmgr`.

Select the two Alpana Server websites and click *Start* for each of them.

Last modified: Feb 17, 2022

3.13.3. Migration

Purpose

Case 1 : Development → Staging → Production

You have several environments for your development cycle.

When development has been tested on one environment, you want to migrate the content (dashboards, users, etc) towards the Production environment.

Case 2 : Moving to another machine

You need to move your Alpana Server installation to a different machine (e.g. for architecture reasons).

✿ In this case, it is possible to move the license by de-activating it on the first machine and using it later on the target machine.
Check with your support what is the most appropriate and see [License Deactivation](#).

Migration Procedure

To migrate from *MachineX* to *MachineY*, follow the below procedure :

1. Alpana Server must be installed on *MachineY*. If you are using a separate license, then the *MachineY* license must be activated too (though this can be done at a later time)
2. Perform a [backup](#) on *MachineX*
3. Perform a [restore](#) on *MachineY*

Migrated content

Note : all content from *MachineX* will be migrated :

- Users and their passwords
- Dashboards, Widgets, Data Sources
- Roles, Permissions, ...
- Server Settings, ...
- Runtime Connection

✿ If you are transferring your alpana server to a new one for migration, you will have to backup Alpana Runtime Data base also to migrate them at the same time.

Possible Issues

When migrating, some Dashboards may become unable to access their data.

This commonly happens when data is not accessible from the *MachineY* using the same Connection.

Example : database is not accessible on the new network.
The fix is then to open the Dashboard and edit the Connection accordingly.
Error logs should help you find and fix the issue.

Last modified: Feb 17, 2022

3.13.4. Cache management

To optimize some action, Alpana server use temporary storage called cache. Each cache are isolated and can be cleaned separatly.

Cache list:

- AbpZeroTenantCache
- AppExternalLoginInfoProvidersCache
- AbpZeroUserPermissions
- AppSwitchToLinkedAccountCache
- AbpUserSettingsCache
- AbpZeroLanguages
- AppUserFriendCache
- AbpZeroRolePermissions
- AbpZeroMultiTenantLocalizationDictionaryCache
- AspNet.Identity.SecurityStamp
- AbpTenantSettingsCache
- token_validity_key
- TempFileCacheName
- AbpApplicationSettingsCache
- AbpZeroTenantFeatures



The clean cache feature should not be used without request from the Alpana support team or specifically written in the documentation.

Last modified: Mar 31, 2022

3.14. Troubleshooting

This chapters explains how to find error logs and how to fix common issues.

Last modified: Feb 17, 2022

3.14.1. Installation Troubleshooting

installation logs

After Alpana installation, you will be prompted with a windows that ask you if you want to save installation log file :



* If you get any trouble during the installation, the support will need the installation log file.

Get the Alpana Server log

Even if the installation fails and rolls back, the installer will usually leave behind an [error log](#) in the destination installation folder.

This `Logs.txt` file will contain additional useful information for support.

Get Windows Events

Look in Windows Event logs for an error happening during installation.

For example, sometimes SQL will log a useful error log there.

Send logs

When the installation has completed, you can send the zipped `Alpana_install.log` and `Logs.txt` files, and any Windows Event logs to your Alpana Support.

Don't forget to include any relevant information about your installation (Windows/SQL/IIS versions ? What pre-requisites were configured and installed ? What configuration choices did you make during installation ? ...)

Post-installation issues

Website startup issues

If the Front-End doesn't seem to start, try to open the URL of the Back-End directly in your web browser.

- If you see a login page on the back-end, then the Front-End should start, see [error logs](#) and contact Support.
- If instead you see a “Error HTTP 500” message or similar, then you are probably missing some [pre-requisites on IIS](#).

When changing the configuration to IIS, you must repair the ASP.NET Core component :

1. update IIS configuration
2. go to Windows Control Panel and for each component of ASP.NET Core, perform a “Repair”.
Usually, this is done through right-click > Change, then select *Repair*.

License activation issues

When uploading the license file, if nothing seems to happen, here is a possible solution :

Check the host Audit Logs.

If a warning is present at that time, check the details.

If the details contain a message like “access denied” with a file location, then you may have permission issues in the IIS website folders.

Make sure that IIS and the Windows user running Alpana (`IIS APPPOOL\Alpana3App`) have permissions to create files in sub-folders of the installation folder.

Last modified: Feb 17, 2022

3.14.2. Dashboard error logs

What errors are logged

Published Dashboards and Widgets can generate errors when viewed.

Typically, this will show a *Data retrieval error* message in place of the Widget's visuals :



This means that the Widget was unable to get the required data.

These errors can have several explanations :

- data not available
- SQL error
- wrong query
- ...

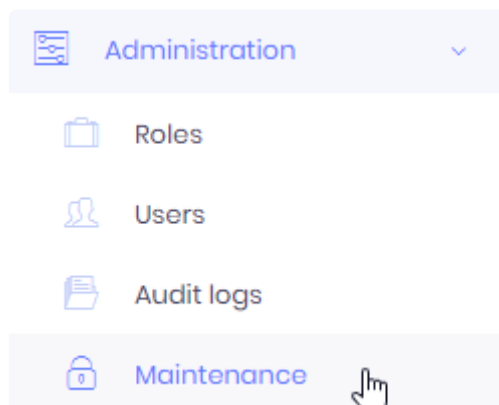
When viewed from Alpana Designer or Preview, you can access the full error message, see [the relevant help page](#).

When viewed from Alpana Server, you can access the full error message from the web interface, or inside a file, see below :

From the Host

From the Host, you can view the full error logs.

Dashboard logs are located in *Administration > Maintenance* under the tab *Website logs* :

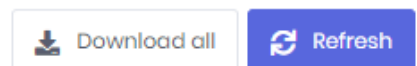




The recent logs are presented in a full list with :

- log level : ERROR / WARN / INFO
- timestamp : time of the event
- source : where the log came from
- message : the full error message, which can span several rows

You can see latest logs in this page or download all logs in a single zip file.



```
Message :Format error
ERROR 2019-10-30 20:43:31,663 [44 ] code192.Alpana.AlpanaLogger - 10/30/2019 8:43:31 PM -- : ErrorCo
Message :Unable to connect to &#39;cnxUtilizationEvents&#39;. Reason: Format error
ERROR 2019-10-30 20:43:31,663 [44 ] code192.Alpana.AlpanaLogger - 10/30/2019 8:43:31 PM -- : ErrorCo
Message :Unable to connect to &#39;cnxUtilizationEvents&#39;
ERROR 2019-10-30 20:43:31,666 [154 ] code192.Alpana.AlpanaLogger - 10/30/2019 8:43:31 PM -- : ErrorC
Message :Format error
ERROR 2019-10-30 20:43:31,667 [154 ] code192.Alpana.AlpanaLogger - 10/30/2019 8:43:31 PM -- : ErrorC
```

You can click *Refresh* to view the latest logs at the bottom of the page.

You can click *Download all* to export the full logs as text inside a compressed .zip file.

Alpana Server Error Log Files

If for some reason you are unable to access the error logs from the web interface of the Front-End (maybe you are unable to log in), you can find the logs as text files in the following folder :
(under your installation folder, by default C:\inetpub\alpana3\) .\app\App_Data\Logs\

Last modified: Feb 17, 2022

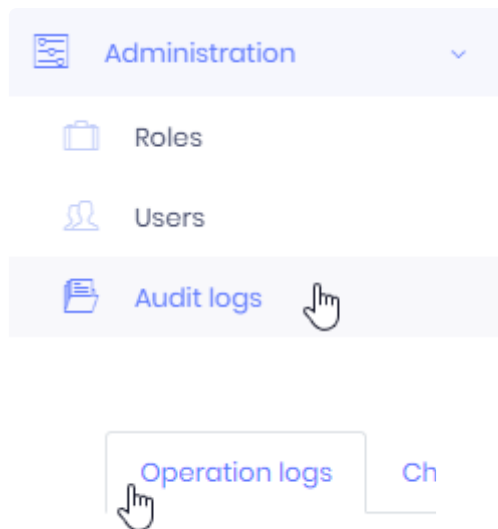
3.14.3. Server usage logs

From the Administration menu of Alpana Server, logs are available, both at the Host level and at the Tenant level.

Operation logs

The Operation Logs list all operations performed on the application : authenticating, changing settings, etc

Operations Logs are located in *Administration > Audit logs* under the tab *Operation logs* :



Viewing Operation Logs

Logs are presented in a list with properties like :

- Log level : a symbol showing the level of importance of the log (information, warning, error)
- *User name* : user authenticated for the operation
- *Service* : which application service was responsible for handling the operation
- *Action* : which Action was performed or attempted
- *IP address* : the IP address of the request
- *Browser* : the [User Agent](#) of the request
- *Time* : when the operation happened

	User name	Service	Action	Duration	IP address	Client	Browser	Time
		tester	TokenAuthController		192.168.112		Mozilla/5.0 (WindL	2019-10-31 12:10:28
		admin	TenantSettingsAppService		192.168.112		Mozilla/5.0 (WindL	2019-10-31 12:10:02
		admin	TenantSettingsAppService		192.168.112		Mozilla/5.0 (WindL	2019-10-31 12:09:49
			TokenAuthController		192.168.112		Mozilla/5.0 (WindL	2019-10-31 12:07:38
		tester	TokenAuthController		192.168.112		Mozilla/5.0 (WindL	2019-10-31 12:07:34

Total: 25

Navigation: 1 2 3 4 5 5

Filtering logs

These properties can be used for filtering the logs : select a *Date range* and/or another property to filter it (including *Advanced filters*), then click *Refresh* to refresh the view including the filters :

Export to excel Refresh

<p>Date range</p> <input type="text" value="10/01/2019 - 10/31/2019"/>	<p>User name</p> <input type="text"/>
<p>Service</p> <input type="text"/>	<p>Duration</p> <input type="text" value="---"/>
<p>Action</p> <input type="text"/>	<p>Error state</p> <input type="text"/>
<p>Browser</p> <input type="text"/>	

Hide advanced filters

Viewing details

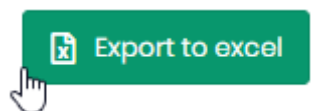
You can click the magnifying glass icon in front of a log entry to view details :



This opens a details window with the same information as in the log list, and with more details, like the action *Parameters* and *Error State* which can help understand what is happening.

Exporting logs

You can export the filtered logs to Excel by clicking *Export to Excel* :

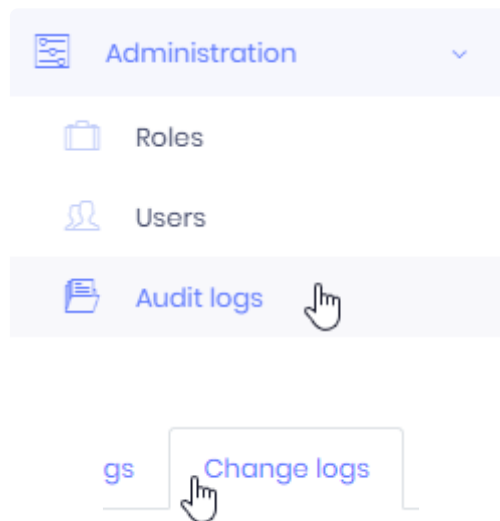


Change logs

Lists all changes to “entities” in the database :

- on Tenants, this is : published Dashboards, published Widgets, published DataSource, ...
- on the Host, this is the Tenants






Change Logs are located in *Administration > Audit logs* under the tab *Change logs* :



Viewing Change Logs

Logs are presented in a list with properties like :

- *Action* : which Action was performed or attempted on the entity
- *Object* : which entity was modified
- *User name* : user authenticated for the operation
- *Time* : when the operation happened

Action	Object	User name	Time
 Created	code192.Alpana.Server.Dashboards.DashboardEntity	paul	2019-10-30 08:00:52
 Updated	code192.Alpana.Server.Dashboards.DashboardEntity	admin	2019-10-29 17:42:13
 Created	code192.Alpana.Server.Dashboards.DashboardEntity	admin	2019-10-29 17:42:12
 Updated	code192.Alpana.Server.MultiTenancy.Tenant	paul	2019-10-29 16:46:41
 Updated	code192.Alpana.Server.MultiTenancy.Tenant	paul	2019-10-29 16:45:10

Total: 124

Navigation: 1 2 3 4 5 5

Filtering logs

These properties can be used for filtering the logs : select a *Date range* and/or another property to filter it, then click *Refresh* to refresh the view including the filters.

Export to excel

Refresh

Date range

10/01/2019 - 10/31/2019

User name

Object

Widget

Viewing details

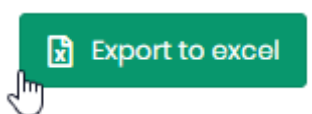
You can click the magnifying glass icon in front of a log entry to view details :



This opens a details window with more details about what changed.

Exporting logs

You can export the filtered logs to Excel by clicking *Export to Excel* :



Last modified: Feb 17, 2022

3.14.4. Website Troubleshooting

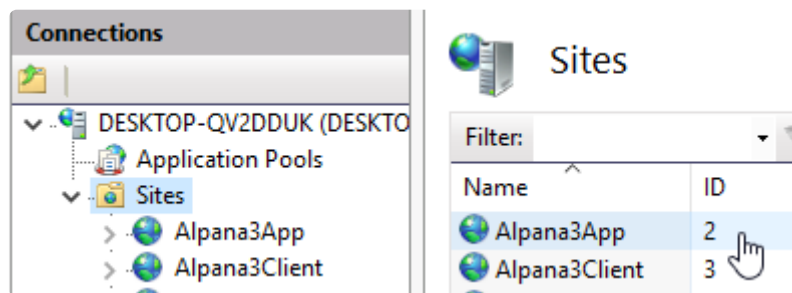
Below are some useful resources and some answers to common issues with reaching or starting the websites.

Useful logs

IIS Requests Logs

If you need to investigate your network configuration to see the content of HTTP requests, you can find IIS log files :

1. Open IIS Manager (run `inetmgr`)
2. Click on the *Sites* list to get the ID of the desired website. For example in this screenshot, the Alpana3App ID is 2 :



3. With Windows file explorer, browse the following folder (replace the **2** with your desired ID from step 2. above) :

```
C:\inetpub\logs\LogFiles\W3SVC2\
```

4. This folder contains logs as space-separated text files ordered by date, containing all requests.

Browser errors

Sometimes, the web browser console gives indications on the nature of the problem.

See your web browser documentation to open the console.
For Google Chrome, press F12 and click the "Console" tab.

Problem : Frontend website loading forever

You are trying to open the Frontend website, but you have a white page with a loading animation that never completes :



Possible explanation : Wrong Frontend address used

Symptom

Check the web browser console for an error like :

```
Access to XMLHttpRequest at 'http://xxxxx.com:123//AbpUserConfiguration/GetAl1?d=1234567890' from origin 'http://yy.yy.yy.yy' has been blocked by CORS policy: Response to preflight request doesn't pass access control check: No 'Access-Control-Allow-Origin' header is present on the requested resource.
```

Check that you can reach the Backend from your same web browser on the same URL, and see a login page there.

Explanation

If so, a possible explanation is :

Your Backend at `http://xxxxx.com:123` is configured to not respond to queries from `http://yy.yy.yy.yy`.

For example, when you install Alpana Server and configure to use a domain name with `xxxxx.com:80` as Frontend and `xxxxx.com:123` as Backend, you won't be able to access the Frontend using its IP address `yy.yy.yy.yy`.

That's for security reasons : the Frontend will only be allowed to talk to the Backend if it calls from the pre-defined origin (the domain name `xxxxx.com:80`).

That is configured through [CORS](#) rule internally.

Solving

You can solve this case by redirecting requests in IIS.

For example, if you wish to be able to reach the Frontend from IP address `yy.yy.yy.yy`, you need to let IIS listen to requests to `http://yy.yy.yy.yy` and redirect them to the accepted domain name `xxxxx.com:80`.

See [IIS documentation](#) examples on how to do this.

3.14.5. License troubleshooting

Alpana became “unlicensed”

You may see the following message when logging-in to a Tenant :

“Alpana is currently unlicensed. Please contact your administrator.”

There are several possible explanations for this.

License is [managed at the Host level](#) for all Tenants, so please login to the Host to get more information and solve the issue.

Computer not recognized

The license system fingerprints the computer where Alpana Server is installed.

When the license system doesn't recognize the fingerprint, the license system believes that you illegitimately moved the license to a different computer.

The license then becomes invalid, and you get the message :

“The system could not be identified as the one to which this license was issued.”

Why this happens

In order to prevent this from happening again, you need to understand why this happens, and fix the relevant I.T. issue.

The license fingerprint is based on several hardware identifiers (CPU ID, BIOS, MAC address, etc). So when changing these hardware components, the fingerprint changes.

When using virtualization, some of these identifiers are inherited from the virtualization host. For example, when the VM is moved to a different host, the CPU ID changes.

It is also known that some Hyper-V default settings will allocate the MAC address

How to prevent

If you know in advance that such a change will happen (for example, if you are updating the hardware, or moving the VM to a different host), you should [Deactivate the license](#) in advance.

If you identify that the MAC address is allocated dynamically, you should change this setting.

If you need help for another case, you may contact Support for help.

How to fix

To fix it, you will need to contact Support.

Once you have identified the cause with Support (see above hints), they may give you a new Activation to let you activate your license again.

In case the new Activation doesn't work, Support may ask you to remove all license information. When Support asks it, **and only then**, you may use the *Clear license data* button.

! Warning : the *Clear license data* button will completely **remove your license without warning**.

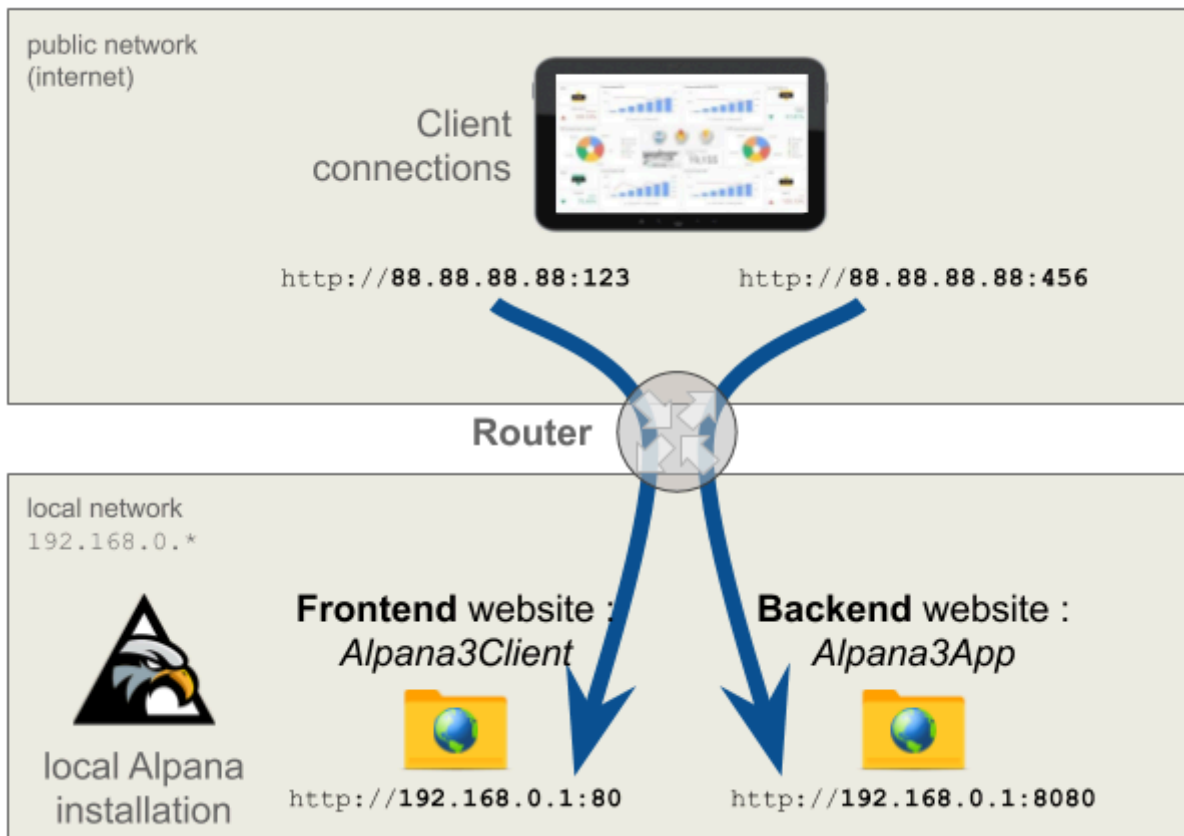
Clear license data 

Last modified: Feb 17, 2022

3.14.6. Accessing behind a router

Scenario

In this scenario, Alpana Server is installed in the local network on a machine with IP address 192.168.0.1, and you wish to reach it from a public network through a router with external IP address 88.88.88.88.



Configuring

* Note : for this configuration to work, the external IP address 88.88.88.88 must be reachable from the internal network 192.168.0.1. This is the case with an Internet router for example.

Step 1 : Install locally

First, let's make a simple local installation, in order to define a local address where Alpana Server will respond to the router.

During [installation of Alpana Server](#), configure with the local address 192.168.0.1 and some ports for the Backend and Frontend.

In our example, we configured :

- port 80 for the frontend (`http://192.168.0.1:80`)
- port 8080 for the backend (`http://192.168.0.1:8080`).

Step 2 : Configure router

Define which router ports you want to open for talking to the FrontEnd and BackEnd sites from the outside network.

In our example, we chose:

- port 123 for the FrontEnd. So incoming requests on `http://88.88.88.88:123` are redirected to `http://192.168.0.1:80`
- port 456 for the BackEnd. So incoming requests on `http://88.88.88.88:456` are redirected to `http://192.168.0.1:8080`

Step 3 : Configure authorizations for local access

Let's configure Alpana Server to accept requests from the local addresses that will be requested by the router.

In the [CORS whitelist](#), create exceptions for :

- the local address and port for the FrontEnd : `http://192.168.0.1:80`
- the local address and port for the BackEnd : `http://192.168.0.1:8080`

Step 4 : Re-configure with public address

In order to reconfigure the address where Alpana Server is responding, you will have to uninstall/reinstall.

This is fast and doesn't delete your configuration and dashboards.

Un-install

[Un-install Alpana Server](#).

Install with public address

Install again Alpana Server.

During [installation of Alpana Server](#), configure with the public address `88.88.88.88` and the correct router ports for the Backend and Frontend.

In our example, we configured :

- frontend : `http://88.88.88.88:123`
- backend : `http://88.88.88.88:456`

Step 5 : Configure to respond locally

Finally, let's configure IIS to accept the queries to local addresses from the router.

Open the IIS Management Console (run `inetmgr`).

For both websites `Alpana3App` and `Alpana3Client`, right-click to *Edit Bindings*, add a new binding and define the local address (`192.168.0.1`) and ports (`80` and `8080`)



Now Alpana should work on the public address `http://88.88.88.88:123`

Last modified: Feb 17, 2022

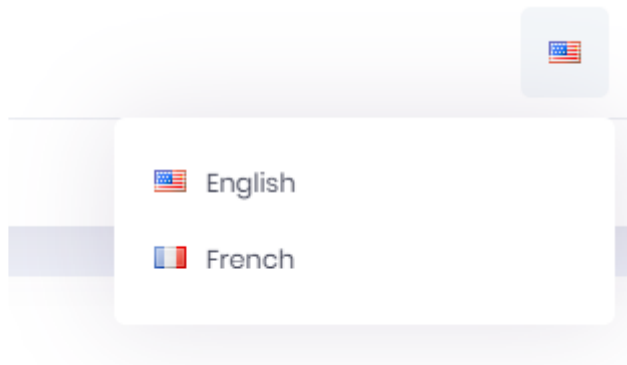
3.15. Language support

Alpana Server interface support multilanguage.

In the interface topbar, you can find a menu where language can be changed. It's accessible once an user has been logged into alpana server. This option is represented as a Flag of the language used in the interface.



Click on the flag will open a menu with all available language.



✿ Themes can change the language icon position.

Changing default language can be done through the host [level language configuration chapter](#).

Each user will have his own language interface.

✿ Language is also available in the Mobile App.

Last modified: Feb 17, 2022

4. Alpana Mobile

- [Installation](#)
- [Usage](#)

Last modified: Feb 17, 2022

4.1. Installation

- [How to get Alpana Mobile](#)
- [Setup](#)

Last modified: Feb 17, 2022

4.1.1. How to get Alpana Mobile

You can download Alpana mobile through the usual providers:

- [Google Play Store](#) for Android devices
- [App Store](#) for Apple devices

Alpana Mobile is part of the Alpana software solution and as such is free to download.

Last modified: Feb 17, 2022

4.1.2. Setup

Address

At first launch you will be prompted to enter Alpana Sever address.

The format of your input should exactly match the address set for your server. For instance, if your server has been set to ignore the “www”, you should ignore them in your input.

✿ It is also important to start with “http://” (“https://” if your server has a security certificate).

Some examples:

- http://www.company.com
- https://company.com
- http://subdomain.company.com

Your server address could also be an simple I.P address “http://123.150.XX.XX”

If your server has been set for [Multitenancy](#) with tenancy sub-domains, you can take it into account in your input (“https://tenantX.company.com” , “https://tenantY.company.com”...).

In that case, the application will recognize the subdomain and set it as tenancy name for you.

Port

The port number to input is the one that has been set for your backend Alpana IIS server.

Last modified: Feb 17, 2022

4.2. Usage

- [Login](#)
- [Tenancy](#)
- [Dashboard Page](#)

Last modified: Feb 17, 2022

4.2.1. Login

Login screen

The login screen allows you to enter your login credentials. From there, you can also change the tenancy name and reset the server address.

Login behavior

After your first connection, the application will securely save your credentials and will automatically log you into the server at application startup.

However, if you haven't logged in the mobile application or the desktop web application for an extended period of time, your session can expire. When that happens, the mobile application will invite you to log out. You can then log in again and your session and your rights will be renewed.



Note that you cannot login to the application without a tenancy name set. See [Tenancy](#)

You can, through the side menu or the settings menu, log out. Doing so will end your session and navigate you to the login screen. The log out action will clear your saved password but tenancy name and server address will remain saved.

Last modified: Feb 17, 2022

4.2.2. Tenancy

Single tenancy

In the case of single tenancy, the application will try to set “Default” as tenancy name at first launch as is it the default tenant in the Alpana solution.

If your company changed the “Default” name for something else you will be prompted to change it. You can tap the change tenant box on the login screen and input the tenancy name that your company set. Provided that the tenancy name is valid, it will be set as tenant and saved.

Multitenancy

In the case of multitenancy, the application will set your tenancy name according to the sub domain name provided in the server address. You can, however, change the tenancy name at any time via the change tenant box on the login screen.



Please note that the mobile application does not allow to connect without tenancy name or “Host” mode.

Last modified: Feb 17, 2022

4.2.3. Dashboard Page

Once logged in, the application navigate you to the dashboard page. Here, you can browse through all the dashboard saved into your server.

This page is divided into five different tabs in appearing order:

- Favorites
- Recent
- Categories
- Public
- All

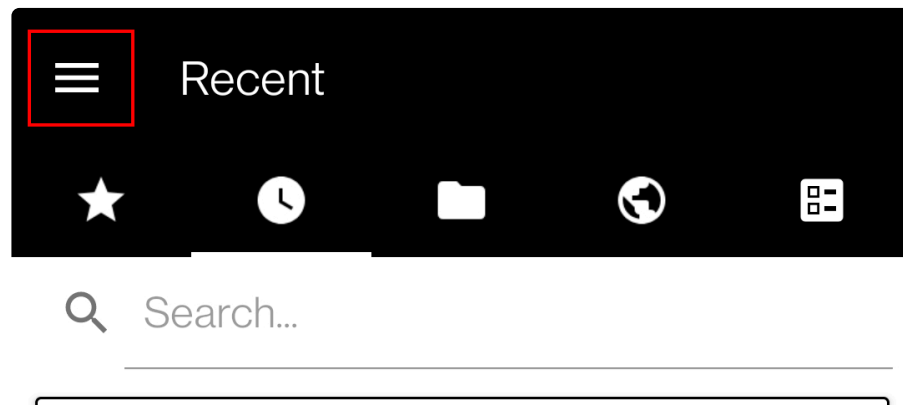
The dashboard list for each page is fetched once when the page first appear. You can however refresh them manually by pulling down the list. This features doesn't apply for subcategories navigation. If you want to refresh a dashboard list seen in a subcategory, you can go back then reopen said subcategory to refresh its content.

Last modified: Feb 17, 2022

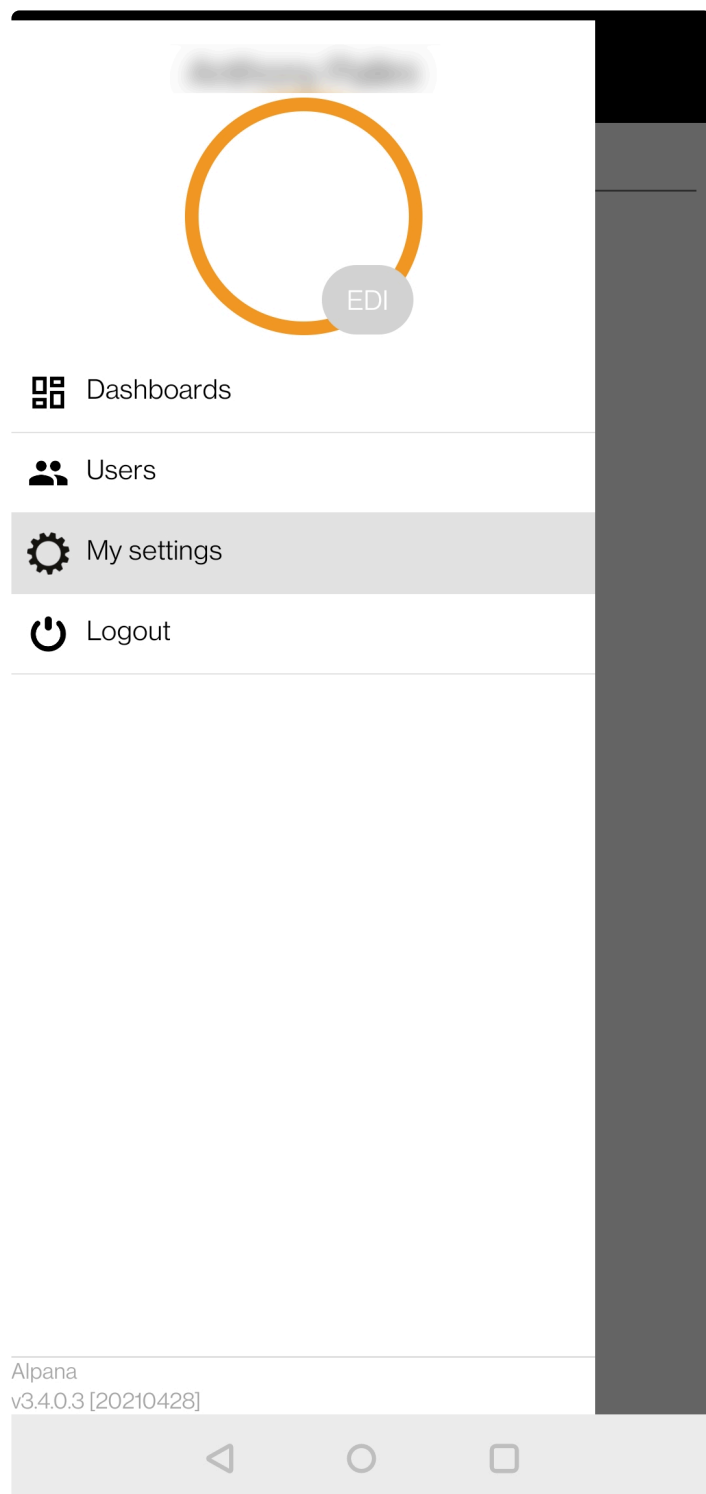
4.2.4. Settings

Accessing

In the Alpana application, Settings can be accessed from the menu icon



Choose **My settings** option.



Settings menu

The settings menu allows to change :

- Account password
- Application language : Changing server interface language.



Le language setting is the same for web application and mobile application.

5. Alpana Update File Dependency

Alpana dashboards rely on *dependencies* when they use an external file.

Sometimes, you need to update one such dependency. For example : when you need to update the content of an Excel file on a published dashboard without having to re-publish the dashboard.

You have two options :

- write an external application that makes use of Alpana Server API to push the updated file
- use the utility called “Alpana Update File Dependency” which implements this for common cases

Last modified: Feb 17, 2022

5.1. Installation

Installation of Alpana Update File Dependency is light on resource and pretty straightforward. Proceed to the next chapters to complete the installation.

Last modified: Feb 17, 2022

5.1.1. Pre-Requisites

This section explains the system requirements to run Alpana Update File Dependency.

Software Requirements

The following minimum software requirements are necessary to run Alpana Update File Dependency :

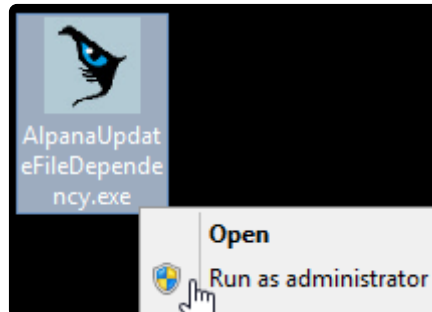
- .NET Framework 4.8 can be found [here](#) then download the “Runtime”. Alternately, an offline installer exists on the same page . **Installing this component requires to restart the machine.**
- Alpana Server version 3.3.x or greater is required
- Alpana Advanced license, to support API calls

Last modified: Feb 17, 2022

5.1.2. Installing

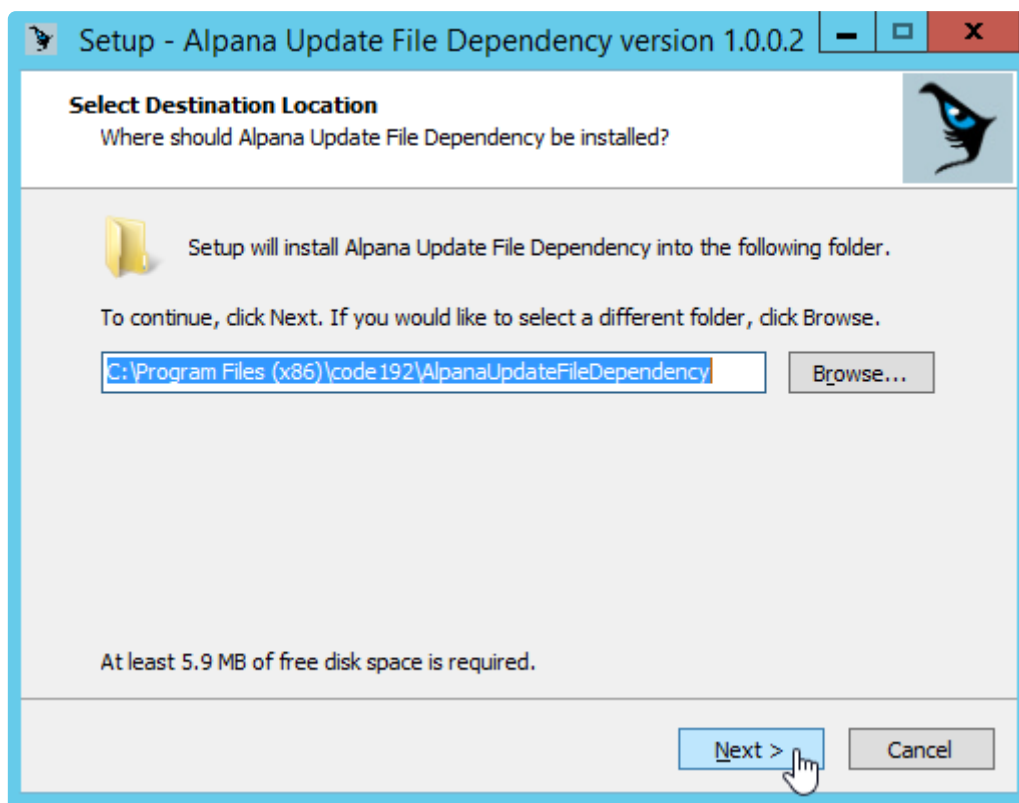
Run installer

Run the installer as Administrator :



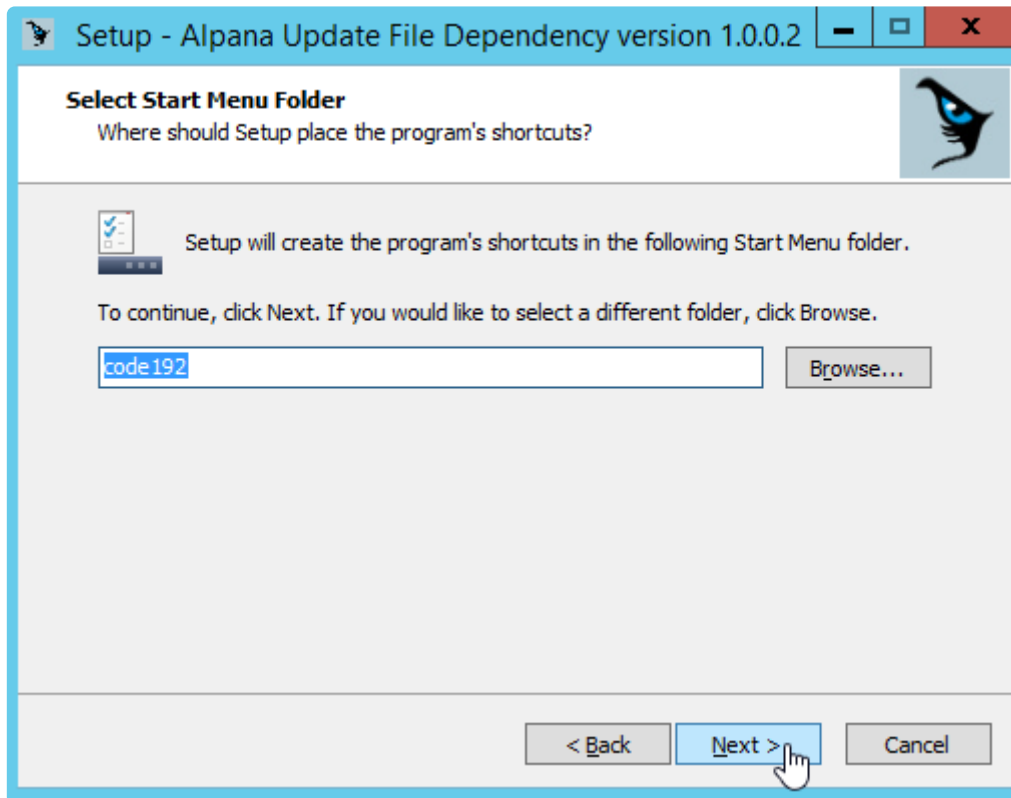
Select folder

Select the installation folder and click *Next* :



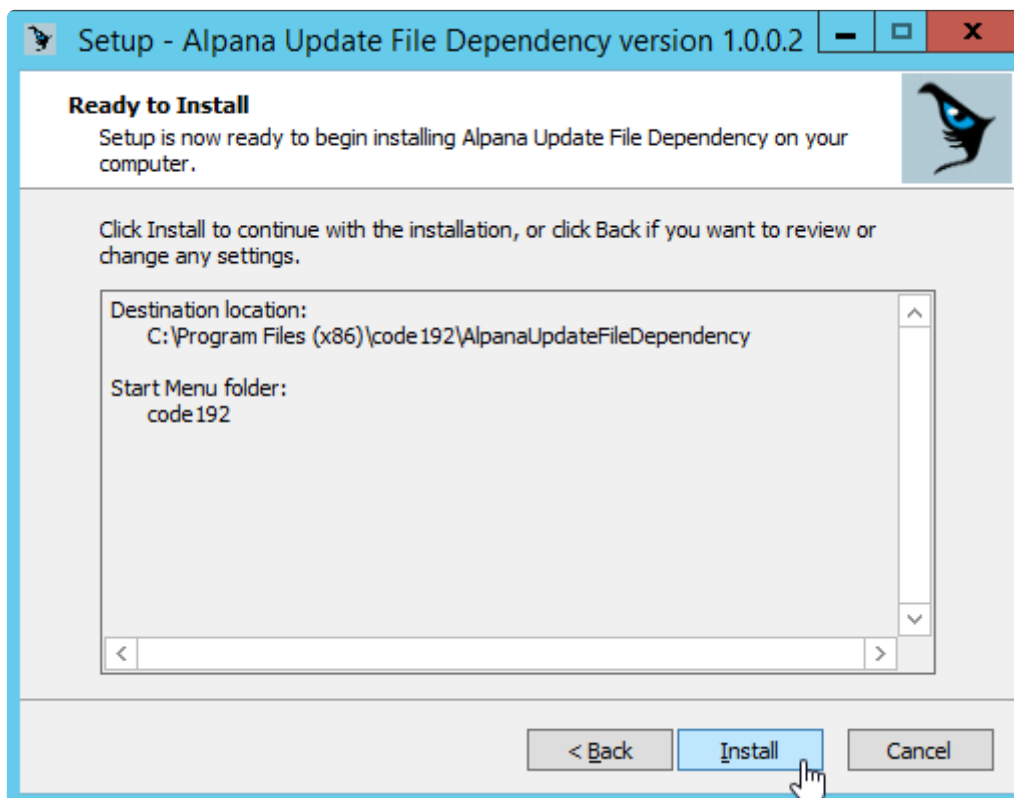
Start Menu folder

Select start menu folder and click *Next* :

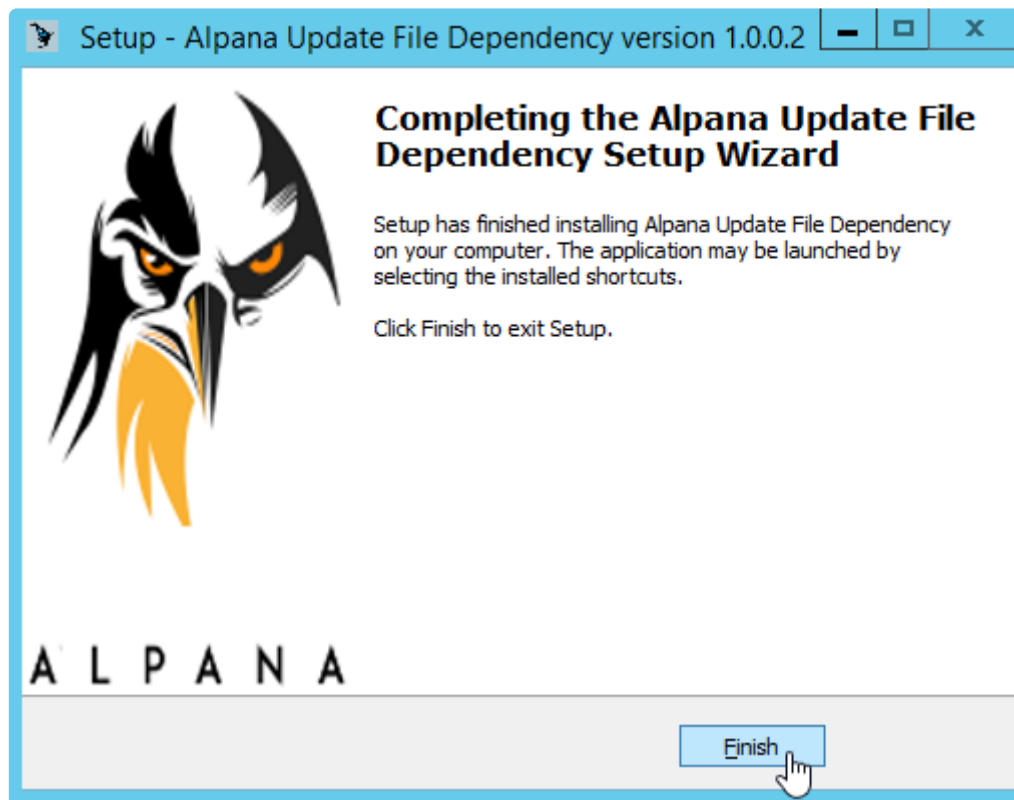


Complete installation

Review options, click *Install* :



Wait for completion and click *Finish* :

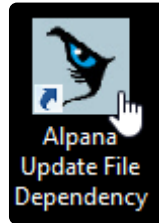


Last modified: Feb 17, 2022

5.2. Running the application

The application runs as a Windows service called “AlpanaDependencyUpdate”. This allows to run jobs even when no user is logged in.

To start configuring Jobs and start/stop the Service, run the “Alpana Update File Dependency” shortcut :



When finished configuring, you can close the application, or even the Windows session, as the Jobs will be run by the Windows service.

When starting for the first time, the application requires to [start the service](#).

Last modified: Feb 17, 2022

5.3. Settings

Opening Settings

To manage application settings, click the tab *Settings* :



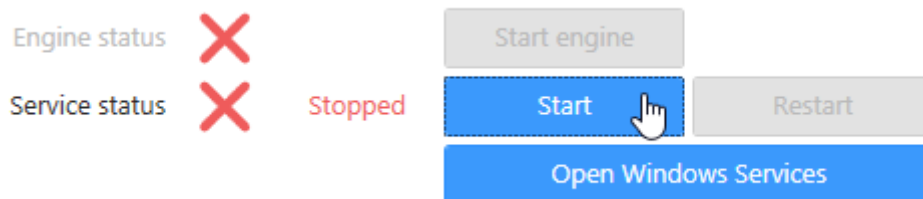
Starting the Service and the Engine

When you start the application for the first time, you need to start the Windows service, and the update engine.

The *Settings* window also allows to see the status of the service and engine.

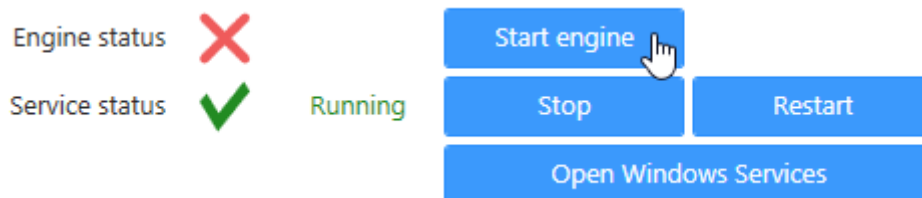
Start Service

Click *Start Service* to start the Windows service :



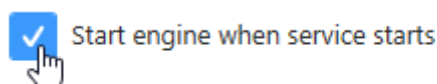
Start Engine

Click *Start Engine* to start the Engine :



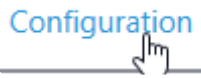
Start Automatically

You can also configure the Engine to start automatically when the Service starts



5.4. Connecting To Alpana

To log in or log out to your Alpana Server, click the tab *Configuration* :



Log in

Fill in the login information and click *Connect* :

Host	<input type="text" value="http://192.168.1.37"/>
Backend Port	<input type="text" value="8080"/>
Tenancy Name	<input type="text" value="Default"/>
Username	<input type="text" value="admin"/>
Password	<input type="password" value="•••••"/>

Connect

These credentials will be remembered by the application and will be used to run the Jobs.

Host

URL of the Alpana Server with which you want to communicate.
Include “http” or “https” as relevant.



A license “Alpana Advanced” must be active on the server, and the Feature “API” must be activated.

Backend Port

Network port to the **Backend** website of the Alpana Server.

Tenancy Name

Name of the Tenant where your dashboards are published.



The Feature “API” must be activated on the Tenant.

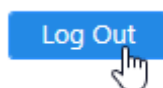
Username and Password

Login information for a User of the Alpana Server with the necessary permissions.

The User must have API permissions, and permissions to the dashboards that will be targeted by the application.

Log out

To log out, simply click *Log Out* on the top right :



Last modified: Feb 17, 2022

5.5. Jobs

The application will run Jobs that update the file dependencies of Dashboards, based on conditions.

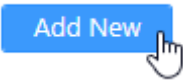
To access the Jobs configuration, click the tab *Configuration* and [log in](#) if necessary :



Last modified: Feb 17, 2022

5.5.1. Creating a Job

To create a Job, click the *Add New* button :



This creates an un-configured Job :

Target Dependency		Source File		Update Mode		Enabled	Upload	Remove
(Not Set)	...	(Not Set)	...	Manual Only	...	<div></div>	<div></div>	<div></div>

Last modified: Feb 17, 2022

5.5.2. Configuring a Job

When a new Job is created, it is not configured.

You can also configure an existing job.

To configure a Job, configure each property :

- *Target Dependency*
- *Source File*
- *Update Mode*

Last modified: Feb 17, 2022

5.5.2.1. Target Dependency

Selecting the Target Dependency means selecting which file you want to update from which existing Dashboard.

To configure the Target Dependency, click the “...” button :

Target Dependency

(Not Set)



Dashboard or Widget

You can select a published Dashboard or Widget by clicking at the top of the *Select Target Dependency* window :

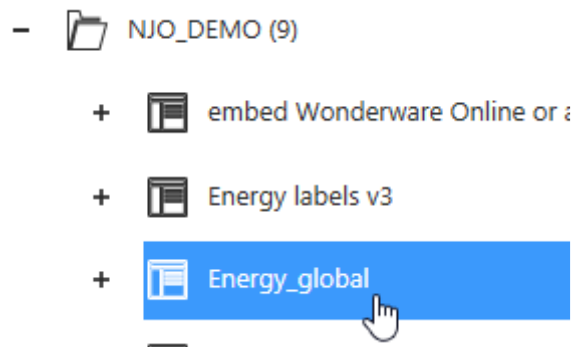
Dashboards

Published Widgets



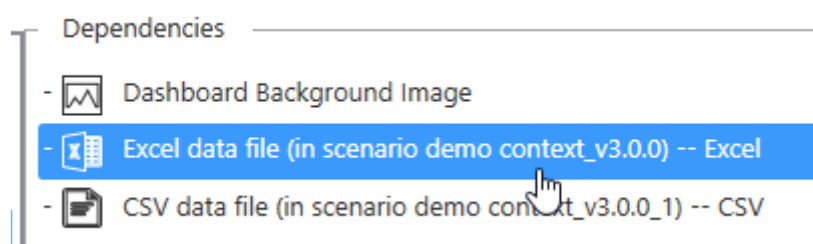
Browse Dashboard

Browse Categories and Dashboards in the left pane :



Browse Dependency

After clicking on a Dashboard on the left pane, the right pane lists all its dependencies :



Click *OK* to validate :



Last modified: Feb 17, 2022

5.5.2.2. Source File

Selecting the Source file means selecting the path where you want to fetch the new file that will replace the current dependency.

To configure the Source File, click the “...” button and browse for a desired file :

Source File

(Not Set)



Important : If you plan to schedule automatic updates, choose well this file path so that it can be accessed by the Windows user running the Service.
See [Troubleshooting](#) for more information.

Last modified: Feb 17, 2022


5.5.2.3. Update Mode

Selecting the update Mode means choosing when you want the update to happen.

* If you are updating a file data dependency (Excel, CSV), then since Alpana v3.2 you no longer need to configure a [Buffer refresh](#) on the [Dashboard Connection](#). By default, each update will automatically for the buffer to refresh.

To configure the Update Mode, click the “...” button :

Update Mode

Manual Only 

Select mode :

These modes can be combined and selected by checking the corresponding boxes :

- ☒ Manual Only
- ☐ Scheduling Timer
- ☐ Whenever Source Changed

Manual Only

With *Manual Only*, the update will only happen when a user will trigger it manually inside the Alpana Update File Dependency application.

This mode doesn't require additional configuration.

Scheduling Timer

With *Scheduling Timer*, the update will happen at selected time intervals.

Select the field for the time interval at the top of the window :

Month Day Hour Minute

For the desired field, configure more precisely the desired schedule :

☒ Any Day
☐ Every Day(s) starting on
☐ Every Day(s) starting on the of the month.
☐ Specific Day of Week
☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday
☒ Thursday ☐ Friday ☐ Saturday
☐ Specific Day of Month

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	<input type="checkbox"/> 10	<input type="checkbox"/> 11
<input type="checkbox"/> 12	<input type="checkbox"/> 13	<input type="checkbox"/> 14	<input type="checkbox"/> 15	<input type="checkbox"/> 16	<input type="checkbox"/> 17	<input type="checkbox"/> 18	<input type="checkbox"/> 19	<input type="checkbox"/> 20	<input type="checkbox"/> 21	<input type="checkbox"/> 22
<input type="checkbox"/> 23	<input type="checkbox"/> 24	<input type="checkbox"/> 25	<input type="checkbox"/> 26	<input type="checkbox"/> 27	<input type="checkbox"/> 28	<input type="checkbox"/> 29	<input type="checkbox"/> 30	<input type="checkbox"/> 31		

☐ On the last day of the month
☐ On the last week day of the month
☐ On the last of the month
☐ day(s) before the end of the month

The result is like for a [CRON expression](#) that will combine all fields.

Whenever the Source Changed

With *Whenever the Source Changed*, the service will watch the file for any change and will trigger the update.

This mode doesn't require additional configuration.

Last modified: Feb 17, 2022

5.5.3. Running jobs

Run Automatically

Jobs can be run automatically when Enabled.

✿ Jobs are not Enabled by default.

To Enable a Job, check the *Enabled* box :

Enabled



To Disable a Job, uncheck the *Enabled* box :

Enabled



Run Manually

To manually force the update now, click the *Upload* button :

Upload



Last modified: Feb 17, 2022

5.5.4. Deleting a Job

To delete a Job, click the *Remove* button in front of it :

Remove



This will remove the Job permanently.
If instead you want to disable it temporarily, [just Disable it.](#)

Last modified: Feb 17, 2022

5.6. Troubleshooting

Logs

Application logs are available in the tab *Logs* :



They contain the history of run jobs and useful messages upon failure.

Filter by log level

All

Refresh

Delete All

Date/Time	Type	Message	
7/24/2019 5:19:15 PM	Info	Update engine started	<div>Remove</div> <div>X</div>

Common Issues

Buffer refresh settings

Since Alpana v3.2, it is no longer necessary to set the Connection with Buffer refresh settings to see the change when a file is updated.

I/O Errors and file permissions

The Windows Service must have access to the source files.

By default, the Service is run by a Local System user.

Check if this user has correct permissions, or change what Windows account is used to run the Service :

General
Log On
Recovery
Dependencies

Log on as:

☒ Local System account
☐ Allow service to interact with desktop

☐ This account:

Password:

Confirm password:

Last modified: Feb 17, 2022

6. Alpana OMI App

The Alpana OMI App allows to display any visuals published on Alpana Server

Usage is very simple :

1. [Import the App](#)
2. [Add the App to a Layout](#)
3. [Configure the App](#)

Last modified: Feb 17, 2022

6.1. Pre-Requisites

The following software pre-requisites are needed :

- Wonderware System Platform 2020, or Wonderware System Platform 2017 Update 3
- Alpana Advanced license
- Dashboards or Widgets published on Alpana Server v3.2.1.5 or later



Note : During the OMI Preview, the Alpana OMI app doesn't display content.
That's a known issue.

Last modified: Feb 17, 2022

6.2. Importing

To import the Alpana app for OMi, the procedure is different depending on your WSP version :

- [Importing in WSP 2017 U3](#)
- [Importing in WSP 2020](#)

Last modified: Feb 17, 2022

6.2.1. Importing in WSP 2017 U3

This page details importing the Alpana app for InTouch OMI 2017 Update 3.

Upgrading

! Important Notes – Please read carefully!

If you already have the Alpana App installed, please follow the below instructions to upgrade.

Backup the App

Back up your current version of the Alpana app. To back up the Alpana app:

1. Go the Graphic Toolbox.
2. Select the AlpanaApp object (by default, located under `Default Content > 4. Apps > InTouch OMI Apps`)
3. Right-click and select *Export > Object(s)*
4. Select a location to save the file, and click Save.

Remove the App

1. Delete the AlpanaApp object in the galaxy
2. Close the ArchestrA IDE, then delete the folder (folder path listed below).

Add the New App

1. Add the new App as described below.
2. To see changes related to this new Alpana app in run time, redeploy any running ViewApps that use the Alpana app.

Adding the New App

! The dll files included with this package must be copied to the IDE node(s) only. Close the ArchestrA IDE before copying over the dll files.

Create the App folder

1. Close the ArchestrA IDE
2. Create the following folder (on 64-bit operating systems) : `<RootDrive>:\Program Files (x86)\ArchestrA\Framework\Bin\ModernEditors\Controls\AlpanaApp\` (on 32-bit operating systems, the folder location is : `<RootDrive>:\Program Files\ArchestrA\Framework\Bin\ModernEditors\Controls\AlpanaApp\`)

3. Copy the following files in this folder :

- `code192.Alpana.API.Client.dll`
- `code192.Alpana.API.Desktop.dll`
- `code192.Alpana.OMI.Shared.ArchestrAClient.dll`
- `code192.Alpana.OMI.Shared.Controls.dll`
- `code192.Alpana.OMI.Shared.dll`
- `code192.Alpana.OMI.WidgetViewer.dll`
- `code192.Alpana.Shared.WPF.dll`
- `MetroSet UI.dll`
- `Newtonsoft.Json.dll`
- `Ninject.dll`

Import the App

1. Start the ArchestrA IDE and connect to the galaxy.
2. Import the `AlpanaApp.aaPKG` file from this package into the galaxy, as follows:
 - a. From the *Galaxy* menu, select *Import > Object(s)*
 - b. Navigate to the location that contains the `AlpanaApp.aaPKG` file and click OK

Then you can add the Alpana App to a Layout using the Layout or ViewApp editor.



By default, the app is located under `Default Content > 4. Apps > InTouch OM`
I Apps

Last modified: Feb 17, 2022

6.2.2. Importing in WSP 2020

This page details importing the Alpana app for InTouch OMI 2020.

For WSP 2020, the Alpana app is provided as an ArcestrA object `.aaPKG`.

Adding the New App

To import the Alpana app in ArcestrA :

1. Start the ArcestrA IDE and connect to the galaxy.
2. Import the `AlpanaApp.aaPKG` file from this package into the galaxy, as follows:
 - a. From the *Galaxy* menu, select *Import > Object(s)*
 - b. Navigate to the location that contains the `AlpanaApp.aaPKG` file and click OK

Then you can add the Alpana App to a Layout using the Layout or ViewApp editor.

Upgrading

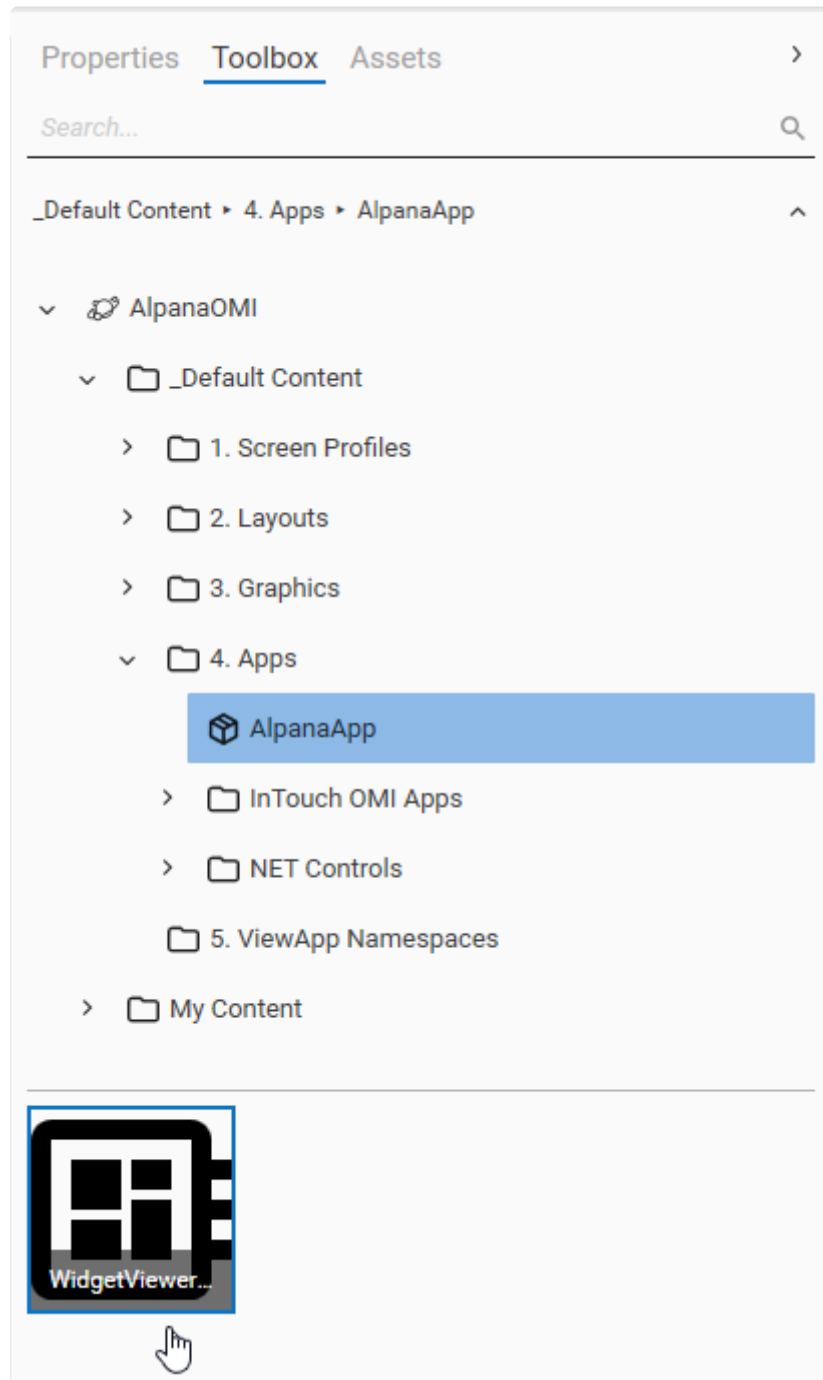
To upgrade :

1. delete the Alpana app object
2. import the new object

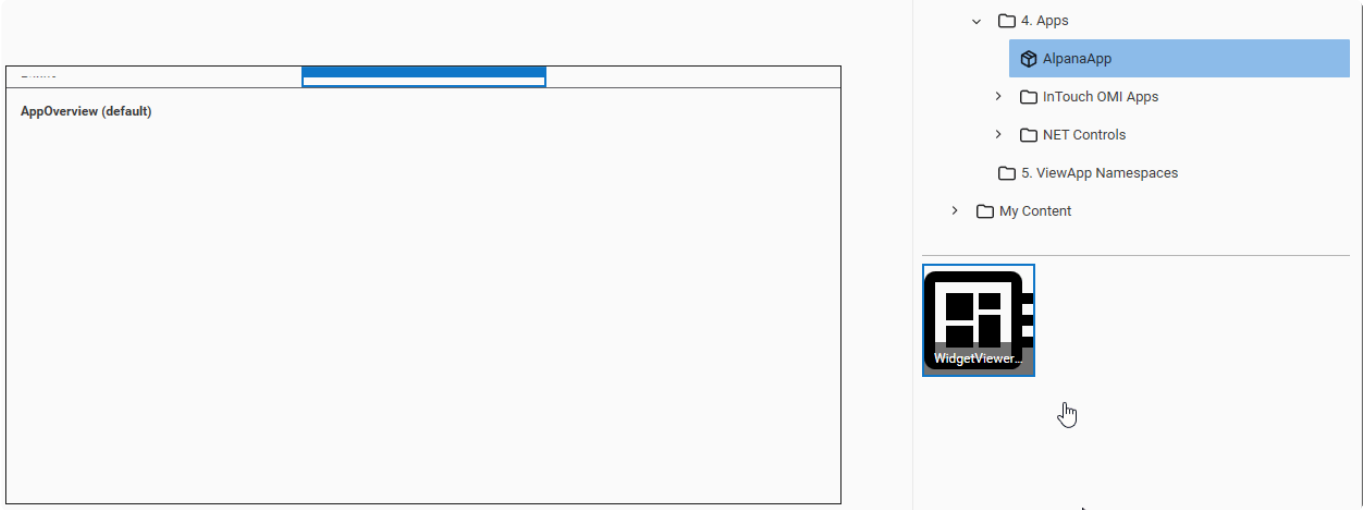
Last modified: Feb 17, 2022

6.3. Adding to a Layout

To add the Alpana app to a layout in OMI, simply browse the Toolbox to find the *AlpanaApp* object :



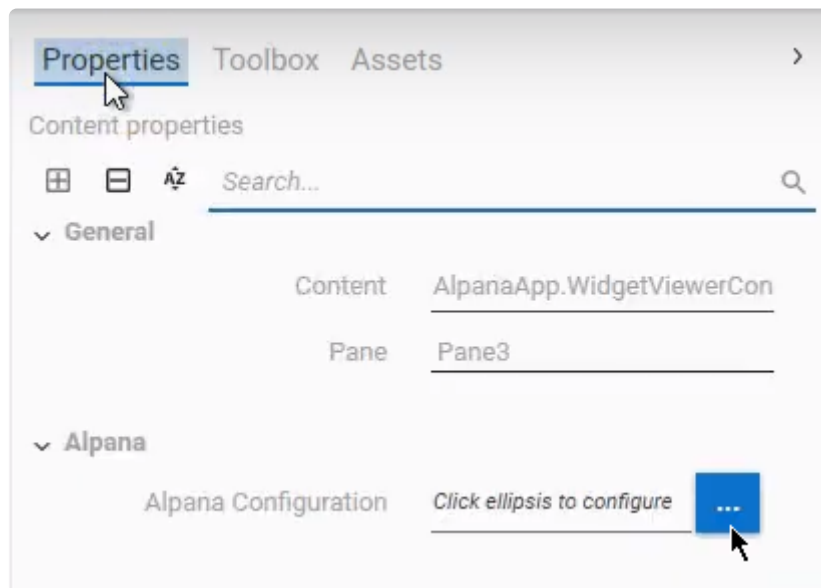
Then drag the *WidgetViewerContainer* and drop on the desired layout :



Last modified: Feb 17, 2022

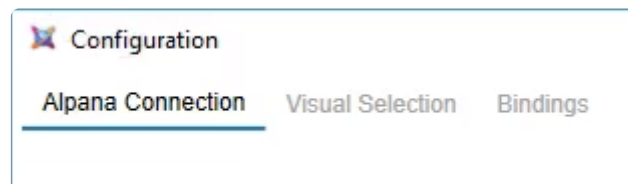
6.4. Configuring

To open the Configuration window for the Alpana app, simply click the ellipsis in the *Properties* of the element :



This opens the *Configuration* window with 3 tabs corresponding to the 3 steps to configure the app :

1. *Alpana Connection* : Connect to Alpana Server
2. *Visual Selection* : Select Alpana visuals
3. *Bindings* : Configure interaction bindings (*optional*)

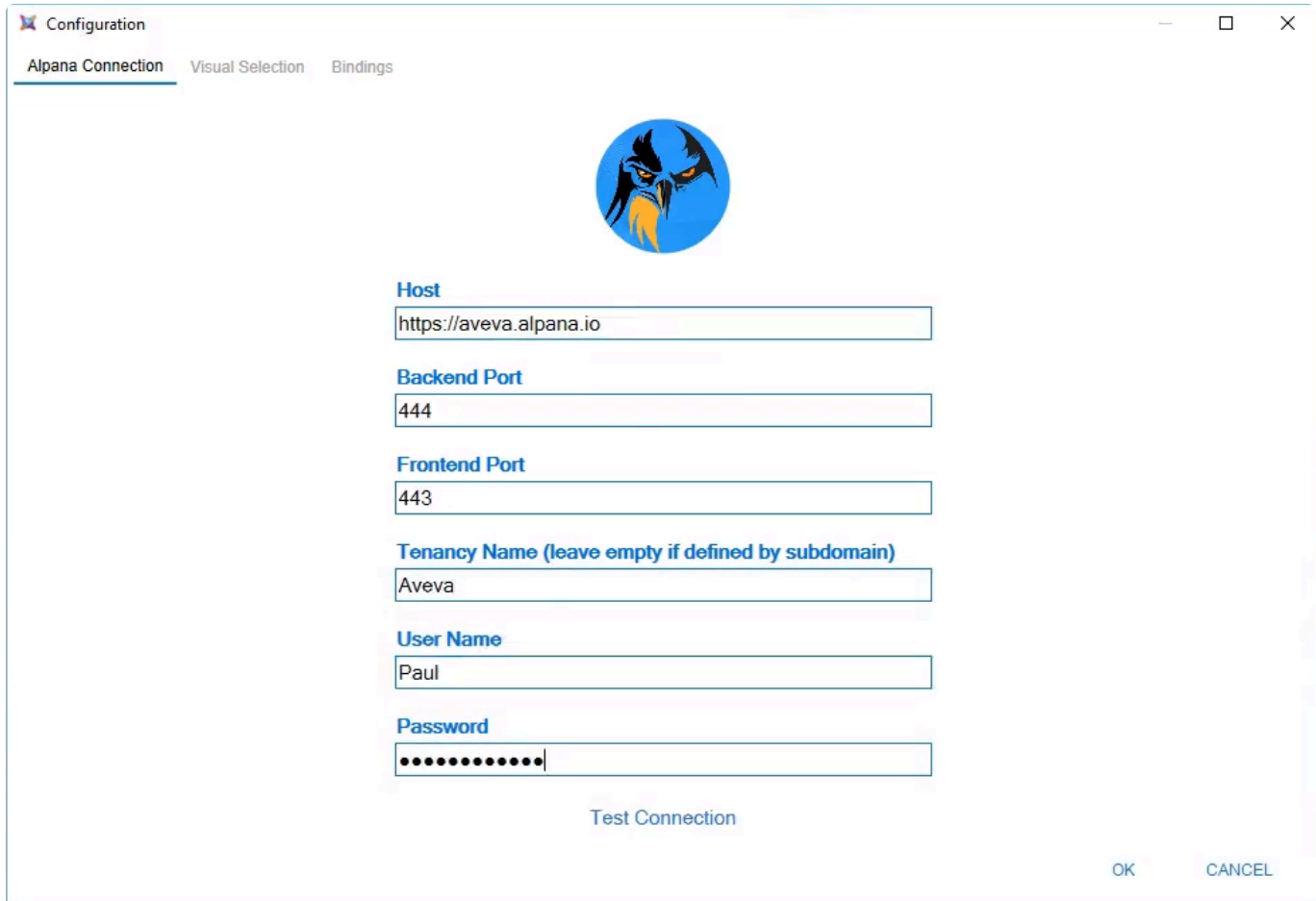


Last modified: Feb 17, 2022

6.4.1. Connecting to Alpana

Login

The first tab *Alpana Connection* allows to connect to an existing Alpana Server.



The screenshot shows a 'Configuration' window with three tabs: 'Alpana Connection' (selected), 'Visual Selection', and 'Bindings'. The 'Alpana Connection' tab contains a circular logo of a stylized bird with a blue body and yellow beak. Below the logo are several input fields for connection parameters:

- Host**:
- Backend Port**:
- Frontend Port**:
- Tenancy Name (leave empty if defined by subdomain)**:
- User Name**:
- Password**:

Below the password field is a 'Test Connection' button. At the bottom right are 'OK' and 'CANCEL' buttons.

Connection Parameters

The following fields are required :

Host

The full URL to connect to the Alpana Server installation.
This must include :

- the right protocol (HTTP / HTTPS)
- the full name or IP address. If Alpana Server is configured to have Tenants as sub-domains, you can include the sub-domain here too.

Backend Port

The port number of the Alpana backend website.

Frontend Port

The port number of the Alpana frontend website.

Tenancy Name

The name of the Tenant you want to connect to.

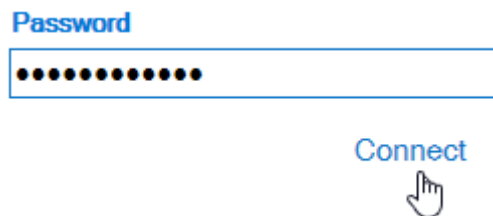
If Alpana Server is configured to have Tenants as sub-domains, you can leave this field empty.

User Name and Password

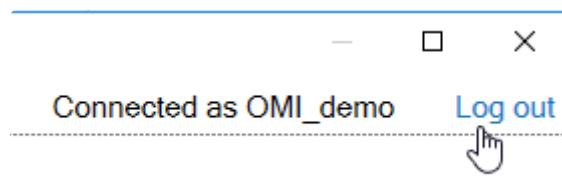
Use the same credentials as for logging in to Alpana Server from the web interface (frontend).

Logging in

To login, click *Connect* at the bottom of the window :

**Logout**

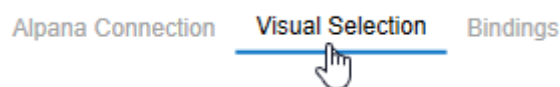
To logout, click *Log out* at the top right of the window :



Last modified: Feb 17, 2022

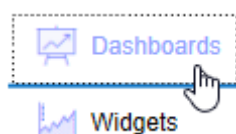
6.4.2. Selecting Visuals

To select Alpana visuals, open the *Visual Selection* tab :



Dashboards

Click on *Dashboards* to select from the list of published Dashboards :



Browse the tree of Categories to find your dashboard :



Full Dashboard

From the list of dashboards on the right, you can click a dashboard to select it :

Name	Description
background image	
Current Production Factory OMI	
Dashboard Current Production	
POC Navigation	
Production_OMI	
OEE by Items	
Average Utilization	
Average Quality	
Average Performance	

The *Selected Visual* will say “published dashboard”.

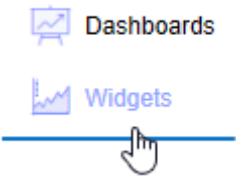
Widget from a Dashboard

When you click on a Dashboard, the list of all Widgets that are contained inside is unfolded.
From there, you may select any Widget that is contained inside a published Dashboard.

The *Selected Visual* will say “widget in dashboard XXX”.

Widgets

Click on *Widgets* to select from the list of published Widgets :



From the list of widgets on the right, you can click a widget to select it :

Name	Description
Throughput Forecast	
Proportion_Chart_1	
Test Publish Widget	
gris color	
Reste a produire	
ComboCountry	

The *Selected Visual* will say “published widget”.

Last modified: Feb 17, 2022

6.4.3. Configuring interactions

What are bindings

In addition to just displaying a Widget or Dashboard, you can also let your InTouch application interact with it.

Bindings allow you to define a relationship between a [Alpana Parameter](#) and a ArchestrA Attribute.

To select configure interactions, open the *Bindings* tab :



Managing Bindings

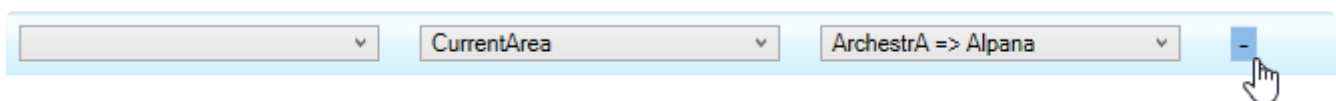
Adding

To add a binding, click the + icon :



Removing

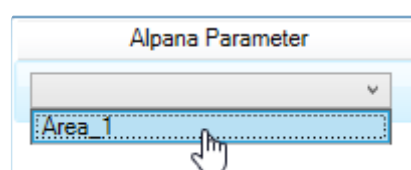
To remove a binding, click the – icon at the right of the corresponding binding :



Binding Properties

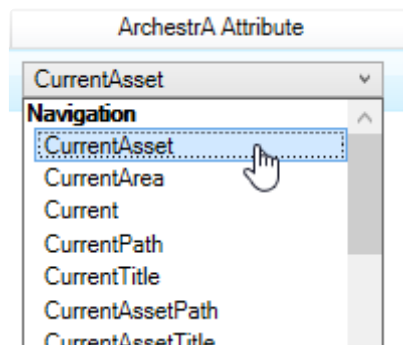
Alpana Parameter

Open the list to select from the Alpana Parameters that exist in the selected dashboard :



ArchestrA Attribute

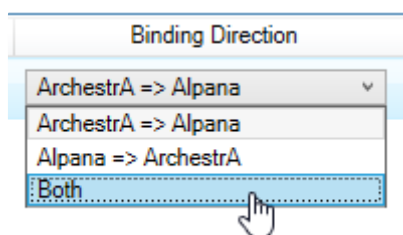
Open the list to select from the ArchestrA attributes that exist in your galaxy :



Binding Direction

Open the list to select a direction of the data flow :

- *ArchestrA => Alpana* : data flows from ArchestrA to Alpana
- *Alpana => ArchestrA* : data flows from Alpana to ArchestrA
- *both* : data flows both ways

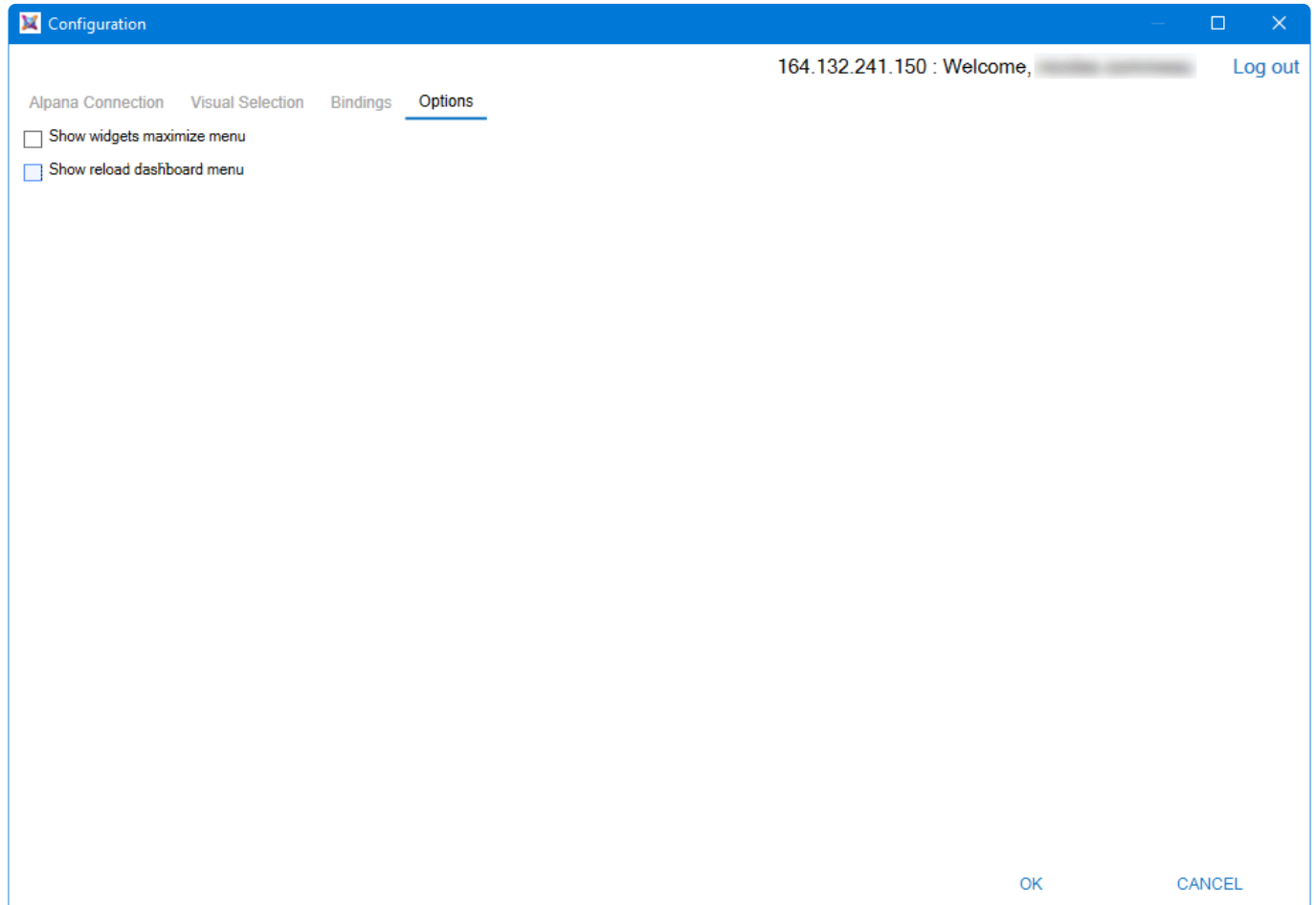


Last modified: Feb 17, 2022

6.4.4. Configuration options

Configuration tab

In the configuration tab, enable or disable option are available for refresh and maximize option.



Last modified: Feb 17, 2022

6.5. Troubleshooting

Migrating

Updating Alpana may cause visual change in Alpana dashboard embedded inside OMI View. If you encounter some visual trouble, you will have to:

- Close all OMI Clients connected to the view app
- Undeploy OMI View App Object
- Deploy OMI View App Object
- Restart OMI clients

Cache

OMI application use a specific web browser component with a caching function to store informations (like a standard web browser).

You can find this cache in the OMI User windows user settings :

C:\Users_{omi user}\AppData\Local\ViewApps_ {Alpana OMI ViewApp name} \WebBrowser



This folder has to be removed if the Alpana OMI application seems to have problem that is not resolve by Undeploy / Deploy function in system plateform.

Last modified: Feb 17, 2022