Gravio Documentation -The Node Computing Platform

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ASTERIA Corporation

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1. Gravio Architecture and Terminology

Gravio can be installed and operated on cloud services such as AWS, Azure, GCP, etc. (hereinafter described as "cloud") starting from version 5. Gravio can now be installed and operated on these services as well.

A node on which the Gravio HubKit is installed is called a "Node hub" or "node" starting with Gravio version 5.

By installing the Gravio HubKit package on the cloud service, this server can be used as a Node hub server to aggregate data .

This Node hub server is referred to as the "Main server".

Note: To operate a Main server, you need a "Main License" granted by your Gravio Business or Bussiness Pro service contract.

Gravio Business/Bussiness Pro customers can also use the Gravio Cloud servers we provide.

Modules running on Gravio Main server

The following modules included in the HubKit package reside on the Gravio Main server as a server.

Module Name	Description
Gravio Coordinator	encompasses the management of the Node hub and the aggregate database of sensor data.
Gravio HubKit	a set of modules for collecting and managing sensor data and other data, including action engines
Gravio Configuration Manager	Provides HubKit settings and initial configuration functions for Gravio coordinators.

modules that work with the Gravio Node Hub

The following modules included in the HubKit package reside as servers in the Gravio Node Hub.

Module Name	Description
Gravio HubKit	A set of modules for collecting and managing sensor data and other data, including action engines
Gravio Configuration Manager	Provides HubKit settings and initial configuration functions for Gravio Coordinators, etc.

HubKit configuration and Action Flow editing tools

In Gravio, "Action Flows" (or "Actions") You can run a user-created data flow program called (marker-

blue) on HubKit.

A GUI application called "Gravio Studio" is available for Windows and Mac as a tool for editing HubKit settings and action flows.

Module Name	Description	
Gravio Studio	HubKit configuration and action flow editing tool	

Gravio Studio can be used to manage and configure the following

*Setup of physical sensor devices. Mapping of where they are located within the physical space. *Management, monitoring and maintenance of sensors.

*Creating and configuring actions triggered by the sensor network.

*Creating and editing action flows.

*Data display of raw sensor data.

Gravio.com

There is a portal site for viewing and managing your Gravio subscription information and license usage. When you log in to Gravio.com from Gravio Studio, you can use various file backup services from Gravio Studio's configuration panel to gravio.com.

Remarks

Gravio HubKit consists of several server modules.

Server Name	Description
Gravio Control Manager	Server that controls communication with Gravio Studio
Gravio Trigger Manager	A server that receives various sensor data from each device management manager server (Serial Port, Bluetooth, Video, etc.) and saves the sensor data. It also checks incoming data values for conditions specified in the trigger settings and, if applicable, requests the Gravio Action Manager to execute them.
Gravio Action Manager	Server that executes the action and saves the sensor data.
Gravio Serial Port Manager	Responsible for managing the connection with physical sensors via serial ports and sending data acquired from sensors to Gravio Trigger Manager.
Gravio Bluetooth Manager	Manages connections with physical sensors connected via Bluetooth and sends data acquired from sensors to Gravio Trigger Manager.

Gravio Video Service	This service manages the connection to the Onvif Camera, stores images/video from the camera, and sends data acquired from image inference to the Gravio Trigger Manager.
Gravio MQTT Service	Responsible for sending data acquired from MQTT to Gravio Trigger Manager.
Gravio Image Processing Manager	Responsible for sending data acquired from image processing servers such as IVAR to Gravio Trigger Manager.
Gravio App Service	A server with auxiliary functions for executing components

2. Upgrade Instructions for Gravio 5.0 from Gravio 4.x

This section provides instructions for upgrading from Gravio 4.x to Gravio 5.0.

Gravio 5.0 simplifies the process of deploying license files, and now allows users to obtain licenses in the Gravio Configuration Manager.

For this reason, customers with Gravio 4.x licenses will need to change their license format to that for Gravio 5.0.

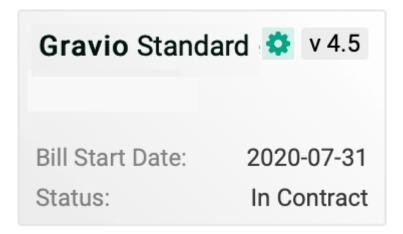
Please login to gc1.gravio.com to change your license format to 5.0 and then install the HubKit package for each platform.

2.1. Set Gravio 4.x license format for 5.0

Before upgrading your HubKit package, please configure your 4.x license format to 5.0. You can do this in your online portal.

Log in to https://gc1.gravio.com/ui/login.

After logging in, in the "Account" tab, find this license tile:



Click on the green cogwheel in order to change the license version. The "Change License Version" dialog box will appear. Press "Set" to change the license version to 5.0.

2.2. Upgrading Gravio on Windows

How to upgrade HubKit

- 1. Backup your folder / Program Data/HubKit/
- 2. Uninstall HubKit via the Windows uninstaller
- 3. Download HubKit Windows 5.0 version from https://www.gravio.com/en/download
- 4. Install the downloaded Gravio HubKit using the installer
- 5. Follow the steps in Initial Setup

2.3. macOS version

upgrade HubKit.

- 1. Stop HubKit in the Gravio HubKit Menubar app that appears on the menubar
- 2. Quit the Gravio HubKit Menubar app.
- 3. Backup /Library/Application Support/HubKit.
- 4. Move the Gravio HubKit4 in the Applications folder to Trash and empty the trash.
- 5. Download HubKit Mac version from https://www.gravio.com/en/download.
- 6. Double-click the downloaded GravioHubKit.dmg file to open it.
- 7. Drag and drop the Gravio HubKit icon into the Applications folder.
- 8. Double-click Gravio HubKit in the Applications folder to launch it.
- 9. Click on the "Gravio Initial Settings" menu from the Gravio HubKit toolbar application menu that appears on the toolbar.
- 10. Follow the steps in <u>Initial Setup</u>.

2.4. Gravio Hub 2

Upgrading HubKit

Please upgrade HubKit following the steps below. If the upgrade is successfully completed, you will not use the backed-up data.

1. Log into Update Manager

When the Update Manager is updated to the latest version with the automatic update at midnight, the Upgrade to Gravio Version 5 button is displayed on the Gravio settings tab, so please check.

Gravio Configuration	
Gravio HubKit / Gravio Coordinator Status	
Gravio HubKit	Running
Gravio Coordinator	Running
Check Updates	Upgrade to Gravio version 5
Gravio HubKit Software Update When a new version of Gravio HubKit is available, please select that version and click the "Install" button.	Gravio HubKit Version: 4.6.1
Coordinator Software Update When a new version of the Coordinator is available, please select that version and click the "Install" button.	Coordinator Version: 4.6.1 🗘 Install Restart
Zigbee Software Update	Version: 0.10.5.1 🗘 Install

2. Backup from HubKit / Coordinator Data Backup

Please back up your HubKit data.

3. Upgrade to Gravio Version 5

Please press the Upgrade to Gravio Version 5 button. After the confirmation dialog is displayed, it will automatically restart.

After rebooting, the Update Manager will be displayed as the Configuration Manager.

Please refer to <u>here</u> as the initial setup of Gravio will be done from the Gravio Configuration Manager.

2.5. Linux (Ubuntu AMD64) version

Upgrading HubKit

Please follow the steps below to upgrade HubKit. If the upgrade is completed successfully, you will not need the data you backed up.

1. Log into Update Manager

. . . .

When the Update Manager is updated to the latest version with the automatic update overnight, the Gravio settings tab will display a button labeled "Upgrade to Gravio Version 5." Please check this.

Gravio Configuration	
Gravio HubKit / Gravio Coordinator Status	
Gravio HubKit	Running
Gravio Coordinator	Running
Check Updates	Upgrade to Gravio version 5
Gravio HubKit Software Update When a new version of Gravio HubKit is available, please select that version and click the "Install" button.	Gravio HubKit Version: 4.6.1 🗘 Install Restart
Coordinator Software Update When a new version of the Coordinator is available, please select that version and click the "Install" button.	Coordinator Version: 4.6.1 🗘 Install Restart
Zigbee Software Update	Version: 0.10.5.1 🗘 Install

2. Back up from HubKit / Coordinator Data Backup

Please back up your HubKit data.

3. Upgrade to Gravio Version 5

Please press the "Upgrade to Gravio Version 5" button. After the confirmation dialog is displayed, it will automatically restart.

After rebooting, the Update Manager will be displayed as the Configuration Manager.

Please refer to <u>here</u> for the initial setup of Gravio from the Gravio Configuration Manager.

2.6. Linux (Ubuntu ARM64/ Raspberry Pi) Version

Upgrading HubKit

Please follow the steps below to upgrade HubKit. If the upgrade is completed successfully, you will not need the data you backed up.

1. Log into Update Manager

When the Update Manager is updated to the latest version with the automatic update overnight, the Gravio settings tab will display a button labeled "Upgrade to Gravio Version 5". Please check this.

Gravio Configuration		
Gravio HubKit / Gravio Coordinator Status		
Gravio HubKit		Running
Gravio Coordinator		Running
Check Updates	C	Upgrade to Gravio version 5
Gravio HubKit Software Update When a new version of Gravio HubKit is available, please select that version and click the "Install" button.	Gravio HubKit Version: 4.6.1	A Install Restart
Coordinator Software Update When a new version of the Coordinator is available, please select that version and click the "Install" button.	Coordinator Version: 4.6.1	Ç İnstall Restart
Zigbee Software Update	Version: 0.10.5.1	↓ Install

2. Backup from HubKit / Coordinator Data Backup

Please back up your HubKit data.

3. Upgrade to Gravio Version 5

Please press the "Upgrade to Gravio Version 5" button. After the confirmation dialog is displayed, it will automatically restart.

After rebooting, the Update Manager will be displayed as the Configuration Manager.

Please refer to <u>here</u> for the initial setup of Gravio from the Gravio Configuration Manager.

3. Installation and Setup

Gravio operates with two pieces of software installed: the server software, the "Gravio HubKit" package, and a client application called "Gravio Studio" that operates the server software. as a client application to operate the server software.

Gravio HubKit is available on Linux, Windows, and Mac. They can be downloaded from <u>https://www.gravio.com/jp/download</u>.

Please download the installer for your operating system.

Gravio Studio is available from the MS Store app for Windows and the App Store app for Mac, so please search for "Gravio Studio" there and install the application.

Note : If you are installing the Windows version of the Gravio HubKit package, be sure to install Gravio Studio from the MS Store first.

3.1. Determining how to operate the Gravio Hub 2 and the steps to set it up

Please decide first on how to operate Gravio Hub 2.

Please decide whether you will operate Gravio Hub 2 as a (marker-blue) "server for node management" or as a (marker-blue) "Node hub".

The settings are made from a browser on the screen of the Gravio Configuration Manager.

- 1. Set the WiFi settings for Gravio Hub on the <u>Gravio Hub Settings</u> screen to connect Gravio Hub 2 to the internet.
- 2. Obtain a Gravio license on the Initial Settings screen
- To make Gravio Hub 2 a server for node management, obtain a MAIN license and perform initial setup of the Gravio coordinator
 Note: Even if you set it as a server for node management, this management server can also operate as one of the nodes, allowing you to acquire sensor data and execute actions.
- If you want to use Gravio Hub 2 as a Node hub, obtain a NODE license and register this Node hub under the control of the Gravio coordinator

With this, the setting of the operation environment is complete.

3.1.1. Gravio Hub 2 Installation

This section describes the installation of Gravio Hub 2.

To use Gravio Hub 2, the following three points are necessary:

- 1. Connect Gravio Hub to LAN
- 2. Gravio Hub Settings
- 3. Initial Settings

Gravio Hub 2 operates on a Linux OS based on Ubuntu 2004. It is designed to allow you to log in to Linux OS as needed. For this reason, in the initial settings of the Gravio Configuration Manager to enhance security, you will be forced to change the password of the login account for logging into Linux. Please prepare the settings for the WiFi network (the network name to be connected and the password) and the new password for the login account.

Note: Please store the login account name and password safely. If you lose the password, you will not be able to log in to the Linux machine again and may have to reset it, which may cause data loss.

The following accessories, including Gravio Hub, are included with Gravio Hub 2 package:

• The Gravio Hub 2 device:



- Gravio USB-C cable
- The power adapter

Gravio Hub 2 has one USB-A connector, USB-C connector, wired LAN connector, and HDMI connector each.

3.1.2. Connecting the Gravio Hub to a LAN

For wired LAN connection

Connect the wired LAN cable to the LAN connector on the Gravio Hub2.

Note: Please use a wired LAN that can provide an IP address via DHCP.

Boot up the Gravio Hub2

Connect the USB-C cable to the USB-C connector on the Gravio Hub2 and start it up.

For wireless LAN connection

Boot up the Gravio Hub2

Connect the USB-C cable to the USB-C connector on the Gravio Hub2 to boot up.

Configure Wifi settings on Gravio Hub2

Connect the Gravio Hub to a power source and start it up.

When the light at the front of the Gravio Hub appears blue, connect to the SSID named GravioHubXXXXXXXXXXXX from your PC's Wifi.

The WiFi password is "graviohub".

	=;;=		
Gravio	o Configuratio	on Manager	
Login			
U			
Username			٦
Username		Username can not empt	 .y.
Password		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Password		Ø	
with this Cont To securely m computers, th	indergo an initial set ïguration Manager. anage Gravio-enabl e Configuration Ma y for initial access:		1
Т	he initial settings for the a	account are	
	Username: gravi Password: gravi		
After first logi password.	n, you will be promp	oted to set a new	
) English 🗸		Lo	gin

After connecting, open the Gravio Configuration Manager by typing "http://192.168.100.1:8080" in your browser.

Then go to the "<u>Gravio Hub configuration</u>" and proceed to configure the time and date settings, the regional settings, and Gravio Hub Internet settings.

3.1.3. Gravio Hub Settings

	=;=	
Grav	io Configuration Manager	
Login		
Username		
Username]
Password	Username can not empty	
Password	Ø	
with this Co To securely computers,	t undergo an initial setup, which is done nfiguration Manager. manage Gravio-enabled machines or the Configuration Manager comes with an dy for initial access:	
	The initial settings for the account are	
	Username: gravio Password: gravio	
After first log password.	gin, you will be prompted to set a new	
🕽 English 🗸	Log	jin

The Gravio Configuration Manager is a web application bundled with HubKit.

Therefore, in order to manage this system securely, the Gravio Configuration Manager has a dedicated account.

Open the Configuration Manager by typing "http://192.168.100.1:8080" in your browser.

Username: "gravio Password: "gravio

Change 'gravio' account password		
Old Password:	Password 🕲	
New Password:	Password @	
Confirm New Password:	Password 🕲	
	Change Decemend	
	Change Password	

When you log in for the first time, you will see a panel forcing you to change your password. Enter your current and new passwords and press the "Change password" button. The new password will be used from then on.

After logging in, the Gravio Hub Settings screen will open. This menu will not appear on HubKit Windows/Mac/Linux/RaspberryPI.

time settings

If you are using Gravio Hub on a network connected to the Internet, this time setting is not required, so please skip the time setting procedure below.

If the network on which the Gravio Hub is installed is **not** connected to the Internet, select Manual Settings to set the date and time.

Time Setting			
Time Zone			∧ Set
Date and Time		Gravio Hub machine time: 2023-0	7-19 16:27:44
Use NTP	Sync via NTP:	Ex: time.google.com	Sync
Manual	Date:		
	Time:		
		Use this machine as a loca	al NTP Server

(NOTE : If you are using NTP and only want to change the time zone, please do so after the network configuration is complete.)

If the Gravio Hub is not connected to the Internet, time synchronization with the outside world will not be performed during manual configuration.

regional settings

legion	Japan	↓ Set
Set Hostname		

Then, select a region and set the hostname in the Host Name setting. The screen will be set to "gravio" so that it can be accessed at "gravio.local".

WAN settings for Gravio Hub

Gravio Hub WAN Settings			
Use WAN(LTE)			
APN		÷	Set
WAN Status	×	Disc	connect
Current WAN-side IP address			
	IP Address:		
	Default Gateway:		
	Default DNS Server:		
Network Port Setting	Gravio	Coordinator Port(443)	
	Grav	io HubKit Port(29442)	
		MQTT Port(8883)	
	Configuratio	n Manager Port(8080)	

Gravio Hub2 also supports communication using LTE (LTE mode). You can connect directly to the Internet by inserting a nano SIM of the following carriers into the slot and enabling the WAN settings.

To enable the WAN setting, turn on "Use WAN (LTE)" and reboot.

After rebooting, the Gravio Hub2 network will be "192.168.96.1" with wifi router mode enabled. The DHCP server will also be enabled, so the IP address assignment by DHCP will also be enabled at "192.168.96.x".

When you connect to the "GravuiHub-XXXXX" via wifi, an IP address will be assigned automatically.

If you do not use DHCP, please set a fixed IP address at "192.168.96.x/24" for the device connecting to Gravio Hub2.

Then select and set the APN and reboot again.

You will be automatically connected to the WAN after rebooting, but you can also switch manually by pressing the "Disconnect" and "Connect" buttons.

When connected to the WAN, network information will be displayed on the current WAN-side IP address.

Note: If the Gravio Hub was assigned an IP address as a DHCP client using DHCP in a network environment connected via a wired LAN,

When LTE mode is turned on, the DHCP server on the wired LAN side conflicts with the DHCP server on the Gravio Hub, so please do not connect to the network environment connected by wired LAN.

You can also set the port to allow access to the Gravio Hub from the WAN side in the WAN-side incoming port settings.

Service Name	Port number
Gravio Coordinator	443
Gravio HubKit Port	29442
MQTT port for node-to-node communication MQTT port for inter-node communication	8883
Configuration Manager port	8080

This completes the WAN configuration.

h3. Internet Settings for Gravio Hub

Gravio Hub Internet Settings		
Access Point Name		Set
Access Point Password	Password	I Set
Current LAN-side IP address		
	IP Address:	

If LTE mode is on, you can change the WIFI network name (SSID) and WIFI password for the Gravio Hub.

If connected to a LAN, the IP address of the Gravio Hub on the LAN side will be displayed.

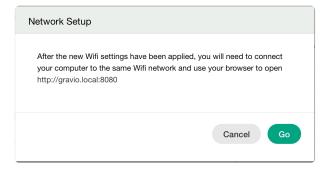
Gravio Hub Internet Settings			
Wireless LAN			
WiFi	Disc	overed Wi-Fi (Input SSID
	Network Name(SSID):		
	Password:	Password	Ì
Use DHCP Static IP Address			
Current LAN-side IP address			
	IP Address:		
	Default Gateway:		
	Default DNS Server:		
			Apply

Finally, configure the network to be used. (It is recommended to use a fixed IP address.) *If a LAN cable is connected to the wired LAN terminal, the settings will be those for wired LAN. *If a LAN cable is not connected to the wired LAN terminal, wireless LAN settings will be used. *If a wired LAN cable is connected and a fixed IP is set, the wired LAN will always be used. (Even if a fixed IP is set for WiFi, WiFi will not be available unless the fixed IP setting for the wired LAN is canceled and the DHCP setting is set).

If you wish to use a static IP address, turn off "Use DCHP" and enter the static IP address, default gateway, and DNS server in the Static IP Address field.

Click the "Configure" button to complete the settings.

Click the "Configure" button.



A message dialog box will appear when the wireless and wired LAN settings are complete.

Use of SSH

Use SSH	
Enable SSH	

Turn on Use SSH when connecting to Gravio Hub via SSH. (If you turn it on, you need to restart Gravio Hub.)

Bluetooh setting

Gravio Hub Bluetooth Settings	
Paired Devices	
Available Devices	Scan

Connect to the Bluetooth device (e.g. speaker) to be used with the Gravio Hub.

First put the device in pairing mode to pair with a Bluetooth device and press the "Scan" button. After a short wait, the Bluetooth device will appear in the Available Devices and press the "Pair" button. After pairing is complete, press the "Connect" button to connect to the device.

Auto stop setting

Automatic Stop Setting							
Set Automatic Stop						(
Stop Time	Time:	00	•	00	•	00	

Set the Gravio Hub to automatically shut down and turn off at a set time. Use this setting when the main power is turned off every day in a factory, etc.

If you are using a wireless LAN, set the WiFi connection point again, and then enter ".local" in your browser.

If you are using a wired LAN, enter ".local" in your browser.

This completes the installation.

3.1.4. Initial Settings (Gravio Configuration Manager)

Open the Configuration Manager using a browser. You will reach the Configuration Manager by entering the URL http://<IP of your HubKit>:8080. Note, if you are connecting to your HubKit via the Access Point Mode, the address will be http://192.1601.100.1:8080

=(;=	=
Gravio Configurat	ion Manager
Login	
Login	
Username	
Username	Username can not empty.
Password	
Password	Ŵ
Gravio must undergo an initial s with this Configuration Manage	•
To securely manage Gravio-ena computers, the Configuration N account ready for initial access	lanager comes with an
The initial settings for th	ne account are
Username: gra Password: gra	
After first login, you will be pror password.	npted to set a new
€ English →	Login

In the browser, enter ".local:8080" configured in the previous chapter.

=G=	Gravio Configuration Manager	Initial Settings	Gravio Configuration	Gravio Hub Settings	
	Initial Settings				
		Acquisition of Gravio License keys			Not obtained
	~~ I				Obtain a License

After logging in, the Gravio Hub Settings screen will open and the initial menu will open.

Deploying your License

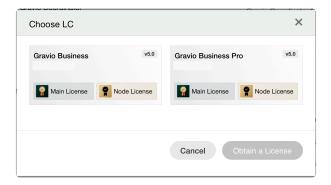
You must first obtain a license to use Gravio. This applies also if you are using the free Gravio version.

	Acquisition of Gravio License keys	
LICENSE		
	License key acquisition status	Not obtained
~~ 🗎		
		Obtain a License

Install the license associated with the Gravio user into HubKit.

Gravio.com connection information	×
Email Address	
Email Address	
	Email address verification failed.
Password	
Password	
	Cancel Connect

Click the "Obtain License" button to open the connection information panel to Gravio.com and enter your Gravio username and password under which you have registered your online account.



After you have entered your username and password, you will be authenticated and your associated licenses will be displayed. Select the license you like to install on the device you are currently logged in. The license file will be installed onto your device over the internet.

Apart from the different service levels are two types of licenses. "Main Licenses" including the Gravio Coordinator, and "Node Licenses" for HubKits.



The acquired license will be displayed. Select Release License to release it. You might like to do that to install the license on a different device.

Register your Gravio HubKit Node with the Coordinator

240	Node registration to the Gravio coordinator		
.	Registered with Gravio Coordinator	Gravio Coordinator Server Address:	DNS name or IP Address
			Register

If you have a Gravio coordinator, you can register your HubKit on the Coordinator by entering the server address of the Coordinator and clicking the Register button.

To complete the registration of HubKit in the Coordinator, approval by the Coordinator is required.

Initialization of the Coordinator

Initial Setup for Gravio Coordinator	
Gravio Coordinator Account Setup If you want to use this machine's Gravio Coordinator, you can initialize this machine's Gravio Coordinator	Initial Setup

Upon the first launch, you have to create your Gravio Coordinator account. This will be used to manage all your HubKits.

Initial Setup for Gravio Coord	inator >	,
Email Address		
Email Address		
Organization Name		
Organization Name		
First Name		
First Name		
Last Name		
Last Name		
Password		
Password		
Confirm Password		
Password Confirm		
Cancel	Create Administrator Account)

Enter the account information and press the Create Admin Account button to create the Coordinator account.

You can use this account to log in to the Coordinator. Please keep this information safe.



To initialize the created account, press the Reset button.

Reset	×
This operation will reset your coordinator and make sure you have backed up the data. Type can do this.	
	Cancel Reset
	Cancer Reset

A confirmation panel will appear so you can confirm and initialize.

Change Password for the Gravio Configuration Manager

Copyright © 2023 ASTERIA Corporation



This is used to change the configuration manager password. The change will be effective from the next login.

3.1.5. Other Settings

3.1.5.1. Gravio Settings

Open the Configuration Manager using a browser. You will reach the Configuration Manager by entering the URL http://<IP of your HubKit>:8080. Note, if you are connecting to your HubKit via the Access Point Mode, the address will be http://192.1601.100.1:8080

=Ç=	
Gravio Configuration Manager	
Login	
Username	
Username	
Username can not en	npty.
Password d	Ø
Gravio must undergo an initial setup, which is done with this Configuration Manager. To securely manage Gravio-enabled machines or computers, the Configuration Manager comes with account ready for initial access:	an
The initial settings for the account are Username: gravio Password: gravio	
After first login, you will be prompted to set a new password.	
English ~	_ogin

Or, in the browser, enter ".local:8080" configured in the previous chapter.

=G= 0	Gravio Configuration Manager	Initial Settings	Gravio Configuration	Gravio Hub Settings		Gravio C	Coordinator	Gravio	8 ~
	Gravio Configuration								
	Gravio HubKit / Gravio Coordinat	or Status							
	Gravio HubKit					Running			
	Gravio Coordinator					Running			
	Check Updates								
	Gravio HubKit Software Update When a new version of Gravio HubKit is availabl and click the "Install" button.	e, please select that vers	ion	Gravio HubKit Version:	5.0.0 🗘	Install	Restart		
	Coordinator Software Update When a new version of the Coordinator is availa version and click the "Install" button.	ble, please select that		Coordinator Version:	5.0.0 🗘	Install	Restart		
	Zigbee Software Update			Version:	0.10.5.1 🗘	Install			

After logging in, the Gravio Hub Settings screen will open, and open the Gravio Settings menu.

Note, the coordinator menu will not appear on HubKit Windows/Mac.

Gravio HubKit / Gravio Coordinator Status

You can check the status of HubKit and Coordinator services.

Gravio HubKit / Gravio Coordinator Status		
Gravio HubKit	Running	
Gravio Coordinator	Running	

Use the toggle to start/stop HubKit and Coordinator services respectively.

Software Updates

You can update the software of the coordinator and HubKit over the internet.

Owned a United Kite Orafference United at a				
Gravio HubKit Software Update When a new version of Gravio HubKit is available, please select that version and click the "Install" button.	Gravio HubKit Version:	5.0.0	Instal	Restart
Coordinator Software Update When a new version of the Coordinator is available, please select that version and click the "Install" button.	Coordinator Version:	5.0.0	≎ Instal	Restart
Zicibee Software Update	Version:	0.10.5.1) Instal	

Select the version of the HubKit and Coordinator software to be updated and press the "Install" button. When the installation is complete, click the "Reboot" button.

You can also update the Zigbee firmware. Select the firmware to be updated with and press the "Install" button. Once the installation is complete, you can use the device as is.

h3. Changing the Coordinator's Certificate

The coordinator has a standard self-certificate installed, but you can change it to a certificate for your own domain.

Prepare the key file and the certificate file in advance.

SSL Certificate Settings			
Use SSL			-
SSL Certificates	Key File:	No file chosen	Choose File
	Certificate File:	No file chosen	Choose File
			Reset Upload

Upload the key file and certificate file to the SSL certificate with "Use SSL" turned on in the certificate settings.

When the upload is complete, the certificate will be renewed.

Manage Gravio Studio Connections Using Client Certificates

Gravio communicates securely between Gravio Studio, the HubKits and the Coordinator using certificates. To set up a client certificate for Gravio Studio to connect to HubKit.

Prepare the certificate files in advance, and upload them here.

Certificate for connection restriction of Gravio Studio	
Use Client Certificates	
Client Certificates	Please upload client certificate files
	Upload

Proxy Settings

Proxy Setting (This setting can be edit at stopping H	ubkit.)	Edit
Use HTTPS Proxy	Proxy URL:	
Use HTTP Proxy	Proxy URL:	

Set these credentials if HubKit needs to go through a proxy server when using Internet services.

Click the "Edit" button to display the configuration screen. Enter the account information (proxy URL,

account, and password) for the proxy server to be used for HTTPS and HTTP protocols, respectively.

Proxy Setting		×
Use HTTPS Proxy		
,	Proxy URL:	
	Username:	
	Password:	Ø
Use HTTP Proxy		
	Proxy URL:	
	Username:	
	Password:	Ø
		Cancel Save

Note that HubKit must be stopped during this update.

HubKit / Coordinator Data Backup

HubKit / Coordinator data can be backed up to a local PC and restored.

HubKit and Coordinator Data Backup			
HubKit and Coordinator Data Export			Backup
			Export
HubKit and Coordinator Data Import	Import Backup File:	No file chosen	Choose File
			Import

To backup HubKit / Coordinator data, press the Backup button. After a few moments, the backup will be completed and you can download the backup file to your local PC by pressing the "Export" button.

To restore the backed-up data, press the "Select File" button in the Import File section and select the file. After a few moments of pressing the Import button, the file will be uploaded and processed.

Notes:

- 1. Please ensure that the file you are importing was previously backed up by the Gravio Configuration Manager.
- 2. Please ensure that the Zigbee firmware version of the Gravio Hub is the same for the backup source and the restore destination.

Gravio HubKit Support Log

You can download the HubKit and syslog log files in a zip file.

Gravio Hub/PC Support	
Support log output	Export

Press the "Export" button to download the log files.

Gravio Hub Power Management

You can power off the Gravio Hub here.

Gravio Hub/PC Power Management/Initialization	
Power Off	Power Off
Reboot	Reboot
Initialization	Initialization

Press the "Power Off" button to turn off the Gravio Hub.

Pressing the "Reboot" button will reboot the Gravio Hub.

Pressing the "Initialize" button will return the Gravio Hub to its factory settings and delete all configuration information and data. Please use this function carefully.

3.1.5.2. Performance Tuning

When using the Gravio Hub for inference computer vision detection, please consider the following:

Processing Performance

- When an inference is selected as a "layer as a soft sensor" on a Gravio Hub, only one model should be used per Gravio Hub.
- Depending on the complexity of the model file, the load on memory and CPU may vary.
- For a typical TensorFlow model, we recommend that you use no more than two cameras connected and that you run the model at intervals of about one minute.
- Make sure to run the camera images at least 15-20 seconds apart.
- In the case of the Lite TensorFlow model, it is recommended that no more than two cameras are connected at any given time, and that the recognition runs at intervals of 30 seconds.
- To keep the Gravio Hub at optimum performance, log into the Gravio Hub via SSH and use the to p command to see the average load. For ideal performance, please keep the load average below 2.

If you plan to operate the HubKit at a rate exceeding this recommendation, please install the HubKit on a dedicated PC with higher processing power.

Disk Space

- The disk capacity of Gravio Hub is 16GB, including the OS.
- The available space for operation is approximately 6GB.
- If you have enabled image output during inference, please be careful not to exceed this capacity.

Coral.ai Support

• The Gravio Hub supports the <u>Coral USB Accelerator</u> by Google if you require extra power for your Gravio Hub. (Not included in the package).

3.2. Installation and initial setup of the Windows version

HubKit for Windows can be operated as a Gravio HubKit Node.

- Follow the instructions from <u>the windows installation manual</u>. Note, if you already have Gravio Studio, and just need to install the HubKit software, you can download this from <u>https://www.gravio.com/en/download</u>
- Open the Initial Setup screen to deploy your Gravio license.
- · Register your Gravio HubKit Node with the Coordinator



If you have a Gravio coordinator, you can register your HubKit on the Coordinator by entering the server address of the Coordinator and clicking the Register button.

To complete the registration of HubKit in the Coordinator, approval by the Coordinator is required.

This completes the setup of the operating environment.

3.2.1. Installing the Windows version

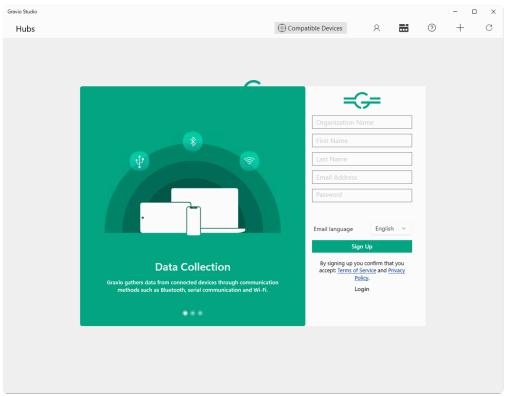
Using Gravio with Windows

To use Gravio, you will need to install two pieces of software.

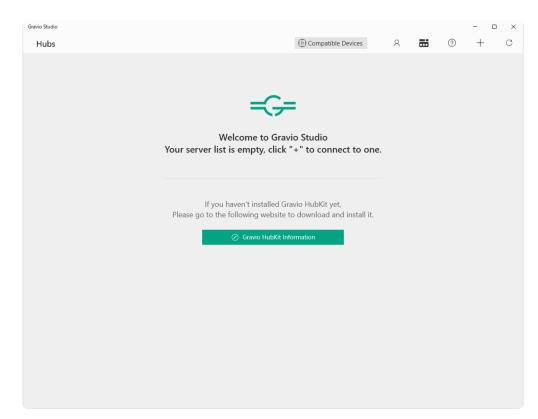
Gravio Studio for Windows, the software to manage your infrastructure. You can get Gravio Studio from the App Store. Secondly, you will need Gravio HubKit, the actual node server software that runs as a daemon on your machine.

Installing Gravio Studio for Windows and HubKit

- Install Gravio Studio from the Microsoft Store.
- Start Gravio Studio.
- If you do not already have an account, fill out this form to agree to the Terms of Use and create an account.



- If you already have an account, please login.
- If you have signed up, you will receive an authorization code by e-mail. Check your e-mail. When you log in, you will be asked for the verification code, please enter it together with the verification code described in the email.
- Initially, if you have not yet installed the Gravio HubKit server, the server list will be empty.



However, if you have Gravio HubKit instances running in the same network they will appear here.

- To install HubKit locally, click the "Download HubKit" button.
- A browser will open and ask for permission to download. Download "GravioHubKit4.msi" and install it.
- After installation is complete, HubKit will start automatically, so start GravioTools from the application.
- When GravioTools starts, GravioTools will be resident in the task tray, so right-click to display the context menu.

Gravio HubKit is stopped	
Start Service	
Stop Service	
Initial Setup	
Settings	
Check for updates	
About Services	
Quit	

Important: After the installation, be sure to select Gravio "Initial Settings" to install the license and perform other initial settings.

The Gravio Configuration Manager is a web application that resides locally on the PC on which the HubKit is installed.

Therefore, a dedicated account related to this node needs to be created for the Gravio Configuration Manager to manage this system. This is due to Gravio's Edge computing aspect.

See <u>here</u> for instructions on configuring Gravio's initial settings.

• Once you have completed the HubKit installation, launch Gravio Studio again; you should see the local server on the Hub list.

Note: If your servers are on different network segments, Gravio will not be able to retrieve them automatically. In this case, use the "+" symbol to manually add a new server using its IP address.

*This completes the installation of Gravio Studio and HubKit.

3.2.2. Initial Settings (Gravio Configuration Manager)

Open the Gravio Configuration Manager screen in your browser using Gravio Tools from Windows Tray. Pick the "Initial Setup" menu option.

=<>=	
Gravio Configuration Manager	
Login	
Username	
Username	
Username can not empty. Password	
Password 🕲	
Gravio must undergo an initial setup, which is done with this Configuration Manager.	
To securely manage Gravio-enabled machines or computers, the Configuration Manager comes with an account ready for initial access:	
The initial settings for the account are	
Username: gravio Password: gravio	
After first login, you will be prompted to set a new password.	
⊕ English ∨ Login	

Or, in the browser, enter <Hostname>.local:8080 configured in the previous chapter.

Gravio Configuration Manager	Initial Settings	Gravio Configuration	Gravio Hub Settings	
Initial Settings				
	Acquisition of Gravio License keys			Not obtained
				Obtain a License

After logging in, the Gravio Hub Settings screen will open and the initial menu will open.

Deploying your License

You must first obtain a license to use Gravio. This applies also if you are using the free Gravio version.

LICENSE	Acquisition of Gravio License keys	
C-	License key acquisition status	Not obtained
		Obtain a License

Install the license associated with the Gravio user into HubKit.

Gravio.com connection information	×
Email Address	
Email Address	
Password	Email address verification failed.
Password	
	Cancel Connect

Click the "Obtain License" button to open the connection information panel to Gravio.com and enter your Gravio username and password under which you have registered your online account.

Gravio Business	v5.0	Gravio Business Pro	v5.0
Gravio Dasiness		Gravio Busilless FIU	
Main License	ode License	Main License	lode License

After you have entered your username and password, you will be authenticated and your associated licenses will be displayed. Select the license you like to install on the device you are currently logged in. The license file will be installed onto your device over the internet.

Apart from the different service levels are two types of licenses. "Main Licenses" including the Gravio Coordinator, and "Node Licenses" for HubKits.



The acquired license will be displayed. Select Release License to release it. You might like to do that to install the license on a different device.

Register your Gravio HubKit Node with the Coordinator

0	Node registration to the Gravio coordinator		
	Registered with Gravio Coordinator	Gravio Coordinator Server Address:	DNS name or IP Address
6666			Register

If you have a Gravio coordinator, you can register your HubKit on the Coordinator by entering the server address of the Coordinator and clicking the Register button.

To complete the registration of HubKit in the Coordinator, approval by the Coordinator is required.

Initialization of the Coordinator



Upon the first launch, you have to create your Gravio Coordinator account. This will be used to manage all your HubKits.

Initial Setup for Gravio Coordinator	×
Email Address	
Email Address	
Organization Name	
Organization Name	
First Name	
First Name	
Last Name	
Last Name	
Password	
Password	
Confirm Password	
Password Confirm	
Cancel Create Administrator Accou	nt

Enter the account information and press the Create Admin Account button to create the Coordinator account.

You can use this account to log in to the Coordinator. Please keep this information safe.



To initialize the created account, press the Reset button.

Reset	×
This operation will reset your coordinator and delete al make sure you have backed up the data. Type 'reset' i can do this.	
	Cancel Reset
	Cancer Reser

A confirmation panel will appear so you can confirm and initialize.

Change Password for the Gravio Configuration Manager

Copyright © 2023 ASTERIA Corporation



This is used to change the configuration manager password. The change will be effective from the next login.

3.3. Installation and initial setup for macOS version

HubKit Mac version can be operated as a hub in your Node Computing network.

- Follow the instructions from <u>the mac installation manual</u>. Note, if you already have Gravio Studio, and just need to install the HubKit software, you can download this from <u>https://www.gravio.com/</u> <u>en/download</u>
- Open the Initial Setup screen to deploy your Gravio license.
- Register your Gravio HubKit Node with the Coordinator



If you have a Gravio coordinator, you can register your HubKit on the Coordinator by entering the server address of the Coordinator and clicking the Register button.

To complete the registration of HubKit in the Coordinator, approval by the Coordinator is required.

This completes the setup of the operating environment.

3.3.1. Installing the macOS version

Using Gravio with a Mac

Two software installations are required to use Gravio.

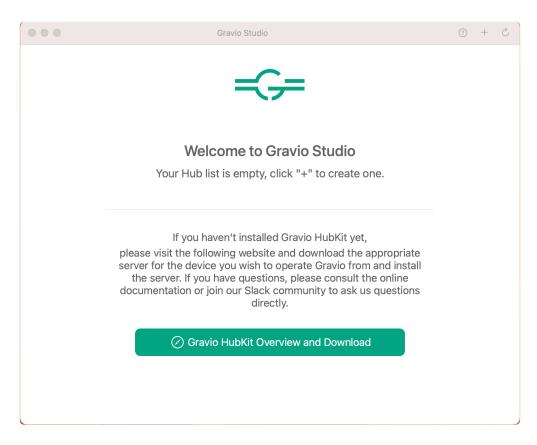
Gravio Studio, which you can get from <u>link.gravio.com/studio</u> for Mac, and HubKit, which you can get from <u>https://www.gravio.com/en/download</u>.

Installing Gravio Studio for Mac and HubKit

- Install Gravio Studio from the App Store: <u>https://link.gravio.com/studio</u>
- Launch Gravio Studio.
- If you do not already have an account, fill out this form to agree to the Terms of Service and create an account.

•	
	Sign Up
	Organization Name
	Email Address
	Password (8 to 32 chars long)
	By signing up you confirm that you accept: Terms of Service and Privacy Policy
Data Processing	Sign Up
Gravio can process the raw sensor data, store it, visualise it or pass it on to third party systems for further processing.	Log in

- If you already have an account, please login.
- If you signed up, you will receive an authorization code by e-mail. Check your e-mail. When you log in, you will be asked for the verification code, please enter it together with the verification code described in the email.
- Initially, if you have not yet installed the Gravio server, the server list is empty.



- To install the HubKit locally, click the "About Gravio HubKit" button.
- A browser will open, click on the "Products" menu and click on the Download Gravio HubKit for Mac button at the bottom of the page that appears.
- A screen will open asking for permission to download. Download "GravioHubKit4.dmg" and double-click it to open and install.



- After installation is complete, double-click Gravio HubKit4 in the Applications folder to launch it. You will be prompted to enter the password for administrative privileges.
- When HubKit starts, an icon will appear in the Mac upper menu.

G
Gravio HubKit services are running
Start Services Stop Services
Initial Setup
Settings About Gravio HubKit Quit

• Once you have completed the HubKit installation, launch Gravio Studio again; you will see your local server on the Hub list.

Select Gravio Initial Setup and perform the initial configuration, including license installation, etc. For more information on Gravio Initial Setup, see <u>here</u>.

Note: If your servers are on different network segments, Gravio will not be able to retrieve them automatically. In this case, use the "+" symbol to manually add a new server using its IP address.

• This completes the installation of Gravio Studio and HubKit.

3.3.2. Initial Settings (Gravio Configuration Manager)

Open the Gravio Configuration Manager screen in your browser using Gravio Tools from Windows Tray. Pick the "Initial Setup" menu option.

=(;=		
Gravio Configuration Manager		
Login		
Username		
Username		
U: Password	sername can not empty.	
Password	Ŵ	
Gravio must undergo an initial setup with this Configuration Manager. To securely manage Gravio-enabled computers, the Configuration Manag account ready for initial access:	machines or	
The initial settings for the acc	ount are	
Username: gravio Password: gravio		
After first login, you will be prompted password.	d to set a new	
⊕ English ∨	Login	

Or, in the browser, enter <Hostname>.local:8080 configured in the previous chapter.

Gravio Configuration Manager	Initial Settings	Gravio Configuration	Gravio Hub Settings	
Initial Settings				
	Acquisition of Gravio License keys			Not obtained
				Obtain a License

After logging in, the Gravio Hub Settings screen will open and the initial menu will open.

Deploying your License

You must first obtain a license to use Gravio. This applies also if you are using the free Gravio version.

LICENSE	Acquisition of Gravio License keys	
C-	License key acquisition status	Not obtained
		Obtain a License

Install the license associated with the Gravio user into HubKit.

Gravio.com connection information	×
Email Address	
Email Address	
Password	Email address verification failed.
Password	
	Cancel Connect

Click the "Obtain License" button to open the connection information panel to Gravio.com and enter your Gravio username and password under which you have registered your online account.

Gravio Business	v5.0	Gravio Business Pro	v5.0
Gravio Dasiness		Gravio Busilless FIU	
Main License	ode License	Main License	lode License

After you have entered your username and password, you will be authenticated and your associated licenses will be displayed. Select the license you like to install on the device you are currently logged in. The license file will be installed onto your device over the internet.

Apart from the different service levels are two types of licenses. "Main Licenses" including the Gravio Coordinator, and "Node Licenses" for HubKits.



The acquired license will be displayed. Select Release License to release it. You might like to do that to install the license on a different device.

Register your Gravio HubKit Node with the Coordinator

0	Node registration to the Gravio coordinator		
	Registered with Gravio Coordinator	Gravio Coordinator Server Address:	DNS name or IP Address
6666			Register

If you have a Gravio coordinator, you can register your HubKit on the Coordinator by entering the server address of the Coordinator and clicking the Register button.

To complete the registration of HubKit in the Coordinator, approval by the Coordinator is required.

Initialization of the Coordinator



Upon the first launch, you have to create your Gravio Coordinator account. This will be used to manage all your HubKits.

Initial Setup for Gravio Coordinator	×
Email Address	
Email Address	
Organization Name	
Organization Name	
First Name	
First Name	
Last Name	
Last Name	
Password	
Password	
Confirm Password	
Password Confirm	
Cancel Create Administrator Accou	nt

Enter the account information and press the Create Admin Account button to create the Coordinator account.

You can use this account to log in to the Coordinator. Please keep this information safe.



To initialize the created account, press the Reset button.

Reset	×
This operation will reset your coordinator and del make sure you have backed up the data. Type 're can do this.	
	Quarter Durt
	Cancel Reset

A confirmation panel will appear so you can confirm and initialize.

Change Password for the Gravio Configuration Manager

Copyright © 2023 ASTERIA Corporation



This is used to change the configuration manager password. The change will be effective from the next login.

3.4. Installation and initial configuration of Linux (Ubuntu AMD64) version

HubKit for Linux can be operated as a Gravio HubKit Node.

- Follow the instructions from <u>the Linux installation manual</u>. Note, if you already have Gravio Studio, and just need to install the HubKit software, you can download this from <u>https://www.gravio.com/</u> <u>en/download</u>
- Open the Initial Setup screen to deploy your Gravio license.
- Register your Gravio HubKit Node with the Coordinator

ð	Node registration to the Gravio coordinator		
	Registered with Gravio Coordinator	Gravio Coordinator Server Address:	DNS name or IP Address
			Register

If you have a Gravio coordinator, you can register your HubKit on the Coordinator by entering the server address of the Coordinator and clicking the Register button.

To complete the registration of HubKit in the Coordinator, approval by the Coordinator is required.

This completes the setup of the operating environment.

3.4.1. Installing Ubuntu (AMD64) version

Download the installer for your operating system from https://www.gravio.com/en/download.

- Connect to Ubuntu 20.04 Server LTS using SSH. (Desktop and Core are not supported, use the Server version)
- Transfer the downloaded deb package (setup_-XXXX_amd64.deb for AMD64) to Ubuntu.
- Execute the following Command from Console.

sudo apt update sudo apt upgrade

Next, install the deb package that you downloaded.

```
sudo apt install -y ./setup -XXXX XXX64.deb
```

After installing this deb package, the following Linux account will be created

username : gravio password : gravio

3.4.2. Initial Settings (Gravio Configuration Manager)

Open the Gravio Configuration Manager screen in your browser using Gravio Tools from Windows Tray. Pick the "Initial Setup" menu option.

=(;=	
Gravio Configuration	Manager
Login	
Username	
Username	Isername can not empty.
Password	semane carnot empty.
Password	Ø
Gravio must undergo an initial setu with this Configuration Manager.	o, which is done
To securely manage Gravio-enablec computers, the Configuration Mana account ready for initial access:	
The initial settings for the acc	count are
Username: gravio Password: gravio	
After first login, you will be prompte password.	d to set a new
⊕ English ∨	Login

Or, in the browser, enter <Hostname>.local:8080 configured in the previous chapter.

Gravio Configuration Manager	Initial Settings	Gravio Configuration	Gravio Hub Settings	
Initial Settings				
	Acquisition of Gravio License keys License key acquisition status			Not obtained
~~~ <b>I</b>				Obtain a License

After logging in, the Gravio Hub Settings screen will open and the initial menu will open.

#### **Deploying your License**

You must first obtain a license to use Gravio. This applies also if you are using the free Gravio version.

LICENSE	Acquisition of Gravio License keys	
C-	License key acquisition status	Not obtained
		Obtain a License

Install the license associated with the Gravio user into HubKit.

Gravio.com connection information	×
Email Address	
Email Address	
Password	Email address verification failed.
Password	
	Cancel Connect

Click the "Obtain License" button to open the connection information panel to Gravio.com and enter your Gravio username and password under which you have registered your online account.

Gravio Business	v5.0	Gravio Business Pro	v5.0
Gravio Dasiness		Gravio Busilless FIU	
Main License	ode License	Main License	lode License

After you have entered your username and password, you will be authenticated and your associated licenses will be displayed. Select the license you like to install on the device you are currently logged in. The license file will be installed onto your device over the internet.

Apart from the different service levels are two types of licenses. "Main Licenses" including the Gravio Coordinator, and "Node Licenses" for HubKits.



The acquired license will be displayed. Select Release License to release it. You might like to do that to install the license on a different device.

#### Register your Gravio HubKit Node with the Coordinator

0	Node registration to the Gravio coordinator		
	Registered with Gravio Coordinator	Gravio Coordinator Server Address:	DNS name or IP Address
6666			Register

If you have a Gravio coordinator, you can register your HubKit on the Coordinator by entering the server address of the Coordinator and clicking the Register button.

To complete the registration of HubKit in the Coordinator, approval by the Coordinator is required.

#### Initialization of the Coordinator



Upon the first launch, you have to create your Gravio Coordinator account. This will be used to manage all your HubKits.

Initial Setup for Gravio Coordinator	×
Email Address	
Email Address	
Organization Name	
Organization Name	
First Name	
First Name	
Last Name	
Last Name	
Password	
Password	
Confirm Password	
Password Confirm	
Cancel Create Administrator Acco	ount

Enter the account information and press the Create Admin Account button to create the Coordinator account.

You can use this account to log in to the Coordinator. Please keep this information safe.



To initialize the created account, press the Reset button.

Reset	×
This operation will reset your coordinator an make sure you have backed up the data. Typ can do this.	d delete all data on your coordinator, please pe 'reset' in the input box below, and then you
	Concel
	Cancel Reset

A confirmation panel will appear so you can confirm and initialize.

#### Change Password for the Gravio Configuration Manager

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This is used to change the configuration manager password. The change will be effective from the next login.

# 3.5. Installation and initial configuration of Linux (Ubuntu ARM64/Raspberry Pi) version

### HubKit for Linux can be operated as a Gravio HubKit Node on a Raspberry Pi.

- Follow the instructions from <u>the Linux ARM64 installation manual</u>. Note, if you already have Gravio Studio, and just need to install the HubKit software, you can download this from <u>https://www.gravio.com/en/download</u>
- Open the Initial Setup screen to deploy your Gravio license.
- Register your Gravio HubKit Node with the Coordinator



If you have a Gravio coordinator, you can register your HubKit on the Coordinator by entering the server address of the Coordinator and clicking the Register button.

To complete the registration of HubKit in the Coordinator, approval by the Coordinator is required.

This completes the setup of the operating environment.

### 3.5.1. Installation of Ubuntu (ARM64) version

Download the installer for your operating system from https://www.gravio.com/en/download.

- Connect to Ubuntu 20.04 Server LTS using SSH. (Desktop and Core are not supported, use the Server version)
- Transfer the downloaded deb package (setup_-XXXX_arm64.deb for ARM64 ) to Ubuntu.
- Execute the following Command from Console.

sudo apt update sudo apt upgrade

Next, install the deb package that you downloaded.

```
sudo apt install -y ./setup -XXXX XXX64.deb
```

After installing this deb package, the following Linux account will be created

username : gravio password : gravio

# 3.5.2. Initial Settings (Gravio Configuration Manager)

Open the Gravio Configuration Manager screen in your browser using Gravio Tools from Windows Tray. Pick the "Initial Setup" menu option.

=(;=	
Gravio Configuration	Manager
Login	
Username	
Username	Isername can not empty.
Password	semane carnot empty.
Password	Ø
Gravio must undergo an initial setu with this Configuration Manager.	o, which is done
To securely manage Gravio-enablec computers, the Configuration Mana account ready for initial access:	
The initial settings for the acc	count are
Username: <b>gravio</b> Password: <b>gravio</b>	
After first login, you will be prompte password.	d to set a new
⊕ English ∨	Login

Or, in the browser, enter <Hostname>.local:8080 configured in the previous chapter.

Gravio Configuration Manager	Initial Settings	Gravio Configuration	Gravio Hub Settings	
Initial Settings				
	Acquisition of Gravio License keys			Not obtained
				Obtain a License

After logging in, the Gravio Hub Settings screen will open and the initial menu will open.

#### **Deploying your License**

You must first obtain a license to use Gravio. This applies also if you are using the free Gravio version.

LICENSE	Acquisition of Gravio License keys	
Contraction of the second seco	License key acquisition status	Not obtained
		Obtain a License

Install the license associated with the Gravio user into HubKit.

Gravio.com connection information	×
Email Address	
Email Address	
Password	Email address verification failed.
Password	
	Cancel Connect

Click the "Obtain License" button to open the connection information panel to Gravio.com and enter your Gravio username and password under which you have registered your online account.

Gravio Business	v5.0	Gravio Business Pro	v5.0
dravio Busiliess		Gravio Busilioss 110	
Main License	Node License	Main License 😭 Node	e License
		Cancel Obtain a L	

After you have entered your username and password, you will be authenticated and your associated licenses will be displayed. Select the license you like to install on the device you are currently logged in. The license file will be installed onto your device over the internet.

Apart from the different service levels are two types of licenses. "Main Licenses" including the Gravio Coordinator, and "Node Licenses" for HubKits.



The acquired license will be displayed. Select Release License to release it. You might like to do that to install the license on a different device.

#### Register your Gravio HubKit Node with the Coordinator

0	Node registration to the Gravio coordinator		
	Registered with Gravio Coordinator	Gravio Coordinator Server Address:	DNS name or IP Address
6666			Register

If you have a Gravio coordinator, you can register your HubKit on the Coordinator by entering the server address of the Coordinator and clicking the Register button.

To complete the registration of HubKit in the Coordinator, approval by the Coordinator is required.

#### Initialization of the Coordinator



Upon the first launch, you have to create your Gravio Coordinator account. This will be used to manage all your HubKits.

Initial Setup for Gravio Coordinator	×
Email Address	
Email Address	
Organization Name	
Organization Name	
First Name	
First Name	
Last Name	
Last Name	
Password	
Password	
Confirm Password	
Password Confirm	
Cancel Cr	eate Administrator Account

Enter the account information and press the Create Admin Account button to create the Coordinator account.

You can use this account to log in to the Coordinator. Please keep this information safe.



To initialize the created account, press the Reset button.

Reset	×
This operation will reset your coordinator an make sure you have backed up the data. Typ can do this.	d delete all data on your coordinator, please pe 'reset' in the input box below, and then you
	Canad
	Cancel Reset

A confirmation panel will appear so you can confirm and initialize.

#### Change Password for the Gravio Configuration Manager

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This is used to change the configuration manager password. The change will be effective from the next login.

# 3.6. Past HubKit installation and upgrade procedures

# 3.6.1. Upgrading to HubKit 4.3 on Linux / Raspberry Pi

To upgrade HubKit or Coordinator, please follow the procedure below. In a nutshell, we have migrated from a docker-based installation to a .deb package.

This document guides you through the process of upgrading HubKit 4.2 version to 4.3 on Linux / Raspberry Pi.

### Update installation of HubKit 4.3 series and Coordinator 2.6 series

Download the server for the appropriate platform from the <u>download site</u>.

- Use SSH to connect to your Ubuntu 18.04/20.04 LTS machine.
- Transfer the downloaded deb package (setup_XXXX.deb) your machine.
- Execute the following Commands in the console:

#### Ensure you have the latest packages:

sudo apt update sudo apt upgrade

Stop your current HubKit that is running"

```
cd <home directory which you run Gravio> sudo docker-compose down
```

Delete the gravio user directory that has been created.

sudo rm -rf /home/<youraccoutforgravio>/

Install Update Manager, Coordinator, and HubKit

sudo apt install -y ./setup_XXXX.deb

Check Update Manager's running.

Open a browser and access port 8080 of the IP address of Ubuntu 18.04/20.04 LTS.

https://(ip address):8008/

You will see a holding screen while the Update Manager processes the Coordinator and HubKit. Please wait until the login screen appears to proceed with the next step.

Migrating the data of the running Coordinator and HubKit.

(The directory of the newly installed HubKit 4.3 is backed up to hubkitrepo4_bak just in case.)

```
cd /home/gravio
sudo mv hubkitrepo4 hubkitrepo4_bak
sudo mv /home/(Username where HubKit 4.2 is installed)/hubkit/hubkitrepo4 .
sudo chown -R gravio:gravio hubkitrepo4
```

Now that the configuration is complete, reboot Ubuntu.

#### sudo reboot

Logging in to Update Manager

After rebooting Ubuntu, open a browser and access port 8080 of the Ubuntu 18.04/20.04 LTS IP address.

```
https://(ip address):8080/
```

For instructions on how to use Update Manager, please refer to here.

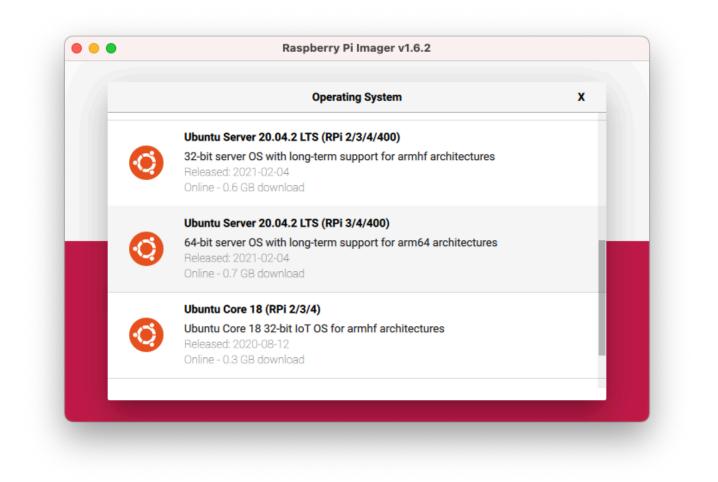
# 3.6.2. Setup HubKit 4.3 on Linux / Raspberry Pi

# Linux / RaspberryPl

### Installation of HubKit 4.3 and Coordinator 2.6

We have created a .deb package for the installation. This makes the installation of HubKit 4.3 very easy on Linux.

Please note that if you use a Raspberry Pi, you must have a 64bit Raspberry Pi. This means it has to be a Raspberry Pi 4. We suggest 4 GB RAM or more. The Raspberry Pi 4 uses the ARM64 processor version. We currently do not support 32bit OSes such as Raspbian. To install on a Raspberry Pi, we recommend the <u>Raspberry Pi Imager</u> and install the Ubuntu Server 20.04.2 LTS on your SD Card.



Once you have Ubuntu installed and connected, download the Gravio HubKit server for the appropriate platform from the <u>download site</u>.

- Use SSH to connect to Ubuntu 18.04 or 20.04 LTS. (Gravio requires Ubuntu LTS only)
- Transfer the downloaded deb package (setup_-XXXX_amd64.deb for AMD64, setup_-XXXX_a rm64.deb for ARM64) to Ubuntu.

• Execute the following commands in your console:

Ensure your apt package manager is up to date:

sudo apt update sudo apt upgrade

Install Update Manager, Coordinator, and HubKit. Very important: After the installation **do not reboot**. Do the next step first. Why not reboot? After the installation, Gravio might be downloading some updates from the internet. If you reboot during that process, the installation may break. Install by entering:

```
sudo apt install -y ./setup -XXXX XXX64.deb
```

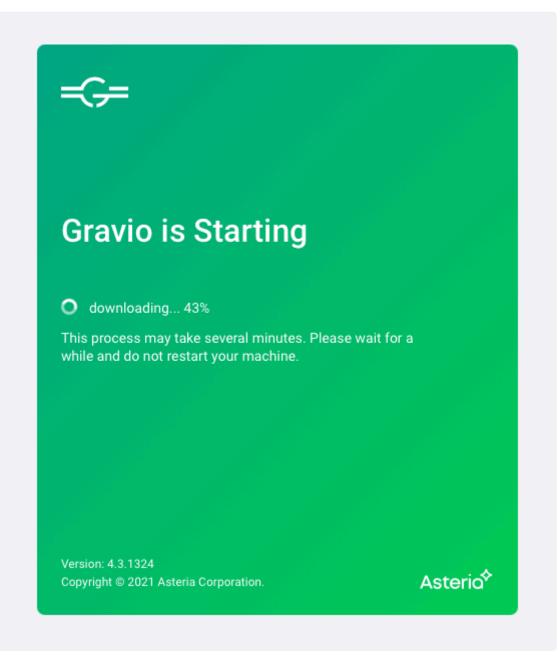
If you happened to reboot after the installation, and or your installation is corrupted in any way, please use this command to re-install: sudo apt --reinstall install -y ./setup_-XXXX_XXX64.de b

#### Login to Update Manager

Open a browser and access port 8080 of the IP address of your Ubuntu 18.04/20.04 LTS machine.

```
http://(ip address):8080/
```

You will see a holding screen while the Update Manager processes the Coordinator and HubKit.



Once the Coordinator and HubKit are set up, you will see a login screen where you can log in. Please refer to <u>here</u> to learn how to use the Update Manager.

# 3.6.3. License Management in Gravio 4.5

From Gravio 4.5, a license management feature has been added for customers with a Standard contract or higher. If you are using Gravio 4.5 or higher, please follow the steps below to register your license.

*Please note that the contract content of Gravio Enterprise AI Edition Platinum is used as an example on the screen. Depending on your contract, there may be differences in Gorilla licenses and other restrictions.

## **License Management Process**

From Gravio 4.5, you register the Hub ID on Gravio.com and manage the license.

- If you are using the Coordinator in an environment connected to the internet, please follow the steps: 1. Register Hub on Gravio.com  $\rightarrow$  3. Manage Hub License with Gravio Coordinator

- If you are using the Coordinator in an offline environment, please refer to <u>here</u> and use Gravio's license file.

- If you are not using the Coordinator and the Hub is running in an environment connected to the internet, follow the steps: 1. Register Hub on Gravio.com  $\rightarrow$  4. Manage Hub License with Gravio Studio

- If you are not using the Coordinator and the Hub is running in an offline environment, follow the steps: 1. Register Hub on Gravio.com  $\rightarrow$  2. Download the Hub license file  $\rightarrow$  4. Manage Hub License with Gravio Studio

#### 1. Registering Hub on Gravio.com

Log in to Gravio.com and open the Hub license.

Press the Register Hub ID button and register the Hub ID of the Hub for which you want to register the license.

Register New Hub	×
Hub ID	
Hub ID	
Commnet	
Comment	
	Cancel Register

The Hub ID is displayed in the HubKit Information on the Settings panel when you open the Hub from Gravio Studio, so please copy and register it.

HubKit Information	
Backup/Restore	Hub ID :2d27cce7
戻 Feature Package	HubKit Version:
Base Property Profile	Server IP[IPv4] :
↓ Image Inference Models	Server IP[IPv6] :
Disk Management	EdgeTPU Status: 🔵 Not Ready License : Gravio Free (Valid)
	Clear Acquire license via gravio.com Upload a license file

The registered Hub ID will be displayed in the list.

cense Mana	genne	an.			
Gravio Enterprise	v 4.5	Gravio Enterprise Al Edition Platinum			Contract ID:
				St Purchase Subscription start	
				Gorilla License	File: Download
				Numbe	er of used License: 1/4
		# Hub ID	Register Date	License File	Actions
		1 2d27cce7	-	E LicenseFile.lic	• Revoke
		2	Unused License		Register New Hub
		3	Unused License		
		4	Unused License		

To delete a registered Hub ID, press the Invalidate button.

#### 2. Downloading the Hub License File

When the Hub is connected to the internet, the license is regularly checked on Gravio.com. However, if the Hub is offline, you cannot check automatically, so you need to register the license file to the Hub.

If you are using the Hub offline, click on the LicenseFile.lic of the corresponding Hub ID to download the license file.

#### 3. Managing Hub License with Gravio Coordinator

If you are using Gravio Coordinator and connected to the internet, you can update the license file from Gravio.com.

License					
Gravio License Inf	ormation				Upload
		o Gravio Enterpri Please install the	nstalled on the ser nin 31 days.	ver.	
Auto License Upda	ate		D	sconnect Set C	onnection

First, press the Settings button in Gravio.com connection information to register your account ID and password.

Auto License Update	×
Username	
Username	
Password	
Password	
Gravio Version	
4	
Cancel Con	nect

When the connection status of Gravio.com connection information becomes Connection OK, press the Update license from Gravio.com button displayed in Gravio license information. The contracted license is displayed, so select it and press the Apply button to update.



The license is updated from Gravio.com and displayed.

License					
Gravio License Information Contract ID: LC Number of registered Hub ID: 1/4	Update license via Gravio.com	Upload	Clear Hu	bID registration on Gravio	b.com
Hub Registration Status	Hub ID			License File	
• Yes	2d27cce7-			E LicenseFile.lic	•
				_	

In case you are using Gravio Coordinator in an offline environment not connected to the internet, please refer to <u>here</u> and update the Gravio license file from the upload.

### 4. Managing Hub License with Gravio Studio

🕅 н	lubKit Information			
Ba	ackup/Restore	Hub ID : 20	d27cce7-	
E Fe	eature Package	HubKit Ver	sion:	
<b>□</b> + Bi	ase Property Profile	Server IP[I	Pv4] :	
↓ Ir	nage Inference Models	Server IP[I	Pv6] :	
D D	visk Management	EdgeTPU S	tatus: 🔵 Not Ready	
		License :		
		Clear	Acquire license via gravio.com	Upload a license file

If the Hub is connected to the internet, you can update the license file from Gravio.com.

When you press the Update license from gravio.com button, the license file is obtained and displayed.

0	HubKit Information	
	Backup/Restore	Hub ID : 2d27cce7-
×	Feature Package	HubKit Version:
=,	Base Property Profile	Server IP[IPv4] :
	Image Inference Models	Server IP[IPv6] :
0	Disk Management	EdgeTPU Status: 🔵 Not Ready
		License : Gravio Enterprise Al Edition Platinum
		Clear Acquire license via gravio.com Upload a license file

If you are using the Hub in an offline environment, specify the license file you downloaded in 2. Download the Hub License File by pressing the Upload License File button. The license file is loaded and displayed.

# 4. Using Gravio Cloud

Gravio Business and Gravio Business Pro customers have access to Gravio Cloud servers.

The Gravio Cloud servers are AWS-based cloud servers that Asteria provides for each MAIN server license for one hosting server by using the MAIN license included in your Gravio contract. The MAIN server license is a one MAIN server license per MAIN server license.

Please follow the instructions in the "Server Build Request" section below to create and use a server.

# 4.1. Request to establish Gravio Cloud Server

# How to use Gravio Cloud

With Gravio 5.0, Business and Business Pro license holders have a MAIN license to use Gravio in the cloud.

Gravio Cloud allows you to run Gravio 5.0 on your own dedicated server.

If you are already using a MAIN license in your local environment, you can release the license to use the Cloud service.

## For Gravio Free licensees

Gravio Free licensees can apply for a functional evaluation license, which will allow them to use Gravio Cloud for a 3-week trial.

For more information on the components that can be run with a Business Pro license, please see <u>here</u>. For more information on the components that can be run with a Business Pro license, please refer to <u>here</u>.

## **Building a Gravio Cloud server**

For information on how to build a Gravio Cloud server, please see <u>here</u> if you have a Business or Business Pro license, or <u>here</u> if you have a Gravio Free license. ":#gravio-free-gravio-cloud.

# 4.1.1. For use by Business and Business Pro purchasers

## obtain a license

Follow the steps below to obtain a Business or Business Pro license.

For Gravio Hub2, open the Configuration Manager and go to the Preferences tab to obtain a license. For HubKit, open the configuration menu for the respective platform and acquire the license.

For details on the initial settings of Gravio Hub2 configuration manager, please refer to <u>here</u>. *For the initial settings of HubKit's configuration manager, please refer to <u>Windows macOS Linux</u> LINK+gravio-amd64-init} <u>Linux</u>

		未取得 ライセンスを取得
	Gravioコーディネーターサーバーアドレス:	DNS名またはIPアドレス 登録
ess	➤	
	-の取得 R ターへのノード登録 -ター - 接続情報 ess メ	R ターへのノード登録 -ター Gravioコーディネーターサーバーアドレス: 接続情報 ×

キャンセル

Enter the account information you signed up with on Gravio.com.

ライセンス契約の	選択		×
Gravio Business LC Main License	v5.0	Gravio Business Pro LC Main License	v5.0 ode License
	-	キャンセル ライセン	スを取得

Select and obtain the Node License among the licenses displayed.

## **Request Gravio Cloud server installation!**

初期設定		
	Gravioライセンスキーの取得 ライセンスキーの取得状況	Gravio Business Pro LC ママ Node License ライセンスを解放
· · · · ·	Gravioコーディネーターへのノード登録 登録先Gravioコーディネーター Gravioコーディネーターサーバーアド Gravo Ciou	<ul> <li>レス: DNS名またはIPアドレス</li> <li>dサーバーの設置を依頼する 金鉄</li> </ul>

Once you get the license, Reload your browser screen once. Then you will see a button to request installation of a Gravio Cloud server in the section for node registration with the Gravio coordinator.

Gravio Cloudトライアル	レ申請	×
サブドメイン		
Subdomain	gravio.cloud	
メールアドレス		
Email Address		
組織名		
Organization Name		
名		
First Name		
姓		
Last Name		
パスワード		
Password		
パスワード(再入力)		
Password Confirm		
	キャンセル	申請

Clicking on the Request button will display a panel where you can enter the necessary information for the request.

Once your request is accepted, an email will be sent to your registered email address.

## **Start using Gravio Cloud server**

Once the server construction is complete, an email will be sent to you with the server information. Once you have received the email confirming the completion of the construction, you will be able to access the input panel for information necessary for your request with the host name you have registered.

## **Connection from Gravio Studio**

When connecting to the Gravio Cloud server from Gravio Studio, be sure to connect using Login to Gravio Coordinator at Gravio Studio Login UI.

Start Gravio Studio and Login to Gravio Coordinator to display the login screen, Enter the Coordinator's URL, email address and password to login.

The URL of the Coordinator is the host name of the Gravio Cloud server. (https://{Gravio Cloud server host name})

Please use this email address and password when accessing the Gravio Coordinator WebUI.

# 4.1.2. Gravio Free users use the Gravio Cloud server for evaluation purpose

## **Obtain a license**

Follow the steps below to obtain a license for Gravio Free.

For Gravio Hub2, open the Configuration Manager and go to the Preferences tab to obtain a license. For HubKit, please open the configuration menu for each platform and acquire the license.

For details on the initial settings of Gravio Hub2 configuration manager, please refer to <u>here</u>. *For the initial settings of the configuration manager of HubKit, see <u>Windows macOS Linux</u> LINK+gravioamd64-init} <u>Linux</u>

初期設定		
	<b>Gravio</b> ライセンスキーの取得 ライセンスキーの取得状況	未取得
	Gravioコーディネーターへのノード登録 登録先Gravioコーディネーター	Gravioコーディネーターサーバーアドレス: DNS名またはIPアドレス 登録
	Gravio.com 接続情報	×
	メールアドレス Email Address パスワード Password	メールアドレスの認証ができませんでした
		キャンセル 接続

Enter the account information you signed up with on Gravio.com.

ライセンス契約の選折	2	×
Gravio Free LC: Node License	v5.0	
	キャンセル ライ	センスを取得

Select the Node License to obtain the license displayed.

## **Request Gravio Cloud server installation**

初期設定		
LICENSE	Gravioライセンスキーの取得	
	ライセンスキーの取得状況	Gravio Free LC       愛 Node License       機能評価ライセンスの申詞       ライセンスを解放
0	Gravioコーディネーターへのノード登録	
	登録先Gravioコーディネーター	Gravioコーディネーターサーバーアドレス: DNS名またはIPアドレス 登録

After obtaining the license, %(marker-red)reload your browser screen once. Then you will see a button to apply for a functional evaluation license.

The evaluation license allows you to evaluate the functionality of Business Pro for a period of 3 weeks.

初期設定		
LICENSE	Gravioライセンスキーの取得	
	ライセンスキーの取得状況	Gravio Evaluation LC P Node License ライセンスを解放
0	Gravioコーディネーターへのノード登録	
• • • •	登録先Gravioコーディネーター	Gravioコーディネーターサーバーアドレス: DNS名またはPアドレス Gravio Cloudのトライアルを申請 登録

After you have completed your request for a functional evaluation license, %(marker-red)reload your browser screen again. A button to request installation of a Gravio Cloud server will appear in the %Register a node with the Gravio Coordinator section.

Gravio Cloudトライアル申	請	×
サブドメイン		
Subdomain	gravio.cloud	
メールアドレス		
Email Address		
組織名		
Organization Name		
名		
First Name		
姓		
Last Name		
パスワード		
Password		
パスワード(再入力)		
Password Confirm		
	キャンセル 申	清

Clicking on the "Request" button will display a panel where you can enter the necessary information for the request.

When your request is accepted, an email will be sent to your registered email address.

## **Start using Gravio Cloud servers**

Once the server build process is complete, an email will be sent to you regarding your server information. Once you have received the email about the completion of the build, you can access the input panel for the information necessary for your request with the host name you registered.

## **Connecting from Gravio Studio**

When connecting to the Gravio Cloud server from Gravio Studio, be sure to connect using Login to Gravio Coordinator at Gravio Studio Login UI.

Start Gravio Studio and Login to Gravio Coordinator to display the login screen, Enter the Coordinator's URL, email address and password to login.

The URL of the Coordinator is the host name of the Gravio Cloud server. (https://{Gravio Cloud server host name})

Please use this email address and password when accessing the Gravio Coordinator WebUI.

# **5. Account types for Gravio operations**

Several accounts are required to use Gravio.

Depending on the functionality of the Gravio system, you may need to create several accounts to access different features.

#### 1. Gravio User Account

This account is created by signing up in Gravio Studio or by creating an account on Gravio.com at <u>Create Account</u>.

Once you are a registered Gravio User, you will be able to configure your Gravio Hub and Hub PC in Gravio Studio.

The purchased license will be associated with and managed by this Gravio User.

h3.2 Gravio Configuration Manager Account

When you install the HubKit package, a dedicated account called Gravio Configuration Manager is automatically created after installation to configure the HubKit environment for your PC. The user name is fixed and will be named "gravio".

The default password is "gravio" . The first time you log in, you will be asked to change the initial password.

This Gravio Configuration Manager account will be the Linux account "gravio" for the Linux version and the GravioHub for the installed OS. h3. 3.

#### h3.3 Gravio Coordinator Account

The Gravio Coordinator is used to manage users who have access to the NodeHub. The first Gravio Coordinator account with Admin rights can be created in the Gravio Configuration Manager under <u>Initial Settings</u>.

Gravio coordinators can create accounts with the following user privileges in the "Accounts" administration: {#404.

Available Screens	Admin	Developer	Maintainer	AppUser
Account	0	riangle (only myself)	riangle (only myself)	riangle (only myself)
HubManagement	0	0	0	Х
Statistics	0	0	0	riangle (view only)

Calendar	0	0	0	Х
Inference Model	0	0	0	Х
カレンダー	0	0	0	Х

# 6. Using Gravio Studio

# 6.1. Hub Configuration View

If you double click on the upper half of the Server card, you will get to the Hub Configuration view:

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		<b>7</b>	<u>    </u>		•							
	Devices	Triggers	Data Viewer	Log	Settings							

At the top you can find a number of buttons such as:

- A plus sign button to create new physical Areas to group your Layers
- An edit button to edit an Area or Layer
- A trash bin to delete Areas or Layers

Separated from that, you find:

- A MQTT Cloud to connect to an MQTT Broker. This will behave like an input device.
- A Bluetooth icon to connect new Bluetooth devices
- A xyz icon to connect to hardware sensors or serial port dongles
- In the far right, you see the Actions Editor icon, where you can jump straight to one of your actions.

At the bottom you find a tab bar, containing 5 tabs:

- Devices where you set up your sensors and place them on areas and layers.
- Triggers where you set triggers to execute Actions (see <u>Actions</u>).
- Data Viewer where you can find current sensor data. The sensor values are visible in this tab.
- Log Viewer where you can find the Gravio Server logs for debugging and optimisations.
- Settings where you can find server-related settings and perform backups.

The big middle section is split into the left side, for the Areas and the right side, for the Layers and devices.

# 6.1.1. Device Tab

In the Devices tab, you manage the devices connected to a HubKit by adding, removing and configuring them, including their physical location.

In order to keep the data stores organised and efficient, Gravio features two dimensions how to place and assign sensors:

- 1. The Areas
- 2. The Layers

### Adding Areas to the Server

**Areas** define a physical location, such as for example "3rd Floor West", "Seminar Room", "Entrance Area" etc.

Areas can have multiple **Layers**, which are used to group sensor information according to their functionalities, e.g. "Temperature Layer" or the "Camera Devices Layer". All layers must contain the same sensor device types.

ocalhost - Gravio Studio 4							1		-		×
< Localhost						Add Area	Ū	MOT	*	$\boxtimes$	
						-					
	~		ъĒ		- alla						
	Devices	<b>F</b> Triggers	<u>    </u> Data Viewer	Log	Settings						

Adding an Area is easy, simply click on the "+" mark at top right and you can add a new Area.

calhost - Gravio Studio 4						-		$\times$
Localhost		+	Ľ	Ū	MOTT	*	×.	
	Add Area	×						
	Name Entrance Area	×						
	COVER SET							
	Take Photo							
	ALD							
	Choose Photo							
	Save							
	🖸 🐔 🔟 🗎 🗘							
	Devices Triggers Data Viewer Log Setting:	S						

ocalhost - Gravio Studio 4						_		$\times$
< Localhost		+	ß	Ū	MOTT	*	$\otimes$	
	Add Area	X						
	Name Entrance Area							
	COVER SET							
		de						
	Take Photo							
	Choose Photo							
		Save						
		Save						
	S 🐔 🔟 🗎	0						
	Devices Triggers Data Viewer Log	Settings						

We suggest you add a photo to identify the Layer easily in the future.

### Adding Layers to the Areas

Next, let's add a few layers to an area. Give the Layer a meaningful name ...

ocalhost - Gravio Studio 4		>
< Localhost	$+$ $\square$ $\blacksquare$	φτ 🐇 🖾
Entrance Area		
	Add Layer X	
	Name Doors Layer	
	SENSING DEVICE TYPE N & N &	
	([]) Aqara-Dopy	
	Aqara-Temperature	
	Aqara-Humidity	
	(Sa) Aqara-Pressure	
	(0) Aqara-Occupancy	
	Save	
	Devices Triggers Data Viewer Log Settings	

... and choose the type of sensors the Layer should incorporate.

Depending on what device you choose, you have different options. Gravio supports:

- Physical Sensor Devices
- Software Sensors
- MQTT Subscriptions

# 6.1.1.1. Adding Physical Sensor Devices

Gravio is built in a way that allows us to easily extend new sensor families. On the website <u>https://www.gravio.com/product#Gravio-Rent</u> you can see a range of hardware sensors Gravio supports off the shelf. If you require other sensors to be connected, please do not hesitate to get in touch <u>via</u> <u>Slack</u> or e-mail under support@gravio.com

As of today, we support two types of widely known sensor standards:

- Zigbee devices (Zigbee specification)
- Bluetooth devices
- Energy harvesting EnOcean devices (EnOcean specification)

#### **Using Zigbee**

In order to use the Zigbee devices, you need to either use the Gravio Hub or use the below depicted Gravio Zigbee USB receiver dongle with your PC/Mac that will run the Edge Server:



The Bluetooth devices need to be supported by Gravio. Please ask us in the <u>Slack channel</u> if a device is supported.

The EnOcean sensors do not require any additional driver as the EnOcean driver is built into the Gravio HubKit application. If you have Gravio HubKit and the EnOcean dongle connected, you are ready to connect to your sensors out of the box. For more details how to use EnOcean, please refer to Adding EnOcean Devices and Sensors

#### Adding Devices to the Layers

Now that you are ready to connect to the sensors, you need to bind the receiver(s) to the layers you want to receive the data to. In order to do this, start Gravio Studio for Mac or PC, connect to your Gravio HubKit and start adding your sensor devices. In this example, we are adding a Zigbee Single Button

#### sensor as illustration:

Click the devices icon on the top right:

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<b>*</b> ∼ ==		Device Trigge		Log	Settings		Ċ
Areas	Layers	On	Devices				
í.							
1							

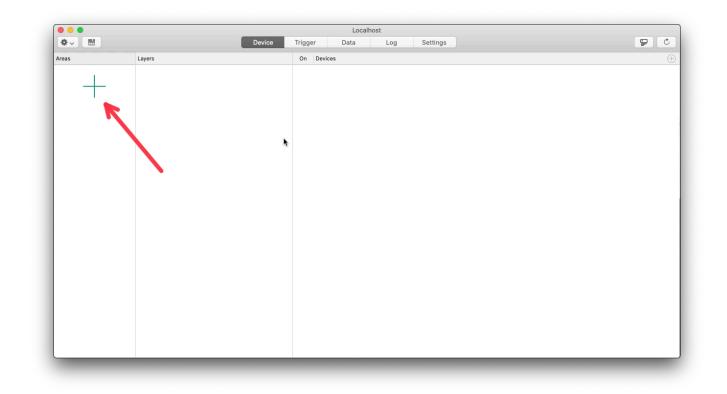
Select the Zigbee section on the devices list, and click the Pairing button:

0 😑 🔵		Localhost	
*~ 📰		Device Trigger Data Log Settings	
Areas	Layers	Device List	
-		Zigbee (ED-7E-A7-FE-FF-57-0B-00)	
		Zigbee Firmware Version: 0.93 Please click the "Pairing" Button.	
		Serial	
		No available Devices Bluetooth Scan	
		No available Devices	
		Camera	
		Sony	
		IODATA TS-NA220	
		Reset Pairin	g
		C	lose

A countdown will start in which you can pair your sensors. Click the pairing buttons on the sensor a few times until it appears in the list:

reas	Layers			
1		Device List		
-		Zigbee	Zigbee (ED-7E-01-FE-FF-57-0B-00)	
		Zigbee Firmware Version: 0.93	Pairing 50 sec	
		Serial	Sensor Type: lumi.remote.b1acn01	
		No available Devices	Device ID: E5-14-90-02-00-8D-15-00 Display Name:  umi.remote.b1acn01-sensor2	
		Bluetooth Scan		
		No available Devices		
		Camera		
		Sony		
		IODATA TS-NA220		
			Reset Pairing	
			Reset Pairing	
			Close	

Once you have added all your sensors, you can close this view and add an Area where you want to add the sensors:



All data types are in a specific data layer. These layers have to match the type of sensors you are adding. In this case, we are adding a button, therefore you have to add a button layer. All sensors in this layer have to be buttons of the same type because the layer defines the character of the incoming data.

0 • •		Localhost	
<b>☆</b> ~ 📰		Device Trigger Data Log Settings	
Areas	Layers	New Layer Name: Demo Layer	
+		Choose Layer Sensor Type:	
		Gara-Pressure	
		Aqara-SingleButton	
		Aqara-Temperature	
		O (10) Aqara-TwoButton	
		{	
		Cancel Add	

Now add the sensors you have previously paired to this layer:

Device Trigger Data Log Settings     Areas Layers On Devices     Demo Area O Demo Layer   Sensor Type: Agara-SingleButton
Demo Area 🖉 👝 Demo Layer

Ensure you are adding the right type to the right layer:

0 🔴 🔴			Localhost		
\$v =		Device Trigger	Data Log Se	ettings	
Areas	Layers		elect the sensor to bind to this laye		
Demo Area	Demo Layer				
line little	Sensor Type: Aqara-S	Sine lumi.remote.b1acn01-sensor2	E5-14-90-02-00-8D-15-00	lumi.remote.b1acn01	
ATT.	11				
#41/1/1878	×.7 .				
		· ·			
				•	
				Close Bink	

Now enable the sensor device:

Device     Trigger     Data     Log     Settings	C .
Areas Layers On Devices	$(\pm$
Demo Area       Image: Demo Layer Sensor Type: Agara-SingleButton         Image: Demo Area       Image: Demo Layer Sensor Type: Agara-SingleButton	

At this point the data is coming in and being processed by Gravio. You can check that by opening the Data tab and hitting the "live" button to see the incoming data in real-time:

•••						alhost		
				Device	rigger Data	Log Settings		uke 😋
Area: Any	~	Layer: Any	🖌 De	vice: Any	~			Show data up to: 15/2/ 020, 23:59
Area	Layer	DataKind	Device	Sender ID	Data ID	Date Time	Attribute	
					NO R	ecords.		

Incoming sensor data will create new lines in this view:

• • •						Localhost			
				Devie	ce Trig	ger Data L	og Settings		LIVE
Area: Any	<b>~</b>	Layer: Any	✓ De	evice: Any		<b>_</b>			Show data up to: 15/12/2020, 23:59
Area	Layer	DataKind	Device	Se	ender ID	Data ID	Date Time	Attribute	
Demo Area	Demo Layer	e2233655-dadc	lumi.remote	e.b1ac E5	5-14-90-02	d660cc7ff19d474081f656	0a 15/12, 23:21:52.49	) 1	
Demo Area	Demo Layer	e2233655-dadc	lumi.remote	e.b1ac E5	5-14-90-02	88ed5c20a08345eb97bc4	d 15/12, 23:21:47.91	1	
									•

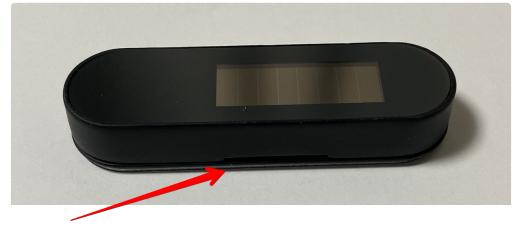
Congratulations, you have now connected sensors to Gravio and the incoming data is ready to be processed in triggers and actions.

# 6.1.1.1.1. Adding an EnOcean Sensors

We also rent out EnOcean energy harvesting sensors, that are getting powered by the energy surrounding them, such as solar panels, or by kinetic energy, e.g. when buttons are pushed.

We have two types of sensors:

1. The temperature sensors, identifiable by the small slot on the side:



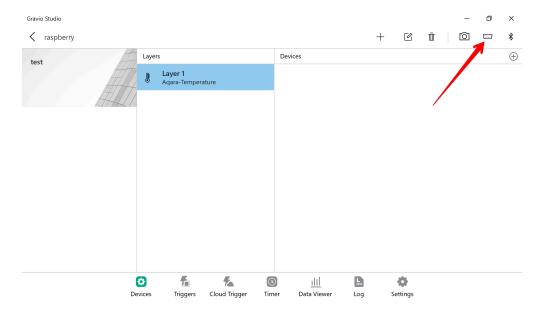
2. The door/window open/close sensor that comes with a magnetic counterpart:



Note that due to frequency regulations, these sensors come in localised variants.

When using these Gravio sensors, please choose the layer type Gravio-Door or Gravio-Temperature. If you are using the devices in Japan, please use the same layer types but suffixed with -JP.

1. Once you have added the layers, click on the **Serial Interface Settings** button to open the dialogue and connect and pair the EnOcean USB Dongle with the sensors:



2. If your EnOcean Dongle is connected correctly, you will see it in the following list:

Gravio Studio									-	٥	×
<pre></pre> <pre> </pre> <pre>   <pre>    <pre>   <pre>    <pre>   <pre>    <pre>    <pre>   <pre>   <pre>    <pre>   <pre>   <pre>   <pre>   <pre>    <pre>   <pre>   <pre>   <pre>     <pre>    <pre>   <pre>   <pre>    <pre>    <pre>   <pre>   <pre>    <pre>    <pre>   <pre>   <pre>    <pre>    <pre>    <pre>   <pre>  <th></th><th></th><th></th><th></th><th></th><th>-</th><th>+ 0</th><th>Ŵ</th><th>0</th><th></th><th>*</th></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>						-	+ 0	Ŵ	0		*
test	Binding Devices		_					×			$\oplus$
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the second se											
LHH-	EnOcean										
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					.10						
	Devices	Triggers	Cloud Trigger	Timer	<u>IIII</u> Data Viewer	Log	Settings				

3. Once you have confirmed the receiver is correctly connected, close the window and add the sensors to the layer:

Gravio Studio											-	٥	×
K raspberry								+	Ľ	Ē	Ô		*
test	ATTA	Laye	rs		De	vices							$\oplus$
		ŀ	<b>Layer 1</b> Aqara-Tempera	ure									
		ß	Layer 2 Gravio-Tempera	ture-JP									
		0	1	1	0	<u>ilil</u>	Đ		•				
	De	evices	Triggers	Cloud Trigger	Timer	Data Viewer	Log	Se	ttings				

4. At this stage press the learn button on the sensor:



5. This will show the sensor ID in the list of sensors:

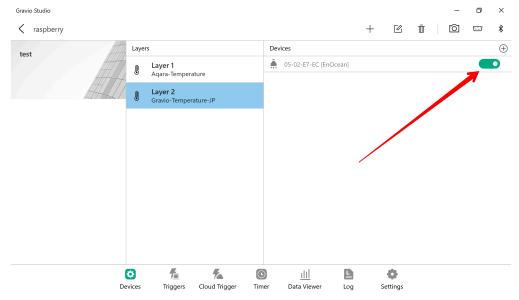
									-	٥	×	
					_	F	Ľ	Ū	0		*	
Binding Devices									×		$\oplus$	
		Please select th	e sensor to l	oind to this layer								
C9-CF-2F-02-00-8D-15-00 2	ligbee											
05-02-E7-EC (Last pressed L	NR Button) EnOo	ean										
If you wa	nt to add the d	evice ID manually,	please fill th	e following field a	ind click the "A	aa. p	utton					
				EnOcean	~	P	Add					
							S	Set				
Devices	Triggers	Cloud Trigger	Timer	<u>III</u> Data Viewer	Log	Se	ettings					
	Binding Devices C9-CF-2F-02-00-8D-15-00 # 05-02-E7-EC (Last pressed L	Binding Devices C9-CF-2F-02-00-8D-15-00 Zigbee 05-02-E7-EC (Last pressed LNR Button) Enoc	Binding Devices Please select th C9-CF-2F-02-00-8D-15-00 Zigbee 05-02-E7-EC (Last pressed LNR Button) EnOcean If you want to add the device ID manually,	Binding Devices  Please select the sensor to E  C9-CF-2F-02-00-8D-15-00 Zigbee  05-02-E7-EC (Last pressed LNR Button) EnOcean  If you want to add the device ID manually, please fill th  If you want to add the device ID manually, please fill th  If you want to add the device ID manually, please fill th  If you want to add the device ID manually, please fill th  If you want to add the device ID manually, please fill th  If you want to add the device ID manually, please fill th  If you want to add the device ID manually, please fill th  If you want to add the device ID manually, please fill th  If you want to add the device ID manually, please fill th  If you want to add the 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6. Select the sensor you want to connect to this layer and press "Set":

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		Devices	Triggers	Cloud Trigger	Timer	Data Viewer	Log	Se	ettings				

This concludes the pairing process and you can close the window.

7. Don't forget to enable the newly connected sensor(s):



To check if the sensor data is received correctly, you can switch to the "Data Viewer" tab, select "Live View" at the top right and trigger the sensors.

# 6.1.1.1.2. Zigbee Driver Installation on Windows

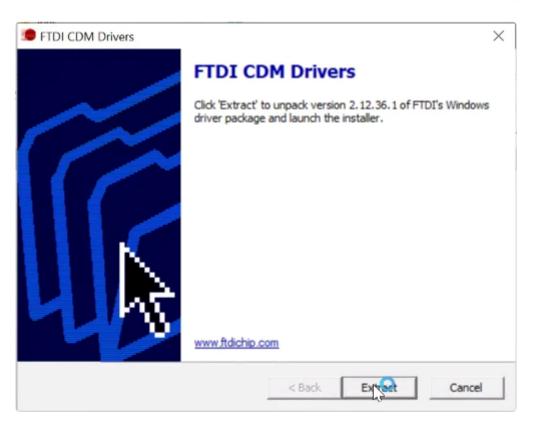
Once you have installed and started the GravioTools that come with your Gravio HubKit installation, the Windows drivers for your dongle are automatically installed in most cases. But if your drivers are not installed and you see an error in your "Device Manager", please follow the instructions below to install the drivers manually:

Firstly, download the latest driver from FTDI website. The direct link is here: <u>https://ftdichip.com/drivers/</u><u>vcp-drivers/</u>

Download this file:

FTDI Chip	Drivers:	p.com/drive HOM		vers/	APPLIC	CATIONS ~	DRIVERS	SUPF	CII 🕉 🖆 🔂 Sign in 🧶 PORT ~ ABOUT US ~ 🎦 CHINA Q 👤 🎔 📜 o
	r Updates			Proce	ssor Archi	itecture			
Operating System	Release Date	X86 (32- Bit)	X64 (64-Bit)	PPC	ARM	MIPSII	MIPSIV	SH4	Comments
Windows*	2021-05- 18	<u>2.12.36.1</u>	2.12.36.1	-	-	_	-	-	WHQL Certified. Includes VCP and D2XX. Available as a <u>setup executable</u> of se read the <u>Release Notes</u> and <u>Installation Guides</u> .
Linux	-	- 1	=	-	_	-	-	-	All FTDI devices now supported in Ubuntu 11.10, kernel 3.0.0-19 Refer to $\underline{\text{TN-101}}$ if you need a custom VCP VID/PID in Linux VCP drivers are integrated into the
Mac OS X 10.3 to 10.8	2012-08- 10	2.2.18	<u>2.2.18</u>	<u>2.2.18</u>	-	-	-	-	kernel. Refer to <u>TN-105</u> if you need a custom VCP VID/PID in MAC OS
Mac OS X 10.9 to 10.14	2019–12– 24	- 1	<u>2.4.4</u>	$\neg_{i}$	-	-	-	-	This driver is signed by Apple
Mac OS X10.15 and macOS 11	2021-05- 18		<u>1.4.7</u>						This is a Beta driver release and the installer should be run from the (

Once downloaded, extract the file and run the setup:



Install the driver.

License Agreement						
Ż	To continue, accept the following license agreement. To read the entire agreement, use the scroll bar or press the Page Down key.					
	IMPORTANT NOTICE: PLEASE READ CAREFULLY BEFORE INSTALLING THE RELEVANT SOFTWARE: This licence agreement (Licence) is a legal agreement between you (Licensee or you) and Future Technology Devices International Limited of 2 Seaward Place, Centurion Business Park, Glasgow G41 1HH, Scotland (UK Company Number SC136640) (Licensor or we) for use of driver software provided by the Licensor(Software). BY INSTALLING OR USING THIS SOFTWARE YOU AGREE TO THE					
	I accept this agreement     Save As     Print					

Read the terms and accept them if you are ok with them.

Device Driver Installation Wiza	rd	
	Completing the De Installation Wizar	
	The drivers were successfully in	stalled on this computer.
	The changes will not take effect	t until you restart your computer.
	Driver Name	Status
	✓ FTDI CDM Driver Packa	
	FTDI CDM Driver Packa	Device Opdated
	< Back	Sinish Cancel

Confirm that the drivers have been successfully installed.

💷 Microsoft Windows	$\times$
You must restart your computer to apply these changes	2
Before restarting, save any open files and close all programs.	
Restart Now Restart Late	r

Reboot your machine.

## 6.1.1.1.3. Adding EnOcean-enabled devices

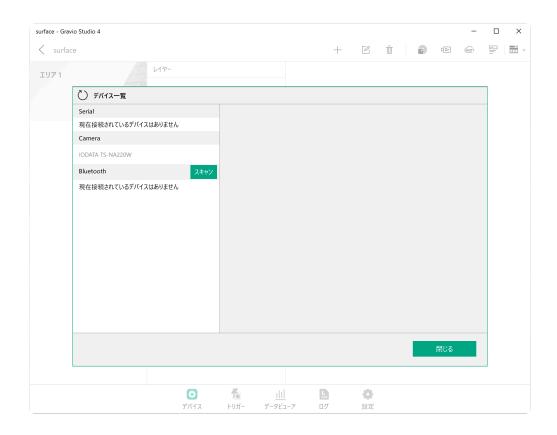
We have a Gravio USB dongle that can work with EnOcean sensor devices. On this page, we learn how to add those devices to Gravio

1. Under "Devices", select the type of EnOcean sensor you want to use (DataKind) and add a new area and layer.

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	デバイス トリガー データビューア ログ	設定					

2. In order to receive sensor data from EnOcean-enabled devices, you must first pair the sensor with a sensor receiver. Press the button below to display the configuration screen for the sensor receiver connected to the serial port.

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3. Press the button on the EnOcean-enabled device. After a while, the sensor will appear on the serial port.

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4. Next, click on the circled "+" symbol in the upper right corner of the window.

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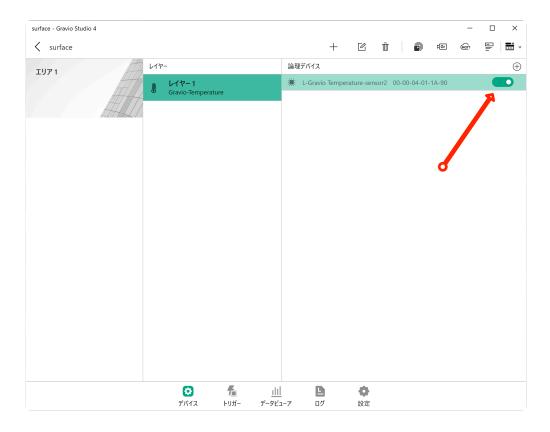
5. Select the sensor you want to connect to the layer and configure it.

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			デバイス	トリガー				設定						

When you have finished the settings, close this screen and.

6. You will see a screen similar to the one below. Finally, turn on the switch to receive data from this

#### sensor receiver.



Now you can start receiving data from the sensor.

# 6.1.1.1.4. Adding a compatible Bluetooth device

Use Gravio Studio to connect the sensor receiver and layer of a Bluetooth-enabled device.

1. Under "Devices", select the type of Bluetooth sensor you want to use (DataKind) and add a new area and layer.

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	Temperature-2JCIEBU01-BLE					
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		保存				
		<b>D O</b>				
	デバイス トリガー データビ					

As a sample, use <u>OMRON's 2JCIE-BU01</u> to get temperature data.

1. To receive sensor data from a Bluetooth-enabled device, you must first pair the sensor with a sensor receiver. Press the button below to display the sensor receiver configuration screen.

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דעד 1	1/17-	デバイス	÷
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1. Click the right arrow in the Bluetooth row and press the Scan button. The scan mode is on for one minute.

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2. If a sensor is found while in scan mode, the following screen will be displayed:

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Serial		Device ID	5d6c344d9c9l	6460-860f49	2670240-0				
現在接続されているデバイスは	はありません								
Camera		Display Name	Omron 2JCIE-	-BU01-sensor	·-1				
現在接続されているデバイスは	はありません								
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Omron 2JCIE-BU01-sensor-1	$\sim$								
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					0	閉じる	5		

The sensor pairing process is now complete. Close the dialogue.

3. Next, click on the circled "+" mark in the upper right corner of the window.

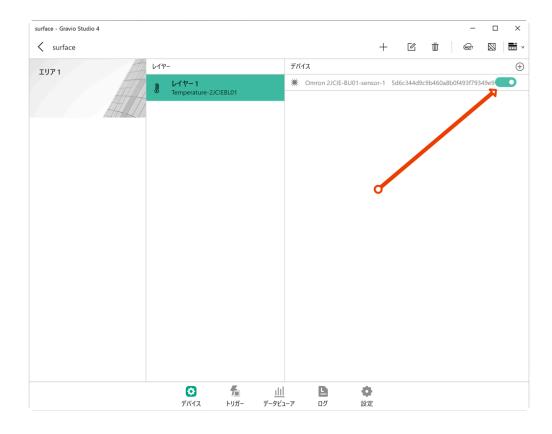
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4. Select the sensor you want to connect to the layer and configure it.

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		Ø	<b>f</b>	111	Ð	•					

When you have finished the settings, close this screen.

5. You will see a screen similar to the one below. Finally, turn on the switch to receive data from this sensor receiver.



This will start receiving data from the sensor.

## 6.1.1.1.5. Adding a barcode reader

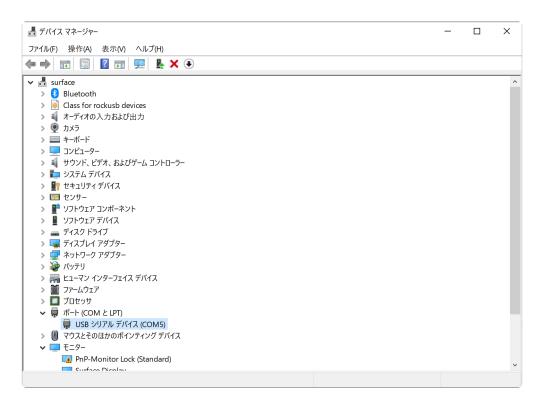
### Using Gravio Studio to link a barcode reader to a layer

Gravio allows you to use a barcode reader (barcode reader with USB COM port emulation function) as a device that can input data as one layer.

Currently, there are three types of barcode readers that have been confirmed to work: BC-NL1100U, BC-NL2200U, and BC-NL3000U from BUSICOM, and NLS-FM430 from NewLand.

## barcode reader connection check

To check the connection of the barcode reader, in Windows 10, check if COMx (COM5 in this case) is displayed in the device manager.



## adding a barcode reader

1. in "Device", select the Barcode (DataKind) you want to use and add a new area and layer.

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	िड] Barcode		
	}□} Aqara-Vibration-Falling		
	\$□} Aqara-Vibration-Inclination		
	입다 Aqara-Vibration-Movement		
		保存	
		<b>0</b>	
	デバイス トリガー データビューア ロ	1グ 設定	

Here is an example where the barcode reader uses <u>BC-NL2200U from BUSICOM</u> to retrieve the barcode data.

Note: The BC-NL2200U can switch between the USB HID-KBW function, which is simulated as a USB keyboard input, and the USB COM port emulation function, which allows the host to receive data as if it were a serial port. For details, refer to the BC-NL2200U. For details, please refer to the BC-NL2200U manual.

To receive barcode data, connect the barcode reader to the USB port, and then press the button below to display the barcode setting screen.

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	◯ デバイス一覧												
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	Zigbee	Firmware Ve	rsion : 0.9										
	BUSICOM BC-NL2200	U-sensor3											
	Camera												
	現在接続されているデノ	パイスはありません											
	Bluetooth		スキャン										
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Note: If BUSICOM BC-NL2200U does not appear, please make sure that the barcode reader is properly connected to the USB port and restart HubKit.

If the BUSICOM BC-NL2200U is displayed, you are done. Close the dialog. 3.

Next, click on the circled "+" mark in the upper right corner of the window.

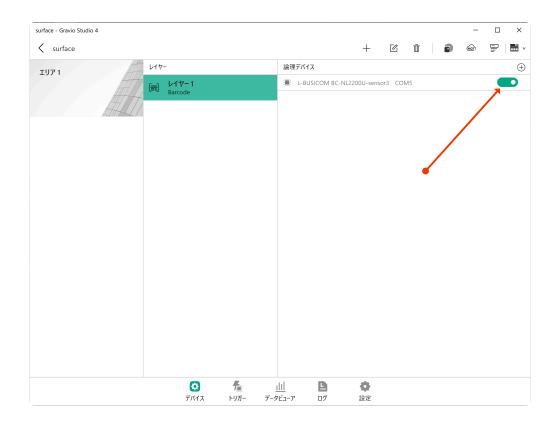
surface - Gravio Studio 4										-		×
surface						+	ß	Ū	•	i Ω	<b>-</b>	v
דעד ו	レイヤー			論理デバ	17							$\oplus$
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ALT.	/									/		
1744_1111_00065541												
		$\boldsymbol{\bigcirc}$		<u>ılıl</u>	D	•						
		デバイス	トリガー	データビューア	ログ	設定						

4. select the barcode reader you want to connect to the layer and configure it.

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< surface			+ 0	Ū D	
エリア 1	L17-	論理デバイス			$\oplus$
	Es μ1ν-1 Barcode				
	物理デバイスのバインド				×
	このレイヤー	-にバインドするセンサーを選択してください	7		
	BUSICOM BC-NL2200U-sensor3 BUSICOM BC-NL2200U-sens	or3			
				設定	
	デバイス トリガ・	<u>    </u> - データビューア ログ	設定		

After finishing the settings, close this screen. 5.

You will see a screen like the one below. Finally, turn on the switch to receive data from this barcode reader.



Now you can read the barcode with the barcode reader, and it will start receiving data.

## 6.1.1.1.6. Adding GPS Devices

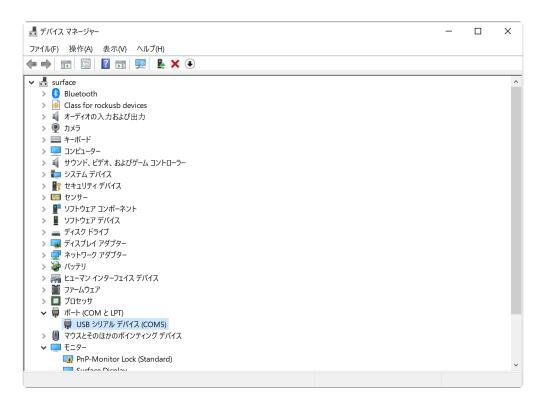
### Using Gravio Studio to link GPS devices to layers

Gravio allows GPS devices ((colour-red) USB COM port emulation enabled GPS devices) to be used as a data input layer similar to other data input devices.

Please visit the officially supported sensor list to find out which devices are supported.

## Check the connection of the GPS device

To check the connection of the GPS device, in Windows 10, check whether COMx (in this case COM5) is displayed in the device manager.



## Adding a GPS device

1. Under 'Devices', select the GPS (DataKind) you want to use and add a new area and layer.

surface - Gravio Studio 4			-
< surface		+ 12 1	i 🔊 🗠 F 🖬
דעד 1	L1+-		
	レイヤーの追加	×	
	レイヤー名 <b>レイヤー 1</b>		
	各レイヤーでキャプチャしたいデータの種類を選択してください。Gr エーターの場合は、レイヤーは必要ありません。これらのデータはア・		
	SENSING DEVICE TYPE		
	ල් Pressac-CO2		
	िंग्ड) Barcode		
	\$□\$ Aqara-Vibration-Falling		
	\$□\$ Aqara-Vibration-Inclination		
	에 Aqara-Vibration-Movement		
		保存	
		B 0	
	デバイス トリガー データビューア	ログ 設定	

2. to receive GPS data, connect the GPS device to the USB port and then press the following button to display the GPS device settings screen.

urface - Gravio Studio 4												-		×
surface								+	Ľ	Ū	•	(Mart	P	
דעד 1	レイヤー	-				論理デバイン	κ					/		0
HTT.	<b>(</b>	レイヤー1 Barcode												
	<													
1444 L / 1 / ANN BETTAL /											•			
		<b>び</b> デバイス	4	人 リガー	<u>   </u> データビ	1	<b>ロ</b> グ							

surface - Gravio S	Studio 4							-		×
< surface					+	Ū		MOTT	-	
エリア 1	11- V1+-		論理デバ	17						(
	6-2 V17-1	1								
	○ デバイス一覧									
	Serial									
	Zigbee Firmware Ve	rsion : 0.9								
	BUSICOM BC-NL2200U-sensor3									
	Camera									
	現在接続されているデバイスはありません									
	Bluetooth	スキャン								
							閉じる			
		<b>ひ</b> パイス	<u>    </u> データビューア	<b>ロ</b> グ	。設定					

If the BUSICOM BC-NL2200U is displayed, you are done. Close the dialogue.

3. next, click on the circled '+' symbol in the top right-hand corner of the window.

surface - Gravio Studio 4						-	
Surface			+	ß Ī	Ð	(Mart	₽   <b>=</b> •
בעד 1	レイヤー	論理デバイス					$\oplus$
	レイヤー 1 Barcode				•		
	<b>ご</b> デバイス	<u>ווו</u> פ זיניב-די פינ					

4. select the GPS device you wish to connect to the layer.

surface - Gravio Stud	lio 4										-		×
< surface							+	Ū	1	)	MOTT	=	· ·
エリア 1		レイヤー			論理疗	デバイス							$\oplus$
		Employed Barco											
	物理デバイスのバイ	ンド								×			
				このレイヤーにバ	インドするセンサー	を選択してください	L1						
	BUSICOM BC-NL22	200U-sensor3	BUSICOM BC-N	NL2200U-sensor3									
								設	(定				
			び デバイス		<u>    </u> データビューア		ひまた     ひまれ     ひまれ     ひまた     ひまた     ひまた     ひまた     ひまれ     ひまれ						

When you have finished the settings, close this screen and

5. switch on the device to receive data from this GPS device:

surface - Gravio Studio 4						-	- 🗆 ×
<pre>&lt; surface</pre>				+ (	c ī	<b>)</b>	- 🗐 🖬 v
IU71	117- LIT-		論理デバイス				$\oplus$
AL AL	レイヤー 1 Barcode		E-BUSICOM BC-NL22	200U-sensor3	COM5		
	<b>ご</b> デバイス		<u>ווו ב</u> עבשר סל	<b>〇</b> 設定			
	77/17	1.907 7-9	LI J U2	成化			

This will automatically start receiving GPS data from the GPS device.

6. The format of the GPS data is as follows.

## Filtering the incoming data

This is used to extract only results that match the conditions from the inference results.

Data	Description
Course	The device's direction of movement (number from $0^{\circ}$ north to 359.9° clockwise) if the value is -1, the direction is invalid
SpeedKm	Speed at which the device is moving (km/h)
SpeedKn	Device movement speed in knots
LatitudeDeg	Latitude (DEG format)
LongitudeDeg	Longitude (DEG format)
LatitudeDeg	Latitude (DEG format)
LongitudeDir	Longitude (DEGM format)
LatitudeDir	Latitude direction (N or S)
LongitudeDir	Azimuth in longitude (E or W)

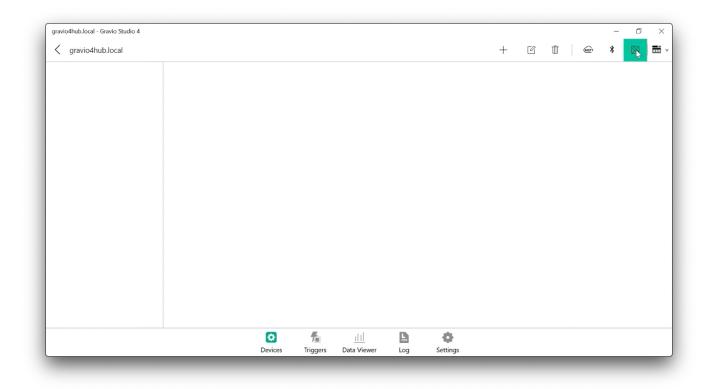
## 6.1.1.2. Software Sensors

Gravio also supports software sensors. An example for a software sensor could be a camera that detects how many people are in a room and triggers certain Actions if certain thresholds are reached. These sensors are created using software and artificial intelligence (with inference files) using TensorFlow.

## **Creating a Software Sensor**

## Adding a Camera

First you need to add a <u>ONVIF</u> compatible camera to the network. Gravio supports the ONVIF standard ( need to provide Profile T), which is very common in security camera settings. For this, please find the camera in your devices window:



You will see ONVIF compatible camera(s) in your network. Please note that Gravio can detect ONVIF cameras that adhere to the ONVIF discovery standard. If you don't see your camera, please check your network or camera setting:

ravio4hub.local - Gravio Studio 4											_	٥	2
gravio4hub.local							+	Ľ	Ū	MOTT	*	$\square$	
	Devices												
	Serial												
	Zigbee	Firmware Version : 0.5											
	Camera												
	Sony												
							_		_				
								Close					
	L		1.00		-	- alta		_					
		Devices	Triggers	Data Viewer	Log	Settings							

In this case we connect to a <u>IODATA TS-NA220</u> and to a <u>Sony IPELA</u> camera.

In the following screen you can set the parameters of the camera:

- The Device ID is fixed and needed to identify all information associated with this camera. It typically consists of the word Camera followed by the IP address
- You can choose the display name to make sense for your setting
- Pick either Picture or Video depending on what you like to capture. We recommend picture as it uses less space.
- The interval sets how often a picture should be taken. Note again, the less often, the less space you need on your hard drive.
- Both the above items are relevant if you decide to save the picture. The Save image tickbox determines if the picture should be saved after it has been processed. Leave it blank to save space, leave it ticked, to verify if the computer is doing the right thing
- If you save the picture, you can also draw a box around the detected area. For example, if you are
  detecting people in a picture, it will draw a line around the detected people. This helps to verify if
  the visual recognition model works correctly. <u>Here</u> you see where the images get stored. Note, if
  you store the images, your hard disk might fill up very quickly. You may therefore go to "Settings"
  and under "Disk Management" set an auto-delete of the media files after a suitable amount of
  days.
- The username and password are the authentication details to access your camera.

gravio4hub.local	Devices				+	Ľ	Ū	MOTT	*	
	Serial Zigbee Camera IODATA TS-NA220 Sony	Firmware Version : 0.5	Device ID Display Name Capture type Picture capture interval Save image	Camera 192. 168. 1. 19 Front Camera Picture $\checkmark$ 1 I	] ] ]					
				a frame admin	2	ave				
		Cevices	78 1111 Triggers Data Viewe	- Log Settings		Close				

## Adding the Al/Image Recognition Model

Now that you have added the camera, you can add the Image Recognition models to Gravio that the camera should process. You can find the available models in the Settings tab of Gravio Studio, then in the "Image Inference Models" section:

ocalhost - Gravio Studio 4		- 0 >
< Localhost		?
BubKit Information	Available Image Inference Model	
Backup/Restore     Feature Package	[Dif: CongestionRecognition_16FeetTensorFlow	Deploy
Base Property Profile	道: CongestionRecognition_16FeetTensorFlowLite	Deploy
Image Inference Models	ii: CongestionRecognition_32FeetTensorFlow	Deploy
Disk Management	CongestionRecognition_32FeetTensorFlowLite	Deploy
	CongestionRecognition_32Feet_rev2_TensorFlow	Deploy
	[i]: CongestionRecognition_48FeetTensorFlow	Deploy
	[플: CongestionRecognition_48FeetTensorFlowLite	Deploy
	[①: CongestionRecognition_48Feet_rev4_TensorFlow	Deploy
	[亞: NumberOfPeopleTensorFlow	Remove
	道: NumberOfPeopleTensorFlowLite	Deploy
	心 WeatherTensorFlow	Deploy
	🖸 🏂 🔟 🕒 💠	
	Devices Triggers Data Viewer Logs Settings	

On the right-hand side, you will see all the available models. Make sure your Gravio has access to the internet, then just press the "Deploy" button to the right of the model you require. It will download the

necessary model files and make them available for the final setup. Please note, that each model file can easily reach 200-300 megabytes in data, so be aware of this when downloading and storing the models.

avio4hub.local - Gravio Studio 4		- 0
gravio4hub.local		=
HubKit Information Backup/Restore	Available Image Inference Model	
Base Property Profile	E CongestionRecognition_16Feet	Deploy
Image Inference Models	CongestionRecognition_16FeetTensorFlow	Deploy
Disk Management	Success	Deploy
	Success	Deploy
	Camera Inference Model successfully imported	Deploy
	Close	Deploy
	: NumberOfPeople	Remove
	Director Street	Deploy
	(D): Weather	Deploy
	E WeatherTensorFlow	Deploy
	CO fa ill CO Settings	

You can also create your own models, however, this is more advanced, and needs a bit more bespoke work. Please don't hesitate to get in touch with us in our slack channel if you are interested in doing this: <u>Join Gravio Slack</u>

## Adding the Layer and connecting the device and trigger

Now that you have installed and connected the camera and deployed the AI model, you have a new layer available that you can add in the Area section of the Gravio Devices tab. Just add the layer as you would any layer and pick the layer named after the AI model. This will then behave like any other hardware sensor.

Add a layer to the area:

							1	đ	×
Localhost						Add Area	1		
Example Area	Layers					Add Layer			
	Example Vibration Layer Aqara-Vibration-Movement								
	C	<b>F</b> Triggers	ı    Data Viewer	Logs	<b>O</b> Settings				

Give it a meaningful name. You now have a new Sensing Device Type from the AI model, choose it and save it:

ocalhost - Gravio Studio 4				-	đ	×
Localhost		+	Ū	MOT	-	=
Example Area						
Example	Vibration Layer ration-Movement					
ALT A	Add Layer X					
	¥					
	Name People Counting Layer					
	SENSING DEVICE TYPE NA					
	a, ivar ipm					
	الم					
	A NumberOfPeopleTensorFlow					
	() Gravio-Laser					
	DI MORT JSON					
	Save					
	Devices Triggers Data Viewer Logs Settings					_

Pick the camera feed you want to use with this model. These camera devices will automatically appear here if they are using the standard ONVIF and its discovery protocol (see above):

ocalhost - Gravio Studio 4							-	٥	>
< Localhost					+ 0	3 Ū	MOTT		
Example Area	Layers	Devices							
	Binding Devices				×				
	471	Please select th	e sensor to bind to this layer						
	Camera192.168.1.2	IODATA TS-NA	10DATA TS-NA220	)					
	Camera192.168.1.14	Sony	Sony						
	1		<u>L</u> 2						
				、 、					
					Bind				
					Bind				
					Bind				
		<ul> <li>5</li> <li>5</li> </ul>		•	Bind				

## Enable the layer:

calhost - Gravio Studio 4							+	ß	Ū	MOT	
xample Area	Laye	rs	Device	es							
And Area	AT \$0\$	Example Vibration Layer Aqara-Vibration-Movement		Sony Camera192.16	58.1.14						- Co
A	#11 30	People Counting Layer NumberOfPeopleTensorFlow									1
				.nl	D.						
		Devi		s Data Viewer	Logs	Settings					

Now let's add a trigger to the software sensor. Pick the trigger tab and create a new trigger. Give it a sensible name and pick the right Area that contains the software sensor layer:

< Localhost		🍢 🔍 🚟
Trigger Name	Add Device Trigger	
	Trigger Name People Counting Trigger	
	Area Example Area V	
	When Conditions Action	
	Calendar None V	
	Active Time From 9 00 To 17 00	
	Interval (milliseconds) 5000	
	Use Threshold	
	Skip still running	
	Cancel Save	
	Devices Triggers Data Viewer Logs Settings	

Under "Conditions" select the layer and the camera:

Ilhost - Gravio Studio 4		- 0
Localhost		17 ₊ @ ₊ =
Trigger Name	Add Device Trigger	Status
	Trigger Name People Counting Trigger	
	Area Example Area V	
	When Conditions Action	
	If the following conditions are met Conditions: 0/5	
	And V	
	Key Layer:     Device ID:       People Counting Layer     Sony (Camera 192.168.1.14)	
	NumberOfPeopleTensorFlow	
	Cancel Save	
	Devices Triggers Data Viewer Logs Settings	

Then set the condition under which the trigger should fire:

Localhost - Gravio Studio 4		- 0 ×
	Add Device Trigger X	
Trigger Name	Trigger Name       People Counting Trigger         Area       Example Area         When       Conditions         Men       Conditions         Area       Example Area         When       Conditions         Area       Area         Key Layer:       Device ID:         People Counting Layer       Sony	♣ Status
	NumberOfPeopleTensorFlow >= < 3 I Cancel Save Devices Triggers Data Viewer Logs Settings	

### And an action it should execute:

					<b>%</b> +	Q.	C2	TĪT	
	Edit Device Trigger			×	7.	~7			
r	Trianas Nama	Beenle	Counting Trigger					Stat	
	Area	Examp	e Area 🗸						
			K						
				_					
	Action	NewAction							
	Trigger Property Name	Value	Add	5					
			<b>\</b>						
			N						
		Cancel	Save						
	Devices Trigger	s Data Viewer	Logs Settings						
	er	er Trigger Name Area When Action Trigger Property Name	er Trigger Name People Area Example When Conditions Action NewAction Trigger Property Name Value	er Trigger Name People Counting Trigger Area Example Area When Conditions Action Action NewAction Trigger Property Name Value Actd Cancel Save	er Trigger Name People Counting Trigger Area Example Area When Conditions Action Action NewAction Trigger Property Name Value Trigger Properties: 0/5 Add Add Cancel Save	er  Edit Device Trigger  Trigger Name People Counting Trigger  Area  Kample Area  Kumple Area  K	er	ef  Edit Device Trigger  Area  Example Area  When Conditions Action  Action  Trigger Property Name Value Add  Cancel Save	er

Don't forget to enable the trigger

calh	ost - Gravio Studio 4						-	٥	×
$\langle$	Localhost						<b>%</b> +	<b>@</b> _	
	Trigger Name			Action				≜ Statu	JS
F	People Counting Trigger			No Settir	ggs			7	
		Devices	<b>F</b> Triggers	ı    Data Viewer	Logs	Settings			

You are now ready to go and have created a camera vision layer and trigger. You can find more info about creating triggers under the section <u>Trigger Tab</u>

You can find more about how to setup a ONVIF Camera by watching this video:

https://www.youtube.com/watch?v=8dkSIz_5810

You can find out where the images are stored here

## 6.1.1.2.1. Inference Models

Gravio can infer camera images using <u>TensorFlow</u>, a Google system used for Artificial Intelligence and Machine Learning. Two types of TensorFlow files are available:

- TensorFlow and
- TensorFlowLite.

There is a difference in the number of deep learning layers in the inference process:

- TensorFlow has 32 layers and
- TensorFlowLite has 16 layers

While TensorFlow is more accurate in inference, it requires more processing time and memory. We suggest that you verify with your environmental conditions such as lighting, contrast, camera resolution etc. if the TensorFlowLite model is sufficient.

## **Available Inference Files**

The following inference files can be used in Gravio per default:

### **Recognition of congestion**

Approximate distance	Inference file name
16Feet	CongestionRecognition_16FeetTensorFlow
32Feet	CongestionRecognition_32FeetTensorFlow
48Feet	CongestionRecognition_48FeetTensorFlow

Recognizes the degree of congestion in the area (range) captured by the camera.

16Feet, 32Feet, and 48Feet are approximate distances to the area recognized by the camera. 48Feet is a wider range than 16Feet, so please use the larger number to identify people in the distance.

Outputs: Integer of number of people detected (counting heads, optimised for an indoor setting.)

### Number of people counting

NumberOfPeopleTensorFlow

This inference counts the number of people recognized by the camera.

Outputs: Integer of number of people detected (counting full bodies, optimised for an outdoor setting.)

### Weather recognition

WeatherTensorFlow

Recognizes the weather in the sky recognized by the camera.

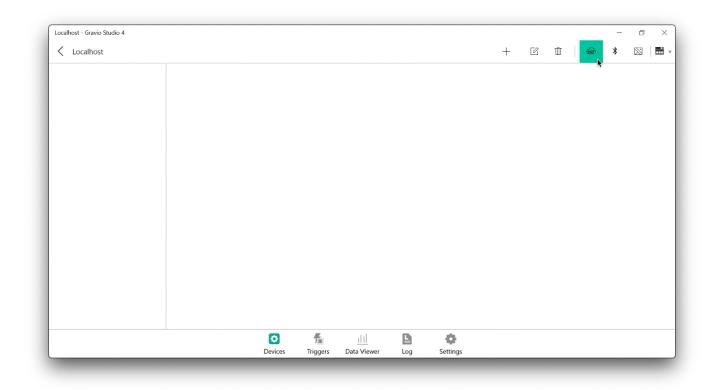
Outputs: windy, thunder, cloudy, typhoon, snowy, sunny, rainy, unknown

If you have a free or basic subscription, you get the people counter and weather models in the bundle. If you have the Enterprise subscription, you can upload your own AI/ML models to your Coordinator back end and push them to the Gravio HubKits. Note, the models are general purpose models and they may not work specifically for your circumstance. If you need more accurate models, we recommend training them specifically for your setting.

## 6.1.1.3. MQTT Subscriptions

You can subscribe to topics from an MQTT broker. These incoming messages would then be treated like sensor input data.

To create an MQTT layer, click on the MQTT button on the top right of the screen:



This will open the overview of your available MQTT Brokers. You can add your brokers by clicking on the "List" button in the Broker row:

ocalhost - Gravio Studio 4									_	٥	>
Localhost	MQTT Settings				×	Ľ	Ū	MOTT	*		
	MQTT BROKER TOP	IC ENTRY LIST			-						
	Broker		Торіс								
	SETTING MQTT BRC	KER TOPIC ENTRY									
	Broker			~	list						
	Торіс	Please enter Topic									
	Timeout(milli sec)	0			-						
	Client ID	Please enter Client ID									
	QOS	QoS0			$\sim$						
	Clear Session										

Clicking on that button will open the dialogue to add new brokers. Note, for encrypted connections, prefix the URL with ssl://:

	MQTT Settings		X				٥	×
Ihost - Gravio Studio 4 Localhost	Kings Kack	Edit Broker	^ +	Ū	(MOTT	*	$\boxtimes$	
	Broker Name	Mosquitto Broker						
	URL	192.168.1.4						
	Port	1883						
	User	Please enter user name						
	Password	Please enter password						
		Not set						
	Client Certificate		Upload					
		Not set						
	Private Key		Upload					
	Private Key Password	Please enter Private Key Password						
		Not set						
	Root CA	5	Upload					

Fill in all the details of your broker and upload the necessary certificates, keys and key passwords.

After you have added this, your Broker will appear in the drop-down menu:

calhost - Gravio Studio 4		- 0
Localhost	MQTT Settings ×	+ 2 1 @ * 8 =
	MQTT BROKER TOPIC ENTRY LIST	
	Broker Topic	
	SETTING MQTT BROKER TOPIC ENTRY	
	Broker Mosquitto Broker V List	
	Topic Please enter Topic	
	Timeout(milli sec) 0	
	Client ID Please enter Client ID	
	QOS QoSO V	
	Clear Session	
	Add Update	
	Close	

Choose your broker, and enter the topic, QOS and timeout you'd like to use to subscribe to a topic. Once you've added these details, your entry will appear in the list above:

alhost - Gravio Studio 4					1			- 0
Localhost	MQTT Settings			×	+	e i	GIGTT	* 🖂
	MQTT BRO	ER TOPIC ENTRY LIST						
	Broker		Торіс					
	Mosquitto I	Broker	gravio/dample	Ū				
	SETTING M	QTT BROKER TOPIC ENTR	Y					
	Broker	Mosquitto Broke	r	<ul> <li>✓ List</li> </ul>				
	U.O.C.							
	Topic	gravio/example						
	Timeout(mill	i sec) 100						
	Client ID	Please enter Client	ID					
	QOS	QoS2		~				
	Clear Session							
		Add	Update					
		had	opulate					
				_				
				Close				

Once it's added there, you will be able to add it as a layer, similar to adding a sensor layer:

icalhost - Gravio Studio 4						-	٥	
Localhost		+	Ľ	Ū	Guart	*	$\boxtimes$	
	Add Layer X							
	Name Layer 1							
	SENSING DEVICE TYPE TA 10 TA 1							
	(24) ONVIF Camera							
	О матт string							
	[明] Barcode							
	Save							
	o <u>fa iil</u> 🗅 💠							
	Devices Triagers Data Viewer Log Settings							

And subsequently, after clicking on the plus sign on the top right, you can subscribe the layer to a topic that you have created in the previous steps:

Localhost - Gravio Studio 4		+	Ľ	Ē	Hart	*	, 111
New Area	Devices   Binding MQIT Topics  Please select the mqtt entry to bind to this layer  Mosquitto Broker gravio/example	×			USE?	•	
	Close						

If you have a MQTT broker installed such as for example <u>Mosquitto</u> you can also use a program such as <code>mosquitto_pub</code> from the command line or <u>MQTT Explorer</u> to send a command and see if it appears in the Gravio Data log:

calhost - Gravio St	tudio 4						- 0 >
Localhost		Area Any $\checkmark$ Layer	Any $\checkmark$ Device A	ny V From 10/29/2020	1 0 00 To	10/29/2020 📾 23	59 LIVE 📷
rea	Layer	Data kind	Device	Sender ID	Data ID	DateTime	Attribute
ew Area	MQTT Layer	MQTT JSON	Mosquitto Broker gra	vic cda92761df954dd6929c	6ddf57965a9b4aaa957c	2020/10/29 12:07:04	{"message":"this is a test
			Devices Triggers	III     Image: Constraint of the second	Settings		
			Devices Triggers				

## 6.1.1.4. Gorilla IVAR

In Japan, Gravio works with the <u>Gorilla IVAR</u> image recognition system and receives the data recognized by IVAR.

### Creating an IVAR

In Device, select the IVAR type (DataKind) and add a new area and layer.

IVAR will receive data in the following formats: face recognition, area monitoring, vehicle recognition, headcount, and general-purpose.

surface - Gravio Studio 4						-	×
< surface		+		Ī	•	TIDM	
דעדו	L17-						
	レイヤーの追加		>	<			
	レイヤー名 <b>レイヤー1</b>						
	各レイヤーでキャプチャしたいデータの種類を選択してください。Gravioライト エーターの場合は、レイヤーは必要ありません。これらのデータはアクションです		どのアクチュ				
	SENSING DEVICE TYPE	11	© î↓ș	x			
	[A] IVAR 顔認識						
	[1] IVAR 区域監視						
	[jù] IVAR 車両認識						
	「設置」 IVAR 人数カウント						
	<u>503 ana m</u>	保存					
				_			
	🖸 🐔 📖 🖿	0					

Press the following button to display the IVAR setting screen.

surface - Gravio Studio 4										-	×
surface					+	ß	Ū	0	¢Gr	Mar	• ·
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Enter the IVAR and click the Add button. copy the HubKit URL to the clipboard to register it to the Gorilla IVAR server and register it to IVAR.

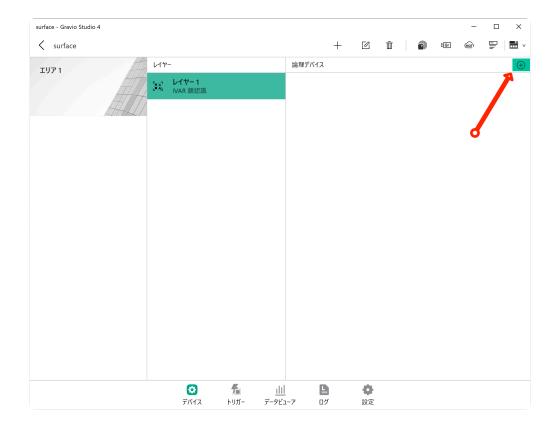
The URL of the HubKit that you want to register to the Gorilla IVAR server should be copied to the clipboard and registered to IVAR. For more information on how to register, please refer to the Coordinator's <u>Setting up Gravio and IVAR integration</u>.

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		↓ レイヤー1											
	IVARメッセージの設定										×		
	Gorilla IVARサー	·バーに登録するH	ubKitのURL										
	HubKitエンドポイン	ፖト: https://192.1	68.68.102:29448	/ivar/event							ß		
	IVARリスト												
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	IVARサーバーの登	録											
	名前	ivar											
	DNS名/IPアドレス	192.168.68.2	6										
	IVARサーバーID	{c54ac30f-34	8e-4375-b01f-85	5b8e92e16fe}									
	チャネル数	4											
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The saved IVAR information will be displayed in the list.

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	DNS名/IPアドレス	DNS名/IPアドレ	λ									
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Click the + button to display the Bind Settings screen.



1. Bind the configured IVAR channel to the layer.

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1. Finally, turn on the sensor acquisition.

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## 6.1.1.5. i-PRO Computer Vision and Gravio Integration

i-PRO is a surveillance camera sold by <u>i-PRO Corporation</u>, which is part of Panasonic. Gravio coordinates with i-PRO and receives data recognized by AI.

## Setting up i-PRO

1. In 'Devices', select the type of i-PRO (DataKind) and add a new area and layer.

i-PRO chooses from AI crowd detection facial recognition, AI motion detection, and general purpose for the format of the data it receives.

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נעד 1 געריי געריי	レイヤーの追加				×				
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	ipro AI混雜検知			14 4;	1↓ Ajs				
	<ul> <li>○ iPRO AI動体検知</li> <li>○ iPRO 汎用</li> </ul>								
	<ul> <li></li></ul>								
				保存					
		<u>    </u> - データビューア	<b>ロ</b> グ						

2. Press the following button to display the i-PRO settings screen.

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IU71	レイヤ-					
	● レイヤー1 iPRO AI 温雅検知		•			
	<b>ご</b> デバイス	₽ □7	<b>谷</b> 設定			

3. Enter the name of the i-PRO camera and the Mac address, and press the add button. The URL of the HubKit to register with i-PRO is copied to the clipboard and registered with i-PRO. For the registration method, please refer to <u>How to set up i-PRO camera</u>.

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##177	Manager IPro Cameras			×	
HALIITTIITS I	HubKit URL to use for IPro camera configuration				
	:29448/ipro/info/WV-XA HubKit Endpoints:	E207W		Q	
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	IPro List				
	Name	MAC Address			
				Ū	
	Register IPro Camera				
	Name Name				
	MAC Address 00:00:00:00:00:00				
	Add				
			閉じる		
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4. Click the + button to display the binding settings screen.

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5. Bind the set i-PRO camera to the layer.

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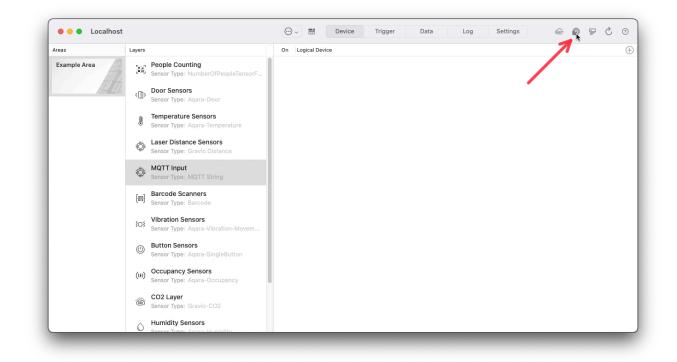
6. Finally, turn ON sensor acquisition.

+                                                                                                                                                    <	- Gravio Studio					- 🗆 ×
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## 6.1.1.6. Physical Device List

Displays the list of physical devices connected to Gravio, and the list can be downloaded in a CSV format.

1. Press the following button to display the Physical Device List screen.



2. The area/layer to which the physical device is bound (empty if not bound), the physical device type, the physical device name, and the physical device ID will be displayed in the list.

Areas	Layers			On Logical Devi	ce			(
Example Area	(Xâ),	People Counting Sensor Type: Numb	Oevice Li	ist @ Localhost		N	5 B	
Ett-ball.	([])	Door Sensors Sensor Type: Aqara	Area - Layer	Туре	Physical Device	Device ID		
	ŀ	Temperature Sen Sensor Type: Agara		Camera	USB Live Camera	Camera0C45.6366.SN0001		
				Camera	IODATA TS-NA220	Camera192.168.1.14		
	Ö	Laser Distance So Sensor Type: Gravi						
	٢	MQTT Input Sensor Type: MQT						
	[] [06]	Barcode Scanner Sensor Type: Barco						
	\$ <b>D</b> \$	Vibration Sensors Sensor Type: Aqara						
	٢	Button Sensors Sensor Type: Aqara						
	(11)	Occupancy Sense Sensor Type: Agara						
	(B)	CO2 Layer Sensor Type: Gravio-	CO2					
	0	Humidity Sensors						

3. Click the following button to output the physical device list to CSV.

Areas	Layers			On	Logical De	evice							0
Example Area	(xa)	People Counting Sensor Type: Numb	🔿 😑 🔵 Dev		ocalhost					5	0		
HH-h-L)	(II)	Door Sensors								7	N.		
	4	Sensor Type: Aqara	Area - Layer		Туре	Phys	ical Device	Device ID					
	J	Temperature Sen	Applicati		Camera	USE	Live Camera ad	Camera0C45	6366.SN0001	Search			
	۲	Sensor Type: Agara	Desktop		Camera	IOD	ATA TS-NA220	Camera192.16					
	Ö	Laser Distance S											
	÷	Sensor Type: Gravi											
	:Ö:	MQTT Input											
	-0	Sensor Type: MQT											
	() (38)	Barcode Scanner											
	[08]	Sensor Type: Barcc											
	\$0\$	Vibration Sensors Sensor Type: Aqara											
	0	Button Sensors											
	0	Sensor Type: Agara											
	((+))	Occupancy Sense											
	(0)	Sensor Type: Aqara	Downloads		_	_			_	_			
	ě	CO2 Layer Sensor Type: Gravio-	002										
		Humidity Sensors											

# 6.1.2. Trigger Tab

In order to have a trigger, it makes sense to have an action first, that you want to trigger with your trigger. You can see how to make actions <u>here</u>.

Once you have an action, you can start triggering it using sensor data. There are three types of triggers:

- 1. Triggered by events identified by sensor data
- 2. Triggered by time
- 3. Triggered by variable and property conditions

## 6.1.2.1. Sensor Event Triggers

## Sensor Triggers

Click on the icon on the top right with the plus in the square to create a sensor-based trigger:

calhost - Gravio Studio 4				_	- 0	
Localhost				<b>%</b>	C I	
Trigger Name		- + Action			Status	ıs
Regular Trigger		NewAction				
			-0-			
	🔁 🏂		•			
	Devices Triggers	Data Viewer Logs	Settings			

#### This will open the trigger popup:

Cocalhost		🎋 🔍 E 🗓 🖥
Trigger Name	Add Device Trigger	
Regular Trigger	Trigger Name Untitled event trigger 1 ×	
	Area V	
	When Conditions Action	
	Calendar Vone V	
	Active Time From 9 00 To 17 00	
	Interval (milliseconds) 5000	
	Use Threshold	
	Skip still running	
	Cancel Save	

Give your trigger a sensible name, we recommend to name it after the condition that triggers the trigger.

Assign it to the correct area.

You have three tabs:

- 1. When: At which point in time the trigger should get triggered
- 2. Conditions: Under which conditions the trigger should get triggered
- 3. Action: Which action should be triggered and with which parameters

### When

Localhost		🎋 🔍 E i 🗮
Trigger Name	Add Device Trigger X	€ Status
Regular Trigger	Trigger Name	
	Area       ✓         When       Conditions       Action         Calendar       None       ✓         Active Time       From       9       00       To       17       00         Interval (milliseconds)       5000	
	Cancel Save	

The Calendar function is reserved to enterprise customers who can create very detailed calendars in Gravio Coordinator. These calendars will then appear in this drop-down list.

If you tick the "Active Time" the trigger will be active during the times specified here. If Active Time is not ticked, the trigger will trigger around the clock.

The interval is specified in seconds and determines how long the trigger should wait until it can be triggered again. This is useful if you for example don't want a motion to be detected multiple times if the sensors send multiple signals in short succession.

The "Use Threshold" tickbox means that the trigger should only be triggered if the threshold of the sensor data is changed. For example, rather than triggering when reaching 20 degrees, you could tell the trigger to activate every time the temperature changes.

The tickbox "Skip still running" means that the trigger will only be activated if the associated action has finished.

### Conditions

ocalhost - Gravio Studio 4		- 0 ×
< Localhost		🍢 🔍 📅
Trigger Name	Add Device Trigger	.≜ Status
Regular Trigger	Trigger Name       Untitled event trigger 1         Area       Example Area         When       Conditions         If the following conditions are met       Conditions: 0/5	
	And     Add       Key Layer:     Device ID:       Example Vibration Layer     Iumi.vibration.aq1-sensor1       Slight movement     =	
	Cancel Save Devices Triggers Data Viewer Logs Settings	

Under the Conditions tab you can set the conditions under which the trigger should be triggered. This is depending on the nature of the sensor layer type that you have picked. For example if it's a door sensor, you will have "open" and "close" as parameters. But if it's a temperature sensor you might have a temperature field and "more", "less", "equal", etc.

You can also combine conditions by choosing the "and" or "or" item in the dropdown and chaining the conditions up.

In the above example, it's a vibration sensor that is triggered.

Action

ocalhost - Gravio Studio 4		- 5 > % @ 12 11 11 11
Trigger Name	Add Device Trigger X	↓ Status
Regular Trigger	Trigger Name Untitled event trigger 1	
	Area	
	When Conditions Action	
	Action VewAction V	
	Trigger Property Name Value Add	
	tp = ×	
	KeyAreaName	
	KeyLayerName TriggerName	
	Cancel Save	
	Devices Triggers Data Viewer Logs Settings	

Finally, the "Action" section allows you to set the action that should be triggered. You need to have an action available for this. You can also pass arguments and values to those actions if required.

You can use trigger properties as parameters to pass on. You can find more details under <u>Trigger</u> <u>Variables and Properties</u>

After clicking the Save button, the trigger will appear in the triggers list:

ocalhost - Gravio Studio 4			- 0 ×
Localhost		10 10	C Ū 🗮
Trigger Name	♦ Action		Status
Button is pressed	Button Action		
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
	🖸 🚡 📶 🗎 I	¢	
		ttings	

Don't forget to switch the trigger on on the far right side:

ocalhost - Gravio Studio 4							-	٥
Cocalhost					10	*	Ľ	Ū 🗖
Trigger Name							\$	Status
Button is pressed		Button A	action					
	o 🐔	ill	D	0				
	Devices Trigger			Settings				

You're done. Your sensors are now connected to the actions.

6.1.2.1.1. Trigger Parameter Examples

Setting the valid time period for triggers

Device triggers execute when data arrives, that matches the set conditions. You can specify an interval so that the next execution will not take place until this interval has elapsed from the previous execution time.

This is useful for example, if data arrives from the device once every 2 seconds, but you want the trigger to run every 10 seconds. In this case specify 9000ms (about 10% lower than 10 seconds) as the interval.

By doing so, the received being received every 2 seconds will be triggered at the following timings:

- Received data 1 (trigger execution)
- Received data 2 (no action)
- Received data 3 (no action)
- Received data 4 (no action)
- Received data 5 (no action)
- Received data 6 (trigger execution)
- Received data 7 (no action)
- ...

Threshold

This parameter accommodates sensors that constantly transmit state data (e.g., temperature sensors, door/window open/close sensors, wireless switches).

Example 1: If a temperature sensor is set to trigger by threshold and the trigger is set to $>20^{\circ}$, then after the sensor sends data above 20° and the trigger is executed, it will not be executed until the temperature drops below 20° and then above 20° again. If threshold triggering is off, the trigger will always be executed when the sensor sends data above 20°.

If the sensor sends data at 21°, 22°, 18°, and 23°:

- Threshold trigger is set, it will be executed at: 21° and 23°
- If threshold trigger is not set, it will executed at: 21°, 22°, and 23°

Example 2: If the threshold triggering setting is on for a door/window sensor and the trigger is set to clo se, the sensor will send close data and the trigger will not be executed until it is opened once. If threshold is set to off, the trigger will always be executed when the sensor sends close data.

If the sensor sends close, close, open, close:

- Threshold trigger is set, it will be executed at: close, close
- If threshold trigger is not set, it will executed at: close, close, close

Example 3: If threshold triggering is on for a wireless button, and the trigger is set to click, the trigger will only be executed if the state changes. If the threshold is set to off, the trigger will always execute

upon a receipt of a click.

If the sensor sends click, click, double click, click:

- Threshold trigger is set, it will be executed at: click, click
- If threshold trigger is not set, it will executed at: click, click, click

Setting trigger execution conditions

Key Layer and Layers

The condition in a Key Layer needs to be specified. When the condition is met, the respective action is executed. You can have additional layers and conditions that can be connected via AND or OR condition.

Example 1: When the trigger condition of the door/window sensor is set to close in the key layer

- 1. Receive data open from door/window sensor.
- 2. Receive the data close of the door/window sensor << Trigger is executed here
- 3. Receive data open of the door/window sensor
- 4. Receive data close from door/window sensor << Trigger is executed here

Example 2: When the key layer is set to close for the door/window sensor and the layer is set to 20° or higher for the temperature sensor (if you have selected to use threshold triggering):

- 1. Receive data open from door/window open/close sensor
- 2. When the temperature sensor condition is set to 20° or higher (when trigger by threshold is selected)
- 3. Temperature sensor data 20.0° received
- 4. Receive door/window sensor data open
- 5. Receive data 19.8° from temperature sensor
- 6. Receive data close from door/window sensor (trigger not executed)
- 7. Receive data open from door/window sensor
- 8. Temperature sensor data 20.1° received
- 9. Receive data close of door/window sensor << Trigger is executed here
- 10. Receive temperature sensor data 20.2°

Important Note: the two sensor data packets need to be received within the set interval time

Example 3: If the key layer is set to close for the door/window sensor and the layer is set to 20° or h igher for the temperature sensor (if you have not selected to use threshold triggering)

- Door/window sensor data open is received
- Door/window sensor data close is received (trigger is not executed)
- Temperature sensor data 20.0° received
- Receive data open from door/window sensor
- Receive data 20.1° from temperature sensor

- Receive data close from door/window sensor << Trigger is executed here
- Receive data open from door/window sensor
- Temperature sensor data 20.2° received
- Receive data close from door/window sensor << Trigger is executed here
- Temperature sensor data 20.1° received

Example 4: If the door/window sensor condition is set to close in the key layer, the temperature sensor condition is set to 20° or higher in the layer, and the humidity sensor condition is set to 30% or higher in the layer

(When **AND** is selected):

- Receive data open from door/window sensor.
- Receive data close from door/window open/close sensor (trigger is not executed)
- Temperature sensor data 20.0° received
- Receive data open from door/window sensor
- Receive data 20.1° from temperature sensor
- Receive data close from door/window sensor (no trigger is executed)
- Receive data open from door/window sensor
- Humidity sensor data 35% received
- Receive data close of door/window sensor << Trigger is executed here
- Receive data 20.1° from temperature sensor

Example 5: If the door/window sensor condition is set to close in the key layer, the temperature sensor condition is set to 20° or higher in the layer, and the humidity sensor condition is set to 30% or higher in the layer

(When **OR** is selected)

- Receive data open from door/window sensor
- Receive data close from door/window sensor (trigger is not executed)
- Temperature sensor data 20.0° received
- Receive data open from door/window sensor
- Receive data 20.1° from temperature sensor
- Receive data close from door/window sensor << Trigger is executed here
- Receive data open from door/window sensor
- Humidity sensor data 35% received (no trigger is executed as door/window, the key layer, is still o pen)
- Receive data close from door/window sensor << Trigger is executed here
- Temperature sensor data 20.1° received

Example Equations

You can also set an expression which has to be met in order to execute the trigger.

Example 1: When the temperature of the temperature sensor is greater than 25°.

Expression: tv.Data >= 25

Example 2: When the temperature of the temperature sensor is between 20 and 25 degrees Celsius

Expression: tv.Data >= 20 && tv.Data <= 25

Example 3: IVAR face recognition receives FR_UNKNOWN (For Gorilla Face Recognition module)

Event type: Any event
Expression: tv.Data.common.type == "FR UNKNOWN"

Example 4: IVAR face recognition receives unmasked data

Event type: Any event
Expression: tv.Data.iod.mask == "NONE"

Example 4: If you have arbitrary data coming from MQTT (e.g. "aircon=off"), you can have that as a matching condition:

Event type: Any event

Expression: tv.Data.aircon == "off"

Trigger Name	On	
🐬 Turn on air conditioner	Event Trigger Name: Turn on air conditioner	
	Reference Calendar: None	
	☐ Active Time: From: 00:00 ☺ To: 00:00 ☺	
	Skip if still running	
	Conditions Action	
	Interval(msec): 5000 Use Threshold Trigger	
	Runs on O AND OR condition	
	Area: Demo	
	Key Layer: MQTT	
	Physical Device ID: +	
	Payload Expr 📀 tv.Data.aircon == "off"	
	Area: Demo 😌 Valid Period (msec):	
	Layer: Temperature 😌 0	
	Physical Device ID:	
	Temperature > 25	

In this case, the trigger gets executed if the aircon data from MQTT is off and the temperature is higher than 25 degrees celsius.

Example of trigger conditions for key layers and layers with additions

Example: If you want to trigger only when CO2 exceeds 1000ppm **and** when there is a person in the room using the motion sensor.

- In the key layer, specify the condition when the CO2 layer value exceeds 1000ppm
- Add the motion sensor layer
- Since the motion sensor does not send any data when nobody is present, we need to limit the validity of the last value. In this example we set the "Validity Period" to 60,000 milliseconds (1 minute).
- This results in the trigger not being executed, even if CO2 exceeds 1000ppm, if no motion has been detected within the last minute.

The "Validity Period" can also be set to 0. In this case, the conditional judgement will be made based on the most recent value of the sensor.

Trigger Name	On	
	Event Trigger Name: CO2 Levels High AND Person Present	
	Reference Calendar: None	
	Skip if still running	
	Conditions Action	
	Interval(msec): 5000 Use Threshold Trigger	
	Runs on 🔾 AND 🔿 OR condition 🛛 🛨	
	Area: Example Area	
	Key Layer: CO2 Layer	
	Physical Device ID: +	
	CO2 >= <u></u> 1000	
	Area: Example Area 😒 Valid Period (msec):	
	Layer: Motion	
	Physical Device ID:	
	Motion Detected = 0	
	Cancel Add	

6.1.2.2. Time Based Triggers

You can create triggers that are based on times on time-related parameters such as intervals, weekdays, day-of-month, etc.

To create a time-based trigger, open the +-icon with the clock on the trigger tab:

calhost - Gravio Studio 4					- 0
Localhost					% + @4 ≣
Trigger Name		\$	Action		Status
					•
	Ø			•	
	Devices	Triggers Data	Viewer Logs	Settings	

You will see the following dialogue box:

ocalhost - Gravio Studio 4		- 0 >
< Localhost	Create Schedule X	% + @+ 📰
Trigger Name	Timer Name Untitled timer trigger 1 ×	∳ Status
	Calendar None V	
	Active Time From 9 00 To 17 00	
	Skip still running	
	Schedule Action	
	Repeat None ✓	
	Cancel Save	
	benes inggers but tener cogs bettings	

Give your trigger a meaningful name.

If you are an enterprise customer, you can choose a calendar which you would like to use. You can create calendars in your Gravio Coordinator dashboard.

Select within which timeframe the trigger should be active.

Tick the "Skip" tickbox if you want the trigger to skip if the trigger action is still running from a previous trigger.

You will see two Tabs: Schedule and Action

Schedule Tab

In the dropdown menu of Schedule, you have the following options:

• None: If you there is no schedule

calhost - Gravio Studio 4		- 0 >
Localhost	Create Schedule X	1/4 @4 🛅
Trigger Name	Timer Name Regular Trigger	♦ Status
	Timer Name Regular Trigger	
	Calendar None V	
	Active Time From 9 00 To 17 00	
	Skip still running	
	Schedule	
	Repeat None V	
	Cancel Save	
	Devices inggers bate viewer cogs betangs	

• Interval: if you want the trigger to fire in a certain interval (for example every 10 minutes)

Localhost - Gravio Studio 4		- 0 ×
< Localhost	Create Schedule X	1, Q, m v
Trigger Name	Timer Name Regular Trigger	\ ↓ Status 4
	Regular ingger	
	Calendar None ~	
	Active Time From 8 00 To 17 00	
	Skip still running	
	Schedule Action	
	Repeat Interval ~	
	Interval (minutes) 1 minutes	
	Cancel Save	
	Devices inggers butterier eogs settings	1

• Hourly: If you want the trigger to fire every hour on a specific minutes/seconds setting

calhost - Gravio Studio 4		- 0 >
Localhost	Create Schedule	% + @+ 🗮
Trigger Name		Status
	Timer Name Regular Trigger	
	Calendar None ~	
	✓ Active Time From 8 00 To 17 00	
	Skip still running	
	Schedule Action	
	Repeat Hourly V	
	Start time 0 v minutes 0 seconds	
	Cancel Save	
	Devices inggers but relief logs bettings	

• Daily: If you want the trigger to fire on specific weekdays at specific times

calhost - Gravio Studio 4		- ō ×
Localhost	Create Schedule X	r, @ ₊ 🛅
Trigger Name	Timer Name Regular Trigger	Status
	Calendar None V	
	Active Time From 8 00 To 17 00	
	Skip still running	
	Schedule Action	
	Repeat Daily V Start time 0 v hour 0 v seconds	
	start time 0 v nour 0 v ninutes 0 v seconds	
	Cancel Save	
	Devices inggers buts verici Logo bettings	

· Monthly: If you want the trigger to fire on specific days of a month at specific times

host - Gravio Studio 4		- 0 >
Localhost	Create Schedule X	1/4 @4 🗮
Trigger Name	Taulua Data Tau	Status
	Timer Name Regular Trigger	
	Calendar None V	
	✓ Active Time From 8 00 To 17 00	
	Skip still running	
	Schedule Action	
	Repeat Monthly ~	
	Start time $0 \checkmark$ hour $0 \checkmark$ minutes $0 \checkmark$ seconds	
	Specified Day of 1 Month	
	L.	
	Cancel Save	

Custom: Use a syntax that is similar to <u>crontab</u> to fire a trigger at specific times

calhost - Gravio Studio 4		- 6 ×
Localhost	Create Schedule X	死 @4 🔠 、
Trigger Name	Timer Name Regular Trigger	
	Timer Name Regular Trigger	
	Calendar None ~	
	Active Time From 8 00 To 17 00	
	Skip still running	
	Schedule Action	
	Repeat Custom ~	
	Custom input 00011*	
	Cancel Save	
	berrees inggers batterret eogs settings	J

The positions are:

Unit	Required	Acceptable Values	Available special characters (see cron syntax)
Seconds	required	0-59	• /,-
Minutes	required	0-59	• / , -

Hour	required	0-23	• /,-
Day	required	1-31	• /,-?
Month	required	1-12 or JAN-DEC	• / , -
Day of the week	required	0-6 or SUN-SAT	• /,-?

Example: Once a year February 4th 14:23:51 "51 23 14 4 2 *"

Action Tab

In the Action Tab you can pick which Action the trigger should fire. Please make sure you have built at least one action before you create a trigger, so you can choose your action in the dropdown menu:

ocalhost - Gravio Studio 4		- 0 ×
< Localhost	Create Schedule X	1/4 @4 🛅
Trigger Name	Timer Name Regular Trigger	
	Calendar Vine Vince Vinc	
	Active Time From 8 00 To 17 00	
	Skip still running	
	Schedule Action	
	Action No Settings	
	Trigger Property Name NewAction	
	Cancel Save	
	ocrico inggero outarrene cogo octango	

You can also set up to 5 trigger properties as arguments when executing the action:

Trigger Properties can be set to the following three predefined properties and any property name:

- tp.KeyAreaName: Sets the selected area name.
- tp.KeyLayerName: Sets the first key layer name specified in the condition.
- tp.TriggerName: Sets the name of the trigger to be executed.

ocalhost - Gravio Studio 4		- 0 ×
< Localhost	Create Schedule X	% + @+ 🛅
Trigger Name		≜ ▼ Status
	Timer Name Regular Trigger	
	Calendar None V	
	Active Time From 8 00 To 17 00	
	Skip still running	
	Schedule Action	
	Action NewAction V	
	Trigger Properties: 1/5 Trigger Property Name Value Add	
	tp. 📔 📉 🖌	
	TriggerName	
	Cancel Save	
	Devices inggers but never bogs settings	

By specifying an arbitrary property name and value other than the above three, that value can also be referenced without action.

Don't forget to enable the new trigger by toggling the switch to green.

6.1.2.3. Trigger Variables and Properties

Device / timer triggers allow you to pass trigger properties and trigger variables as arguments when performing an action.

Trigger variable

The trigger variable is a variable in tv., which is passed to the action as tv. In an event-driven trigger by receiving sensor data.

Trigger properties

The trigger property tp. Can be defined in the trigger settings dialog, and even if the same action is called, the behavior can be changed by using conditional branching by the value of tp.

Trigger properties can be set to the following three predefined properties and any property name.

- tp.KeyAreaName: Sets the selected area name.
- tp.KeyLayerName: Sets the first key layer name specified in the condition.
- tp.TriggerName: Sets the name of the trigger to be executed.

6.1.3. Data Viewer Tab

The Data Viewer Tab allows you to investigate incoming sensor data in real-time (press the "live" button on the top right for real-time live data). This is useful if you want to set up the system and test its functionality. Please click on the "Live" button on the top right to see the live incoming data. The view is updated every 5 seconds.

This view is also useful to identify the sensor's IDs in the Sensor ID column.

You can filter the data for various aspects such as timeframes, areas, layers or devices.

C Localhost		Area Any 🗸 Layer	Any \lor Device	e Any ~ From 10/30/2020	0 00 To	10/30/2020 💼	23 59 LIVE 📰
Area	Layer	Data kind	Device	Sender ID	Data ID	DateTime	Attribute
New Area	Button Layer	Aqara-SingleButton	Sensor2	E5-14-90-02-00-8D-15-	a3432fb3a10b49e4bfc1	2020/10/30 16:55:00	Long Press Release
lew Area	Button Layer	Aqara-SingleButton	Sensor2	E5-14-90-02-00-8D-15-	e39bdaaa42124a8ab89	2020/10/30 16:54:58	Long Press Start
lew Area	Button Layer	Aqara-SingleButton	Sensor2	E5-14-90-02-00-8D-15-	04f50f7a58184db08d0c	2020/10/30 16:54:46	Single press
lew Area	Button Layer	Aqara-SingleButton	Sensor2	E5-14-90-02-00-8D-15-	689ac1f7f6cd4653bcbc	2020/10/30 16:54:36	Single press
lew Area	Button Layer	Aqara-SingleButton	Sensor2	E5-14-90-02-00-8D-15-	836e238b-a829-4e14-9	2020/10/30 11:34:40	Double press
lew Area	Button Layer	Aqara-SingleButton	Sensor2	E5-14-90-02-00-8D-15-	29649e62-b15e-4cc3-a	2020/10/30 11:34:35	Single press

6.1.4. Log Viewer Tab

In the Log Viewer tab you can access or download the log files that Gravio produces. They are mainly used for debugging. The logs include:

- Actmgr containing any logs the Actions and Steps produce
- Blemgr Bluetooth related logs
- Ctrimgr Control manager related logs such as sensor management or maintenance tasks
- Ivarmgr IVAR, the third party visual detection engine related logs
- Mqttmgr Log events related to MQTT functionalities of Gravio
- **Spmgr** Serial Port related log files
- Trimgr Trigger related logs
- Vidmgr Logs produced by the video manager

Loca	host - Gravio Studio 4																		- 0	×
<	Localhost					$\overline{\uparrow}$	Actmgr	Fro	om [10/30/2020		0	00	То	23	59	IN	IFO \lor	LIVE	
50	[2020-10-30 16:55:36.055]	actmgr	INFO	[action]	[0a69d317]	Action En	nded													
49	[2020-10-30 16:55:36.055]	actmgr	ERROR	[action]	[0a69d317]	comp: Sla	ackPostMe	ssage: prope	erty	"Token" :	the val	ue must	t be no	t emp	ty					
48	[2020-10-30 16:55:36.055]	actmgr	INFO	[action]	[0a69d317]	Starting	Action:	Button Actic	n											
47	[2020-10-30 16:55:36.055]	actmgr	INFO	[action]	receive AP	I action														
46	[2020-10-30 16:54:47.010]	actmgr	INFO	[action]	[3c0d9187]	Action En	nded													
45	[2020-10-30 16:54:47.010]	actmgr	ERROR	[action]	[3c0d9187]	comp: Sla	ackPostMe	ssage: prope	erty	"Token":	the val	ue must	t be no	t emp	ty					
44	[2020-10-30 16:54:47.010]	actmgr	INFO	[action]	[3c0d9187]	Starting	Action:	Button Actic	n											
43	[2020-10-30 16:54:47.010]	actmgr	INFO	[action]	receive AP	I action														
42	[2020-10-30 16:54:36.286]	actmgr	INFO	[action]	[57770c35]	Action En	nded													
41	[2020-10-30 16:54:36.286]	actmgr	ERROR	[action]	[57770c35]	comp: Sla	ackPostMe	ssage: prope	erty	"Token" :	the val	ue must	t be no	t emp	ty					
40	[2020-10-30 16:54:36.286]	actmgr	INFO	[action]	[57770c35]	Starting	Action:	Button Actic	n											
39	[2020-10-30 16:54:36.286]	actmgr	INFO	[action]	receive AP:	I action														
38	[2020-10-30 13:27:17.674]	actmgr	INFO	[action]	[eb1fdcef]	Action En	nded													
37	[2020-10-30 13:27:17.674]	actmgr	ERROR	[action]	[eb1fdcef]	comp: Sla	ackPostMe	ssage: prope	erty	"Token" :	the val	ue must	t be no	t emp	ty					
36	[2020-10-30 13:27:17.674]	actmgr	INFO	[action]	[eb1fdcef]	Starting	Action:	Button Actic	n											
35	[2020-10-30 13:27:17.673]	actmgr	INFO	[action]	receive AP:	I action														
34	[7070-10-30 13·76·39 696]	artmor	TNEO	[action]	[??afa54?]	Action Fr	hehr													
					\$		f.	111			- 0	13								
					Device	es Tri	iggers	Data Viewer		Logs	Settin	igs								

You can also download the logs by clicking on the downwards arrow.

Local	host - Gravio Studio 4																		_	٥	×
<	Localhost					$\overline{\uparrow}$	Actmgr	\sim	From	10/30/202	0 📾	0	00	То	23	59	I	NFO \lor	LIVE		
50	[2020-10-30 16:55:36.055]	actmgr	INFO	[action]	[0a6	Select log files to	download														
49	[2020-10-30 16:55:36.055]	actmgr	ERROR	[action]	[0a6	🗸 Actmgr		age: pro	operty	"Token":	the va	lue mus	t be r	not emp	oty						
48	[2020-10-30 16:55:36.055]	actmgr	INFO	[action]	[0a6	🔽 Blemgr		tton Ac	tion												
47	[2020-10-30 16:55:36.055]	actmgr	INFO	[action]	rece	Ctrlmgr															
46	[2020-10-30 16:54:47.010]	actmgr	INFO	[action]	[3c0	V Ivarmgr															
45	[2020-10-30 16:54:47.010]	actmgr	ERROR	[action]	[3c0			age: pro	operty	"Token":	the va	lue mus	t be r	not emp	ty						
44	[2020-10-30 16:54:47.010]	actmgr	INFO	[action]	[3c0	Mqttmgr		tton Ac	tion												
43	[2020-10-30 16:54:47.010]	actmgr	INFO	[action]	rece	🔽 Spmgr															
42	[2020-10-30 16:54:36.286]	actmgr	INFO	[action]	[577	🔽 Trimgr															
41	[2020-10-30 16:54:36.286]	actmgr	ERROR	[action]	[577	Vidmgr		age: pro	operty	"Token":	the va	lue mus	t be r	not emp	oty						
40	[2020-10-30 16:54:36.286]	actmgr	INFO	[action]	[577	• • • • • • • • • •		tton Ac	tion												
39	[2020-10-30 16:54:36.286]	actmgr	INFO	[action]	rece	Deselect All			3												
38	[2020-10-30 13:27:17.674]	actmgr	INFO	[action]	[eb1	Download															
37	[2020-10-30 13:27:17.674]	actmgr	ERROR	[action]	[eb1f	dcef] comp: Sla	ickPostMes	sage: pro	operty	"Token":	the va	lue mus	t be r	not emp	ty						
36	[2020-10-30 13:27:17.674]	actmgr	INFO	[action]	[eb1f	dcef] Starting	Action: B	utton Ac	tion												
35	[2020-10-30 13:27:17.673]	actmgr	INFO	[action]	recei	ve API action															
34	[7070-10-30 13·76·39 696]	artmor	TNEO	[action]	[77=f					_											
							f.	<u>111</u>			. 4										
						Devices Tri	ggers	Data Viewe	er	Logs	Setti	ings									

You can also find the log files under

/Library/Logs/HubKit/ on Mac

6.1.5. Settings Tab

In the Settings tab you can manage various settings aspects such as view the hubkit's versions, backup or restore, set the base property profiles, deploy image inference models or view the disk usage space. If you have the enterprise version, you can also connect to your Gravio Coordinator here and set up and manage the blockchain functionalities.

HubKit Information

Here you can see the various aspects of the HubKit that you are connected to. This information is also important when reporting bugs so the Asteria team know which version you are operating.

Localhost - Gravio Studio 4		- 0	×
< Localhost		?	
 HubKit Information Backup/Restore Feature Package Base Property Profile Image Inference Models 	Hub ID : 16ce157a-5bd5-4444-8e68-6a31d3e24125 HubKit Version: 4.3.5774.0 Server IP[IPv4] : 192.168.1.7 Server IP[IPv6] : fe80::44b5:9029:d003:c6b5		
Disk Management	Setting Mail Server Information		
	Mail server Mail Server		
	Port 0		
	SMTP Username SMTP Username		
	Password SMTP Password		
	From Mail address Sender Mail Address		
	To Mail address Target Mail Address		
	Devices Triggers Data Viewer Logs Settings		

At the bottom you can also set the mail server parameters that will be used to send you notifications via e-mail. These notifications can be info about low disk space or issues with the hubkit.

[Gravio 4.5 or higher] – If periodic communication from the sensor of a Zigbee device (about 60 minutes) is not received, and if data is not received for a period of time in that state (90 minutes), the system will notify the email address set in the notification settings that communication from the device has been lost. CO2 is sent out when no signal is received for 1 minute.

Backup & Restore

You can backup device configuration settings to your Gravio Cloud account, whether it's the Asteria hosted one or the one hosted on your own local Gravio Coordinator. From there you can restore these settings back into your home folder on your Gravio account.

Local	host - Gravio Studio 4									- 0	×
<	Localhost									?	×
0	HubKit Information										
-	Backup/Restore	Action backups						Import	Back	up Now	
	Feature Package										
=	Base Property Profile										
	Image Inference Models										
0	Disk Management										
			٥	T _m	<u>illi</u>	Đ	•				
			Devices	Triggers	Data Viewer	Logs	Settings				

Base Property Profile

These are re-usable settings that will not be included in actions or backups. Examples for such settings are authentication tokens, passwords, login details, secret keys, mail server settings etc. This allows you to re-use them in your actions where needed.

Loca	Ihost - Gravio Studio 4		- 0	×
<	Localhost		?	×
9 -8	HubKit Information Backup/Restore	Base Property Profile Delete	Add	
	Feature Package	Name Category		
	Base Property Profile	Company Slack Account SlackToken		
	Image Inference Models			
	Disk Management			
		Devices Triggers Data Viewer Logs Settings		

Feature Package

A feature package is a set of configurations including areas, layers, triggers, actions that you can export as a Zip file to be imported on either your cloud account, or, if you have the Enterprise edition of Gravio, to your coordinator for distribution to your edge nodes.

Loca	lhost - Gravio Studio 4							- 0 ×
<	Localhost							⑦ m ·
0	HubKit Information							
1	Backup/Restore	Feature Package						Import Create Feature Package
	Feature Package	🔀 New Package						Apply to HubKit
	Base Property Profile							
¥	Image Inference Models							
0	Disk Management							
				T _m	<u>ilil</u>		•	
			Devices	Triggers	Data Viewer	Logs	Settings	

Attention: that we recommend that you put all confidential data such as tokens, usernames, passwords for third party services into a base property profile (see above) so those details are not exported included in the package, if you tick the appropriate checkbox during the export process.

Localhost - Gravio Studio 4						- 0
< Localhost		Create Feature Package		×		?
HubKit Information		Feature Package Name	Name	×		
Backup/Restore	Feature Package				Import	Create Feature Package
Feature Package		Output empty values for fi				
Base Property Profile		Select which Triggers and Action	ns should be included in this	Feature Package		
Image Inference Models		TRIGGERS	Select All	Deselect All		
Disk Management		New Event Trigger 1				
		🔽 🀬 Set Light Green				
		🖂 🦸 Set Light Red				
		Temperature Trigge	r			
		ACTIONS	Select All	Deselect All		
		SendTemperature				
		SetLightToGreen				
		SetLightToRed				
		SampleAction				

Image Inference Models

In this section, you can deploy the available image inference models to your local HubKit for use. There are two ways of deploying computer vision models:

Locally, via Gravio Studio (which is available for all versions including Free, Basic and Standard)
 Via the Gravio Coordinator backend (which is only available for Enterprise licenses)

There are also a few standard models that come from our Gravio Cloud. They include a pre-trained people counting model.

To upload a new computer vision model locally via Gravio Studio, press the "Create" button, select your .tflite file package containing and upload it.

Alternatively, click the "Import" button and import a previously exported *zip* file.

Once you click the "Create" button, you will see the following dialogue box:

Create Custom Infer	ence Model Package	
Recognition Task Model Type	Object Detection ~	
O TensorFlow O Ter	nsorFlow Lite	
Model package Name	Only alphanumeric	
TensorFlow Metafile		Browse
TensorFlow pb File		Browse
Method	Count ~	
Output Format	~	
Include Detection Value	es	
Confidence Threshold	0.5	
Upload to HubKit	Cancel	

Select the Recognition Task you would like to conduct. You can either focus on detecting objects or to classify an image. For Image Classification you will need to use TensorFlow Lite.

For TensorFlow prepare the following files:

FileTensorFlow meta fileTensorFlow pb file

In the dialogue box:

Form Field	Explanation
Model Package Name	Use alphanumeric characters to describe your package. This name will appear as "Sensor".
TensorFlow metafile	Select the prepared file
TensorFlow pb file	Select prepared file
Method	Select Count to output a number or Group By to return a string
Output format	Select JSON to output detailed information, or select Value to output only the value.
Include detected values	Select this checkbox to include detected values
confidence threshold	Set between 0.0 and 1.0 to define at which threshold level the "sensor" should be fired

*If you pick the TensorFlow Lite method, you will see the following screen instead. *

ecognition Task	Object Detection ~	
Aodel Type		
TensorFlow	TensorFlow Lite	
lodel package Name	Only alphanumeric	
ite.tflite File		Browse
iteEdge.tflite File		Browse
abels File		Browse
Method	Count 🗸	
Output Format	~	
Include Detection Va	lues	
Confidence Threshold	0.5	

In this case prepare the following files:

File Lite.tflite file LiteEdge.tflite file labels file

In the dialogue box:

Form Field	Explanation
Model Package Name	Use alphanumeric characters to describe your package. This name will appear as "Sensor".
Lite.tflite file	Select the prepared file
LiteEdge.tflite file	Select prepared file
Labels File	The file containing the labels to be detected
Method	Select Count to output a number or Group By to return a string (Note: this cannot be specified if "Image Classification" is selected.
Output format	Select JSON to output detailed information, or select Value (or Name of you selected "Image Classification) to output only the value.
Include detected values	Select this checkbox to include detected values
confidence threshold	Set between 0.0 and 1.0 to define at which threshold level the "sensor" should be fired

Disk Management

In Disk Management you can view the health status of your disk and set the various parameters to keep the disk space used optimally.

Localh	ost - Gravio Studio 4		- 0	\times
<	Localhost		0	
0	HubKit Information			
	Backup/Restore	Disk usage		
×	Feature Package			
=,	Base Property Profile	Free space 7.12 GB Media data 0.00 B		
Ų	Image Inference Models	Log file 4.86 MB Sensor data 2.15 MB		
0	Disk Managemen			
_				
		Clean-up Setting		
		Start time		
		3 00 Next scheduled clean-up date: Saturday, June 26, 2021 3:00 AM		
		Media data retention period 30 Day(s)		
		Log files retention period 30 Day(s)		
		Devices Triggers Data Viewer Logs Settings		
		Devices Triggers Data Viewer Logs Settings		

6.2. Gravio HubKits Overview

The Gravio's HubKit Lists view in Gravio gives you an overview of all connected Edge HubKits available. These can be software servers from Linux, Windows or Macs where you have installed the Gravio HubKit, or they can be Gravio Hub devices. For information on how to set up a server, please see Installation and Setup.



Each Server has three views:

- 1. The Server Configuration view, where you configure and connect the sensors
- 2. The **Actions Configuration** view, where you configure the actions and steps that are triggered by the sensors
- 3. The **Server Settings** view, where you configure the server, the IP address or the image displayed
- To enter the Server Configuration View, double click on the top half, i.e. the main image of the card.
- To enter the Actions Configuration View, double click on the middle actions icon at the bottom edge of the card.
- To enter the Server Settings View, double click on the right side pencil icon at the bottom edge of the card.

6.3. Action Configuration View

The Gravio HubKits can trigger Actions. You can think of an Action like a small and simple computer program, that's made up of Steps. Actions can be created in the Action Editor which can be opened by clicking on the Action Editor icon:

You can find these icons in various places, including the HubKit overview, the Devices view and on macOS also in the trigger view for example.

If you click on these, you will see the overview of available actions of this HubKit:

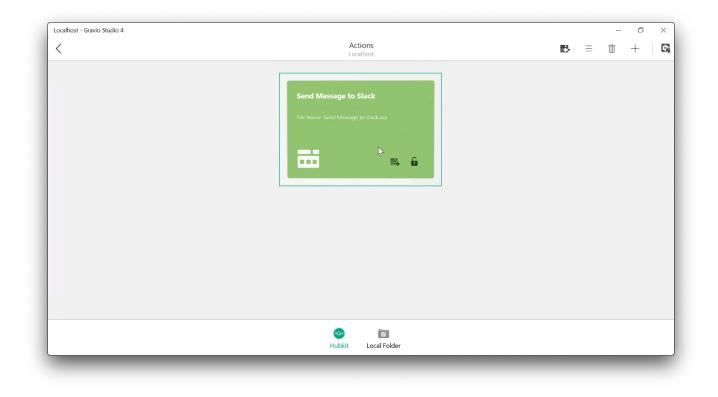
ocalhost - Gravio Studio 4		- 0 >
<	Actions Localhost	
		N.
	Image: Section 2.1	
	Hubkit Local Folder	

At the bottom, you can choose between HubKit, which are the actions installed on that HubKit, or the Local Folder, which are actions that you can edit on your local computer to be deployed or used in other HubKits. Note that local actions will run on the HubKit you are currently connected to, without them being deployed on the HubKit.

Click the plus sign at the top right to create a new action. A name field will pop up where you can give it a name. Note, action files can be shared and they have the .acs suffix. We recommend giving the action the name of the expected outcome (rather than what triggers the action), so you know always know what it is supposed to be doing.

ocalhost - Gravio Studio 4		- 0
<	Actions Localhost	₿ = +
	Please input new Action Filename	
	OK Cancel	
	o 🖻	
	Hubkit Local Folder	

Once created, the actions will appear in the Action Overview and now they can be triggered from the Triggers:



Double-Click the action to edit it.

Each Action also has 2 buttons on it:

1. One button is to export the action to a file, ready to be uploaded to Github or shared with

somebody

2. The other button is to lock the action so it can't be edited accidentally.

The button at the top allows you to import action files with the .acs ending:

Open			×	- 0)
$\leftarrow \ \ \rightarrow \ \ \land \ \ \uparrow \ \ \blacksquare$ > This PC > Pictures >	ڻ ~	Search Pictures		tions alhost
Organize * New folder		— •		anost .
l logs ● OneDrive ③ This PC ③ 3D Objects ● Destop ② Documents ● Downloads Music ■ Pictures ④ Videos ♥ Windows (C)	Saved Pictures	All files Open Car	~	Slack to Slackacs
			e Hubkit	E Local Folder

This will open the local browser file where you can select your .acs file.

Local Folder

The Local Folder tab allows you to set a local folder where you can create your own local actions without having to deploy them to the Gravio HubKit. The first time you open the local folder, you need to set the location of the folder. Choose a folder where you will be keeping your Gravio Actions.

ocalhost - Gravio Studio 4		- 0
<	Actions Localhost	e s ū +
	Set Location	
Set Location Set Location: <folder not="" set=""></folder>		
Set Location Polder Location. <folder not="" set=""></folder>		
	Contraction Contra	

Once you've chosen your folder, you will see this view, and clicking the + symbol on the top right will create a local action:

ocalhost - Gravio Studio 4				-	٥	>
<	Ac	ions Ilhost	E)	Ū	+	
File Name						
🗌 🗸 📒 Gravio Actions						
	k					
Set Location 🛛 🜷 Folder Location: C:\Users\gravi\Desktop\Gravio Actions						
	0	Ξ				
	Hubkit	Local Folder				

ocalhost - Gravio Studio 4			-	đ	>
<	Actions Localhost	E-	Ū	-	
File Name					
🗌 \vee 📕 Gravio Actions	New Local Action				
	My new local action Create Cancel				
Set Location Set Location: CAUsers\gr	avi\Desktop\Gravio Actions				

Double-click on the action file in order to edit the action locally.

ocalhost - Gravio Studio 4		- 0
< compared with the second sec	Actions Localhost	e 1 +
File Name		
🗌 🖂 📙 Gravio Actions		
My new local action.acs		
L.		
Set Location Set Location: C:\Users\gravi\Desktop\Gi	ravio Actions	
	a a	
	Hubkit Local Folder	

6.3.1. Writing an Action

Double-clicking on your Action in the Actions Overview will open your Action Editor. This is where you put your actions together. Actions consist of separate steps which you can string together, create "decision trees" and create inputs and outputs.

The general view of an Action Step looks like this:

xample Action@Localhost - Grav	vio Studio 4			_		-	٥	
< Actions							<u><</u>	
Example Action								
Add Step								
+								
E Properties		Show Property Variable Names	Ð	Pre Mappings			+	ł
					No Pre Mappings have been added for this component			
			₽	Post Mappings				ł
	No Component has been selected							
					No Post Mappings have been added for this component			

We can split that view into separate parts which you will recognise in the step editor:

Example Action@Localhost - Gravio Studio 4					-	٥	×
C Actions				A B	► C	⊆ D	E C
📅 Example Action							
F Add Step			k				
+							
茟 Properties	Show Property Variable Names	Ð	Pre Mappings				ΗŪ
G	н	I		No Pre Mappings have been added for this component			
		₽	Post Mappings				ΗŪ
No Component has been selected		J		No Post Mappings have been added for this component			

A	This button will open the available Action Variables, which are prefixed with .ap. More details about various variable and property types can be found under <u>Available Variables in Actions</u>
В	This button will open the property inspector. Properties are prefixed with . cp and specific to properties. More details about various variable and property types can be found under <u>Available Variables in</u> <u>Actions</u>
С	This is the button to run the Action manually. Note, not all actions may run without any sensor input.
D	This button opens or closes the console, where you can see debug information while running the Action.
Е	This button takes you back to the device editor where you can set and configure devices and sensors.
F	This is where you can add the Steps (consisting of components) to your Action. You can also drag and drop the components back and forth inside this row. Steps will be processed from left to right.
G	The properties part shows the settings of the properties in the currently selected step component. These vary significantly between different components.
н	With this button you can toggle the various component property variable names. More details about various variable and property types can be found under <u>Available Variables in Actions</u>
I	Pre-mappings are happening before the component runs. They represent and process the data input.
J	Post-mappings are happening after the component has run. They represent and process the data output. Please ensure that the input of the next step is always in line with the outputs of the previous step.

6.3.2. Available Variables in Actions

Think of the Action Steps as connectable parts that have an input and an output pipe. Each Step waits for incoming objects (in cv.Payload) it can then process and pass on through the output pipe to the next Step. Before processing the Step, you can Pre-Map and after processing the Step you can Post-Map the cv.Payload variable.

To inspect the action variables coming through, you can enable debugging (see below) and inspect the A ctmgr logfile. In the example here, you can see the tv. variables outputted by a temperature sensor:

Localh	ost - Gravio	Studio 4														- 0	\times
<	Loc	alhost				$\overline{\mathbf{A}}$	Actmgr	√ From	1/7/2021		0 0	00 To	23	59	INFO \lor	LIVE	
442	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	46ccfdc] * av	,										
441	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	W6ccfdc] * ap	•										
440	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	M6ccfdc] Vi	rtualDeviceId	: 7e08f18a	-c5d9-4c81	-89b9-4d	da16421e	ce0(str	ing)				
439	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	M6ccfdc] Tr	∙igger⊺ype: Ev	ent(string)								
438	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	H6ccfdc] Ti	mestamp: 2021	-01-07T09:	16:28.0527	7Z(strin	ng)						
437	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	M6ccfdc] Ph	ysicalDeviceN	ame: lumi.	weather-se	nsor7(st	tring)						
436	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	H6ccfdc] Ph	ysicalDevice	d: 33-C1-3	8-02-00-8D	-15-00(s	string)						
435	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	l6ccfdc] La	yerName: Temp	erature(st	ring)								
434	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	l6ccfdc] La	yerId: aced00	c5-f42b-48	e7-9b89-f2	6c2c36e5	5d8(stri	ng)					
433	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	M6ccfdc] Ki	ndName: Aqara	-Temperatu	re(string)								
432	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	M6ccfdc] Ki	ndId: 24ce6d4	d-ff08-46b	5-ab6c-d8f	dd50eea9	94(strin	g)					
431	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	l6ccfdc] Da	taId: d0ecb5f	f5c83480eb	b31c9f10f4	80c7e(st	tring)						
430	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	l6ccfdc] 🖢 Da	ta: 23.54(flo	at64)									
429	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	l6ccfdc] — Ar	eaName: Examp	le Area(st	ring)								
428	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	l6ccfdc] Ar	eaId: 1ffe4cf	9-bc74-4cd	7-bd37-705	04e5fe25	5c(strin	g)					
427	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	6ccfdc] * tv	1										
426	[2021-01	07 17:16:28.091	actmgr	INFO	[MQTTPublish1] [74	H6ccfdc] * tp	1										
					6			-		•							
					Dev	ices Trig	gers Data \	liewer	Logs	Settings	s						

You can therefore access the values of these variables using tv.AreaId, tv.AreaName, tv.Data, t v.KindId etc. read from down to up chronologically.

There are 6 broad categories of Variables in Gravio:

Action Property

Referred to by adding a prefix of ${\tt ap}$.

Action Properties can be defined as a property passed from the outside the Action when the Action is executed.

Action Variable

Referred to by prefixing $\operatorname{\operatorname{av}}$.

Action Variables are variables that can be referenced within an action. This could be for example Sensor Data.

Component Property

Referred to by prefixing ${\tt cp}$.

A Component Property is a value that determines the behaviour of a component. They differ vastly between different types of components.

For example, the POST component might have an URL as property, whereas the Gravio Light component has some color and illumination settings of the Gravio Light.

Component Variable

Referred to by prefixing ${\tt cv}$.

Some variables are implicitly declared in the component.

For example, the cv.StatusCode contains the HTTP status code and response headers of the HTTPRequest Component.

To find out what the respective Component's cv. values are, please refer to the documentation of the respective Component.

Trigger Property

Trigger properties set by event triggers and timer triggers can be referenced in actions. Referenced by prefixing it with tp.

For example tp.KeyAreaName

Trigger Variable

Referenced by adding a prefix of ${\tt tv}$.

The data sent by the sensor can be referenced in the Action program with the following trigger variables

Trigger Variable	Description
tv.Areald	Area ID
tv.Layerld	Layer ID
tv.Kindld	Data Kind ID
tv.PhysicalDeviceId	Device ID of the sensor
tv.Timestamp	The time when the data was output from the sensor. The format is RFC3339Nano.
tv.Datald	This sensor data unique ID
tv.Data	The value of the sensor data. ${\tt tv.Data}$ will be the same as the first component's c <code>v.Payload</code>

Value (type)

Variable Type	Description
Int	Integer
Float	floating point number
String	<pre>String , Strings can be concatenated with +, for example "The value from the sensor is " + tv.Data</pre>
Bool	true/false
DateTime	Date Time
Byte sequence	Byte sequence
Array	Array
Object	Object

Туре	Example
literal	[1, 2, 3]
Array	["abc", "def", "hij"] ["abc", 123, cv.variable]
Object	<pre>{"key1":123, "key2":"abc", "key3":cv.variable, "key4":[1, 2, 3], "key 5":{"subkey1":"def"}}</pre>

Type Conversion

It is possible to convert from each type to each type.

Туре	Example
Boolean	 The numeric system is false when it is 0 and true otherwise. If the date and time is 0 in Unix time, it is false, otherwise it is true. True if the string is "true"/"1", false otherwise. Byte strings follow string rules after being converted to strings false for any other type.
Int	 Boolean is 1 when it is true, 0 otherwise. Floating decimals are a Go language casting rule At the time of the date and time, the Unix time is a number. For strings, follow the rules of strconv.ParseInt Byte strings follow the string rules after being converted to strings. The other types are 0
Float	Boolean is 1.0 if it's true, 0.0 otherwise

	 Integer is a Go language casting rule At the time of the date and time, the Unix time is a number. In the case of a string, the rules of strconv.ParseFloat are followed Byte strings follow string rules after being converted to strings 0.0 for all other types.
String	 Boolean is "true" if it is true, otherwise it is "false". Convert integers to strings using strconv.FormatInt and floats to strings using strconv.FormatFloat If it is a date and time, fix it as a string in time.RFC3339Nano format. Byte sequence is regarded as a string of utf-8 bytes. If there is an error, an empty string Array and Object are made into a string by multiplying by json.Marshall
DateTime	 Numeric systems and Boolean are converted to integers by a rule that converts them to integers, and then converted to date and time by a rule that converts them to Unix time For the string, if the following formats are tried in order, they are considered to be date and time, otherwise they are 0 (0 for date and time is 1 January 1, 00:00:00). time.RFC3339Nano, "2006-01-02T15:04:05.999 MST", "2006-01-02T15:04:05.999", "20060102T150405.999 MST", "20060102T150405.999 MST", "20060102T150405.999 MST", "20060102T150405.999", "Context of the same rules as for strings Otherwise, zero.
byte sequence	 Boolean, numeric system and date/time are changed to strings and made into a utf-8 byte string The string should be a utf-8 byte string Array, Object can write json.Marshal and make the string a byte string Array, Object numeric system and the date and time should be an array containing one of its values Unmarshal the string as JSON string. In case of an error, an array of size 0 Byte strings are rewritten as strings, same rules as strings The array and objects are still in the Any other type is an array of size 0

Debugging

You can easily dump the value of all variables by activating the "debug" button on the top left corner of the step. If you enable it, Gravio will dump all variables to the console at the bottom:

• • •		Action Editor - Example Action @ Localhost	
Example Action			
	Add Step		
Sleep			
E Properties Show Varia	able Names ■> Pre	Mappings	+ 1
	III > Do	t Mappings	+
	Est Pos		Т
INGINE CONSOLE			1
020-11-12 16:05:00.437]	INFO action	[65445bcc] Starting Action: Example Action	
020-11-12 16:05:00.442]	INFO Sleep-1	[65445bcc]	
020-11-12 16:05:00.443]	INFO Sleep-1	[65445bcc] * tp	
	INFO Sleep-1	[65445bcc] * tv	
	INFO Sleep-1	[65445bcc] * ap	
	INFO Sleep-1	[65445bcc] * av	
	INFO Sleep-1	[65445bcc] * cp	
	INFO Sleep-1	[65445bcc] Time: 1000(float64)	
	INFO Sleep-1	[65445bcc] * cv	
	INFO Sleep-1 INFO action	[65445bcc] Payload: []([]uint8) [65445bcc] Action Ended	
020-11-12 10:05:01.520]	INFO action	[05445bCC] ACCION ENDED	

The variable values are also dumped in the actmgr logfile, which you can inspect in the logfile area of Gravio.

The variable handling in Gravio follows the schema according to github.com/PaesslerAG/gval

6.3.3. Referring to the value of a Object variable in an Action

If you like to refer to the value of a variable of type Object available in an action, you can access the element with a selector or square brackets connected to the variable with a dot.

As an example of an Object type variable, if you use IVAR's face recognition feature and execute an action in the Trigger Manager, you will receive the following JSON data in your action. (Partial Data)

This data can also be referenced by any component as tv.Data (TriggerVariable.Data) when the action is executed. It can also be referenced as cv.Payload in the first component, as it is also the Payload of the first component.

```
{
"id":"XXXXXX",
  "source":{
      "channel":4,
      "bacId" : "YYYYYY",
      "taskId" : "ZZZZZZ",
      "ivarId" : "000000"
  },
  "common":{
      "description": "Face Recognition",
      "presentImageTime":"2019-06-17T07:53:22.986Z",
      "time":"2019-06-17T07:53:22.986Z",
      "type":"FR"
   },
   "iod":{
      "age": "MIDDLE",
      "ageRange":[
         38,
         53
      ],
      "faceAvailable":true,
      "frSuitable": "NA",
      "gender": "MALE",
      "glasses": "REGULAR",
      "groupId":0,
      "liveness": "NO RESULT",
      "livenessProbability":"0.0000",
      "mask":"NA",
      "objectId":649,
      "objectType":"FACE",
      "occlusion":"NA",
      "race":"NA"
```

```
},
   "fr":{
      "candidates":[
         {
            "customId":"00001",
            "displayName":"Person B",
            "id":"6",
            "indentityGroup":"Company A",
            "similiarityScore":"0.7272"
         }
      ],
      "fdrVersion":"60032084",
      "indentityGroup":"Set2",
      "mmsReturn":"OK"
   }
}
```

For example if you are referring to: fr -> candidates -> displayName

tv.Data.fr.candidates[0].displayName

It is written as

IVAR JSON is a simple key name, so you can refer to it using the dot-connected selector, but if a space or hyphen is used in the key name, you can also refer to it as follows (if the display name contains a space). fr and candidates can be mixed and matched by connecting them with dots.

```
tv.Data["fr"]["candidates"][0]["display Name"]
```

```
tv.Data.fr.candidates[0]["display Name"]
```

The above is only for referencing and retrieving values, but it can be used in the same way to insert conditional expressions in Filter components.

```
cv.Payload.fr.candidates[0].displayName == "Person B"
```

These features can be used in addition to actions, where you can write trigger conditions and expressions.

You can also enter an expression in the IVAR condition of a trigger, and if you want to trigger an action only for men, you would write the following expression

```
tv.Data.iod.gender == "MALE"
```

6.3.4. Action Component Behavior

The action component has two component variables (cv.): the input payload (cv.Payload) and the output payload (cv.Payload).

You can use it as the input payload (cv.Payload) when used in Pre-Mapping and as the output payload (cv.Payload) when used in Post-Mapping.

Input Payload

The "Input Payload" is the same as the previous component's "output payload" (cv.Payload). The first component placed in the action has a (color-blue) trigger variable (tv.Data) passed from the trigger that is the input payload (cv.Payload).

Output Payload

The "Output Payload" is the input payload of the next component.

The output payload is defined in each component as it is created by the operation of each component. For a description of what the "output payload" looks like, see the individual action component descriptions, see <u>Action Components</u>.

Payload

The Payload of the actions are always a JSON document format and can contain one or more JSON arrays or JSON objects. The next component will be executed for each JSON object individually in cv.P ayload.

Some components like Filter and Join typically have more cv.Payload inputs than outputs. And others such as ReadCSV are likely to have more outputs than inputs (if any).

6.3.5. How to write expressions in Pre Mappings / Post Mappings

Each action component in the Action Editor has a pre Pre Mappings / Post Mappings area on the right side of the screen:

•••	Action Editor - Example Action @ Localhost	► I	٤
Example Action			
GravioLight-1 Add Step Gravio Light			
Properties Show Variable Names	S S Pre Mappings	+	
Base Property: Device			
None			
DeviceId: (cp.DeviceId)			
This property is required			
On (cp.On) This property is required	Br> Post Mappings	+	
Color: (cp.Color)			
Red Chis property is required			
Brightness: (cp.Brightness)			
100 C This property is required			
This property is required			

Press the "+" button to add a new line to either the Pre-Mappings or the Post-Mappings. Pre Mappings are executed before the main function of the component is conducted. Accordingly, Post Mappings are executed thereafter. Clicking on the + icon will add a new line:

		Action Editor - Example Action @ Localhost	٤
Example Action			
GravioLight-1 Add Gravio Light	Step		
₩ •	F		
E Properties Show Va	riable Names Pre Mappings	+	ŀΪ
Base Property: Device	1 Variable Lab	bel = Variable Expression	
None			
	p.Deviceld)		
This proper	ty is required.		
On This proper	(cp.On) ty is required. Post Mapping:	15 +	Ηī
Color:	(cp.Color)		
Red This proper	ty is required.		
Brightness: (cp.	Brightness)		
This proper	100 C		

You can write the name of the variable on the left side and the expression or value to be assigned to the variable on the right side. In this example, we are in the Gravio Light component and assign a color to the light:

+ 1
+

Note the cp. prefix which refers to the Component Parameter variable. By clicking on the "Show Variable Names" button you can see how the variables in the component are being referred to.

Note that the sequence of execution is from top to bottom

Expression Description

The expressions on the right-hand side can be written as quadratic operations (+/-/*//) or <u>functions</u>. You can also describe variables with prefixes such as tp./tv./ap./av./cp./cv. as variables.

When you assign the evaluation result of a right-hand expression to the left-hand side, the type of the right-hand value (Int, Double, String, Bool, DateTime) is converted to the type of the left-hand side.

If you write an expression that is not an assignment (e.g., cv.Payload > 10), it will return a value of type Bool.

To return a Bool value, you can perform a comparison operation on a number or string.

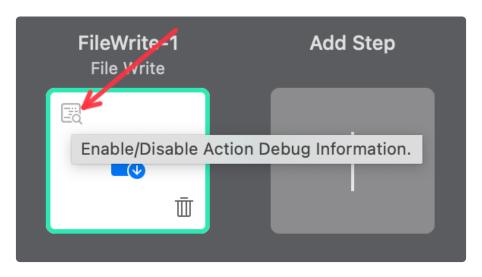
Example formula								
cv.Payload > 10								
cv.Payload == "abc"								
true								

Ternary Operators

You can also write conditional or ternary operators to set values, such as tv.Data == 0 ? 'up' : 'down'

Debugging

You may want to find out, what certain variable's values are, especially if they are coming from sensors. You can do that by enabling the icon "debug" toggle icon in your step:



This will show you the variables and the respective values in the Action Manager Log:

🗧 🗧 🗧 Localhost		Device Trigger Data	Log Settings	LIVE 🖒
Actmgr 📀 INFO 📀			Show dat	a up to: 07/04/2021, 23:59
Number Date Time	Service Level	Category Message		
		No Logging Information		
_	_	_	_	_

You will see the values of the available variables there, reading upside down (as new logfile content is appended at the top):

1214 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flelbc3 Payload: 0(float64)
1213 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flelbcs] * cv
1212 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flelbcs Filename: doorstatus2.txt(string)
1211 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flelbc5 Append: true(bool)
1210 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9fleibc5] * cp
1209 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9fle1bc5 * av
1208 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flebc5 * ap
1207 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flelbc5] VirtualDeviceId: 88662d12-b9ce-46c2-995e-1bc49b12791b(string)
1206 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flelbc5] TriggerType: Event(string)
1205 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flebc5] Timestamp: 2021-04-07 09:38:20.0671642 +0000 UTC(time.Time)
1204 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flelbc5] PhysicalDeviceName: lumi.sensor_magnet.aq2-sensor8(string)
1203 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flelbc5] PhysicalDeviceId: 83-53-43-02-00-8D-15-00(string)
1202 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9fielbc5] LayerName: Door(string)
1201 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flelbc5] LayerId: a0bb6ed3-737c-468f-815a-9ab45498ele4(string)
1200 [2021-04-07 17:38:20.090] actmgr INFO	[FileWritel] [9flelbc5 KindName: Aqara-Door(string)
1199 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flelbc5] KindId: 927fa2a1-1fcc-4ea3-9b39-8c9e7263de0d(string)
1198 [2021-04-07 17:38:20.090] actmgr INFO	[FileWritel] [9flelbc5] DataId: 9ef7bdfe742847000flb327bd5ba6c94(string)
1197 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flelbc5] Data: 0(float64)
1196 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] (9flelbcs Area ze Localhost(string)
1195 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9flelbc5] AreaId: area0ca-fa37-41c7-bc45-205429e2ea51(string)
1194 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9fle1bc5] tv tv.Data = 0
1193 [2021-04-07 17:38:20.090] actmgr INFO	[FileWrite1] [9fle1bc5] * tp
1192 [2021-04-07 17:38:20.090] actmgr INFO	[fileWrite1] [9fle1bc5]
1191 [2021-04-07 17:38:20.090] actngr INFO	[action] [9flelbc5] Starting Action: WriteToCSV

This shows you, the variables prefixed with tv (trigger variable) are:

tv.AreaId is 98ca-fa37-41c7-bc45-285429e2ea51(string)
tv.AreaName is Localhost(string)

ASTERIA Corporation

tv.Data is 0	(float64)
and so on.	

Therefore you can access this data in the Gravio action for example like in this File Write step here:

• • •		Action Editor - WriteToFile @ Localhost	0	►	<
WriteToFile					b
FileWrite-1 File Write	Add Step				
Image: Constraint of the second se	+				
		■→ Pre Mappings	drag and drop to reorder mappings.	+	Ū
Filename: SomeCSVFile.csv	(cp.Filename)	1 cv.Payload = Now+","+tv.Data+"\r"			
✓ Append	(cp.Append) This property is required.				
			drag and drop to reorder mappings.	+	Ī

6.3.6. Functions available in the Pre Mappings / Post Mappings expressions

You can use the following functions on the right side of the expressions in Pre Mappings / Post Mappings.

See <u>Functions</u> for a detailed explanation of each function.

String

Len Contains RuneCount HasPrefix HasSuffix Index Join LastIndex Repeat Replace Spli t ToLower ToUpper Trim TrimLeft TrimRight TrimPrefix TrimSuffix

Type conversion

ToBool ToInt ToFloat ToString ToDate ToBinary ToJSON

Encoding

URLPathEscape URLPathUnescape URLQueryEscape URLQueryUnescape MD5 SHA1 SHA256 BAS E64 DecodeBASE64 BASE64URL DecodeBASE64URL

Date Time

Now Year Month Day Hour Minute Second Weekday ToLocal ToUTC ToTimezone DateFormat Da teParse

Environment Variable

Env

Regular Expression

RegExpMatch RegExpFind RegExpFindSubmatch RegExpFindAll RegExpReplace UUID

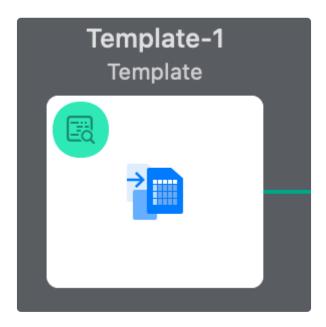
Example

An example usage of the Now function looks like this:

•••	Action Editor - WriteToFile @ Localhost	9		<u><</u>
WriteToFile				
FileWrite-1 Add Step				
幸 Properties	₽> Pre Mappings	drag and drop to reorder mappings.	+	Ū
Filename: (cp.Filename SomeCSVFile.csv) 1 cv.Payload = Now+","+tv.Data+"\r"			
Append (cp.Append) This property is required				
	■→ Post Mappings	drag and drop to reorder mappings.	+	Ū

6.3.7. Debug Log

Press the button at the top left of the component to output the debug log.



By nature, components run independently and in parallel, but when executing an action while outputting debug logs, they are synchronized within the action engine.

The debug log outputs the properties and variables of tp. (trigger properties) / tv. (trigger variables) / ap. (action properties) / av. (action variables) / cp. (component properties) / cv. (component variables) in that order.

The action program is processed in the following order.

- 1. Get the component variables including Payload from the queue
- 2. Assignment is performed if there is a value of PostMappings passed from a previous component.
- 3. PreMappings expression evaluation and value assignment are conducted.
- 4. The Component's main functionalities are executed according to the set properties.
- 5. A the component variable cv.Payload is updated to the new content, depending on the result of the component's output.
- 6. PostMappings is evaluated only as an expression and the resulting value is stored in a component variable containing the new cv.Payload.
- 7. The newly filled cv. Payload is sent to the next component's input queue.
- 8. For the next component, the process starts over from number 1 above.

If you turn on the debug log function, in the processing procedure of the above-mentioned component, the content of the variable after the expression evaluation and assignment of PreMappings of 3 is printed in the console log.

6.3.8. Using the File Viewer

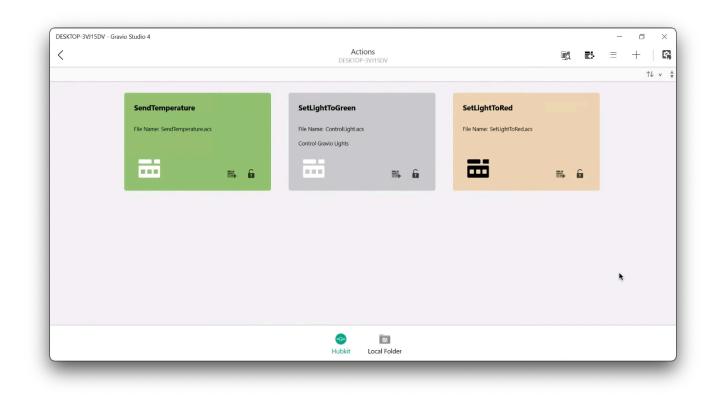
Some action components in HubKit are able to read files in the actmgr/data directory and save files in that directory.

Files stored in this directory can be retrieved by Gravio Studio, and local files can be uploaded to the directory by Gravio Studio.

Use the following UI to do this.

Opening the Finder View

Open the Actions view:



Once in there, open the file viewer at the top right:

Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4	- 0	×			三 十 日
		U		•	↑↓
🗸 📜 [Action Data Folder]					
			SetLightToRed		
			File Name: SetLightToRed.acs		
				15 6	

A new window will open. This represents the files located on your HubKit in your <code>actmgr/data</code> folder in tree format.

Create Folders

To create a subfolder, select the parent folder:

Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio	4 – 🗆 X			$\equiv +$
				Ŷ
V 📙 [Action Data Folder]	k			
		SetLightToRed		
		File Name: SetLightToRed.acs		
			≣ , 6	

And click on the "Create Folder" icon:

	Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4	- 0	×			E.	E)	≡ +
						Γq	×.	
			30					1
	🗸 📙 [Action Data Folder]							
					SetLightToRed			
					Challen Call Mar Dalam			
					File Name: SetLightToRed.acs			
				-		E,	£	
						-		
1								
				J				

Pick a good name for your folder

	Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4 -	×				\equiv	+
		30					↑↓
	V 📜 [Action Data Folder]						
			SetLightToRed				
			File Name: SetLightToRed.acs				
	Please enter the name of the folder to be created under [Action Data			E.	6		
	MyNewFolder						
	OK Cancel						
l							

It will be created in your parent folder.

Uploading a file

Select the folder you like to upload a file into, and click the "file upload" button:

Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4	Upload file - D ×			≔ +
			-24	 ↑.
[Action Data Folder]	hy ²			
> 🤰 MyNewFolder		SetLightToRed		
		File Name: SetLightToRed.acs		
	à		15 G	

Pick your file on your local machine:

Corganize New folder Image: Corganize Vew folder Image: Corganize Image: Corganize Name Image: Corganize Image: Corganize New folder Image: Corganize Image: Corganize New folder Image: Corganize Name Image: Corganize Image: Corganize Image: Corganize	Organize · New folder Image: Construction of the second	1	Open			×		\times		F a		\equiv	+
 Name Date modified Today (1) Downloads # Documents # Documents # Gamera-10 # graviostudio (41) zip 22/8/2021 12:55 PM graviostudio (41) graviostudio (40) Z/8/2021 12:55 PM graviostudio (41) graviostudio (41) graviostudio (40) Z/8/2021 12:56 PM Earlier this year (12) 	Audick access Desktop Coday (1) CampleData.csv SetLightToRed File Name: SetLightToRed.acs SetLightToRed		$\leftarrow \rightarrow \uparrow \uparrow \clubsuit$ This PC \Rightarrow Downloads \Rightarrow \checkmark	ల	Search Downloads	Q	C	U					↑↓
# Quick access Date moduled Desktop * Documents * Documents # Gravio Studio (41) 2/18/2021 12:55 PM graviostudio (41) 2/18/2021 12:55 PM graviostudio (41) 2/18/2021 12:55 PM graviostudio (41) 2/18/2021 12:56 PM graviostudio (41) 2/18/2021 12:56 PM graviostudio (41) 2/18/2021 12:56 PM graviostudio (40) 2/8/2021 12:56 PM Gravio Studio_4.1 graviostudio (40) graviostudio (41) 2/18/2021 12:56 PM Camera To *	* Quick access Desktop * Documents * Documents * Pictures * Gravio-Bubbild (12):msi 2/18/2021 4:59 PM graviostudio (41):msi 2/18/2021 1:255 PM graviostudio (41):msi 2/18/2021 1:256 PM graviostudio (40) 2/18/2021 1:18 PM graviostudio (40) 2/8/2021 1:218 PM graviostudio (40) 2/8/2021 1:218 PM File name: ExampleData.csv All files (*) All files (*)	ľ	Organize • New folder		· ·	0							
Image: Documents # Last month (6) Image: Documents # Last month (6) Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # Image: Documents # I	Commoda * C		★ Quick access		Date modified	^							
Camera-10 I graviostudio (41).zip 2/18/2021 4:58 PM 20200625 Gravio-Studio (40).zip 2/8/2021 12:55 PM 20200727 Gravio-Studio (41) 2/8/2021 12:18 PM Gravio-Studio 4.1 2/18/2021 11:18 PM Gravio-Studio (40) logs Earlier this year (12) V	Image: Camera-10 Image: Gravio-Studio (41).zip 2/18/2021 4:58 PM Image: Camera-10 Image: Gravio-Studio (40).zip 2/8/2021 12:55 PM Image: Camera-10 Image: Gravio-Studio (40).zip 2/8/2021 12:55 PM Image: Camera-10 Image: Gravio-Studio (41).rmsi 2/8/2021 12:15 PM Image: Camera-10 Image: Gravio-Studio (41) 2/18/2021 11:18 PM Image: Gravio-Studio (40) 2/8/2021 12:56 PM Image: Gravio-Studio (40) Image: Gravio-Studio (40) 2/8/2021 12:56 PM Image: Gravio-Studio (40) Image: File name: ExampleData.csv All files (*) Image: Gravio-Studio (40)	ľ	Documents Vlast month (6)						File Name: SetLightToRed.acs				
Gravio_Studio_4.4 graviostudio (41) 2/18/2021 11:18 PM graviostudio (40) 2/8/2021 12:56 PM ✓ Earlier this year (12) ✓	Gravio_Studio_4.4 graviostudio (41) 2/18/2021 11:18 PM graviostudio (40) 2/8/2021 12:56 PM Carlier this year (12) File name: ExampleData.csv All files (*)		Camera-10 * graviostudio (41).zip 20200625 graviostudio (40).zip GravioHubKit4 (11).msi		2/18/2021 4:58 PM 2/8/2021 12:55 PM 2/8/2021 12:18 PM				=	iş,	6		
	File name: ExampleData.csv V All files (*) V		Gravio.Studio_4.(logs v Earlier this year (12)			~							
Open Cancel				~		_							

After confirmation you will see a message:

1			
	Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4 - 🗆 🗙		;≡ + .
1			î↓ v
	🗸 📜 [Action Data Folder]		
	> 📙 MyNewFolder	SetLightToRed	
	7 Nynewrolder	File Name: SetLightToRed.acs	
	File ExampleData.csv has been uploaded successfully.	🚥 🖬 🛱	
	Ok		
	UK		
	6		

Click on the "Expand all" button or on the expand arrow next to your folder to see the file:

Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4			_		×					·	1 1	
Action Data Folder - @DESKTOP-33/15DV - Gravio Studio 4					1.1			Q	E)	1	+	
	0	Cô Ci	ò Lò		U						↑↓	
[Action Data Folder]				1	\$	_						
— ()							SetLightToRed					
> 📜 MyNewFolder							Settighteetee					
							File Name: SetLightToRed.acs					
								E,	6			

	Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4	-				Fo		\equiv	+	
-		ò 🕻 🛍	PU						4	t↓ v
	V [Action Data Folder]	2								
					SetLightToRed					
	∼ 📜 MyNewFolder				File Name: SetLightToRed.acs					
	ExampleData.csv									
				à		E,	6			

Renaming a folder or file

You can rename a folder or file by selecting it and clicking on the rename button:

Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4	- 🗆 X		Lo 🔹	= +
				Ť
💛 📜 [Action Data Folder]	L'S			
V 📜 MyNewFolder		SetLightToRed		
ExampleData.csv		File Name: SetLightToRed.acs		
	à		II •	
-				

Make sure you give the file a meaningful name:

Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4	- 🗆 ×		Lo	E)	\equiv	+	E
						1	î↓ v
💛 📜 [Action Data Folder]							
💛 📜 MyNewFolder		SetLightToRed					
ExampleData.csv		File Name: SetLightToRed.acs					
Please enter new file name.	à		iii,	6			
ExampleDate-2 csv							
OK 💦 Cancel							

Deleting a file or folder

Pick the file or folder you like to delete

	Action Data Folder - @DESKTOP-3V/15DV - Gravio Studio 4 - 🗆 🗙	🐹 👪 🗏 🕂
1		^↓
	 [Action Data Folder] MyNewFolder 	SetLightToRed File Name: SetLightToRed.acs
	ExampleData-2.csv	
1		

Click the trash can to delete it:

Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4				- 0				Γq	E)	10	+	
	Ē.	L.	lò là		0	C					¢J	l v
🗸 📜 [Action Data Folder]												
✓ ☐ MyNewFolder							SetLightToRed					
ExampleData-2.csv							File Name: SetLightToRed.acs					
						ì	-	1 4	6			
						_						

You will be prompted to confirm the deletion:

Action Data Folder - @D	DESKTOP-3VJ15DV - Gravio Studio 4 — 🗆 🗙			≡ +
				↑↓
Action Data	a Folder)			
🗸 📒 MyNewFe	older	SetLightToRed		
	eData-2.csv	File Name: SetLightToRed.acs		
	Deletes the selected item ExampleData-2.csv. Is it OK?	-	i	
	6			
	Ok Cancel			

Downloading a file

To download files created by Gravio HubKit from the HubKit to your computer, follow the steps here:

Select the file you like to download:

1	Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4				≔ +
		ā G C I		-10 P.	
	 IAction Data Folder] MyNewFolder 		SetLightToRed		î↓ v
	ExampleData.csv	Þ	File Name: SetLightToRed.acs		
			₩	⊯ û	

Click the "Download button":

OP-3VJ15DV - Gravio Studio 4						- 0
Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4						· · · ·
	te le le	۵ 🛍	C U			î↓ v
[Action Data Folder]	h	<u>5</u>				
				SetLightToRed		
∨ 📜 MyNewFolder				File Name: SetLightToRed.acs		
ExampleData.csv				The Name. SetLight loned.acs		
				—	II 6	

Pick a destination and name on your computer, and after confirmation you shluld see the following message:

A	tion Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4 - 🗆 🗙	ric ric	≡ +
			↑↓
	📜 [Action Data Folder]		
Ŀ	V 📜 MyNewFolder	SetLightToRed	
h	ExampleData.csv	File Name: SetLightToRed.acs	
ŀ			
Ŀ	File ExampleData.csv has been downloaded successfully.	■■	
	File ExampleData.csv has been downloaded successionly.		
	Ok		
	4		
	ría.		

Refreshing the view

As Gravio HubKit can create new files at any time, you may want to refresh the files view every now and then. You can press the button in the top right to do so:

Action Data Folder - @DESKTOP-3VJ15DV - Gravio Studio 4			_		×			Ċ.	≣ +
	L.	6	6	i C	U				
[Action Data Folder]					13				
✓						SetLightToRed			
ExampleData.csv						File Name: SetLightToRed.acs			
					à		I i		

6.3.9. Action Components

An action consists of one or more steps. Each step can be populated with action components and define inputs and outputs.

This section describes the different components available and explains how to use them.

6.3.9.1. Amazon Polly Speech



The AWS Polly Speech Action Component is to read out text using AWS Polly textto-speech. Amazon Polly converts input text into life-like speech. This functionality can also be useful for debugging purposes.

• • •		Action Editor - Example Action @ Localhost	
Example Action	i .		
AWSPollySpeec AWS Polly Speech			
R (2) İ	+		
E Properties	Show Variable Names	₽re Mappings	+
Text:	(cp.Text)		
Hello			
	This property is required.		
/oice:	(cp.Voice)		
Joanna English(U	JS)-Female 🗘 This property is required.		
imeout:	(cp.Timeout)		+
	60000 🗘		
	This property is required.		
Base Property: A			
None	•		
Access Key Id: NGINE CONSOLE	(cp.AccessKeyld)		a
NOINE CONSOLE			

Note that this functionality may not be available for your operating system. Playing sounds is currently supported under Windows and Linux, but not yet on macOS.

Component Properties

Name	Required	Description
Text	True	Specify the message text you want to speak. If you like to include sensor data, you can set this message using Pre-Mapping, for example, using cp.Text = "The cur rent temperature is"+cv.Payload+"°C"
Voice	True	Specify the type of voice of the speaker. Select a voice type in the same language as the text language. If you want to set it by cp.Voice value, you can use "Zeina", "Zhiyu", "Naja", "Mads", "Lotte", "Ruben", "Nicole", "Russell", "Amy", "Emma", "Brian", "Aditi", "Raveena", "Ivy", "Joanna", "Kendra", "Kimberly", "Salli", "Joey", "Justin", "Kevin", "Matthew", "Geraint", "Celine", "Mathieu", "Chantal", "Marlene", "Vicki", " Hans", "Aditi", "Dora", "Karl", "Carla", "Bianca", "Giorgio", "Mizuki", "Takumi", "Seoyeon", "Liv", "Ewa", "Maja", "Jacek", "Jan", "Camila", " Vitoria", "Ricardo", "Ines", "Cristiano", "Carmen", "Tatyana", "Maxim", "Conchita", "Lucia", "Enrique", "Mia",

		"Lupe", "Penelope", "Miguel", "Astrid," "Filiz," or "Gwyneth."
Method	True	Play Audio or Save Audio File
Filename	False	Specify the file name in case of file saving
Timeout	True	Specify the transmission timeout time (ms)
AWS Session	False	AWS Session from the Base Property Profile
Access Key Id	True	Access Key Id if not taken from the Base Property Profile
Secret Access Key	True	Secret Access Key if not taken from the Base Property Profile
Region	True	Region if not taken from the Base Property Profile

You can find you access keys on your Amazon console.

6.3.9.2. AqaraSmartPlug

The Aqara Smart Plug Action Component is to control an Aqara smart plug device. To use this device, you must have the Aqara Smart Plugs paired in advance.

• • •	Action Editor - Example Action @ Localhost	
Example Action		
AqaraSmartPlug-1 Add Ster Aqara Smart Plug		
	es 🖙 Pre Mappings	+ `
DeviceId: (cp.Device	ld)	
This property is require	nd.	
On (cp.C) This property is require	in) Ind.	
	Early Post Mappings	+
ENGINE CONSOLE		e

Output Payload	Description
cv.Payload	Outputs the output payload of the previous component as is. (Pass-through)

Component Properties

Name	Required	Description
DeviceId	True	Device IDs to be turned on/off. If none are configured, all Aqara smart plugs are addressed. Multiple IDs can be separated by commas.
On	True	On. The value specified for cp.On is "true" or "false".

6.3.9.3. AWS S3 Download

The AWS S3 Download Action Component is to download content from Amazon AWS S3.

•••	Action Editor - Example Action @ Localhost	
Example Action		
AWSS3Downloa Add Ste		
E Properties Show Variable Na	es 🕒 Pre Mappings	+
Dutput: (cp.Out	,tt)	
Payload	0	
This property is requ		
Filename: (cp.Filena	e)	
Bucket: (cp.Buc	et) 🖙 Post Mappings	+
This property is requ		
ObjectKey: (cp.Object		
This property is requ	ad.	
Timeout: (cp.Time	,t)	
NGINE CONSOLE		8

Component Properties

Name	Required	Description
Output	True	Specify whether to keep the content in the Payload variable of the Action or as a file. cp.Output is set to either "Payload" or "File"
Filename	False	File name when downloading as a file
Bucket	True	Bucket name in AWS S3
ObjectKey	True	Object key in AWS S3
Timeout	True	Specifying the transmission timeout time in ms
AWS Session	False	AWS Session
Access Key Id	True	Access key obtained from AWS
Secret Access Key	True	Secret access key obtained from AWS
Region	True	Specify the AWS region to use

Use the base Base Property Profile property to read the values from the settings rather than specifying the details within the component.

You will need your AWS Key and Secret, which you can obtain from your Amazon console.

6.3.9.4. AWS S3 Upload

The AWS S3 Upload Action Component is to upload content to amazon aws s3.

	Action Editor - Example Action @ Localhost	• • •
Example Action		
AWSS3Upload-1 Add Step AWS S3 Upload		
E Properties Show Variable Names	E⇒ Pre Mappings	+
nput: (cp.lnput)		
Payload 🗘		
This property is required.		
Filename: (cp.Filename)		
Bucket: (cp.Bucket)	■→ Post Mappings	+
This property is required.		
DbjectKey: (cp.ObjectKey)		
This property is required.		
ACL: (cp.ACL)		
NGINE CONSOLE		

Component Properties

Name	Required	Description
Input	True	Upload a payload or a file. To set the value of cp.Input, use either "Payload" or "File".
Filename	False	The input file name
Bucket	True	Bucket name to upload to in AWS S3
ObjectKey	True	Object key in AWS S3
ACL	True	ACL permissions settings on AWS S3. To set the value in the cp.ACL, use one of the following: "private", "public-read", "public-read-write", "authenticated-read", "aws-exec-read", "bucket-owner-read", "bucket-owner-full-control". owner-full-control".
Storage Class	True	Storage type in AWS S3. When set by the value of cp.StorageClass, "STANDARD", "REDUCED_REDUNDANCY", "GLACIER", "STANDARD_IA", "ONEZONE_IA", "INTELLIGENT_TIERING", "DEEP_ARCHIVE "one of".
Timeout	True	Specifying the transmission timeout time in ms
AWS Session	False	AWS Session

Access Key Id	True	Access key obtained from AWS
Secret Access Key	True	Secret access key obtained from AWS
Region	True	Specify the AWS region to use

Use the base Base Property Profile property to read the values from the settings rather than specifying the details within the component.

More details on Access Control List (ACL) Permissions and Storage Class.

6.3.9.5. Camera Take Photos

Save photos from the connected camera at the timing of the execution of the action.

ステップの追加 CameraTakePhotos	
➡ Properties	-🔁 Pre Mappings
物理デバイスID (cp.E	DeviceId)
Camera 192.168.68.140	
	p.Shots) No Pre Mappings have been adde
1	
間隔(秒) (cp	Interval)
10	
保存先(cp	.SaveTo)
camera	No Post Mappings have been adde

Check the device list in advance to note down the physical device ID of the connected camera.

○ デバイス一覧				
Serial Zigbee Firmware Version : 0.10.5.1	物理デバイスID	Camera	192.168.68.140	
Camera 追加	物理デバイス名	IODA	TA TS-NA220W	
IODATA TS-NA220W	キャプチャー形式	Pictur	e	
Default Folder	キャプチャー間隔	10		
Bluetooth スキャン	🔽 画像の保存	Ŧ		
現在接続されているデバイスはありません	🧹 検出フレー	ムの描画		
	ユーザー		admin	
	パスワード		•••••]
				保存
				閉じる

Output Payload	Description
cv.Payload	Outputs an array of file names of saved photos

component properties

property name	Description
Physical device ID	Specifies the physical device ID of the camera connected to the device list.
Number of	Specify the number of pictures to be saved when the component is executed (up to 5)

pictures	
Interval (seconds)	Specifies the interval to save photos
Destination	Specify a subfolder of actmgr/data as the file destination. The photos will be saved in this subfolder.

• The execution of the component requires a time specified by the number of pictures* interval, so please avoid settings that are too long. Example: If you set the number of photos to 5 and the interval to 6 seconds, the estimated execution time of the component will be 5*6=30 seconds.

Example of taking an image and sending it via e-mail

• • •	Action Editor - SendAMail-With-Image @ Christophs-iMac	>	<u><</u>	?
💿 💿 SendAMail-With-Image	🖉 Primary Tag, SubTag1, SubTag2			/
CameraTakePhot Split-1 Camera Take Photos Split	MailSend-1 Add Step Mail Send			
幸 Properties	₽> Pre Mappings	drag and drop to reorder mappings.	\oplus	Ū
Physical Device ID: (cp.DeviceId) Camera046D.082D.E1A2BADF				
Photos taken: (cp.Shots)				
Interval(s): (cp.Interval)				
Save to: (cp.SaveTo)		drag and drop to reorder mappings.	\oplus	Ū
camera This property is required.				

• • •	Action Editor - SendAMail-With-Image @ Christophs-iMac		<u><</u> ?
📷 📃 ᅌ SendAMail-With-Image	Primary Tag, SubTag1, SubTag2		<u>/</u>
CameraTakePhot Split-1 Camera Take Photos Split	MailSend-1 Add Step Mail Send		
≢ Properties		drag and drop to reorder mappings.	\oplus $\bar{\blacksquare}$
Expr: (cp.Expr) Encoding: (cp.Encoding) utf-8 This property is required.			
	■> Post Mappings	drag and drop to reorder mappings.	

	Action Editor - SendAMail-With-Image @ Christophs-iMac		<u>< </u>	?
🗧 🔵 😒 SendAMail-With-Image	🖉 Primary Tag, SubTag1, SubTag2			
CameraTakePhot Split-1 Camera Take Photos Split	Mail Send-1 Mail Send			
E Properties	Pre Mappings drag and dr	op to reorder mappings.	\oplus	Ū
Го: (ср.То)	1 cp.Attachments = "ChristophBurgdorfer.vcf;NicholasLim.vcf;"+cv.Payload			
christoph.burgdorfer@asteria.com This property is required. Cc: (cp.Cc) christoph.burgdorfer@builtwithgravio.cc	2 cv.Payload 2 cv.Payload 2 2 cv.Payload 2 cv.Payload 2 cv.Payload 2 cv.Payload 4 bit contents at: 4 cv.Payload 5 cv.Payload (a) (a) (b) (a) (b) (b) (b) (b) (b) (b) (b) (c) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	- 6603360 N	icholas	;
Bcc: (cp.Bcc)				
Subject: (cp.Subject)				
Thanks for visiting the Gravio Booth This property is required.				
From: (cp.From)		op to reorder mappings.	(+)	Ū
Christoph Burgdorfer <christoph.burgdc This property is required.</christoph.burgdc 	ang ang ang ang ang ang ang ang ang ang			ш
Attachments: (cp.Attachments)				
SISHTML (cp.IsHTML)				
Base Property: SMTP Server				
Host: (cp.Host) smtp.gmail.com				

6.3.9.6. Chatwork

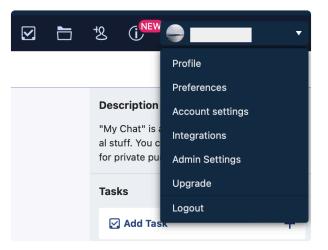
The Chatwork component can post messages specified in the component properties using Chatwork. This is handy for notifying individuals about information from sensors.

• Please note that in order to use the Chatwork component, the administrator must initially configure it in the service integration and obtain an API token.

Step 1 Chatwork	Add Step										
Properties						Ð	Pre Mapping	IS			
Base Property Profile Room ID This property is required					eProperty) ~ p.RoomID)			No F	Pre Mappir	ngs have b	been add
Text					(cp.Text)						
F 1						₽	Post Mappin	gs			

Initial Setup

You can obtain the API token from the service integration screen of Chatwork.



Select service integration from the account menu.

<mark>%</mark> Chatwork	Logout
Integrations	
3rd-Party Integrations	API Token
Authorized OAuth Service	
API	Copy Regenerate
▶ API Token	
OAuth	Chatwork API documentation is available here.
Webhook	 Please do not share your API token with third parties. We may prohibit the use of the API if there is an unusually high volume of requests and excessive load on our servers.
	 By accessing or using our APIs, you are agreeing to the Chatwork API Terms of Use (Japanese).

Obtain the value of the API token in the API menu. This will be used in the component property.

	Invite Q 🛅 🔯
Description	Mark all messages as read
No descriptior	Group Chat Setting
Tasks	Leave this group chat
🗹 Add Task	+

The Chatwork component posts in group chat, so open that group chat and choose group chat settings from the settings menu.

Group Chat Set	ting	×
Group Chat Info	Mute Invitation Link Permissions	
	Group Chat Name:	
	Group Chat	
Change	Description:	
	Add chat description, notes, or links here.	
	Cancel Save	

Obtain the room ID displayed on the group chat settings screen. This will be used in the component property.

With this, the initial setup is complete.

Component Properties

Property Name	Description	Example
Basic Properties	Specify the basic properties of the 'Chatwork Token' category	
Room ID	The Room ID of the group to post (obtained during initial setup)	
Text	The message string to post on Chatwork	<pre>Example) "The current temperature is "+cv.Payload+" degrees"</pre>
File Name	The file to send	
Timeout	API timeout	
Token	API Token (obtained during initial setup)	

• If both text and file are specified, both text and file will be sent.

• If the file path is not specified, the file reference will be actmgr/data, but for the notation of the file name specifying the file path, please refer to <u>here</u>.

6.3.9.7. Chromecast

The Chromecast component is a component that plays the video and audio specified by the Filename property on the Chromecast device.

Add Step			
₩ Properties	-5	Pre Mappings	
Base Property Profile (cp.BaseProper	y)		
(none) ~			
Device (cp.Devic	e)		No Pre Mappings have been adde
Filename (cp.Filenam	e)	Post Mappings	

Component Properties

Property Name	Description
Device	IP address of the Chromecast device
Filename	File name of the file to be read (supported file mp4/webm and mp3/ogg/wav formats)

*The reference for files that do not specify a file path is actmgr/data, see <u>here</u> for how to write a file name that specifies a file path.

6.3.9.8. CSVRead

The CSV Read component takes CSV data as input, parses it and creates an output payload in the format specified by the Output Format component property (cp.Output).

CSVRead has an "Input" property (cp.Input), which allows you to select the data source. If you select [Payload], the input payload (cv.Payload) from the previous component is used as the source data of CSV, and if you select [File], the file specified by the [File name] property (cv.Filename) is used as the source data of CSV.

If the input payload (cv.Payload) is a byte sequence or a string, it becomes the source data of CSV as it is, but for other types, it is converted to a string and processed as the source data of CSV.

If "Array" is selected for the "Output Format" component property (cp.Output), an array of strings of CSV fields is put into the output payload (cv.Payload) for each line of the CSV and passed to the next component.

If you select "Object" in the "Output Format" component property (cp.Output), the first line of the CSV is considered as the key, and a JSON Object is generated, and the object is put into the output payload for each function and passed to the next component.

• • •		Action Editor - Example Action @ Localhost	
Example Action			
CSVRead-1 CSV Read	Add Step		
R r	+		
	Show Variable Names	E → Pre Mappings	+ ī
Input:	(cp.Input)		
Payload	This property is required.		
Filename:	(cp.Filename)		
Encoding:	(cp.Encoding)	E → Post Mappings	+ ī
utf-8			
Output:	(cp.Output)		
Array	This property is required.		
Start:	(cp.Start)		
	0 🗘		

Component Properties

Name	Required	Description
Input	True	Specify either payload or file for input. To set the value of cp.Input, use either "Payload" or "File".

Filename	False	Specify the filename for file input
Encoding	False	Specify the encoding of the file output (utf-8, shift_jis, euc-jp,iso-2022-jp)
Output	True	Specify either array or object as the output format. cp.Output value can set "Array" or "Object".
Start	False	Specify the start line to read as CSV data
Length	False	Specify how many lines to read. If -1 is specified, read all lines.

6.3.9.9. CSVWrite

CSV Write generates a comma-separated string with the input payload as input. It is not meant to create CSV files for further processing as writing the output to a file will not append, but overwrite it. If you want to populate a CSV file appending new lines of data after every incoming sensor data, you can use the <u>File Write</u> component and follow the example there.

The input payload can be an array of JSON arrays or an array of JSON objects. Otherwise, it will be converted to a string and output as a CSV with one line and one column.

Input Payload	Example
JSON array payload example	[[123, "abc", "xxx"], [456, "def", "yyy"], [789, "hij", "zzz"]]
JSON Object payload example	[{ <u>field1</u> , "field2":"abc", "field3":"xxx"}, { <u>field1</u> , "field2":"def", "field3":"yyy"}, { <u>field1</u> , "field2":"hij", "field3":"zzz"}]

The "Output" property allows you to select the output destination as file or payload.

Output payload	Description
When you choose "File" for the "Output Destination" property	The generated CSV is written to a file and the output payload passes the input payload. (Pass-through.)
When you choose "Payload" for the "Output to" property	Put the generated CSV byte sequence into the output payload.

• • •		Action Editor - Example Action @ Localhost	
Example Actio	n		
CSVWrite-1 CSV Write	Add Step		
R ••••••••••••••••••••••••••••••••••••	+		
E Properties	Show Variable Names	E⇒ Pre Mappings	+
Dutput:	(cp.Output)		
File	This property is required.		
ilename:	(cp.Filename)		
	(-)		
incoding: utf-8	(cp.Encoding)	E → Post Mappings	+
41-0			

Component Properties

Name	Required	Description
Output	True	Specify either File or Payload as the output destination. cp.Output is set to either "Payload" or "File".
Filename	False	Specify the file name for file output
Encoding	False	Specify the encoding of the file output (utf-8, shift_jis, euc-jp,iso-2022-jp)

6.3.9.10. CSV File Write

CSVFileWrite generates CSV with the input payload as input.

The input payload (cv.Payload) accepts input as an array of JSON arrays or an array of JSON Objects. Otherwise, it converts it to a string and outputs it as a one-line, one-column CSV file.

Input payload	Example
Example of JSON array payload	[[123, "foo", "bar"], [456, "jane", "doe"], [789, "john", "doe"]]
Example of JSON Object payload	<pre>[{"field1": 123, "field2": "abc", "field3": "xxx"}, {"field1": 45 6, "field2": "def", "field3": "yyy"}, {"field1": 789, " field2": "h ij", "field3": "zzz"}]</pre>

• • •	Action Editor - WriteToCSV @ Localhost	A ►	٤	?
WriteToCSV		Write the sensor database data to a		
CSVFileWrite-1 Add Step CSV File Write				
幸 Properties	E→ Pre Mappings	drag and drop to reorder mappings.	\oplus	Ū
Filename: (cp.Filename) members.csv				
Append (cp.Append) This property is required.				
Output Keys: (cp.OutputKeys) field3,field1				
Encoding: (cp.Encoding)	E → Post Mappings	drag and drop to reorder mappings.	\oplus	Ū
utf-8				

component properties

Property name	Description
File Name	Specify the file name in case of file output

Append	If true, appends data to the file if it already exists; if false, overwrites the file
Output Keys	If the input payload is a JSON Object, list the field names to be output in the order you want them to be output, separated by commas.
Encoding	Specify the encoding of the file output.

If the file path is not specified, the file is saved in actmgr/data. For how to refer to a file path, refer to this part.

How to use the Output Keys

The output keys specify the order, in which the data will be written to the CSV if you use keys.

For example, when the payload of JSON Object is as follows

```
[{"field1": 123, "field2": "abc", "field3": "xxx"}, {"field1": 456, "field2":
"def", "field3": "yyy"}, {"field1": 789, "field2": "hij", "field3":" zzz"}]
```

and you specify field3, field1 as the output field order, the CSV output will be:

xxx,123 yyyy,456 zzz,789

6.3.9.11. Exec

The RunScript component allows you to run OS standard scripts.

If Gravio Server is running on Windows it can run batch files, Linux, Raspbian and macOS can run shell scripts.

If it is not Windows, you need to give execute rights to the uploaded file. The uploaded file is placed in <Gravio data folder>/actmgr/data/, so

For the Gravio Folder in your operating system, consult the documentation about Path Handling

You can also pass variable values to the scripts, for example, to pass sensor values.

		Action Editor - Example Action @ MacBook Pro	▶ 1
Example Action			
Exec-1 Exec	Add Step		
図 <mark>S_</mark> 亜	+		
	w Variable Names	ings	+
Command: This p Output: Stdout	property is required.		
	property is required.	nings	+
This p	60000 (2) aroperty is required.	a a.	
DutputType: String This p	oroperty is required.		

Parameters

Command	Required	The command you like to execute
Output	Required	The output of the command. cp.Output is set to either "stdout" or "combine".
Timeout	Required	Timeout
OutputType	Required	Set the output type. cp.OutputType can be either "string" or "binary".

The output of the component is passed on to the ${\tt cv.Payload}$

Macintosh Users

Macintosh users must give Gravio HubKit 4 full harddisk access in the security settings if they want to

access files outside the Gravio folder. Please find the appropriate settings in your system preferences under the Privacy and Security settings:

General	FileVault Firewall Privacy	
Camera	Allow the apps below to access data	
Microphone	Messages, Safari, Home, Time Machin and certain administrative settings fo	
July Speech Recognition	this Mac.	
Accessibility	🗸 🕡 Disk Utility	
Input Monitoring	Final Cut Pro.app	0
Full Disk Access	🕑 🎦 Terminal	
Files and Folders	Gravio HubKit 4.app	
Screen Recording	+ -	
Media & Apple Music		
付 HomeKit		

Example: Playing an MP3 File

Place an mp3 file in your /actmgr/data folder and use the command afplay (on mac) followed by the filename to play it:

000	Action Editor - ExecuteScript @	© CBU-Macbook-Pro-498		Ð		
ExecuteScript					2	
Exec-1 Add Step						k
幸 Properties			drag and	I drop to reorder mapping	gs. 🕀 🗓	
Command: (cp.Command) afplay r2d2.mp3 This property is required.						
	B→ Post Mappings		drag and	I drop to reorder mapping	ps. 🕀 🗐	
Output: (cp.Output) Stdout 0						
This property is required.						
ENGINE CONSOLE					s ×	
[2021-08-09 13:21:49.205] INFO	action [25292dee] Starting Action: ExecuteScr action [25292dee] Action Ended	ript			_	
	•••	data	88		<u> </u>	⊕• û ⊘ • q
	Favourites	- contrappion of	c	ata		+
	🗁 Workbench	CrashReporter	> actmgr		actions	> 📄 icons >
	Christoph Ition Support	_	> blemgr		bases	> r2d2.mp3
	A Applicati	Google	> cert		data devices	>
	AirDrop 'ickers	> Gravio.20190630	> Conf	>		
	e Recents ync	> Gravio.20190630-1	> ctrimgr			
	Desktop nents	> 📄 Gravio.20190725	> 📄 ivarmgr	>		
	Con My Mac sitions	> 📊 🛅 HubKit	🕥 📋 mediadata	х п		н
	🗁 Screensh	tosh HD > 🛅 Library > 🛅 Application Sup	pport > 🛅 HubKit > 🛅 actmgr	🛛 📩 data > 🏮 r2d2.m	np3	
	DeleteMe ×			17.38 GB available		

Linux

Note, in Linux Gravio is running in a Docker container. This means that you may not be able to access the same environment as the shell script. This also means you will need to use different paths. You can see the relevant <u>paths here</u>. To recap: the folder /home/gravio/hubkitrepo4/data/actmgr/dat a/ on the host system is mounted on /var/opt/hubkit/actmgr/data/ on the guest system (Gravio).

If you run a Python script that relies on libraries, you may have to install those libraries first. In our example, we want to trigger a Python script that talks to the serial port. This requires the serial package. In order to install that, you must run this shell script called install_pyserial_on_guest.s h within the Gravio environment first:

You need to run this within your Gravio Exec component prefixed by bash -c, i.e. bash -c "/var/op t/hubkit/actmgr/data/install_pyserial_on_guest.sh"

• • •	Action Editor -	TVLouder @ ubuntu		<u>«</u>	?
🗄 🔵 😧 TVLouder					
Exec-1 Add Step Exec S T T T					
幸 Properties		➡→ Pre Mappings	drag and drop to reorder mappings.	\oplus	Ĩ
Command: bash -c "/var/opt/hubkit/actmgr/data/install Output: Stdout and Stderr	This property is required. (cp.Output)				
Timeout:	This property is required. (cp.Timeout) 60000 This property is required.	■> Post Mappings	drag and drop to reorder mappings.	(+)	ť
OutputType: String	(cp.OutputType)				
	tion [3356f29c] Starting Act tion [3356f29c] Action Ended	ion: TVLouder)

That may take a little while, but after that, you can trigger your python scripts that rely on those libraries:

	Action Editor -	TVLouder @ ubuntu			?
📅 🔵 😮 TVLouder					
Exec-1 Add Step Exec S T T T					
Properties		■→ Pre Mappings	drag and drop to reorder mappings.	\oplus	Ū
Command: python3 /var/opt/hubkit/actmgr/data/tv_louder.py	(cp.Command) This property is required.				
Output: Stdout and Stderr	(cp.Output) C This property is required.				
Timeout:	(cp.Timeout) 60000	■> Post Mappings	drag and drop to reorder mappings.	(+)	
OutputType:	(cp.OutputType)				
String	This property is required.				
ENGINE CONSOLE [2021-11-18 14:22:24.041] INFO action [2021-11-18 14:22:26.173] INFO action	[3356f29c] Starting Act [3356f29c] Action Ended	Lon: TVLouder			>

Using Named Pipes

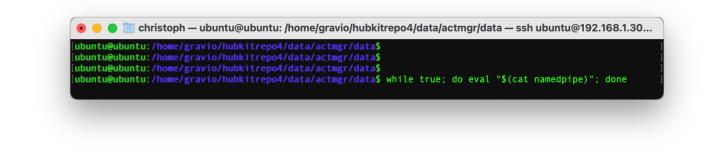
You can also use Named Pipes (FIFOs) that are mounted on both, the docker as well as the host system, to pass trigger commands on the host system from the docker system. You can then use eval on the host system to receive the commands coming from Gravio through the named pipe.

Step 1: Create a named pipe "file" (FIFO) by using the mkfifo command somewhere in your mounted folder. For example, on the host system, enter:

sudo mkfifo /home/gravio/hubkitrepo4/data/actmgr/data/namedpipe

Step 2: Listen on the host system for the command to be executed. Move to the folder you just created the namedpipe file and write:

while true; do eval "\$(cat namedpipe)"; done



This will wait for anything that comes through the named pipe and execute it. Please bear in mind the necessary security restrictions for that.

Step 3: Simply echo the command you want to execute on the host system to the Named Pipe from Gravio.

• • •		Ac	tion Editor -	PlayRandom	Sound @ XTC G	elato			
🛅 🔵 📀 PlayRandomSo	und								
Exec-1 Exec S_ ⑦	Add Step								
						₽ Pre Mappings	drag and drop to reorder mappi	ngs. (†	Ð
Command:				(cp.Command)				
echo "/path/to/your/script/p	ayRandomSour	nd.sh" > /var/o	pt/hubkit/ac		medpipe perty is required.				
Output:					(cp.Output)	₽ Post Mappings	drag and drop to reorder mappi	ngs. (†	Ð
Stdout				This pror	erty is required.				
					ierty is required.				
ENGINE CONSOLE									i
[2021-12-02 14:02:50.668 [2021-12-02 14:02:50.674		ction ction		Starting Action En	Action: PlayRa ded	andomSound			

Of course, you would want the "listener" to be executed automatically every time the system boots. For this, you can create a script named execpipe.sh somewhere on your system:



and execute it every time the system boots by adding the following command to your crontab by entering crontab -e and adding this line:

@reboot /path/to/execpipe.sh

Important: be aware of any security considerations. More information about this solution can be found on https://stackoverflow.com/a/63719458/354204

6.3.9.12. Execute Inference Model

This component allows you to specify an inference model to be performed on an image file.

Step 1 InferenceModel	ステップの追加]	 						
Properties						-6	2	Pre Mappings	
画像ファイル					(cp.ImageFile))			
このプロパティは必須です。 推論モデル					(cp.ModelName]			No Pre Mappings have be
このプロパティは必須です。									
フィルター1					(cp.Filter1		⇒	Post Mappings	
モデルのデフォルト					~			11 3	
条件					(cp.Criterion1)				No Post Mappings have be
						1			

Output payload	Description
cv.Payload	The result of the inference run is output

Component Property

property name	Description
image file	Specifies the file path of a picture saved as a file
Inference model	Specify the model name of the inference to be performed
Filter1	Select to filter inference results
filter1	select if you want to filter inference results
filter2	select if you want to filter inference results
Condition	Specify the condition for filter 2
Conversion	Specify a conversion
Draw	Specify if you want to save the inference result as an image
Copy Destination	Specify where to save the image if "Copy" is specified in "Draw"

Filter

This is used when you want to extract only the results that match the condition from the inference results.

h3. Filter	Description
None	Do not use filter
Default of the model	Use the filter defined in the model
highest n predictions	retrieve the n data specified by the condition from the higher of multiple predictions
the lowest n predictions	retrieve the n data specified by the condition from the lowest of the multiple predictions
predictions scored higher than	retrieve the n data specified by the condition from the lowest of the multiple predictions
predictions cored lower than	retrieve data from multiple forecasts whose score is less than x specified by the condition
prediction labeled with	retrieve data from multiple predictions where the label contains a string specified by the condition

Conversion

Use this to convert the result of inference.

Conversion	Description
None	Do not use transformation
Default of the model	Use the transformation defined in the model
number	get the number of inference results
first label	get the first label of the inference result
all labels	retrieve all labels in the inference result

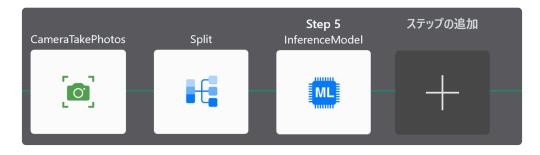
Draw

Use to save the inference result as an image.

Draw	Description
None	Do not save the result of inference as an image
Original	Save the result of inference as an original image
Сору	Create another file in the destination of the copy and save the result of the inference

Use in combination with CameraTakesPhotos component

You can use the CameraTakesPhotos component when executing an action to perform inference on a photo saved as a file.



Place a Split component between the CameraTakesPhotos component and the ExecuteInferenceModel component as shown in this example.

Since the output of the CameraTakesPhotos component is an array of filenames of the saved photos, the Split component splits the array into

individual items to be processed each in the subsequent ExecuteInferenceModel component.

6.3.9.13. File Delete

The File Delete Action Component is to delete a file.

•••	Action Editor - Example Action @ MacBook Pro	
Example Action		
FileDelete-1 Add Step		
Properties Show Variable Names	E> Pre Mappings	+
All This property is required.		
	E → Post Mappings	+

Component Properties

Name	Required	Description
Filename	False	Filename
All	True	All. The value of cp.All can be either "true" or "false

The file has to be inside these folders:

On Windows: C:\ProgramData\HubKit\action\actmgr\data\ On Mac OS: /Library/Application Support/HubKit/action/scripts/actmgr/data/ On Linux: /var/opt/hubkit/action/scripts/actmgr\data\

any path information will be relative from these folders.

6.3.9.14. File List

The File List Action Component is to get a list of files that match the pattern.

		Action Editor - Example Action @ MacBook Pro	► I
Example Action			
FileList-1	Add Step		
	+		
	ow Variable Names	B> Pre Mappings	+
Pattern:			
This	property is required.		
IncFILE			
		B> Post Mappings	+

Output payload	Description
cv.Payload	Outputs the contents of the read directory as individual JSON objects.

The contents of the directory will have the following data:

For example the pattern "icons/*" might return something like this for each file:

{"IsDir":false, "ModTime": "2021-08-10T13:18:29.2577374+09:00", "Name": "arrow_dow n.bmp", "Path": "icons/arrow_down.bmp", "" Size ":824}

Data	Description	
IsDir	true for directories, false for files	
ModTime	Modification Date and Time	
Name	File name	
Path	File path	
Size	File size	

Component Properties

Name	Description
Pattern	The conditional expression to list files, e.g. <pre>icons/*</pre> . Note these folders are relative to <pre>actmgr/</pre> data
IncFILE	Specify whether to include files or not
IncDIR	Specify whether to include directories or not

The pattern without a file path refers to the actmgr/data folder, so all paths need to be relative to that folder. You can find more details about the paths on different operating systems <u>here</u>.

Note: The payload will contain the metadata for one file returned by the list each. If you follow the File List component with the Join component, you'll get a payload with every file metadata joined together. In this case, you will get:

```
[
  {
     "IsDir":false,
      "ModTime":"2017-12-14T17:23:11+08:00",
      "Name":"arrow down.bmp",
      "Path":"icons/arrow down.bmp",
      "Size":824
  },
   {
      "IsDir":false,
      "ModTime": "2017-12-14T17:23:11+08:00",
      "Name":"arrow left.bmp",
      "Path": "icons/arrow left.bmp",
      "Size":824
   },
   {
      "IsDir":false,
      "ModTime":"2017-12-14T17:23:11+08:00",
      "Name": "arrow right.bmp",
      "Path":"icons/arrow right.bmp",
      "Size":824
   },
   {
      "IsDir":false,
      "ModTime": "2017-12-14T17:23:11+08:00",
      "Name":"arrow up.bmp",
      "Path":"icons/arrow up.bmp",
      "Size":824
   },
```

```
{
   "IsDir":false,
   "ModTime":"2017-12-14T17:23:11+08:00",
   "Name":"circle.bmp",
   "Path":"icons/circle.bmp",
   "Size":824
},
{
   "IsDir":false,
   "ModTime":"2017-12-14T17:23:11+08:00",
   "Name":"correct.bmp",
   "Path":"icons/correct.bmp",
   "Size":824
},
{
   "IsDir":false,
   "ModTime":"2017-12-14T17:23:11+08:00",
   "Name":"downloading_f1.bmp",
   "Path": "icons/downloading f1.bmp",
   "Size":824
},
{
   "IsDir":false,
   "ModTime":"2017-12-14T17:23:11+08:00",
   "Name": "downloading f2.bmp",
   "Path": "icons/downloading f2.bmp",
   "Size":824
},
{
   "IsDir":false,
   "ModTime":"2017-12-14T17:23:11+08:00",
   "Name": "downloading f3.bmp",
   "Path": "icons/downloading f3.bmp",
   "Size":824
},
{
   "IsDir":false,
   "ModTime":"2017-12-14T17:23:11+08:00",
   "Name":"error.bmp",
   "Path":"icons/error.bmp",
   "Size":824
},
{
   "IsDir":false,
   "ModTime": "2017-12-14T17:23:11+08:00",
   "Name":"sad.bmp",
   "Path":"icons/sad.bmp",
```

```
"Size":824
   },
   {
      "IsDir":false,
      "ModTime":"2017-12-14T17:23:11+08:00",
      "Name":"smile.bmp",
      "Path":"icons/smile.bmp",
      "Size":824
   },
   {
      "IsDir":false,
      "ModTime":"2017-12-14T17:23:11+08:00",
      "Name":"zigbee off.bmp",
      "Path":"icons/zigbee off.bmp",
      "Size":824
   },
   {
      "IsDir":false,
      "ModTime":"2017-12-14T17:23:11+08:00",
      "Name":"zigbee on.bmp",
      "Path":"icons/zigbee on.bmp",
      "Size":824
   }
]
```

6.3.9.15. File Read

The File Read Action Component is to read a file.

• • •	Action Editor - Example Action @ MacBook Pro	
Example Action		
FileRead-1 Add Ster File Read		
	es〕 ₩→ Pre Mappings	+ 1
Filename:		
	■> Post Mappings	+
		_

Component Properties

Name	Required	Description
Filename	False	Filename of the file to be read.

The file has to be inside these folders:

On Windows: C:\ProgramData\HubKit\action\actmgr\data\ On Mac OS: /Library/Application Support/HubKit/action/scripts/actmgr/data/ On Linux: /var/opt/hubkit/action/scripts/actmgr\data\

any path information will be relative from these folders.

6.3.9.16. File Write

The File Write Action Component is to write data to a file.

• • •	Action Editor - Example Action @ MacBook Pro	► E
Example Action		
FileWrite-1 Add Step File Write		
Properties Show Variable Names	₩ Pre Mappings	+
Append This property is required.		
	Haraba Post Mappings	+

Component Properties

Name	Required	Description
Filename	False	Filename to be written.
Append	True	Append new data instead of replacing the file.

The file has to be inside these folders:

On Windows: C:\ProgramData\HubKit\action\actmgr\data\ On Mac OS: /Library/Application Support/HubKit/action/scripts/actmgr/data/ On Linux: /var/opt/hubkit/action/scripts/actmgr\data\

any path information will be relative from these folders.

You can, for example, use the File Write component to create a CSV file that contains sensor data alongside with timestamps. In this case, your configuration looks something like this:

•••	Action Editor - WriteToFile @ Localhost	9		<u><</u>
WriteToFile				
FileWrite-1 Add Step				
幸 Properties	₽> Pre Mappings	drag and drop to reorder mappings.	+	Ū
Filename: (cp.Filename SomeCSVFile.csv) 1 cv.Payload = Now+","+tv.Data+"\r"			
Append (cp.Append) This property is required				
	■→ Post Mappings	drag and drop to reorder mappings.	+	Ū

6.3.9.17. Filter

The Filter component is a component that filters the data that passes the contents of the input payload to the next component and outputs it to the output payload.

• • •		Action Editor - Example Action @ Localhost	
Example Action			
Filter-1 Filter	Add Step		
R T Ū	+		
E Properties	Show Variable Names	E→ Pre Mappings	+
Expr:	(cp.Expr)		
	This property is required.		
		E → Post Mappings	+

You can enter a conditional expression that allows you to pass a test if it's true, or not. The conditional expression is written with variables with tp./tv./ap./av./cp./cv. prefixes as comparison targets.

Condition Example	Formula
Payloads are targeted and Payloads are numerical in nature	cv.Payload > 10
String	cv.Payload =~ "^abc"
JSON Array	cv.Payload[1] > 10
JSON Object	cv.Payload.key1 == "abc"

The expression field supports basic operators such as ^ to indicate the start of a string.

Component Properties

Name	Description	
Condition	Write a conditional expression	

Available Modifiers

Modifiers	+ - / * & ^ ** % >> <<
Comparators	>>=<<===!==~!~
Logical Ops	& &

Examples

If you like the action to stop unless the JSON value book_id of the first book in the books array in tv.Data payload is set to 12345, you can use a Comparator, for example tv.Data.book
 s[0].book_id == 12345

6.3.9.18. GCS Upload

The GCS Upload component can send data to Google Cloud Storage as files.

To use this component, a Google Cloud subscription and pre-configuration are required.

Roles for accessing Google Cloud Storage must be added "Storage Legacy Bucket Owner" and "Storage Legacy Object Owner".

Please refer to <u>here</u> for pre-configuration.

component properties

property name	Description
Input	Choose whether to upload the contents of the payload or specify a file name and upload it
File name	When a file name is selected, specify the file to be uploaded as a path relative to the Data directory
Bucket	Specify the name of the bucket to upload to.
object	Specify the name of the object to be uploaded. When specifying a folder, separate it with a slash. If the property is empty and the upload source is a file, only the filename part without the directory name is used for the file name.
ACL	Specify an access control list *1
Storage Class	Specify the storage class *2
ContentType	Specify the ContentType of the object. If empty, it is automatically appended.
Timeout	API timeout
Private key JSON	Specify the private key JSON file required to authenticate the service account created by Google Cloud.

*1 ACLs can be achieved by giving multiple users in a list format, such as which user (IAM or other user) is given Owner/Reader rights.

This format cannot be configured in Gravio Studio, so use predefined ACLs.

If you select (default) for the ACL, no ACL is specified and the bucket default is used. Also, buckets are not allowed to specify ACLs by default because they are not recommended. If you want to use ACLs in a bucket, you must select "fine-grained management" on the screen that allows you to choose between "uniform" and "fine-grained management" when creating the bucket. If an ACL other than (default) is selected for a bucket for which "uniform" is selected, an error will occur when the component is executed. *2 If you select (default), the bucket defaults will be used.

6.3.9.19. GCS Download

The GCS Download component can receive data as files from Google Cloud Storage.

This component requires a Google Cloud subscription and pre-configuration.

Roles for accessing Google Cloud Storage must be added "Storage Legacy Bucket Read" and "Storage Legacy Object Read".

If you also use the GCS Upload component, please add "Storage Legacy Bucket Owner" and "Storage Legacy Object Owner".

Please refer to <u>here</u> for pre-configuration.

component properties

property name	Description
Output	Specifies whether the downloaded object should be output to a payload or saved to a file
File Name	Specifies the file to download as a path relative to the Data directory when a file name is selected
bucket	Specify the name of the bucket to download
Object	Specify the object name to download
timeout	API timeout
Private key JSON	Specify the private key JSON file required to authenticate a service account created with Google Cloud

6.3.9.20. Google Analytics Send Event

The Google AnalyticsSendEvent component sends events using the Google Analytics Measurement Protocol.

•••	Action Editor - Example Action @ MacBook Pro	
Example Action		
GoogleAnalytics Add Step ogle Analytics Send Event		
Properties Show Variable Names	Pre Mappings	+
/ersion:		
1		
This property is required.		
FrackingId:		
UA-XXXXX-Y		
This property is required.		
ClientId:	Break Back Strate Stra	+
gravio	m r tost wappings	1
This property is required.		
Event Category:		
"DataType - " + av.DataType		
This property is required.		
Event Action:		
"DataValue - " + av.DataValue		
white an and the second s	1	

For details of Measurement Protocol and parameters, please refer to this link.

Checking "Debug Mode" puts you in debug mode. In debug mode, if "Tracking ID" is incomplete, an error will be displayed, but it will not be counted as an event. Accordingly, if you are not in debug mode, you will not get an error even if the parameters are incomplete, so be careful.

Component Properties

Name	Required	Description
Version	True	Google API Version
TrackingId	True	TrackingId
ClientId	True	ClientId
Event Category	True	Google Analytics Event Category
Event Action	True	Google Analytics Event Action
Event Label	True	Google Analytics Event Label
Event Value	True	Version
DebugMode	True	DebugMode

Timeout	True	Timeout (ms)
---------	------	--------------

6.3.9.21. GPS

Receive and output GPS data from GPS devices.

Step 1 ステップの追加 GPS で 前				
🗮 Properties		-53	Pre Mappings	
RMCかGGA	(cp.RMCGGA)			
RMC	v			
GSA	(cp.GSA)			No
物理デバイスID	(cp.Deviceld)			
			 Post Mappings 	

Output Payload	Description	
cv.Payload	The following data will be output	

Data	Description
Course	Azimuth of the device's movement (number from 0 degrees north to 359.9 degrees clockwise) if the value is -1, the azimuth is invalid
SpeedKm	Device's movement speed (km/h)
SpeedKn	device's movement speed in knots (km/h)
LatitudeDeg	latitude (DEG format)
LongitudeDeg	Longitude (DEG format)
LatitudeDeg	Latitude (DEG format)
LongitudeDir	Longitude (DEGM format)
LatitudeDir	Latitude direction (N or S)
LongitudeDir	Azimuth in longitude (E or W)

Component Properties

Property Name	Description
RMC or GGA	Selects whether to output data in RMC or GGA format
GSA	Specify whether to include GSA in the output data

Device ID GPS device ID, If nothing is set, data output from all GPS devices is executed.

*When RMC is specified, use GPS devices that output RMC sentences.

6.3.9.22. GravioLight

The Gravio Light Action Component is to control a Gravio Lights. For this component to work, you must have the Gravio Lights paired in advance.

		Action Editor - Example Action @ Localhost	
Example Action	n		
GravioLight-1 Gravio Light	Add Step		
₽ ● Ū	+		
E Properties	Show Variable Names	⊪> Pre Mappings	+
None			
DeviceId:	(cp.Deviceld)		
	This property is required.		
🖌 On	(cp.On) This property is required.	E> Post Mappings	+
Color:	(cp.Color)		
Red	Chis property is required.		
Brightness:	(cp.Brightness)		
	100 C This property is required.		
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Output Payload	Description	
cv.Payload	Outputs the output payload of the previous component as is. (Pass-through)	

Component Properties

Name	Required	Description
Device False Devices as defined in the Base Property Profile		Devices as defined in the Base Property Profile
on/off. If none are configured, all paired Gravio Lights will be affected. Mu		If not taken from the Base Property Profile, define here the device IDs to be turned on/off. If none are configured, all paired Gravio Lights will be affected. Multiple device IDs can be separated by commas. For example 32-40-00-FE-FF-57-B 4-14, 32-40-00-FE-FF-57-B4-15
On True Specify if the lights should be on or off. The value specified for "false".		Specify if the lights should be on or off. The value specified for cp.On is "true" or "false".
Color	True	Predefined Colors. cp.Color property's value can be "red", "yellow", "green", or "blue " string.
Brightness	True	Brightness in %age

Note: If the light is not reacting initially, try setting it off and then on again using an action.

6.3.9.23. GravioDistance

The Gravio Distance component allows you to retrieve distance measurements from the Gravio Laser Distance sensors.

To use this component you must have paired the Gravio Laser Distance sensor beforehand.

If the Device ID property is empty, the command will be sent to all connected Gravio Distance.

	Action Editor - SampleAction @ DESKTOP-3VJ15DV	6	
SampleAction			
GravioDistance-1 Add Step Gravio Distance			
∉ Properties	₽ Pre Mappings	drag and drop to reorder mappings	 + 1
Physical Device ID: (cp.DeviceId			
	B→ Post Mappings	drag and drop to reorder mappings	 +

Output payload	Description
cv.Payload	Outputs an array of measured distances

Component properties

Property name	Description	
Device ID	Device ID for which the distance is to be measured, if none is set then the distance is measured for all Gravio Distances, if more than one Gravio Distance is used then the device ID can be comma-separated	

Execution errors

Error	Error	Description	Countermeasure
code	LIIO	Description	Countermeasure

ERR—10	low power	insufficient current	check that the USB cable between the power supply and the sensor is correctly connected
ERR—14	calculation error	execution error	please run again
ERR—15	weak signal	Weak signal	Please do not move the device and remove any obstructions.
ERR—16	unstable laser transition	laser is unstable	hold device and target object still
ERR—18	ambient light too strong	ambient light is too strong	please reduce ambient light
ERR—26	out of display range	please try again	

About the error that occurs when bound to a layer

Note: When a Distance sensor that is bound to a device layer and enabled is specified and used with the Gravio Distance component, the following error will occur:

ERROR 400 action: "GravioLaser": failed to execute: component: GravioDistance: device is being used

This is because the Distance sensor that is bound and enabled in the layer is set to send distance data every 5 seconds, and if the Gravio Distance component is executed when triggered by a trigger, the processes are colliding.

Distance sensors that are bound to a layer and enabled cannot be used in a Gravio Distance component, therefore they should only be used in one of the processes at a time.

6.3.9.24. GravioMatrix

The Gravio Matrix component allows you to set text or an image to a Gravio Matrix. To use this component, the Gravio Matrix must be paired beforehand.

If the Device ID property is empty, the command will be sent to all connected Gravio Matrices.

• • •		Action Editor - SampleAction @ DESKTOP-3VJ15	5DV D		E
SampleAction					
GravioMatrix-1 Gravio LED Matrix	Add Step				
₩ •	+				
幸 Properties		₽re Mappings	drag and drop to reorder mappings.	+	
Physical Device ID	: (cp.Deviceld)				
Input:	(cp.Input)				
16x16 BMP File	is property is required.				
	is property is required.				
Content:	(cp.Content)	B> Post Mappings	drag and drop to reorder mappings.	+	
Th	is property is required.				
Text Color:	(cp.TextColor)				
White	0				
Th	is property is required.				
🗹 On Th	(cp.On) his property is required.				

Output payload	Description
cv.Payload	Outputs the output payload of the previous component as is. (pass-through)

component properties

Property name	Description	
Device ID	Device ID to which text or image is to be set or turned on/off, if none is set then this will be done for all Gravio Matrices If multiple Gravio Matrices are used then the device ID can be comma-separated.	
Input	Set to "16×16 BMP file" or "ASCII"	
Content	Content When the input is "16×16 BMP file", save the BMP file in actmgr/data/icons and speci icons/BMP filename " for the "Contents" property. For "ASCII", specify one or two letter of the alphabet.	
Font Color Set the cp.Color to either of the values white, black, red, green, blue, or auto. "A		

	means, in a temperature template the color will change according to the temperature: blue for below 10 degrees, green to 30 and red above 30.
On	On/Off – The value for cp.On can be "true" or "false".
Brightness Select brightness (0-100)	

Using Templates

Using a template in the component properties (the Input drop-down), you can easily display the data alongside an icon. The template can be selected from the following, and if you specify a value for the content, the image and value that match the template will be displayed in the matrix.

Template	Description
Temperature ℃	Displays the value of the temperature (Celsius) sensor. Enter a number for the content
Temperature °F	Displays the value of the temperature (Fahrenheit) sensor. Enter a number for the content
Humidity%	Displays the value of the humidity sensor. Enter a number for the content
Atmospheric pressure hPa	Displays the value of the barometric pressure sensor. Enter a number for the content
CO2 concentration	Displays the value of the CO2 sensor. Enter a number for the content
Open / Close	Shows the opening and closing of the door. Enter either 0. Close or 1. Open for the content
date	Displays the current date (month and day). Enter cp.Content = now() in PreMapping for the content
time	Displays the current time (hours and minutes). Enter cp.Content = now() in PreMapping for the content

An Example setup using the CO2 template:

• • •	Action Editor - ShowCO2onMatrix @ Localhost		<u>(</u>
ShowCO2onMatrix			
GravioMatrix-1 Add Step Gravio LED Matrix			
幸 Properties	III → Pre Mappings	drag and drop to reorder mappings.	①
Base Property: Gravio LED Matrix GRAVIO MATRIX-sensor8	1 cp.Content = tv.Data		
GRAVIO MATRIX-SELISOTO			
Physical Device ID: (cp.DeviceId)			
Input: (cp.Input)			
Template: CO2 Concentration 😒 This property is required.	■> Post Mappings	drag and drop to reorder mappings.	(+)
Content: (cp.Content)			
Text Color: (cp.TextColor)			
White State Control of the control o			

An Example setup using a bespoke image

000		1	Action Editor - BisaWorkshop @ ub	untu		?
🛅 🔵 ᅌ BisaWor	r kshop 🖉 Pri	mary Tag	g, SubTag1, SubTag2			
GravioMatrix-1 Gravio LED Matrix	Add Step					
	+					
幸 Properties		E>	• • • 10.0.124.121 – SFTI ubuntu@10.0.124.121	P 🐑 Q Open Connection Search		X
			/home/g	gravio/hubkitrepo4/data/actmgr/d	data/icons 📀	
Physical Device ID:	(cp.Deviceld)		Filename	∧ Size	Modified	
			🗟 arrow_down.bmp	824 B	14/12/2017, 17:23	
			🗟 arrow_left.bmp	824 B	14/12/2017, 17:23	
Innut	(cp.Input)		🗟 arrow_right.bmp	824 B	14/12/2017, 17:23	
Input:			🗟 arrow_up.bmp	824 B	14/12/2017, 17:23	
16x16 BMP File	\$		circle.bmp		14/12/2017, 17:23	
Thi	is property is required.	_	 correct.bmp 		14/12/2017, 17:23	
o	(downloading_f1.bmp		14/12/2017, 17:23	
Content:	(cp.Content)	11117 I	downloading_f2.bmp		14/12/2017, 17:23	
icons/yourfile.bmp		-	downloading_f3.bmp		14/12/2017, 17:23	
		-	error.bmp		14/12/2017, 17:23	
		-	sad.bmp		14/12/2017, 17:23	
Text Color:	(cp.TextColor)	-	smile.bmp zigbee_off.bmp		14/12/2017, 17:23	
White	٥	-	zigbee_on.bmp		14/12/2017, 17:23 14/12/2017, 17:23	
Thi	is property is required.	-	 zigbee_on.bmp 	024 B	14/12/2017, 17-23	
✔ On Thi	(cp.On) is property is required.					
		-				

You can use the xiconeditor.com to create the image online and the cloudconvert.com/ico-to-bmp to turn them into your own bmp

6.3.9.25. HTTP Request

Using the HTTP Request component, you can send an HTTP request to a specified URL.

The HTTP Request component executes the HTTP request with the input payload as the Body content of the HTTP request, depending on its properties, and writes the HTTP response Body to the output payload (cv.Payload).

Body content in HTTP requests with Content-Type property

Content- Type Property	Content of the Body at the time of the HTTP request
None	The input payload executes the HTTP request without being set to the Body.
Default	Automatically selects the Content-Type based on the type of the input payload.
Character string type	Output characters with "text/plain; charset=utf-8".
JSON array, JSON object	The HTTP request is executed as "application/json", marshalling the Payload as a byte string.
Byte sequence	The HTTP request is executed with the string set to "application/octet-stream" as the Body.
Other	The HTTP request is executed with the string set to "text/plain" as the body.
application/ x-www- form- urlencoded	The input payload is a JSON object type, for example in the Pre-Mapping: cv.Payload = {"key": "value", "otherkey": "othervalue"} (In this case, if data other than the JSON Object type is received as input, an error occurs.)
multipart/ form-data	The input payload is JSON Object type, and the key and the value are separated by multipart, and the Content-Type multipart/form-data is automatically attached to the boundary before the HTTP request is executed. (In this case, if data other than the JSON Object type is received as input, an error occurs.)
Any other arbitrarily entered Content- Type	The Content-Type is left as it is and the output is a string of bytes of the input payload as the Body.

Output Payload	Description
cv.Payload	The output payload (cv.Payload) stores the body of the HTTP response as a string of

bytes.

• • •		Action Editor - Example Action @ Localhost	• •
Example Action			
HTTPRequest-1 HTTP Request	Add Step		
	+		
Properties	Show Variable Names	E → Pre Mappings	+
lethod:	(cp.Method)		
POST	Chis property is required.		
IRL:	(cp.URL)		
nttps://requestbin.			
	This property is required.		
ontent-Type:	(cp.Content-Type)	IIII→ Post Mappings	+
none)	~		
	This property is required.		
uthorization:	(cp.Authorization)		
(none)	٢		
	This property is required.		
Isername:	(cp.Username)		
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Properties

Name	Required	Description
Method	True	The HTTP Request Method
URL	True	The endpoint URL
Content- Type	True	The HTTP Header Content-Type
Authorization	True	The authorization type. When specified by the value of cp.Authorization, it can be one of "(none)", "prebasic", "basicdigest", or "bearer".
Username	False	Basic authentication username
Password	False	Basic authentication password
Token	False	The Bearer Token
Timeout	True	HTTP Request Timeout (ms)
HTTP Proxy	False	HTTP Proxy
Proxy URL	False	URL when using a proxy
Proxy Username	False	Username when using a proxy
Proxy	False	Password when using a proxy

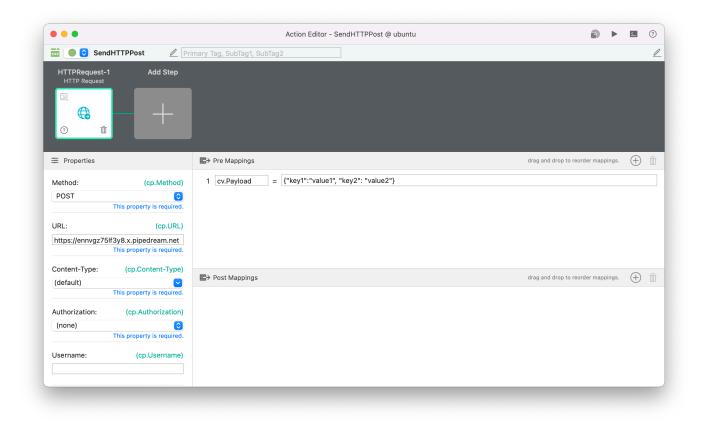
Password		
Dump	True	Dump the request/response to the output log (actmgr logfile in the <u>Gravio</u> <u>HubKit log directory of your OS</u> .)

Component Variables

cv.Paylo ad	On input: request body, on output: response body.
cv.Statu sCode	Request result
cv.Heade rs	On output: response header will be stored in this component variable. To send custom request headers, please use component properties cp.Headers (see example below)
cv.Conte ntLength	Response content length

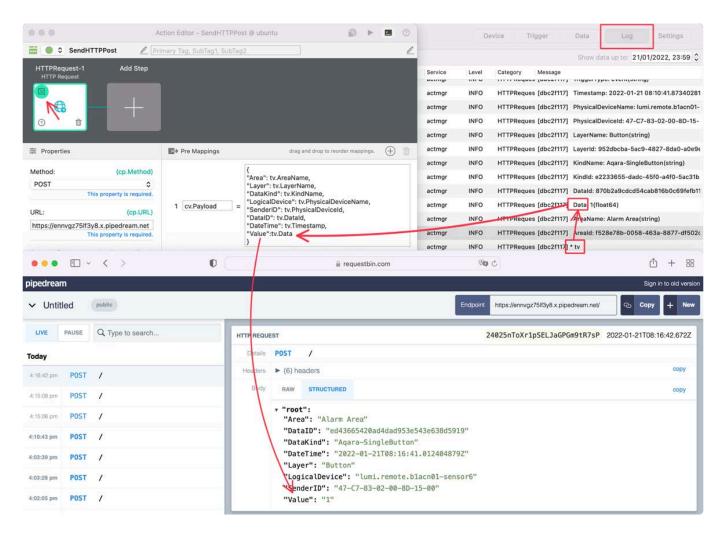
Testing the HTTP Requests

We recommend a free service called <u>requestbin.com</u> to create a testing endpoint and to send your HTTP requests to. In their live dashboard you can see the incoming requests. (Note, the above link creates a public requestbin. For private requestbins, you will need an account).



pipedream							Sign in t	o old version
✓ Untitled public		Endpoint	https://ennv	gz75lf3y8.x.piped	ream.net/	ල	Сору	+ New
LIVE PAUSE Q Type to se	HTTP REQUE	ST	23zzG1rbr	dljrDUlUKKTc	2j0BgP	2022-01-2	1T07:53:	23.326Z
Today	Details	POST	/					
3:53:23 pm POST /	Headers	► (6) h	eaders					сору
3:52:05 pm POST /	Body	RAW	PRETTY	STRUCTURED				сору
3:50:11 pm POST /			ot": y1": "val y2": "val					
			<u></u>				_	

If you enable the "debug" flag on the top left of the component box, you will find the variables in the log. There you can also see what the variable scopes (here tv.) and names (for example Data) are. These you can then refer to inside your JSON string in the cv.Payload:



Here is a JSON example including an MD5 checksum you can use as template:

{

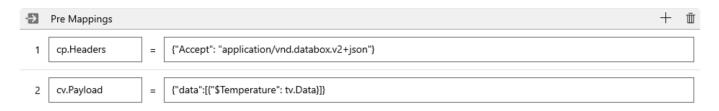
```
"AreaName": tv.AreaName,
"LayerName": tv.LayerName,
"KindName": tv.KindName,
"PhysicalDeviceName": tv.PhysicalDeviceName,
"PhysicalDeviceId": tv.PhysicalDeviceId,
"DataId": tv.DataId,
"Timestamp": ToInt(tv.Timestamp),
"Data":tv.Data,
"Checksum":MD5(tv.AreaName+tv.Data+tv.KindName+tv.PhysicalDeviceName+tv.Physic
alDeviceId+tv.DataId+ToInt(tv.Timestamp)+tv.LayerName+"SECRETSALT")
}
```

Overriding or Extending Header Information

You can add or override existing Header information by creating a PreMapping using this this JSON syntax:

cp.Headers = {"X-Header-1": "abc; def", "X-Header-2": ap.Timeout/1000, "X-Heade r-3": true, "X-Header-4": cp.URL, "Accept", "application/json", "User-Agent", "fugahoge browser"}

For example, <u>Databox</u>, a visualisation software requires certain headers. They can be set as follows:



Using a JSON HTTP Response Body in a Subsequent HTTP Request

You can take the JSON response from a HTTP request and use <u>JSONPath()</u> to extract a specific attribute of the reply.

•••		Action Editor - Get	Foken @ Christophs-iMac	(1)	<u><</u>	?
🖬 💽 😌 GetTok	en 🖉 Primary	ag, SubTag1, SubTag2				
HTTPRequest-1 HTTP Request	HTTPRequest-2 HTTP Request	Add Step				
R () ()		- +				
		■→ Pre Mappings		drag and drop to reorder mappings.	\oplus	Ū
Method:	(cp.Method)					
GET	his property is required.					
URL:	(cp.URL)					
https://url.com/get- T	some-data.json his property is required.					
Content-Type:	(cp.Content-Type)	➡→ Post Mappings		drag and drop to reorder mappings.	(+)	Ū
(default)	his property is required.					
Authorization:	(cp.Authorization)					
	0					
(none)	his property is required.					

If you want to use the data in a subsequent component, e.g. a HTTP request post data, it could look like this:

		Action E	ditor - GetToker	@ Christophs-iMac			9		<	?
🖬 🌒 🗘 GetToken	🖉 Primary T	ag, SubTag1, SubTag2								ľ
HTTPRequest-1 HTTP Request	HTTPRequest-2 HTTP Request	Add Step								
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	+								
		₽ Pre Mappings				drag and drop to reorde	er mappi	ngs.	\oplus	Ū
Method:	(cp.Method)	1 cv.Payload	= JSONPath("\$.NameOfAttribute", c	v.Payload)					
PUT This p	oroperty is required.									
URL:	(cp.URL)									
https://url.com/to-post- This p	attribute-data/ roperty is required.									
Content-Type: (c	p.Content-Type)	■→ Post Mappings				drag and drop to reorde	er mappi	ngs.	\oplus	Ū
(default) This p	✓ roperty is required.									
Authorization: (c	cp.Authorization)									
(none) This p	roperty is required.									
Username:	(cp.Username)									

6.3.9.26. Join

The Join Action Component is to join multiple inputs into an array.

► L
+
+
1

Output Payload	Description
cv.Payload	Combined array

Component Properties

Name	Required	Description
Capacity	False	Specifies how many incoming values are to be output together.

If you set the value to 0 you will capture all amount of incoming data.

6.3.9.27. LINE Notify

The LINE Notify Action Component is to send a notification via the LINENotify service (<u>https://notify-bot.line.me/</u>). It's useful to notify people of information from sensors.

		Action Editor - NewAction @ Local HubKit	1	<u><</u>	(
NewAction					
LINENotify-1 LINE Notify	Add Step				
	+				
Properties	_	E⇒ Pre Mappings	drag and drop to reorder mappings.	(+))
Message:	(cp.Message)				
	emperature is "+cv.Pa				
	This property is required.				
Package ID: 446	(cp.PackageID)				
440					
Sticker ID:	(cp.StickerID)				
1998		E → Post Mappings	drag and drop to reorder mappings.	(+))
mage File:	(cp.ImageFile)				
image.jpg					
Timeout:	(cp.Timeout)				
	60000 🗘				
1	This property is required.				

Component Properties

Property Name	Description	Example
Message	Message string to be posted to LINE	"The current temperature i s "+cv.Payload+"degrees"
Package ID	Send a stamp with the message. You will need the Package ID alongside the Stamp ID (see comment below)	446
Stamp ID	Sends a stamp with the message, requires the corresponding Package ID (above)	1988
lmage File	Send an image with the message, specify the file path of a JPG or PNG file	image.jpg
Timeout	Timeout (ms)	10000
Token	Authentication Token, issued by LINE Notify, if not taken from the Base Property Profile	

Notes:

For details on how to specify the Package ID and Stamp ID for LINE stamps, please refer to <u>the LINE</u> <u>documentation</u>

For more information on how to specify the file path, please refer to "

6.3.9.28. LINE WORKS

The LINE WORKS component can post messages specified in the component's properties using LINE WORKS, the business solution of LINE Messenger. This is useful for notifying people of information from sensor data.

In order to use the LINE WORKS component, the administrator must initially configure it in the LINE WORKS Developer Console and set the bot as public. For details on how to configure it in the LINE WORKS Developer Console, see <u>here</u> TOPIC-LINK+line-works-bot} for details on how to set up the bot in the LINE WORKS Developer Console.

When using the LINE Notify service (<u>https://notify-bot.line.me/</u>), please use the LINE Notify action component.

	Action Editor - LINEWORKS @ Christophs-iMac		<u><</u>	?
KS 🖉 Primary	Tag, SubTag1, SubTag2			Ĺ
Add Step				
+				
	≣ → Pre Mappings	drag and drop to reorder mappings.	\oplus	Ū
(cp.Message)				
his property is required.				
(cp.PackageID)				
(cp.StickerID)	■→ Post Mappings	drag and drop to reorder mappings.	(+)	Ī
(cp.ImageFile)				
(cp.Filename)				
	Add Step	KS	KS Primary Tag, SubTag1, SubTag2 Add Step	KS

Component Properties

Property Name	Description	Example
Basic	Specify the basic properties of the "LINE WORKS Bot	

Properties	Connection" category	
Message	Message string to be posted to LINE WORKS	Example: "The current temp erature is "+cv.Payloa d+"degrees"
Package ID	Send a stamp with the message. Specify with stamp ID *1	Example: 446
Stamp ID	Send stamp with message. Specify with package ID *1	Example: 1988
image file	Send an image with the message, specifying the file path of a JPEG or PNG file.	Example: image.jpg
Send the file with the message. file	Sends a file with the message. Files with extensions b at, cmd, com, cpl, exe, scr, js, vbs, wsf, ht a cannot be sent	
Destination type	Select the member account or talkroom ID to send the message to	
Destination ID	Specify the member account or talkroom ID you selected in the Destination type	Example: aaaa@bbbb for member accounts, 12345 for talkroom IDs
Timeout timeout	API timeout	
API ID	Specify the API ID from the LINE WORKS Developer Console *3	
Consumer Key	Specify the Consumer Key from the LINE WORKS Developer Console *3 Consumer Key	Specify the Consumer Key from the LINE WORKS Developer Console *3
Consumer Key Server Token	Specify the Token for the Server List (fixed IP type) from the LINE WORKS Developer Console *2 *3	
Server ID	Specify the Server ID for the Server List (ID registration type) from the LINE WORKS Developer Console *2 *3	
Server ID Authentication Key	Specify the authentication key for the Server List (ID registration type) from the LINE WORKS Developer Console *2 *3	
Bot No	Specify the Bot No from the LINE WORKS Developer Console *3	

*1 For information on how to specify the LINE Stamp Package ID and Stamp ID, please refer to <u>here</u>. pdf. Please refer to the pdf file.

*2 The Server Token, Server ID, and authentication key will use the one set in the Server List (fixed IP

type) or Server List (ID registration type).

*3 Refer to <u>here</u> for items to be specified from the Developer Console.

The image file/file reference without specifying the file path will be <code>actmgr/data</code>.

6.3.9.29. LINE WORKS

The LINE WORKS component can post messages specified in the component properties using LINE WORKS. This is useful for notifying people about information from sensors.

* This LINE WORKS component is a new component that uses the LINE WORKS API 2.0. The conventional LINE WORKS component used API 1.0, which is not compatible. New settings are required on the LINE WORKS Developer Console. Please refer to <u>here</u> for how to set up in LINE WORKS Developer Console.

* To use the LINE WORKS component, the administrator must initially set up in the LINE WORKS Developer Console and publish the Bot. Please refer to <u>here</u> for how to set up in LINE WORKS Developer Console.

% Please use the LINE Notify Action Component if you are using the LINE Notify service (<u>https://notify-bot.line.me/</u>).

Step 1 LINEWORKS2	Add Step			
Properties			÷Ð	Pre Mappings
Base Property Profile (none) Message This property is required Package ID		(cp.BaseProperty) (cp.Message) (cp.PackageID)		No Pre Mappings hav
			E>	Post Mappings

Component Properties

Property Name	Description	Example
Basic Properties	Specify the basic properties of the "LINE WORKS Bot Connection" category	
Message	Message string to post to LINE WORKS	<pre>e.g. "The current temperatu re is"+cv.Payload+"degree s"</pre>
Package ID	Sends a stamp along with the message. Specify it together with the Stamp ID $\%1$	e.g. 446
Stamp ID	Sends a stamp along with the message. Specify it	e.g. 1988

	together with the Package ID %1	
Image File	Sends an image along with the message. Specify the file path of the JPEG or PNG file.	e.g .image.jpg
File	Sends a file along with the message. Files with extensions bat, cmd, com, cpl, exe, scr, js, vbs, ws f, hta cannot be sent	
Destination Type	Choose the destination to which the message is sent, either a member account or a chat room ID	
Destination ID	Specify the member account or chat room ID selected by Destination Type	e.g. In case of member account a aaa bbbb@, in case of chat room ID 12345
Timeout	API Timeout	
OAuth2 Client ID	Specify the Client ID for API 2.0 from the LINE WORKS Developer Console %2	
OAuth2 Client Secret	Specify the Client Secret from the LINE WORKS Developer Console %2	
OAuth2 Redirect URL	Specify the Redirect URL from the LINE WORKS Developer Console %2	
OAuth2 Access Token	Press the Get Token button to get the token. You can also press the Refresh Token button to update it $\%2$ $\%3$	
Bot No	Specify the Bot No from the LINE WORKS Developer Console %2	

※1 Please refer to <u>here</u> for how to specify the LINE Stamp Package ID and Stamp ID.
※2 Please refer to <u>here</u> for the items to specify from the Developer Console.

How to Obtain the OAuth2 Access Token

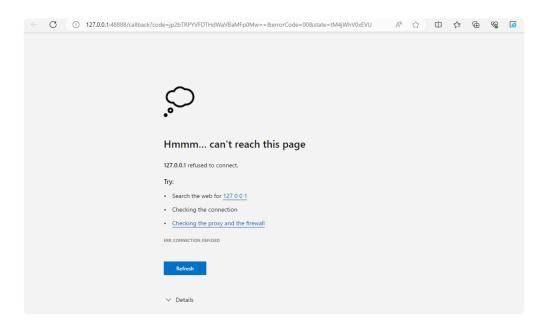
%3 When you press the Get OAuth2 Access Token button, the OAuth 2.0 Access Token Acquisition panel is displayed. Press the Open Browser button to obtain the token. When you get the token, press the Set button and it will be automatically set to the OAuth2 Access Token property.

Request OAuth 2.0 Access	s Token
Please Log in to the Web Service to obtain OAuth2 Access Token.	Open Web Browser
	Cancel Set

In the case of Gravio Studio for Windows, press the Open Browser button to get the token, but an error screen will appear. Copy the URL from the address bar in this state and paste the URL into the panel and press the Get button. Once the token is obtained, press the Set button and it will be automatically set to the OAuth2 Access Token property.

:	rected to	Pasto the LIPL you were r
Paste the URL you were redirected to here:		
	Acquire	
Not Acquired		Token Status:
Not A Cancel		Token Status:

When you press the Open Browser button, authentication will automatically be performed in the browser. If necessary, follow the instructions on the screen to log in.



When authentication is complete, an error saying "This page cannot be reached" will be displayed, so

copy the URL from the address bar at this time.

Request OAuth 2	2.0 Access To	oken
Please log in to the web Open Web Browser	service to obtain a	n OAuth 2 Access Token
Paste the URL you were r	edirected to here:	
{PYVFDTHdWaVBaM	Fp0Mw==&erroi	Code=00&state=tM4jWhV0xEVU
	Acc	uire
Token Status:		Not Acquired
Set		Cancel

Paste the copied URL into the panel and press the Get button, and the OAuth2 Access Token will become "obtained". Press the Set button to close the panel.

6.3.9.30. Mail Send

The Mail Send Action Component is to send email via SMTP.

The Mail Send component sends an input payload (cv.Payload) as the body of a mail. It converts the data received by the input payload into a string and sends it as the body of an email.

After sending the mail, the input payload is stored as it is as the output payload (pass through).

• • •		Action Editor - Example Action @ Localhost	
Example Action			
MailSend-1 _{Mail} Send	Add Step		
R F	+		
≢ Properties	Show Variable Names	Er Pre Mappings	+ 1
To:	(cp.To)	1 cv.Payload = "This is the mail body message"	
T	nis property is required.		
Cc:	(cp.Cc)		
Bcc:	(cp.Bcc)	■> Post Mappings	+ 1
Subject:	(cp.Subject)		
IT IT	his property is required.		
From:	(cp.From)		
ENGINE CONSOLE			

Properties

Name	Required	Description
То	True	To whom the mail will be sent
Cc	False	Any carbon copies
Bcc	False	Any blind carbon copies
Subject	True	The subject of the mail
From	True	The from-address
Attachments	False	File(s) to be attached, details below
SMTP Server	False	SMTP Server you are going to use
Host	True	The smtp host
Port	True	Port

Username	False	Username of your smtp server
Password	False	Password of your smtp server

Use the base Base Property Profile property to read the values from the settings rather than specifying the details within the component.

Component Variables

Name	Description
cv.P avlo	This variable will be used as the mail body. You can set it in the Pre Mappings, if no Payload is being passed into this step. (See screenshot) If you are using a HTML mail body, avoid linebreaks
ad	and escape double quotes with a backslash.

Using SMTPs

You can use any available SMTP server to send out e-mails, however, note that depending on what server you are using, they may have different restrictions in order to avoid spamming. To send mails via Apple iCloud or Google Gmail SMTP, we recommend creating app-specific passwords.

Attachments

Multiple files can be specified as attachments.

- Path of the file to be attached

Windows environment

The files are automatically stored in the path actmgr\data. The path can also be specified. *If a folder name or file name contains spaces, it must be enclosed in "" (double quotes).

Example)

```
To attach image.jpg from actmgr\data, specify image.jpg as the attachment fil
e.
To attach image.jpg of actmgr\data\subfolder, specify subfolder\image.jpg as t
he attachment.
To attach image.jpg of actmgr\data\subfolder 2021, specify "subfolder 2021\ima
ge.jpg" as the attachment.
```

Absolute paths can also be specified.

Example)

bc... To attach image.jpg in c:\, specify c:\image.jpg as the attachment.

Files can also be specified as multiple files and wildcards. Use ";" (semicolon) for multiple file separators and "*" (asterisk) for wildcards.

Example)

```
To attach image.jpg and image2.jpg from actmgr\data, specify image.jpg;image
2.jpg as attachments.
To attach *.jpg in actmgr\data\subfolder, specify subfolder\*.jpg as the attac
hment.
To attach image.jpg and image2.jpg from actmgr\data and *.jpg from actmgr\dat
a\subfolder, specify image.jpg;image2.jpg;subfolder\*.jpg as attachments.
```

Mac, Linux, RaspberryPI and Gravio Hub environments.

Files are automatically stored in the path actmgr/data. The path can also be specified as. *If a folder name or file name contains spaces, it must be enclosed in "" (double quotes).

Example)

```
To attach image.jpg from actmgr/data, specify image.jpg as the attachment.
To attach image.jpg of actmgr/data/subfolder, specify subfolder/image.jpg as a
ttachment.
To attach image.jpg of actmgr/data/subfolder 2021, specify "subfolder 2021/ima
ge.jpg" as attachment.
```

Absolute paths can also be specified.

Example)

```
To attach image.jpg of /home/username, specify /home/username/image.jpg as th e attachment.
```

Files can also be specified as multiple files and wildcards. Use ";" (semicolon) for multiple file separators and "*" (asterisk) for wildcards.

Example)

```
To attach image.jpg and image2.jpg from actmgr/data, specify image.jpg;image
2.jpg as attachments.
To attach *.jpg in actmgr/data/subfolder, specify subfolder/*.jpg as attachmen
t.
To attach image.jpg and image2.jpg from actmgr/data and *.jpg from actmgr/dat
a/subfolder, specify image.jpg;image2.jpg;subfolder/*.jpg as attachments.
```

6.3.9.31. MQTT Publish

The MQTT Publish Action Component allows you to publish messages to topics within an MQTT PubSub system.

Output Payload	Explanation
cv.Payload	Outputs the output payload of the previous component as is. (Pass through)

Component Properties

Name	Required	Description
Торіс	True	MQTT Topic
ClientId	True	MQTT ClientID
QoS	True	QoS value
Retain	True	Retain flag
Timeout	True	Timeout (ms)
MQTT Connection	False	MQTT Connection Settings from the Base Property Profile
URL	True	URL, note, leave the protocol out for unencrypted connections (e.g. test.mosq uitto.org) but add ssl:// for encrypted connections
Port	True	Port
Username	False	Username
Password	False	Password
Certificate	False	Certificate
Private Key	False	Private Key
Private Key Passphrase	False	Private Key Passphrase
Root CA	False	Root CA

test.mosquitto.org Example

You can easily test the MQTT function by using the free public <u>test broker provided by mosquito.org</u>. A sample setup could be that you use the free <u>MQTTX</u> client alongside with Gravio using the following details:

Topic

testtopic/gravio

Client ID	Choose something Unique for Gravio and something different for MQTTX
QoS	0
Timeout	60000
URL	test.mosquitto.org
Port	1883
Username	blank
Password	blank
Certificate	blank
Private Key	blank
Private Key Passphrase	blank
Root CA	blank

Then set the contents to cv.Payload = {"msg": "your test message"}

Triggering the action from Gravio Studio:

		Action Editor - MQTTSend @ MacBook		<u> </u>	0
MQTTSend					
MQTTPublish-1 A	Add Step				
IR Î	+				
E Properties		₽→ Pre Mappings	drag and drop to reorder mappings.	\oplus	1
Горіс:	(cp.Topic)	1 cv.Payload = {"msg": "This is an	n example message sent by Gravio"}		
testtopic/gravio					
Thi	is property is required.		drag and drop to reorder mappings.	(+)	
ClientId:	(cp.ClientId)			<u> </u>	
gravio_client_gravio Thi	is property is required.				
NGINE CONSOLE				i]
[2021-07-08 00:23:53.028] [2021-07-08 00:23:54.373]		[0854a86d] Starting Action: MQTTSe [0854a86d] Action Ended	nd		

You should see something similar to the following in MQTTX:

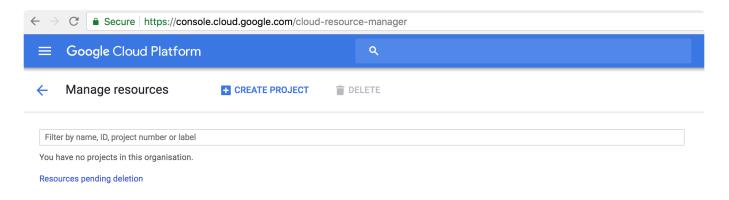
\geq	GravioTest@test.mos	+ New Subscription	All Received
			Plaintex Published
æ		testtopic/gravio QoS 0	
			Topic: testtopic/gravio QoS: 0
+			<pre>{ "msg": "This is an example message</pre>
			<pre>sent by the MQTTX Client" }</pre>
			2021-07-08 00:23:48
			Topic: testtopic/gravio QoS: 0
			<pre>{"msg":"This is an example message se nt by Gravio"}</pre>
			2021-07-08 00:23:54
(i)			Payload: JSON V QoS: 0 V Retain:
			testtopic/gravio
ැටූ			an example message sent by the MQTTX Cli

Note: Ensure that both, MQTTX and Gravio have different Client IDs as the MQTT broker will disconnect the clients if they share the same ID.

Google Cloud MQTT Example

Here is an example of how to publish messages to a Google Cloud MQTT System:

Navigate to your Google Cloud console and create a project:



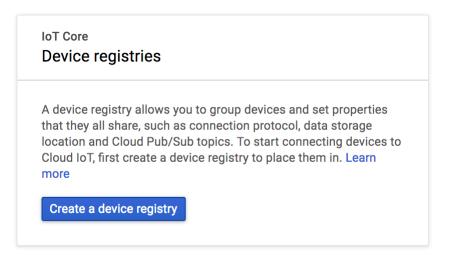
← → C Secure https://console.cloud.google.com/projectcrea	ate?previousPage=%2Fcloud-resource-manager&defaultProjectName
	۹
New Project	
Project Name * Gravio-Documentation-Example 	0
Location * No organisation	BROWSE
CREATE CANCEL	

Navigate to Google Cloud Platform IoT Core

\leftrightarrow \rightarrow	C Secure https://con	e.cloud.google.com/iam-admin/iam/project?project=gravio-documentation-example	
=	Google Cloud Platform	Se Gravio-Documentation-Example - Q	
♠	Home	AM + ADD - REMOVE	
Ň	Deployment Manager		
<->	Endpoints	Permissions for project Gravio-Documentation-Example	
BIG D	ATA	hese permissions affect this project and all of its resources. <u>Learn more</u> iew By: MEMBERS ROLES	
	BigQuery	Filter table	
• • • • •	Pub/Sub	Type Member ↑ Name Role Inheritance	
ß	Dataproc	site and the state of the state	•
Φ	Dataflow		
M	IoT Core		
SI	Composer		
	Genomics		
	Dataprep		

Enable the Google IoT Core API.

Create a Device Registry



Enter the name of your registry, select the region and add the topics (here events and states for example):

-

-

Google Cloud Platform 🐉 Gravio-Documentation-Example 👻



Create a registry

Define how devices in this registry will send data to the Cloud IoT Core. After you create your registry, you can start adding devices to it. Learn more

←

Registry ID

Permanent identifier for your registry. Start with a letter.

Gravio-Docu-Regist	ry
--------------------	----

Region

Determines where data is stored for devices in this registry. Choice is permanent.

europe-west1

Protocol

Select the protocols that your devices will use to connect to Cloud IoT Core. Learn more



Cloud Pub/Sub topics

Cloud IoT Core routes device messages to Cloud Pub/Sub for aggregation. You can route messages to different topics and subfolders in Cloud Pub/Sub based on the type of data in the messages. Learn more

Default telemetry topic

Device telemetry events will be published to this topic by default. Add more topics if you want these events to be published to separate topics.

☆ Add more telemetry topics

Device state topic (Optional)

Device state data will be published to your selected topic on a best-effort basis, as well as to the default MQTT state topic (if your devices use MQTT protocol). Learn more

projects/gravio-documentation-example/topics/states

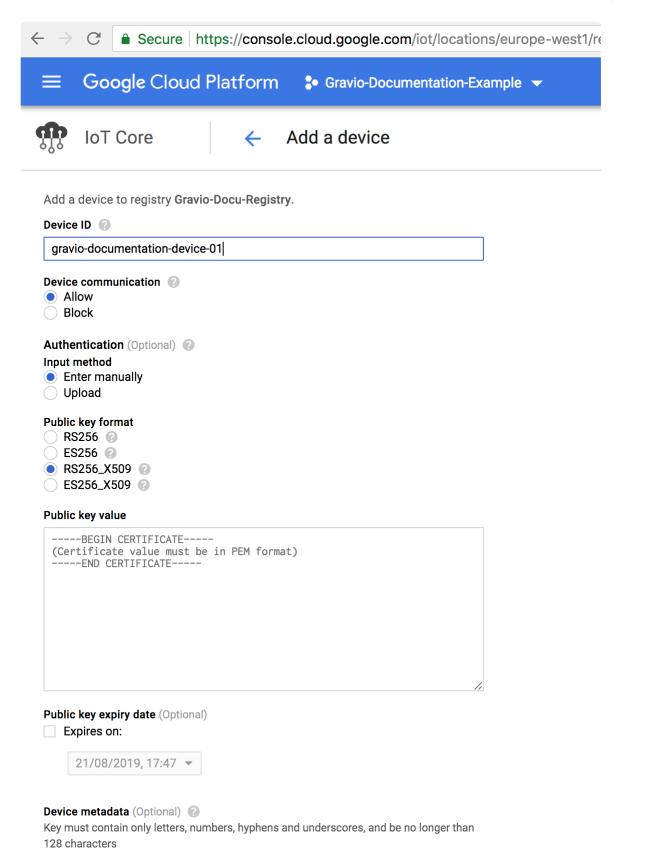
X Add CA certificate



Click on "Add Device" in this screen:

≡ Google Clo	oud Platform 💲 Gravio-Documentat	ion-Example 🔻	٩
हिंदे IoT Core	← Registry details	EDIT REGISTRY	DELETE
Registry ID: Gravio-D	ocu-Registry		
Region	europe-west1		
Protocol	MQTT HTTP		
Very Pub/Sub topics for terms	elemetry and device state		
Devices Certificates			
Add device C			
No devices in this regist	ry yet. Learn more		

And you will see:



Create a certificate that you can paste into the field by entering this command in your command line:

openssl req -x509 -newkey rsa:2048 -keyout rsa_private.pem -nodes -out rsa_cer t.pem -subj "/CN=unused"

This will create a file rsa private.pem and a file called rsa cert.pem

Copy the contents of the rsa_cert.pem file into the window:

[CBU-Macbook-Pro:~ christoph\$ cat rsa_cert.pem	
BEGIN CERTIFICATE	
MIICnjCCAYYCCQC5xZT3Rlw/gzANBgkqhkiG9w0BAQsFADARMQ8wDQYDVQQDDAZ1	
bnVzZWQwHhcNMTgwODIxMTcxMDA0WhcNMTgwOTIwMTcxMDA0WjARMQ8wDQYDVQQD	
DAZ1bnVzZWQwggEiMA0GCSqGSIb3DQEBAQUAA4IBDwAwggEKAoIBAQDPfNfvb44G	
pb7xq4ajLhEpQn80Ttlm8hIDXpYVe0GLr9RtkceFJ25GP8+P4+8b2aikrX2DRmx9	
t0Q5D0cK0Q/77cI9pBK9qBwoiXqv7YMu50JjZxPHB8nikJKh41ymqrU/vWGR1VVZ	
aRcTzmHg03nAhomyCNG0vVA8jXi0YpPJiz/BuoVApobjfH17RXReuxj5I0YeFEg6	
CYYbg3exS9phGXwAVJvSRb6iHHEf47advX0rkzg/A0ZUfiAr/lA4aa0+GCZ5nMMN	
YL7TV+2VmR4/m2ydcWIMlD7sFe79khLJYbEsm4H14Zle+rm4MAulVmMpwa1sIpAI	
FQcfS8hPAIyfAgMBAAEwDQYJKoZIhvcNAQELBQADggEBAHDJJaHEF+1hkXJorEb0	
DzQlb3NbMVQrcU4P2l+rZp6tUNgi2igb8kF5gV1t/5pds4GnIKW0UaoSaU4rjcP9	
7EPIkP1m0GyTDfY9h44Id6EUnJnnIrklmQAQuZ/Mml04cE6DGyGyXvxP03Mi+DQ7	
cPU4SyiKmXWU7H3Jgm60ZLk35Addz9US0WjCExYmCNsg17vXHl7epuAto4VVXB60	
ZwVvR4U3tKKRkjB0T2bhJGrs5Hca6l2v14uskN3gqi0WqQ4gsDdNvb+pnGhRmGWz	
PGcRZFByrm8WGAFss5ZHkhrp7CL/EYNWAw+WQPwEqFriNDEGGvTiYkrFD2aQAu0k	
END_CERTIFICATE	
CBU-Macbook-Pro:~ christoph\$	

Authentication (Optional) 📀

- Input method
- Enter manually
- Upload

Public key format

\bigcirc	RS256 🕜	
\bigcirc	ES256 🕜	
\bigcirc	RS256_X509	0
\bigcirc	ES256_X509	0

Public key value

BEGIN CERTIFICATE
MIICnjCCAYYCCQC5xZT3Rlw/gzANBgkqhkiG9w0BAQsFADARMQ8wDQYDVQQDDAZ1
bnVzZWQwHhcNMTgwODIxMTcxMDA0WhcNMTgwOTIwMTcxMDA0WjARMQ8wDQYDVQQD
DAZ1bnVzZWQwggEiMA0GCSqGSIb3DQEBAQUAA4IBDwAwggEKAoIBAQDPfNfvb44G
pb7xq4ajLhEpQn8OTtlm8hIDXpYVe0GLr9RtkceFJ25GP8+P4+8b2aikrX2DRmx9
t0Q5D0cK0Q/77cI9pBK9qBwoiXqv7YMu50JjZxPHB8nikJKh41ymqrU/vWGRlVVZ
aRcTzmHg03nAhomyCNG0vVA8jXi0YpPJiz/BuoVApobjfH17RXReuxj5I0YeFEg6
CYYbg3exS9phGXwAVJvSRb6iHHEf47advXOrkzg/A0ZUfiAr/lA4aa0+GCZ5nMMN
YL7TV+2VmR4/m2ydcWIMlD7sFe79khLJYbEsm4H14Zle+rm4MAulVmMpwa1sIpAI
FQcfS8hPAIyfAgMBAAEwDQYJKoZIhvcNAQELBQADggEBAHDJJaHEF+1hkXJorEb0
DzQlb3NbMVQrcU4P2l+rZp6tUNgi2igb8kF5gV1t/5pds4GnIKW0UaoSaU4rjcP9
7EPIkP1m0GyTDfY9h44Id6EUnJnnIrklmQAQuZ/Mml04cE6DGyGyXvxP03Mi+DQ7
cPU4SyiKmXWU7H3Jgm6OZLk35Addz9US0WjCExYmCNsg17vXHl7epuAto4VVXB60

Public key expiry date (Optional)

Expires on:



Device metadata (Optional) 📀

Key must contain only letters, numbers, hyphens and underscores, and be no longer than 128 characters

Кеу	Value	11	×
+ Add	attribute		

Add Cancel

We're now ready to take on messages from Gravio.

Note: The MQTT Publish component will take the variables as payload and make one MQTT publish per variable. And if you use JSON or CSV the variable name will be the key/column.

Typically you can use the CreateRecord component to inject a variable into the MQTTPublish component.

To see how to retrieve MQTT messages, please refer to the <u>MQTT subscription section</u> of this documentation.

6.3.9.32. SQL Server Exec

The SQL Server Exec component allows you to execute SQL statements against SQL Server to update/ delete data.

It is compatible with SQL Server 2005 and above.

Step 1 MSSQLExec	Add Step			
Properties			-53	Pre Mappings
Base Property Profile		(cp.BaseProperty) (cp.SQL) Text 2 SQL		No Pre Mappings ha
This property is required				
Bulk Mode		(cp.BulkMode)		Post Mappings

Output Payload

Output Payload	Description
cv.Payload	In addition to the input payload, it passes LastInsertId or RowsAffected by the executed SQL statement

LastInsertId is returned when the executed SQL statement was an INSERT statement and the ID generated by the DB could be obtained.

RowsAffected returns the number of records affected by the executed SQL statement. For example, it returns the number of rows deleted when the statement was a DELETE statement.

Component Properties

Property Name	Description
SQL	Specifies the SQL statement to execute
Bulk Mode	Choose whether to use bulk mode in executing the SQL statement
Bulk Size	Specifies the size when using bulk mode
Host	Specifies the host of SQL Server
Port	Specifies the port of SQL Server

Username	Specifies the username of SQL Server
Password	Specifies the password of SQL Server
Database	Specifies the database
Encrypt	Specifies whether to disable encryption (not connect with SSL/TLS), true (connect with SSL/TLS), or false (encrypt login only)
TrustServerCertificate	Select whether to trust the SQL Server's server certificate. If on, it trusts the certificate sent by SQL Server. If off, it verifies the SQL Server certificate against the trust store certificate
Root Certificate	Specifies the root certificate to use. If using AWS's Aurora or RDS, you will need to use the server certificate issued by AWS. This will be the root certificate of that server certificate

Placeholders

You can use placeholders in the SQL statement to be executed and use the value of cv.Playload in the SQL statement.

```
UPDATE table1 SET name='Updated name' WHERE id=?
```

The value of cv.Payload is used for the placeholder specified by ?. When cv.Payload contains 1, it updates the record where id is 1.

You can specify more than one placeholder.

UPDATE table1 SET name=? WHERE id=?

To specify values for more than one placeholder, specify the values in an array in cv.Payload.

```
["First Last", 20]
```

Text2SQL

Text2SQL is a function that can generate SQL statements from Japanese entered into the prompt using the functionality of OpenAI's ChatGPT.

For how to use it, please refer to here.

6.3.9.33. SQL Server Query

The SQL Server Query component allows you to execute query statements against SQL Server to retrieve data.

It is compatible with SQL Server 2005 and above.

Step 1 Add Step MSSQLQuery Courry Courry			
Properties		-53	Pre Mappings
Base Property Profile	(cp.BaseProperty) (cp.SQL) Text 2 SQL		No Pre Mappings have b
This property is required			
Output	(cp.Output)		Post Mappings
Array	~		

Output payload

Output Payload	Description
cv.Payload	Outputs a record in the output format specified by the property for each record that matches the condition.

Example of output in array format

When table1 table has column1 (integer type) and column2 (string type), specifying `SELECT * FROM table1` in the SQL property and "array" in the output format property, the output payload is generated as follows.

```
Output Example
[1, "abc"]
[2, "def"]
[3, "hij"].
```

Example of output in object format

When table1 table has column1 (integer type) and column2 (string type), specifying `SELECT * FROM table1` in the SQL property and "object format" in the output format property, the output payload is generated as follows.

```
Output Example
{"column1": 1, "column2": "abc"}
{"column1": 2, "column2": "def"}
{"column1": 3, "column2": "hij"}
```

Component properties

|_. Property Name |_. Description | |_. SQL | Specify SQL statement to execute | |_. Output Format | Select array or object format | |_. Host | Specify the SQL Server host. | |_. Port | Specify the SQL Server port | |_. User Name | Specify the SQL Server user name. | |_. Password | Specify the SQL Server password. | |_. Database | Specify the database. | |_. Encrypt | Specify communication encryption from disable (no SSL/TLS connection), true (SSL/TLS connection), and false (encryption for login only) | |_. TrustServerCertificate | Select whether to trust SQL Server's server certificate. If on, trusts the certificate sent by SQL Server. If Off, validates SQL Server certificates against trust store certificates | |_. Root Certificate | Specify the root certificate to use; if you are using AWS Aurora or RDS, you must use a server certificate issued by AWS. This will be the root certificate for that server certificate. |

Placeholder

You can use a placeholder in the SQL statement to be executed to use the value of cv.Playload in the SQL statement.

SELECT * FROM table1 WHERE id=?

? The value of cv.Payload is used for the placeholder specified in cv. When cv.Payload contains 1, the record with id 1 can be retrieved.

More than one placeholder can be specified.

SELECT * FROM table1 WHERE name=? AND age=?

To specify values for more than one placeholder, specify the values in an array in cv.

```
["First Last", 20]
```

Text2SQL

Text2SQL is a function that allows you to generate SQL statements from the Japanese you enter in the prompt for the data you wish to retrieve using OpenAl's ChatGPT functionality. Please refer to <u>here</u> for how to use it.

6.3.9.34. MSTeamsPostMessage

The MSTeamsPostMessage action component can use the <u>Microsoft Teams API</u> to post a message to the channel specified in the component's properties.

• • •		Action Editor - Example Action @ MacBook Pro	
Example Action			
MSTeamsSendM osoft Teams Send Message	Add Step		
፼ 1 % Ū	+		
至 Properties	Show Variable Names	► Pre Mappings	+ 1
Incoming Webhook URL:			
	This property is required.		
Message:			
Message from Gravio	This property is required.		
Timeout:	60000	E⇒ Post Mappings	+ 1
	This property is required.		

How to get the Incoming Webhook URL:

- Select "Connector" from the "More Options" menu in the channel where you want to post your Teams message.
- Select "Incoming Webhook" from the connector settings screen and press the "Configure" button.
- Enter the name of the Incoming Webhook and press the "Create" button.
- When an Incoming Webhook is created, a URL is automatically created.
- Specify this URL in the component's Incoming Webhook URL property.
- In the Incoming Webhook URL field, enter the URL created in Teams.

Component Properties

Name	Required	Description
Incoming Webhook URL	True	The URL provided by your MS Team API account.
Message	True	Message to be sent to the API.
Timeout	True	API timeout – typically you would leave it on 30s.

6.3.9.35. MySQL Exec

The MySQL Exec component allows you to execute SQL statements against MySQL to update/delete data.

It is compatible with MySQL 5.6 and above.

Step 1 Add Step MySQLExec		
╪ Properties		->> Pre Mappings
Base Property Profile SQL This property is required	(cp.BaseProperty) (cp.SQL) Text 2 SQL	No Pre Mappings have be
Bulk Mode	(cp.BulkMode)	Post Mappings

Output Payload

Output Payload	Description
cv.Payload	In addition to the input payload, it passes LastInsertId or RowsAffected by the executed SQL statement

LastInsertId is returned when the executed SQL statement was an INSERT statement and the ID generated by the DB could be obtained.

RowsAffected returns the number of records affected by the executed SQL statement. For example, it returns the number of rows deleted when the statement was a DELETE statement.

Component Properties

Property Name	Description
SQL	Specifies the SQL statement to execute
Bulk Mode	Choose whether to use bulk mode in executing the SQL statement
Bulk Size	Specifies the size when using bulk mode

Host	Specifies the host of MySQL
Port	Specifies the port of MySQL
Username	Specifies the username of MySQL
Password	Specifies the password of MySQL
Database	Specifies the database
Timezone	Specifies the timezone of the database
TLS	Specifies whether to encrypt communication, options are: true (connect with SSL/TLS), false (do not connect with SSL/TLS), skip-verify (connect with SSL/TLS but do not verify the server certificate), preferred (try to connect with SSL/TLS first, if unable to connect, try to connect without SSL/TLS)
Root Certificate	Specifies the root certificate to use. If using AWS's Aurora or RDS, you will need to use the server certificate issued by AWS. This will be the root certificate of that server certificate

Placeholders

You can use placeholders in the SQL statement to be executed and use the value of cv.Playload in the SQL statement.

UPDATE table1 SET name='Updated name' WHERE id=?

The value of cv.Payload is used for the placeholder specified by ?. When cv.Payload contains 1, it updates the record where id is 1.

You can specify more than one placeholder.

```
UPDATE table1 SET name=? WHERE id=?
```

To specify values for more than one placeholder, specify the values in an array in cv.Payload.

```
["First Last", 20]
```

Text2SQL

Text2SQL is a function that can generate SQL statements from Japanese entered into the prompt using the functionality of OpenAI's ChatGPT.

For how to use it, please refer to here.

6.3.9.36. MySQL Query

The MySQL Query component allows you to execute query statements against MySQL to retrieve data. It is compatible with MySQL 5.6 and above.

Step 1 MySQLQuery	Add Step					
🛱 Properties				-53	Pre Mappings	
Base Property Profile SQL This property is required		(ср	BaseProperty) (cp.SQL) Text 2 SQL			No Pre Mappings have be
Output			(cp.Output)	₽	Post Mappings	5
Array			~			

Output Payload

Output Payload	Description
cv.Payload	Outputs records that match the conditions in the output format specified by the property

Output example in array format

When table1 has column1 (integer type) and column2 (string type), if you specify `SELECT * FROM table1` in the SQL property and specify 'Array' in the output format property, the output payload will be generated as follows:

```
Output Example
[1, "abc"]
[2, "def"]
[3, "hij"]
p.
Output example in object format
When table1 has column1 (integer type) and column2 (string type), if you speci
fy `SELECT * FROM table1` in the SQL property and specify 'Object Format' in t
```

he output format property, the output payload will be generated as follows:

```
Output Example
{"column1": 1, "column2": "abc"}
{"column1": 2, "column2": "def"}
{"column1": 3, "column2": "hij"}
p.
```

Component Properties

Property Name	Description
SQL	Specifies the SQL statement to execute
Output Format	Choose between array format or object format
Host	Specifies the host of MySQL
Port	Specifies the port of MySQL
Username	Specifies the username of MySQL
Password	Specifies the password of MySQL
Database	Specifies the database
Timezone	Specifies the timezone of the database
TLS	Specifies whether to encrypt communication, options are: true (connect with SSL/TLS), false (do not connect with SSL/TLS), skip-verify (connect with SSL/TLS but do not verify the server certificate), preferred (try to connect with SSL/TLS first, if unable to connect, try to connect without SSL/TLS)
Root Certificate	Specifies the root certificate to use. If using AWS's Aurora or RDS, you will need to use the server certificate issued by AWS. This will be the root certificate of that server certificate

Placeholders

You can use placeholders in the SQL statement to be executed and use the value of cv.Playload in the SQL statement.

SELECT * FROM table1 WHERE id=?

p.

The value of cv.Payload is used for the placeholder specified by ?. When cv.Pa yload contains 1, it retrieves the record where id is 1.

You can specify more than one placeholder.

SELECT * FROM table1 WHERE name=? AND age=?

p.

To specify values for more than one placeholder, specify the values in an arra y in cv.Payload.

```
["First Last", 20]
p.
```

Text2SQL

Text2SQL is a function that can generate SQL statements from Japanese entered into the prompt using the functionality of OpenAI's ChatGPT.

For how to use it, please refer to <u>here</u>.

6.3.9.37. OpenAlCompletion

The OpenAlCompletion component is a component that integrates with the Al features provided by OpenAl. OpenAlCompletion returns completions for given prompts. For chat-based functions, please use the <u>OpenAlChat Component</u>.

• To use this OpenAlCompletion component, you need to obtain an API Key in advance to call OpenAl's Al function. For how to get an API Key on OpenAl's site, please refer to <u>here</u>.

Step 1 OpenAlCompletion	Add Step			
Properties			÷Ð	Pre Mappings
Base Property Profile API Key This property is required Organization Id		(cp.BaseProperty) (cp.APIKey) (cp.OrganizationID)		No Pre Mappings hav
			₽	Post Mappings
		for Deck		

Component Properties

Property Name	Description	Example
Basic Properties	Specify the basic properties of the 'OpenAl' category	
API Key	API Key *1	
Organization Id	Organization ID *1	
User	Username	
Model	Choose or manually input the model name to use	Text Davinci 003 Text Davinci 00 2 Text Curie 001 Text Babbage 001 Text Ada 001
Temperature	Specify the sampling temperature between 0 and 1	
Prompt	Prompt	

Suffix	Suffix	
Max Tokens	The maximum number of tokens to be generated	
Тор-Р	Specify nucleus sampling between 0 and 1. Default is 1	
Ν	The number of answers generated per prompt	
Log Probabilities	Include the log probabilities of the most likely token and the selected token	
Echo	Add the prompt to the answer	
Stop	String to stop token generation	
Presence Penalty	Specify whether to use a word that has already appeared again, from -2.0 to 2.0. Default is 0	
Frequency Penalty	Specify whether to give a penalty the more often it appears, from -2.0 to 2.0. Default is 0	
Best Of	Control the number of candidate answers. You specify the number to return, but best_of must be greater than N	
Logit Bias	Parameter to change the likelihood of a specified token appearing	

- Please refer to the OpenAl API Reference for details on each OpenAl-related property.
- To use the OpenAlCompletion component, you need to obtain an API key. For how to get an API key, please refer to <u>here</u>.

Output Payload

Output Payload	Description
cv.Payload	It stores the response from the OpenAI Completion API as is

6.3.9.38. OpenAlChat

The OpenAlChat component is a component that collaborates with the Al functions provided by OpenAl. OpenAlChat uses a language model specialized in chat completion. It is designed to simplify conversations involving multiple interactions.

* To use this OpenAlChat component, you need to obtain an API Key in advance to call OpenAl's Al functions. For how to obtain an API Key on the OpenAl site, please refer to <u>here</u>.

Step 1 OpenAlChat	Add Step			
Properties			-53	Pre Mappings
Base Property Profile API Key Chis property is required Organization Id		(cp.BaseProperty)	п	No Pre Mappings have
			*	Post Mappings

Component Properties

Property Name	Description	Example
Basic Properties	Specifies the basic properties of the 'OpenAI' category	
API Key	API Key *1	
Organization Id	Organization ID *1	
User	User name	
Model	Select or manually enter the model name to be used. The models that can be used vary depending on the contract with OpenAI.	GPT 3.5 Turbo GPT 3.5 Turbo 16k GPT 4 GP T 4 32k
System Message	Role Setting	
User Message Sample Input	Specifies examples of questions from the user	

Assistant Message Sample Input	Specifies examples of answers
User Message	Question from the user
Temperature	Specifies the sampling temperature between 0 and 1
Max Tokens	Maximum number of tokens in the response
Тор-Р	Specifies nucleus sampling between 0 and 1. The default is 1
Ν	Number of responses generated per prompt
Log Probabilities	Includes the log probability of the most likely token and the selected token
Stop	String to stop token generation
Presence Penalty	Specifies whether to reuse words that have already appeared, from -2.0 to 2.0. The default is 0
Frequency Penalty	The more often it appears, the more penalty it gets, specified from -2.0 to 2.0. The default is 0
Logit Bias	Parameter to change the likelihood that the specified token will appear

% For details of each property related to OpenAl, please refer to <u>OpenAl API Reference</u>.
%1 To use the OpenAlChat component, you need to obtain an API key. For how to obtain an API key, please refer to <u>here</u>.

Output Payload

Output Payload	Description
cv.Payload	Stores the response from the OpenAI Chat API as is

6.3.9.39. OpenAllmage

The OpenAllmage component is a component that collaborates with the Al functions provided by OpenAl. OpenAllmage can invoke a function to generate images from the entered prompts.

*To use this OpenAllmage component, you need to obtain an API Key in advance to call OpenAl's Al functions. For how to obtain an API Key on the OpenAl site, please refer to <u>here</u>.

Step 1 Add Step OpenAlimage			
Properties		-53	Pre Mappings
Base Property Profile API Key This property is required Organization Id	(cp.BaseProperty) (cp.APIKey) (cp.OrganizationID)		No Pre Mappings hav
		E>	Post Mappings

Component Properties

Property Name	Description	Example
Basic Properties	Specifies the basic properties of the 'OpenAI' category	
API Key	API Key *1	
Organization Id	Organization ID *1	
User	User name	
Operation	Select the operation from Image Creation, Image Editing, Similar Image Generation	Create Image Edit Image Make Image V ariation
Prompt	Prompt (only for Image Creation or Image Editing operations)	
Image File	Image PNG file (only for Image Editing or Similar Image Generation operations)	
Mask File	Mask PNG file less than 4MB, use an image of the same size as	

	the Image File (only for Image Editing operations)	
n	Number of responses generated per prompt	
Image Size	Size of the image to be generated	1024px by 1024px5 12px by 512px256p x by 256px
Response Format	Generated data format File URL Base64	File URL Base64
Filename	Output filename (only for File format data)	
File Overwrite	Overwrite output file (only for File format data) If you do not overwrite the file and a file with the same name exists, it will be saved with "-N" appended to the end	

※ For details of each property related to OpenAI, please refer to <u>OpenAI API Reference</u>.
※1 To use the OpenAIImage component, you need to obtain an API key. For how to obtain an API key, please refer to <u>here</u>.

Operation Property

•When specifying Create Image Use a square image less than 4MB for the Image File

·When specifying Edit Image

Use a square image less than 4MB for the Image File, if specifying a Mask File, use an image of the same size as the Image File.

Output Payload

Output Payload	Description
cv.Pay load	If the Response Format property is a file, the filepath of the written file is stored, if URL, the URL is stored, if Base64, the generated data encoded in Base64 is stored

6.3.9.40. OpenAlAudio

OpenAIAudio component is a component that works with OpenAI's AI functionality.

To use the OpenAlAudio component, you need to obtain an API Key in advance in order to call OpenAl's Al functions. Please refer to <u>here</u> for how to obtain an API Key.

Step 1 OpenAlAudio	Add Step			
Properties			÷Ð	Pre Mappings
Base Property Profile API Key Critical Content of the second seco		(cp.BaseProperty)		No Pre Mappings hav
			₽	Post Mappings

Component properties

Property Name	Description	Example
Basic Properties	Specify the basic properties of the "OpenAI" category	
API Key	API Key *1	
Organization Id	Organization ID *1	
User	User Name	
Operation	Choose a process from Transcription Translation	Transcribe Translation
Model	Select the model name you want to use or enter it manually	Whisper-1
Audio File	Sound filename	
Language	Language of speech Specify in ISO-639-1 format. Default is English.	ja en
Prompt	Prompt	
Temperature	Specify sampling temperature from 0 to 1.	

Response	Select output data format from JSON Detailed JSON Text	JSON Verbose JSON Text
Format	SRT File VTT File	srt vtt

Refer to <u>OpenAl API Reference</u> for details of each OpenAl related property.
 1 To use OpenAlAudio components, you need to obtain an API key, see <u>here</u> for how to obtain an API key.

Output payload

Output payload	Description	
cv.Payload	Response Format property Stores the contents specified in the output data format.	

6.3.9.41. PATLITE

The Patlite Action Component is to control a PATLITE network device including audio. The watchtower must support HTTP commands. For more information, please visit the Patlite website. <u>https://www.patlite.co.jp/</u>

PATLITEs are useful to control the display according to the information from the sensors.

		Action Editor - Example Action @ Localhost	
Example Act	lion		
Patlite-1 Patlite	Add Step		
R	· +		
Properties	Show Variable Names	🖙 Pre Mappings	+
P address:	(cp.IPAddress)		
	This property is required.		
Red:	(cp.Red)		
Off	0		
	This property is required.		
Amber:	(cp.Amber)		+
Off	\$		
	This property is required.		
Green:	(cp.Green)		
Off	0		
	This property is required.		
Blue:	(cp.Blue)		
NGINE CONSOL	-		1

Output Payload	Description			
cv.Payload	Outputs the output payload of the previous component as is. (Pass-through)			

Component Properties

Name	Required	Description	
IP address	True	The IP address of the watchtower	
Red	True	Set to either On/Off/Blink1/Blink2/No Change. [The values to set for cp.Red are "off", "on", "blink-1", "blink-2", "no-change"].	
Amber	True	Set to either On/Off/Blink1/Blink2/No Change [The values to set for cp. Amber a "off", "on", "blink-1", "blink-2", "no-change"].	
Green	True	Set to either On/Off/Blink1/Blink2/No Change [The values to set for cp. Green are "off", "on", "blink-1", "blink-2", "no-change"].	
Blue	True	Set to either On/Off/Blink1/Blink2/No Change [The values to set for cp.Blue are	

		"off", "on", "blink-1", "blink-2", "no-change"].
White	True	Set to either On/Off/Blink1/Blink2/No Change [The values to set for cp.White are "off", "on", "blink-1", "blink-2", "no-change"].
Play Sound	True	Play Sound
Sound Channel	True	Specify the channel to be played back using numbers. For details, see the manual for the device.
Repeat	True	Specifies the number of additional repetitions. If you don't want to repeat it, leave it blank.
Timeout	False	Timeout (ms)

6.3.9.42. PhilipsHue

The Philips Hue Action Component is to send commands to a Philips Hue light device. You need to specify the color and opacity and set the IP address, user ID, and light ID.

		Action Editor - Example Action @ Localhost	• • •
Example Action	n		
PhilipsHue-1 Philips Hue	Add Step		
R ₽ 1	+		
至 Properties	Show Variable Names	E> Pre Mappings	+
🗸 On	(cp.On) This property is required.		
Color:	(cp.Color)		
Color Loop	(cp.ColorLoop)		+
	This property is required.	Ee Post Mappings	+
IP address:	(cp.IPAddress)		
	This property is required.		
User ID:	(cp.UserId)		
	This property is required.		
NGINE CONSOLE			E

The IP address can be found by going to <u>https://discovery.meethue.com/</u>.

With this information, the debugger API simulator can be found at http://<your_ip>/debug/clip.html

Before you send the POST command to the API using JSON, you need to get the user ID, which you can only get if you "pair" the device by pressing the bridge button once. {"devicetype": "my_hue_ap p#gravio"}

CLIP API Debugger
URL:
/api GET PUT POST DELETE
Message Body:
<pre>{"devicetype":"my_hue_app#gravio"}</pre>
Command Response:
[{ "success": { "username": "ntyIC69JHCQh1SLMgS2IB0oJJay54ANoL1NfsI71" } }]

For detailed instructions on how to use the debugger, see here: <u>https://developers.meethue.com/</u> <u>documentation/getting-started</u>

Output Payload	Description
cv.Payload	Outputs the output payload of the previous component as is. (Pass-through)

Component Properties

Name	Required	Description
On	True	Specify on/off. The value specified for cp.On is "true" or "false".
Color	False	R,G,B,Opacity in hexadecimal, for example AABBCCDD
Color Loop	True	Switch colors in regular intervals

IP address	True	IP address of Philips Hue bridge
User ID	True	Philips Hue User ID
Light ID	False	Specify the Philips Hue light IDs which is a number starting with 1. All lights if empty.

6.3.9.43. PostgreSQL Exec

The PostgreSQL Execc component allows you to execute SQL statements against PostgreSQL to update/delete data.

It supports PostgreSQL 11 and above.

Step 1 PgxExec Restgrees	Add Step			
			173	
Properties			-53	Pre Mappings
Base Property Profile SQL		(cp.BaseProperty) (cp.SQL) Text 2 SQL		No Pre Mappings have been a
This property is required				
Bulk Mode		(cp.BulkMode)	**	Post Mappings

Output payload

Output Payload	Description	
cv.Payload	Pass LastInsertId or RowsAffected depending on the SQL statement executed in addition to the input payload	

LastInsertId is returned if the SQL statement executed was an INSERT statement and the ID generated by the DB can be retrieved.

RowsAffected returns the number of records affected by the SQL statement executed. For example, if it was a DELETE statement, the number of rows deleted is returned.

h3. Component property

Property Name	Description	
SQL	Specify SQL statement to execute	
Bulk Mode	Select whether to use bulk mode for SQL statement execution	

Bulk Size	Specify the size if bulk mode is used
Host	Specify PostgreSQL host.
Port	Specify the PostgreSQL port.
Username	Specify a PostgreSQL username.
Password	Specify the PostgreSQL password.
Database	Specifies a database.
Timezone	Specify the timezone for the database
SSLMode	The encryption of the communication can be disable (no SSL/TLS connection), allow (first try a connection without SSL/TLS connection and if the connection fails, then try a SSL/TLS connection), prefer (first try a connection with SSL/TLS connection and if the connection fails, then try a connection without SSL/TLS connection), or require (try a connection with SSL/TLS connection). connection), prefer (first try an SSL/TLS connection and if it fails to connect, then try a non-SSL/TLS connection), require (make an SSL/TLS connection. (makes an SSL/TLS connection and verifies the server certificate if specified, but not if not specified), verify-ca (makes an SSL/TLS connection and verifies the server certificate, and also verifies the server name)
Root Certificate	Specify the root certificate to use; if you are using AWS Aurora or RDS, you must use a server certificate issued by AWS. This will be the root certificate for that server certificate.

Placeholder

You can use a placeholder in the SQL statement to be executed to use the value of cv.Playload in the SQL statement.

```
UPDATE table1 SET name='update name' WHERE id=?
```

The value of cv. Payload is used for the placeholder specified in cv. When cv. Payload contains 1, the record with id 1 is updated.

More than one placeholder may be specified. For example:

UPDATE table1 SET name=\$1 WHERE id=\$2

To specify values for more than one placeholder, specify the values in an array in cv.

```
["First Last", 20]
```

Text2SQL

Text2SQL is a function that allows you to generate SQL statements from the Japanese you enter in the prompt for the data you wish to retrieve using OpenAl's ChatGPT functionality. Please refer to <u>here</u> for how to use it.

6.3.9.44. PostgreSQL Query

The PostgreSQL Query component allows you to execute query statements against PostgreSQL to retrieve data.

It supports PostgreSQL 11 and above.

Step 1 PgxQuery Query Postpres T	Add Step			
Properties			-12	Pre Mappings
Base Property Profile SQL This property is required		(cp.BaseProperty)	Π	No Pre Mappings have been ad
Output		(cp.Output)		Post Mappings
Array		~		

Output payload

Output Payload	Description	
cv.Payload	Outputs a record in the output format specified by the property for each record that matches the condition.	

Example of output in array format

When table1 table has column1 (integer type) and column2 (string type), specifying `SELECT * FROM table1` in the SQL property and "array" in the output format property, the output payload is generated as follows.

```
Output Example
[1, "abc"]
[2, "def"]
[3, "hij"].
```

Example of output in object format

When table1 table has column1 (integer type) and column2 (string type), specifying `SELECT * FROM table1` in the SQL property and "object format" in the output format property, the output payload is generated as follows.

```
Output example
{"column1": 1, "column2": "abc"}
{"column1": 2, "column2": "def"}
{"column1": 3, "column2": "hij"}
```

Component properties

Property Name	Description
SQL	Specify SQL statement to execute
Output Format	Select array or object format
Host	Specify PostgreSQL host.
Port	Specify the PostgreSQL port.
Username	Specify a PostgreSQL username.
Password	Specify the PostgreSQL password.
Database	Specifies a database.
Timezone	Specify the timezone for the database
SSLMode	The encryption of the communication can be disable (no SSL/TLS connection), allow (first try a connection without SSL/TLS connection and if the connection fails, then try a SSL/TLS connection), prefer (first try a connection with SSL/TLS connection and if the connection fails, then try a connection without SSL/TLS connection), or require (try a connection with SSL/TLS connection). connection), prefer (first try an SSL/TLS connection and if it fails to connect, then try a non-SSL/TLS connection), require (make an SSL/TLS connection. (makes an SSL/TLS connection and verifies the server certificate if specified, but not if not specified), verify-ca (makes an SSL/TLS connection and verifies the server certificate, and also verifies the server name)
Root Certificate	Specify the root certificate to use; if you are using AWS Aurora or RDS, you must use a server certificate issued by AWS. This will be the root certificate for that server certificate.

Placeholder

You can use a placeholder in the SQL statement to be executed to use the value of cv.Playload in the SQL statement.

```
SELECT * FROM table1 WHERE id=?
```

? The value of cv.Payload is used for the placeholder specified in cv. When cv.Payload contains 1, the record with id 1 can be retrieved.

More than one placeholder can be specified.

SELECT * FROM table1 WHERE name=? AND age=?

To specify values for more than one placeholder, specify the values in an array in cv.

["First Last", 20]

Text2SQL

Text2SQL is a function that allows you to generate SQL statements from the Japanese you enter in the prompt for the data you wish to retrieve using OpenAI's ChatGPT functionality. Please refer to <u>here</u> for how to use it.

6.3.9.45. SensorDataDB

The Sensor Data DB Action Component is to read from the Sensor Data DB. Each recorded piece of data gets stored in the Sensor Data DB. With this component, you can query that database. The SensorDataDB component queries data from the SensorDataDB stored in HubKit and passes each record, one row at a time, to the next component.

With the content specified in the property, search the sensor DB and execute a filter expression for each matched record. The matched records can be referenced in the "Value" variable. If the result of the expression is true, the record will be passed through and the output Payload.

Filter Key: (cp.FilterKey) None This property is required. Filter Value: (cp.FilterValue) This property is required.	• • •		Action Editor - Example Action @ Localhost	► •
Snoror Data DB Image: Snow Variable Names Properties Show Variable Names Image: Snow Variable Names Filter Key: (cp.FilterKay) This property is required. Filter Value: (cp.FilterValue) This property is required. From Previous: (cp.FromPrevious)	Example Actio	n		
Properties Show Variable Names Filter Key: (cp.FilterKey) None > This property is required. Filter Value: (cp.FilterValue) This property is required. Filter Value: (cp.FinterValue) This property is required. Filter Value: (cp.FinterValue) This property is required. Filter Value: (cp.FinterValue) This property is required. 1 ① This property is required. This property is required. 1 ① This property is required. This property is required.				
Filter Key: (cp.FilterKay) None This property is required. Filter Value: (cp.FilterValue) This property is required. From Previous: (cp.FormPrevious) This property is required. This property is required. Timescale: (cp.Timescale) Records	<u></u>	+		
None Image: Comparison of the sequence of the se	E Properties	Show Variable Names	E> Pre Mappings	+
This property is required. Filter Value: (cp.FilterValue) This property is required. This property is required. From Previous: (cp.FromPrevious) 1 ○ This property is required. This property is required. 1 ○ This property is required. Timescale: (cp.Timescale) Records 3	ilter Key:	(cp.FilterKey)		
Filter Value: (cp.FilterValue) This property is required. From Previous: (cp.FromPrevious) This property is required. Timescale: (cp.Timescale) Records 3	None			
This property is required. From Previous: (cp.FromPrevious) This property is required. Timescale: (cp.Timescale) Records €		This property is required.		
From Previous: (cp.FromPrevious) From Previous: (cp.FromPrevious) This property is required. Timescale: (cp.Timescale) Records	ilter Value:	(cp.FilterValue)		
From Previous: (cp.FromPrevious)		This property is required		
Important Important This property is required. Timescale: (cp.Timescale) Records Important			Dost Mannings	+
This property is required. Timescale: (cp.Timescale) Records 3	rom Previous:		Est i og i nobbinga	
Timescale: (cp.Timescale) Records I				
Records				
	Records			
All Records (cp.AllRecords)	All Pecords	(on AllPecords)		
All Records (cp.AllRecords)				E

Output Payload	Description	
cv.Payload	Outputs a JSON Object for each record that matches the conditions.	

Output Example

```
{
    "AreaId":"c753b341-c856-42fc-9170-69edaa5d8246",
    "AreaName":"Entrance Area",
    "Data":460,
    "DataId":"f969129db906491e876cef43afb4fcb8",
    "DataType":"double",
    "KindId":"7e87a819-135e-40d3-9d5f-c0330f38ec4e",
    "KindName":"Gravio-CO2",
    "LayerId":"1efe01a1-41c7-4d21-bd98-d6bc87af74bd",
    "LayerName":"CO2",
```

```
"PhysicalDeviceId":"DE-8D-06-FE-FF-57-B5-15",
"PhysicalDeviceName":"CO2-Sensor-1",
"Timestamp":"2021-09-13T00:26:42.594348934Z",
"VirtualDeviceId":"2ce70be6-257b-4854-9680-af1f02d575b4"
}
```

Timestamp is output as a date/time type in the JSON Object type.

For each record, the component variable (cv.Id) is given a record ID, the component variable (cv.Co unt) is given the first record that matches the record, and the ID is incremented by 1, and the number of the ID is incremented in order.

Component Properties

Name	Required	Description
Filter Key	True	The property to filter for
Filter Value	True	The value to filter for
From Previous	True	The number of records to retrieve (e.g., if From Previous is 10 and the timescale is a record, the latest 10 will be retrieved).
Timescale	True	Unit of the latest data to be acquired (choose from records, milliseconds, seconds, minutes, hours, days, weeks, months, and years). cp.Timescale can be one of the following values: "Records", "Milliseconds", "Seconds", "Minutes", "Hours", "Days", "Weeks", "Months", or "Years".
All Records	True	Get all records by overriding the From Previous and Timescale conditions.
Time Rounding	True	Get data from the last second, minute, hour, day, day, week, month, and year rounded up to the last time the component was executed.
Filter Expressions	false	Allow you to choose whether to output the payload in an expression, like the Filter component Filter Expressions. Filter Formula Example Value.Data > 123 Value.Data.key1 == "abc" && Value.Data.key2 > 123

Example

If you like to use the data from the sensor DB in the next step, for example a Matrix Display that rotates various latest database values, you will have to access the data using cv.Payload.Data:

		Action Edit	or - CycleMatrixDisplay @	gravio3521aa5881db			<u>«</u>	?
🗄 🦲 😒 CycleMa	ıtrixDisplay							4
SensorDataDB-1 Sensor Data DB	GravioMatrix-1 Gravio LED Matrix	Sleep-1 Sleep	SensorDataDB-2 Sensor Data DB	GravioMatrix-2 Gravio LED Matrix	Sleep-2 Sleep	SensorDataDB-3 Sensor Data DB		Grav Gravi
0 Ū		ķ ī			Ģ			
E Properties		■→ Pre Mappings			drag i	and drop to reorder mappings.	\oplus	Ū
Area Id:	(cp.Areald)							
Office Area	0							
ayer Id:	(cp.Layerld)							
CO2 Layer	٢							
hysical Device ID: (c	p.PhysicalDeviceId)							
		■→ Post Mappings			drag a	and drop to reorder mappings.	\oplus	Ū
rom Previous:	(cp.FromPrevious)							
Th	1 🗘 is property is required.							
imescale:	(cp.Timescale)							
Number of Records Th	is property is required.							
All Records	(cp AllRecords)							

• • •		Action Editor - CycleMatrix	Display @ gravio3521aa588	ldb	9	► E	?
📅 🦲 📀 CycleMatrixDisplay							_
		ep-1 SensorData eep Sensor Dat			SensorDataDB-3 Sensor Data DB	:	Gravi Gravid
				ļ.			
	⊞ > Pre Map	pings			drag and drop to reorder mapping	ıs. (⊕ ī
Base Property: Gravio LED Matr None Physical Device ID: (cp.D	ix 1 cp.Com	tent = cv.Payload.Da	ta				
	p.lnput)						
Template: CO2 Concentration This property is	required. ■> Post Map	ppings			drag and drop to reorder mapping	is. (Ð Ī
Content: (cp.C	Content)						
Text Color: (cp.Te	xtColor)						
White This property is	Contraction of the second seco						
🔽 On	(cn On)						

In this example, each SensorDataDB step reads a particular last data set of a layer, the Gravio Led

Matrix shows it on the display and the Sleep step pauses the display for 15 seconds.

6.3.9.46. Sensor Data DB If Zero

The SensorDataDBIfZero component outputs the input payload as the output payload if no rows are retrieved; if any rows are found, it outputs nothing and omits the Action and all subsequent components. If no rows are found, the Action flow continues.

With the content specified in the property, it searches the sensor DB and executes a filter expression for each matched record. The matched records can be referenced by the "Value" variable. If the result of executing the expression is true, it passes, but there is no output payload, because it corresponds to a single record in the DB, and there is no output payload. Outputs the input payload even if the execution result is all false.

The SensorDataDBIFZero component is useful for "keep alive" signals or to trigger an action if something "has NOT happened" rather than "has happened".

• • •		Action Editor - Example Action @ Local	IP 🕨	
Example Action	n			
SensorDataDBIf. Sensor Data DB If Ze				
R 	+			
		►> Pre Mappings	drag and drop to reorder mappings.	+
Area Id:	(cp.Areald)			
Any	\$			
Layer Id:	(cp.LayerId)			
Any	\$			
Device Id:	(cp.PhysicalDeviceId)	₽ → Post Mappings	drag and drop to reorder mappings.	+
		Euro Post Mappings		Т
		-		
From Previous:	(cp.FromPrevious)			
	This property is required.			
Timescale:	(cp.Timescale)			
Records	≎			
	This property is required.			

Output Payload	Description
cv.Payload	Output payload as the output payload if no lines are retrieved.

Output Example

```
{"AreaId":"..., "LayerId":"", "KindId":"", "Timestamp": ..., "VirtualDeviceI
d": ..., "Data": }
```

Timestamp is output as a date/time type in the JSON Object type.

For each record, the component variable (cv.Id) is given a record ID, the component variable (cv.Co unt) is given the first record that matches the record, and the ID is incremented by 1, and the number of the ID is incremented in order.

Filter Formula Example Value.Data > 123 Value.Data.key1 == "abc" && Value.Data.key2 > 123

Component Properties

Name	Required	Description
Filter Key	True	The property to filter for
Filter Value	True	The value to filter for
From Previous	True	The number of records to retrieve (e.g., if From Previous is 10 and the timescale is a record, the latest 10 will be retrieved).
Timescale	True	Unit of the latest data to be acquired (choose from records, milliseconds, seconds, minutes, hours, days, weeks, months, and years). cp.Timescale can be one of the following values: "Records", "Milliseconds", "Seconds", "Minutes", "Hours", "Days", "Weeks", "Months", or "Years".
All Records	True	Get all records by overriding the From Previous and Timescale conditions.
Time Rounding	True	Get data from the last second, minute, hour, day, day, week, month, and year rounded up to the last time the component was executed.
Filter Expressions	False	Allow you to choose whether to output the payload in an expression, like the Filter component Filter Expressions.

Example Use Case

You may want to trigger a script if no motion is detected for 5 minutes. Create a time trigger that executes every 1 minute, then execute the below action. If the last 5 minutes of the Motion layer are **empty**, the next component (RunScript) will run. If they are not empty, the Action will abort before running the script.

•••	Action Editor - SwitchACOff @ localhost		?
🛅 🔵 😌 SwitchACOff 🛛 🖉 Prim	ary Tag, SubTag1, SubTag2		Î
SensorDataDBIf Sensor Data DB If Zero Rec Rec S R S R S R S R S R S R S R S R R S R S R S R S R R S R S R S R S R S R S R S R S R S R S R S R S R S R S R S R S R S S R S R S R S R S R S R S R S R S R S R S R S R S S R S R S S R S S S R S R S S S R S	Add Step		
		drag and drop to reorder mappings. 🔶 🏾 🗍	Ī
Area Id: (cp.Areald)			
Office Area			
Layer Id: (cp.LayerId)			
Motion			
Physical Device ID: (cp.PhysicalDeviceId) From Previous: (cp.FromPrevious) 5 0 This property is required.	■> Post Mappings	drag and drop to reorder mappings. 🔶 🏾 [Ī
Timescale: (cp.Timescale) Minutes			
This property is required.			
All Records (cp.AllRecords) This property is required.			
Time Rounding (cp.TimeRounding) This property is required.			
Expr: (cp.Filter)			

6.3.9.47. Slack Post Message

The Slack Post Message Action Component is to post a message to Slack using the Slack API. It can be useful to debug Actions or notifying people. It can be used for sending messages to #channels as well as @people .

• •		Action Editor - Example Action @ Localhost	
Example Action			
SlackPostMessa Slack Post Message	Add Step		
2 ;;;	+		
E Properties	Show Variable Names	Pre Mappings	+ ī
channel:	(cp.Channel)		
#test_from_gravio	This property is required.		
ext:	(cp.Text)		
Here is the messag	ge to be sent. This property is required.		
ïmeout:	(cp.Timeout)	₽> Post Mappings	+
Т	60000 C		
ase Property: Sla	ack Token		
None	0		
oken:	(cp.Token)		
IGINE CONSOLE			3

Component Properties

Name	Required	Description
Channel	True	The #channel or user you like to post your message to. If you lik e to include sensor data, wrap the text into double quotes and append it with the sensor data. For example: "The temperature is " <u>av.Data</u> " degrees Celsius"@
Text	True	The text you like to send
Timeout	True	Timeout in
Slack Token	False	Slack Token from the Base Property Profile
Token	True	Your Slack Token, if not loaded from the Base Property Profile

Use the base Base Property Profile property to read the values such as the token from the settings rather than specifying the details within the component.

Apps on Slack

First you will need to create an app on Slack in order to interact with your workspace. You can follow the instructions here to create your Slack app: <u>https://api.slack.com/apps</u>

You will need to:

- Create an App on Slack
- Add the chat:write (or any other scope you like to use) to "Scopes" under "OAuth & Permissions" in the Features menu.
- Hit the "Install App to Workspace" button in "OAuth Tokens & Redirect URLs"
- · Add the app to the channel you like it to post to

For more complex scopes and permissions, please refer to the <u>Slack Documentation</u>.

Copy



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Settings

Basic Information Collaborators Install App Manage Distribution Submit to App Directory

Features

App Home Incoming Webhooks Interactivity & Shortcuts Slash Commands Workflow Steps

OAuth & Permissions

Event Subscriptions User ID Translation Beta Features Where's Bot User

 \bigcirc

Slack •

Help Contact Policies Our Blog

OAuth & Permissions

OAuth Tokens & Redirect URLs

Q Search

Tokens for Your Workspace

These tokens were automatically generated when you installed the app to your team. You can use these to authenticate your app. Learn more.

Bot User OAuth Access Token

xoxb-1 104 POLICE CENTRE FIELD FROM PERIOD CONTRACTOR CONTRACTOR CONTRACTOR

Reinstall App

Redirect URLs

You will need to configure redirect URLs in order to automatically generate the Add to Slack button or to distribute your app. If you pass a URL in an OAuth request, it must (partially) match one of the URLs you enter here. Learn more.

Redirect URLs

You haven't added any Redirect URLs

Add New Redirect URL

Save URLs

Scopes

A Slack app's capabilities and permissions are governed by the scopes it requests.

Bot Token Scopes

Scopes that govern what your app can access.

OAuth Scope

Description

chat:write

Send messages as @

Add an OAuth Scope

尙

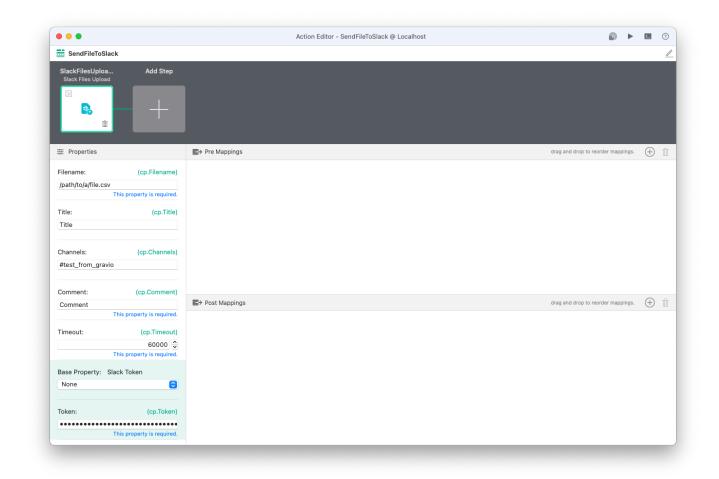
6.3.9.48. Slack Files Upload

The Slack Files Upload action component can use the Slack API to post messages and files to a Slack channel. The authentication happens via the Slack authentication token, which you can retrieve from your Slack Admin console.

The Slack Files Upload component can be useful to debug actions and notify people. You can send messages to #channels or @people directly.

To get started, create a new app in your Slack API admin and add "chat: write: bot" and "files: write: bot" to "Scopes" under "OAuth & Permissions" in the Features menu. You can follow the instructions from <u>the</u> <u>Slack Post Message Component</u> for more details on how to retrieve the authentication token.

Once you have your token, enter it in the Token property as seen below.



For the paths required, you can refer to the documentation how to handle paths in Gravio

You can also refer to a Base Property profile if you wish to define the settings on HubKit level rather than Component level.

Output payload	Description
cv.Payload	Outputs the output payload of the previous component as is. (Pass through)

Component properties

Property name	Description
file name	Specify the file to send with the message
title	Specify the title of the file
Channel	Specify Slack channel
comment	Specify the message text you want to send
time out	Specifying the transmission timeout time
token	OAuth Access Token set in Slack

6.3.9.49. Sleep

The Sleep Action Component is to insert a pause between the two steps of the action.

•••		Action Editor - Example Action @ Localhost	► E
Example Action			
Sleep-1 _{Sleep}	Add Step		
R O D	+		
≢ Properties (Show Variable Names	₽re Mappings	+
Time:	(cp.Time) 1000 ©		
		₽> Post Mappings	+
ENGINE CONSOLE			6

Output Payload	Description
cv.Payload	Outputs the output payload of the previous component as is. (Pass-through)

Component Properties

Name	e Required Description a True Specify pause time in milliseconds	
Time	True	Specify pause time in milliseconds

6.3.9.50. Sound Effect

The Sound Effect Action Component is to play a sound effect.

• • •		Action Editor - Example Action @ Localhost	
Example Action			
SoundEffect-1 Sound Effect	Add Step		
፼ ₩	+		
Properties Show V	ariable Names Pre Mappings		+
Type:	(ср.Туре)		
Decision4 This prop	≎ erty is required.		
	B→ Post Mapping	S	+
ENGINE CONSOLE			3
THOME CONOULL			

Output Payload	Description
cv.Payload	Outputs the output payload of the previous component as is. (Pass-through)

Component Properties

Name	e Required	Description
Туре	True	Type of Sound Effect. When setting by cp.Type value, it can be one of "warning1", "warning2", "decision3", or "decision4".

6.3.9.51. Sound Play

The Sound Play component allows you to play a specified mp3 file.

• • •		Action Editor - Example @ Localhost	<u>د</u>	
Example				
SoundPlay-1 Sound Play	Add Step			
22 1	+			
E Properties		Pre Mappings drag and drop to reorder mapping	s. (†)
ilename:	(cp.Filename)			
dogbark.mp3				
Example Sound Play: Add Step Sound Play Properties Properties (cp.Filename) gbark.mp3				
			drag and drop to reorder mappings. 🔶 📺	
		B> Post Mappings drag and drop to reorder mapping	s. (+)

Output payload	Description
cv.Payload	Outputs the output payload of the previous component as is. (Pass-through)

Component Properties

Property name	Description
File name	Specify the file name in case of file input

If the file name is not specified, the referenced filename refers to a file in the actmgr/data folder, but for how to refer to a file outside this folder, please see <u>here</u>.

• Sound Play is currently supported by HubKit Windows, Linux, RaspberryPl and the Gravio Hub, Mac is not supported due to OS limitations.

6.3.9.52. Split

The Split component is a component that splits the input Payload by line feed if it is a string, or by element if it is a JSON array, and passes it to the next component.

• • •		Action Editor - Example Action @ Localhost	
Example Action			
Split-1 Split	Add Step		
	+		
E Properties	Show Variable Names	E → Pre Mappings	+
Expr:	(cp.Expr)		
	This property is required.		
incoding:	(cp.Encoding)		
utf-8			
	This property is required.		
		■→ Post Mappings	+

The Split component provides the ability to filter whether the output data after the split is passed to the next component or not.

The conditions can be entered as expressions.

The following two variables are available in this component's expression. Note, since they are locally used variables, we do not require the cv. prefix.

Variable name	Meaning of the variable	
Value	The actual data value after the splitting process	
Index	Indicates the index of the element in case there were multiple elements	

Conditional Example	Formula
Pass only elements that begin with abc to the next component	Value =~ "^abc"
Pass only the even-numbered elements.	Index % 2 == 0

Parameters

Expr	Required	Expr
Encoding	Required	Encoding

Example

If the incoming cv.Payload is ["a", "b", "c", "d", "e"], the Split component will split it into 5 payloads each submitted to the next component if the expression is true for all of them. In the above case, the Value is a for Index 0 and the Value is b for Index 1.

6.3.9.53. Statistics

The Statistics component stores the statistics (Min, Max, Mean/Average, Median, Standard Deviation, Sum, Mode) in the component variables with the specified values.

• •		Action Editor - Example Action @ Local IP	
Example Action			
Statistics-1 Statistics	Add Step		
	+		
Ξ Properties		E> Pre Mappings	drag and drop to reorder mappings. +
apacity:	(cp.Capacity)		
	0 0		
Expr:	(cp.Expr)		
cv.Payload Thi	is property is required.		
		■> Post Mappings	drag and drop to reorder mappings.
	*		

If the value specified is an improper value for a number, that value will be excluded from the statistics. The number of values that enter the statistics without being excluded will be output to the component variables as Count.

Example.

If the test scores are flowing in as a Payload, suppose you specify "cv.Payload" for Expr and "0" for Capacity.

When the 10 values have flowed in and finished, Statistics will output an array of values as a payload. At the same time, Statistics outputs the statistics data in the Statistics component variable.

```
cv.Payload [100 100 80 80 80 70 70 30 10 0]
cv.Statistics {"Average":62 "Count":10 "Max":100 "Mean":62 "Median":75 "Min":0 "Mo
de":[80] "StandardDeviation":34 "Sum":620}
```

The value expression to specify the value can be a numeric expression.

In the above example, if you specify "cv.Payload * 100", the statistics will be taken as each value multiplied by 100.

If you want to obtain multiple statistics from a single value, or if you want to extract multiple values from the JSON Object type to obtain statistics, for example, you want to obtain statistics on multiple values at once, specify the values in an array of value expressions.

```
[cv.Payload, cv.Payload*100]
```

Assuming that the JSON Object type {"val1":123, "val2":456} flows

[cv.Payload.val1, cv.Payload.val2]

It is also possible to specify that the value expression is an array.

If you specify an array as a value expression, then the component variable Statistics will also be an array and the respective statistics will be taken.

To get statistics on sensor values in the SensorDataDB component, you can create statistics based on sensor data values by specifying the value expression property "cv.Payload.Data".

If the data is sent in excess of the number of capacity properties, the data will be cleared up to that point once the Capacity is reached.

For example, if you set the capacity to 10 and 12 data come in, the first time you will get statistics on the data from 1-10, then these 10 data will be discarded and calculated on the 11-12th data.

Output Payload and Variable	Description
cv.Payload	Payload to output an array of values as an array
cv.Statistics.Average	Average
cv.Statistics.Count	The number of values that entered the statistics without being excluded
cv.Statistics.Max	Max value
cv.Statistics.Mean	Mean
cv.Statistics.Median	Median
cv.Statistics.Min	Minimum value
cv.Statistics.Mode	Most Frequent value
cv.Statistics.StandardDeviati on	Standard deviation
cv.Statistics.Sum	Total

6.3.9.54. Template

The Template component is a component that generates a string (text) from a specified template using placeholders.

		Action Editor - Example Action @ Localhost	
Example Action			
Template-1 Template	Add Step		
	+		
	Show Variable Names		+ ī
Syntax:	(cp.Syntax)	1 cv.Payload = {"FirstName":"John", "LastName":"Doe"}	
Text	Chis property is required.	2 cp.Template = "My name is {(.cv.Payload.FirstName}} {(.cv.Payload.LastName})"	
Teamplate:	(cp.Template)		
	This property is required.	III→ Post Mappings	+ i
ENGINE CONSOLE			8
020-11-17 14:35:39 020-11-17 14:35:39			
020-11-17 14:35:39	.480] INFO Templat	e-1 [1d540dbf] * cp	
020-11-17 14:35:39	.480] INFO Templat		
020-11-17 14:35:39			
020-11-17 14:35:39			
020-11-17 14:35:39			
020-11-17 14:35:39	.480] INFO action	[1d540dbf] Action Ended	

The template syntax is a GoLang standard described on <u>https://golang.org/pkg/text/template/</u>. tp. / tv. / ap. / av. / cp. / cv. are all referable to the template, so if these variables are referenced in the template, they will be replaced by their values.

Example:

Template	Description
<pre>{{.cv.Payload.LastName}} {{.c v.Payload.FirstName}}</pre>	Each variable's value replaces the double-curly-braced content containing a variable prefixed with a .

Output Payload	Description
cv.Payloa d	Template string generated by the contents of a template string with variable parts replaced by variable values (text)

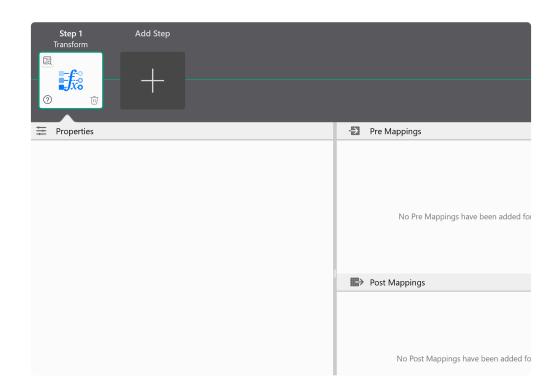
Tip: If you write data into an av. variable (Action Variable) it will be available throughout the lifetime of the action also in other components.

Component Properties

Name	Description
Syntax	Specify text or HTML. The value of cp.Syntax can be either "text" or "html".
Template	A string containing the variables to be replaced

6.3.9.55. Transform

The Transform component is the component that handles Pre Mapping and Post Mapping. A dedicated component used to transform input and output data.



Output Payload	Explanation	
cv.Payload	Outputs the output payload of the previous component as is. (Pass through)	

Component Properties

no Properties.

6.3.9.56. TwilioSMS

The Twilio SMS Action Component is to send an SMS text message via <u>Twilio</u>. It is useful to notify people of information from sensors.

•		Action Editor - Example Action @ Localhost	
Example Action	on		
TwilioSMS-1 Twilio SMS	Add Step		
GB SMS			
Ū			
E Properties	Show Variable Names	Pre Mappings	+
ō:	(ср.То)		
447123456789	This property is required.		
	This property is required.		
From:	(cp.From)		
447987654321			
	This property is required.		
Message:	(cp.Message)	■> Post Mappings	+
"Hello there"			
	This property is required.		
Timeout:	(cp.Timeout)		
	60000 🗘		
	This property is required.		
lase Property:			
NGINE CONSOLE			

Component Properties

Name	Required	Description
То	True	The number to send the message to, starting with the country code, for example (44 in UK) 447123456789
From	True	From
Message	True	Message to be sent, for example "The current temperature is" + cv.P ayload + "°C"
Timeout	True	Timeout (ms)
Twilio Token	False	Twilio Token from the Base Property Profile
AccountSID	True	AccountSID if not taken from the Base Property Profile
AuthToken	True	AuthToken if not taken from the Base Property Profile

6.3.9.57. WriteToExcel365

The WriteToExcel365 component can output data to a OneDrive in Excel format.

The use of this component requires a contract and pre-configuration of Office365 for Business and OneDrive for Business.

•••	Action Editor - Example Action @ Local IP	•		٤
Example Action				
WriteToExcel365 Add Step ite to Microsoft Excel 365				
≢ Properties	►> Pre Mappings	drag and drop to reorder mappings.	+	Ī
File Name: (cp.FileName)				
This property is required.				
Sheet Name: (cp.SheetName)				
Sheet1 This property is required.				
Write Mode: (cp.WriteMode)	■> Post Mappings	drag and drop to reorder mappings.	+	Ū
Append 🗘 This property is required.				
Output Header (cp.OutputHeader) This property is required.				
Column Mapping: (cp.ColumnMapping)				
This property is required.				

How to prepare your Microsoft account

- 1. Prepare an Office365 account and log in to the Azure portal .
- 2. Search for *App registration* in the *Identity* section to create an application.

😑 Microsoft Azure 💡	$^{\circ}$ Search resources, services, and docs (G+/)	E 🛱 🗘 🔅 ? 😳
All services \checkmark Search All		
Categories	Logic Apps Custom Connector	Integration Service Environments
All	Azure Stack Edge / Data Box Gateway	👼 App Configuration PREVIEW
General	Azure API for FHIR	SendGrid Accounts
Compute		-
Networking	Software as a Service (SaaS)	Power Platform PREVIEW
Storage	IDENTITY (15)	
Web	Azure Active Directory	Azure AD B2C
Mobile	🜗 Azure AD Domain Services	Azure Information Protection
Containers	28 Groups	😞 Users
Databases		
Analytics	I Azure AD Connect Health	Enterprise applications
Blockchain	App registrations	Identity Governance
AI + machine learning		🚷 Managed Identities
Internet of things	App registrations 🔅	Azure AD Security
Mixed reality		· · · · · · · · · · · · · · · · · · ·
Integration	O View	
Identity	SECURITY (21)	
Security	Security Center	👚 Key vaults
DevOps	Application Gateways	Azure Information Protection
Migrate		
Monitor	Virtual network gateways	Azure Active Directory
Management + governance	Application security groups	Azure Sentinel

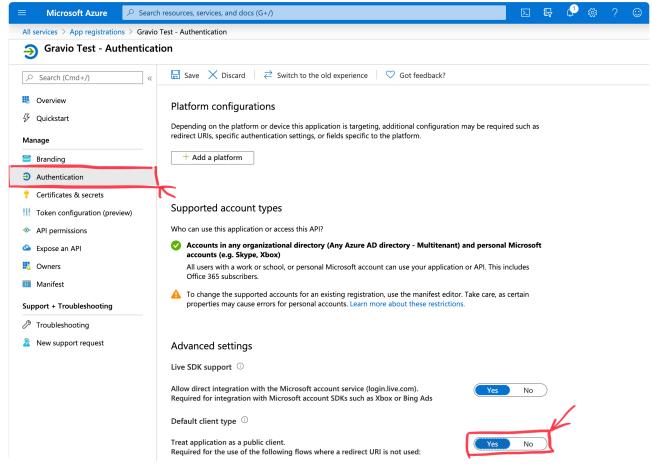
3. Give the app a meaningful name, and pick *single tenant*. (Note: if you don't have this *single tenant* option, you may not have a registered business account)

Register an application	
* Name	
The user-facing display name for this application (this can be changed later).	
graviotest 🗸	
Supported account types	
Who can use this application or access this API?	
(④) Accounts in this organizational directory only (シンオン株式会社 only - Single tenant)	
cocounts in any organizational directory (Any Azure AD directory - Multitenant)	
🔿 Accounts in any organizational directory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)	
Help me choose	
Redirect URI (optional)	
We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.	
Web v le.g. https://myapp.com/auth	
By proceeding, you agree to the Microsoft Platform Policies 🖓	

4. Open the details screen after creating the application and note the displayed *Application (Client) ID* and Directory (Tenant) ID_. You will need to enter them in Gravio.

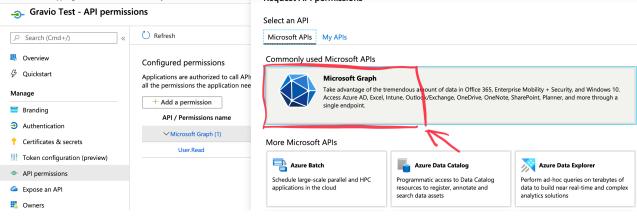
officetest		\$ ×
	Delete Delete Endpoints	
Overview	ĵ Got a second? We would love your feedback on Microsoft identity platform (previously Azure AD for developer). →	
🖉 Quickstart	Display name : officetest Supported account types : All Micro	
Manage		edirect URI Application ID URI
🧮 Branding	Object ID : 9344c0a8-c466-485c- Managed application in : officete:	it
Authentication	· · · · · · · · · · · · · · · · · · ·	
📍 Certificates & secrets	Welcome to the new and improved App registrations. Looking to learn how it's changed from App registrations (Legacy)? Le	earn more
Token configuration (preview)		
API permissions	Call APIs Documentation	
Expose an API	Microsoft identity platform	
🔁 Owners	Authentication scenarios Authentication libraries	
Roles and administrators (Previ	Code samples Microsoft Graph	
Manifest	Glossary Help and Support	
Support + Troubleshooting	Build more powerful apps with rich user and business data from Microsoft services and your own company's data sources.	
P Troubleshooting	View API permissions	
New support request		

- 5. Put these values in the properties of the WriteToExcel365 component along with the email address and password of the Office365 account.
- 6. Now go to *Authentication* and make sure the app is treated as a *public client*:



7. Then open *API Permissions* and add *Files.ReadWrite.All* permissions, which you can find under the *Microsoft Graph* section.

	Microsoft Azure	$^{ m >}$ Search resources, services, and docs (G+/)	>_	P	4		?	\odot			
All	All services > App registrations > Gravio Test - API permissions										
-3	ے۔ Gravio Test - API permissions										
2	Search (Cmd+/)	« Č Refresh									
	Overview	Configured permissions									
Ģ	Quickstart	Applications are authorized to call APIs when they are granted permissions by users/admins as part of the	consent	process	s. The li	st of c	onfigu	red pern			
Ма	nage	all the permissions the application needs. Learn more about permissions and consent									
Service	Branding	API / Permission API / Permissions name Type Description					Admin	n Conse			
Э	Authentication	✓ Microsoft Graph (1)					Aumi	I Conse			
+	Certificates & secrets	User.Read Delegated Sign in and read user profile									
ł!ł	Token configuration (previ										
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2	Expose an API										
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0	Manifest										
Sup	oport + Troubleshooting										
Þ	Troubleshooting										
2	New support request										
All se	ervices > App registrations > 0	iravio Test - API permissions Request API permissions									
-9-	Gravio Test - API per	nissions Select an API									



≡ Microsoft Azure 🔎 Sear	ch resources, services, and docs (G+/)		\geq	Ŗ	4	<u>نې</u>	?	:
All services > App registrations > Gravio Test - API permissions		Request API permissions						
		All APIs DeviceManagementManagedDevices						
	🕐 Refresh	DeviceManagementRBAC						
Overview	Configured permissions	> DeviceManagementServiceConfig						
Ø Quickstart	Applications are authorized to call API:	> Directory						
Manage	all the permissions the application nee	> EAS						
🗮 Branding	+ Add a permission API / Permissions name	> EduAdministration						
Authentication	✓ Microsoft Graph (1)	> EduAssignments						
📍 Certificates & secrets	User.Read	> EduRoster						
Token configuration (preview)		> EntitlementManagement						
API permissions		> EWS						
🙆 Expose an API		> ExternalItem						
Owners		> Family						
0 Manifest		✓ Files						
Support + Troubleshooting		□ Files.Read Read user files ①						
7 Troubleshooting		Files.Read.All						
New support request		Read all files that user can access ①						
		Files.Read.Selected Read files that the user selects (preview) ①						
		Files.ReadWrite Have full access to user files ①						
		Files.ReadWrite.All Have full access to all files user can access ①						
		Files.ReadWrite.AppFolder	· ~					
officetest - API permission	S						5	☆ ×
	💍 Refresh							
Overview	Configured permissions							
🖓 Quickstart	Applications are authorized to call APIs when t	hey are granted permissions by users/admins as part of the consent p	rocess. Th	e list of	configu	ired pei	missio	ns
Manage	should include all the permissions the application needs. Learn more about permissions and consent							

IVI	anage						
	Branding	+ Add a permission Gra	int admin consent	tor			
€	Authentication	API / Permissions name	Туре	Description	Admin Consent Req	Status	
1	Certificates & secrets	✓ Microsoft Graph (2)					
ł	Token configuration (preview)	Files.ReadWrite.All	Delegated	Have full access to all files user can acc	-	Granted for	
-9	API permissions	User.Read	Delegated	Sign in and read user profile	-	Granted for	
6	Expose an API						

8. The preparation is now complete.

Component Properties

File Name	Specify Excel file name to output
Sheet Name	Specify sheet name to output data
Write Mode	Specify whether to overwrite (Replace) the file or append the data (Append). The value of cp.WriteMode can be either "Append" or "Overwrite".
Output header	Select whether to output header when outputting data

Column Mapping	Specify which column of Excel to output among the columns of step output. More than one can be specified. (Example: To output Step_a of step output to column A of the Excel and Step_c to column B of Excel, specify <code>Step_a: A</code> , <code>Step_c: B</code> and the field of step output and the column of Excel with :, If you specify more than one, separate with , comma)
Client Id	Specify Application (client) ID
Tenant Id	Enter the Directory (tenant) ID
Instance	Only change if your Azure account is hosted on a custom domain, as opposed to on Microsoft's domain
Username or Email	Specify Office365 Business account
password	Specify password for Office365 Business account

6.3.9.58. WriteToExcelLocal

The WriteToExcelLocal component can output data in Excel format to a local xlsx file.

The input payload (cv.Payload) can be an array of JSON arrays or an array of JSON Objects. Otherwise, it is converted to a string and output as a single line, single column Excel file.

Input payload	Example
Example JSON array payload	[[123, "abc", "xxx"],[456, "def", "yyyy"],[789, "hij", "zzz"]]
Example JSON Object payload	<pre>[{"field1": 123, "field2": "abc", "field3": "xxx"}, {"field1": 456, "field2": "def", "field3": "yyy"}, {"field1": 789, "field2": "hij", "field3": "zzz"}]</pre>

- Step 1 ステップの追加 WriteToExcelLocal				
		-53	Pre Mappings	
ファイル名	(cp.Filename)			
<u>追加</u>	(cp.Append)			٦
Start Column	(cp.StartColumn)			
А		∎>	Post Mappings	
Start Row	(cp.StartRow)			
1				
				N
出力フィールド順	(cp.OutputKeys)			

Component Properties

Property name	Description
File name	Specify the file name in case of file output

Append	Specifies whether the file is overwritten (Replace) or the data is appended (Append). The value of cp.WriteMode can be one of "Append", "Overwrite"
SheetName	Specifies the name of the sheet on which the data is to be output.
Start Column	Specify the first column to output.
Start Row	Specify the first row to output.
Output Header	Select whether headers are also output when outputting data
Output field order	If the input payload is a JSON Object, list the field names to be output in the order in which you want them to be output, separated by commas.

The destination of the file without specifying the file path is actmgr/data, but see <u>here</u> for how to write a file name that specifies the file path.

how to specify output field order

When the payload of a JSON Object is as follows, an Excel file is output if field3 and field1 are specified in the output field order.

Payload of JSON Object

```
[{"field1": 123, "field2": "abc", "field3": "xxx"}, {"field1": 456, "field2":
"def", "field3": "yyy"}, {"field1": 789, "field2": "hij", "field3": "zzz"}]
```

Output payload (Excel file)

field3, field1 xxx,123 yyy,456 zzz,789

6.3.10. Functions

Functions available on the right-hand side of expressions in Pre Mappings / Post Mappings are described separately in this section. A simple example of using a function is the usage of the Now function to output the current date, like in this example that writes the timestamp to a local CSV file alongside with the trigger value tv Data:

• • •		Action Editor - WriteToFile @ Localh	ost		<u><</u>
···· WriteToFile					
FileWrite-1 File Write	Add Step				
2 	+				
➡ Properties		≣ → Pre Mappings	drag and drop to reorder mappings.	+	Ū
Filename:	(cp.Filename)	1 cv.Payload = Now+","+tv.Dat	ta+"\r"		
SomeCSVFile.csv Append	(cp.Append) This property is required.				
		₽> Post Mappings	drag and drop to reorder mappings.	+	Ū

6.3.10.1. String Functions

Function Name	Arguments	Description	Example
Len	Len(s)	Returns the length of a string (in bytes). s returns the number of elements if s is an array or an object.	Len("abcdefghijk") -> 11
Contain s	Contains(s, substr)	Return by Bool to see if the substring is included in the s	Contains("abc", "a") -> true
RuneCou nt	RuneCount(s)	Returns the number of characters in the s string.	RuneCount("abc012漢字") -> 8
HasPref ix	HasPrefix(s, prefix)	s begins with a prefix or returns with a Bool	HasPrefix("https://www.asteria.com/", "https://") -> true
HasSuff ix	HasSuffix(s, suffix)	s ends with a suffix or returns with a Bool	
Index	Index(s, substr)	Returns the position of the first occurrence of the substring in s. If not, it is -1. If not, it returns -1	Index("abcdefg", "cdef") -> 3
Join	Join(a, sep)	Make the elements of the array "a" into one string with a sep in between.	Join(["abc","def"], "-") -> "abc-def"
LastInd ex	LastIndex(s, substr)	Returns the position of the last occurrence of the substring in s. If not, it is -1. If not, it returns -1	
Repeat	Repeat(s, count)	Returns a string of s repeated count times	Repeat("abc", 3) -> "abcabcabc"
Replace	Replace(s, old, new[, n])	Replace the old string in s with the new string up to the nth time. n is less than 0 for all (default is -1).	
Split	Split(s, sep[, n])	Return an array of s separated by sep to a maximum of n elements, if n is less than 0, all of them (default is -1)	Split("a,b,c", ",") -> ["a", "b", "c"]
ToLower	ToLower(s)	Convert s to lowercase	
ToUpper	ToUpper(s)	Convert s to uppercase	
Trim	Trim(s[, cutset])	Returns a string minus the letter at the beginning of the "s" and the characters in the last "cutset", where "cutset" is a	Trim(" abc ") -> "abc"

		space character by default	
TrimLef t	TrimLeft(s[, cutset])	Returns a string excluding the characters in the s-head cutset, where cutset is a space character by default	
TrimRig ht	TrimRight(s[, cutset])	Returns a string except for the characters in the last cutset of s. Cutset defaults to a space character	
TrimPre fix	TrimPrefix(s, prefix)	If s begins with a prefix, it returns the string without it. If it doesn't start, it returns s as it is.	TrimPrefix("https://www.asteria.com", "https://") -> "www.asteria.com"
TrimSuf fix	TrimSuffix(s, suffix)	If the s is terminated by a suffix, return a string with the stripped string. If the s is not terminated, it returns the s as it is.	
JSONPat h	JSONPath(path, s)	Returns the value as a string, specified by path from ${\tt s}$.	JSONPath("\$.store.book[*].author", cv.Payload)
Sprintf	Sprintf(format, s)	Formats a formatted string and returns a string. Formatting can be specified as % followed by a conversion specifier and options flags, width, and precision.	Sprintf("Number of messages: %d", ToInt(cv.Payload))
IFS	IFS (condition 1, value 1[, condition 2, value 2,])	Evaluates the conditions in the order of the parameters from the 1st parameter and returns the respective value that matches. If you specify true for the condition, it will always match, therefore if you specify true for the last condition-value pair, you can specify a condition matching everything else.	IFS (ToFloat(cv.Payload) >= 10, "more than 10", true, "Less than 10")

6.3.10.1.1. JSONPath() Usage Examples

This section describes an example of using JSONPath().

If the sensor data (cv.Payload) or the argument of the action to be executed in the trigger condition (t v.Data) is in JSON format, you can use JSONPath() to refer to the value.

Sample Data

```
{ "store": {
   "book": [
     { "category": "reference",
       "author": "Nigel Rees",
       "title": "Sayings of the Century",
       "price": 8.95
     },
     { "category": "fiction",
       "author": "Evelyn Waugh",
       "title": "Sword of Honour",
       "price": 12.99
     },
     { "category": "fiction",
       "author": "Herman Melville",
       "title": "Moby Dick",
       "isbn": "0-553-21311-3",
       "price": 8.99
     },
     { "category": "fiction",
       "author": "J. R. R. Tolkien",
       "title": "The Lord of the Rings",
       "isbn": "0-395-19395-8",
       "price": 22.99
     }
   ],
   "bicycle": {
     "color": "red",
     "price": 19.95
   }
 }
```

For example, if you want to refer to store -> bicycle -> color , use

```
cv.Payload.store.bicycle.color
```

But if you use JSONPath() you can write

JSONPath("\$.store.bicycle.color", cv.Payload)

It can also be written as

The first argument of JSONPath path

path	Description	
\$	root object/element	
@	current object/element	
. or []	child operator	
	recursive descending	
*	wildcard	
0	subscript operator (native array operator)	
[,]	union operator (alternative names or array indices can be used as sets)	
[start:end:step]	array slice operator	
?()	filter (script) expression	
()	Script expression using the underlying script engine	

Example of the first argument path of JSONPath

Example	Description
\$.store.book[*].author	all authors in the books array in the store
\$author	all authors
\$.store.*	the books array in the store and bicycle
\$.storeprice	all prices in the store
\$book [2]	the third book
\$book[(@.length-1)]\$book[-1:]	last book
\$book[0,1] \$book [:2]	first two books in book array
\$book[?(@.isbn)]	all isbn in book array
\$book[?(@.price<10)]	price less than 10 in book array
\$*	all nodes/elements

For more information on JSONPath, see the Goessner.net reference here.

6.3.10.1.2. Using Sprintf

Sprintf formats a formatted string and returns the string. The format can be specified by % followed by a conversion specifier and optionally a flag, width, and precision. Decimal

Specifier	Description	
%b	Binary integer	
%d	Decimal integer	
%x %X	Hexadecimal	
%e %E	Floating point, scientific notation	
%f %F	Floating point, no exponent notation	
%g %G	Floating point, %e if the exponent is large, %f otherwise	
°₀S	String	
90 90 90	The character of % itself	

Flag	Description
+	Signed
-	Left justified
0	If it is less than the width, fill it with 0 instead of space (left padding)

Length and Accuracy	Description		
%f	Default length		
%9f	Length 9		
%.2f	Accuracy 2		
%9.2f	length 9 and accuracy 2		

Examples

Sprintf("Messages: %d", ToInt(cv.Payload))
Sprintf("Floating point to the second decimal place: %.2f", cv.Payload)

6.3.10.2. Type Conversion Functions

Function Name	Arguments	Description	Example
ToBool	ToBool(a)	Conversion to Bool type	
ToInt	ToInt(a)	Conversion to Integer type	
ToFloat	ToFloat(a)	Conversion to Floating- Point type	
ToStrin g	ToString(a)	Conversion to String type	
ToDate	ToDate(a)	Conversion to Date and time	
ToBinar Y	ToBinary(a)	Conversion to Byte sequence	
ToJSON	ToJSON(a)	Conversion to JSON array type or JSON object type	split a string of numbers separated with , at , and turn the result into a JSON object so it can be processed with JSONPath to find out if any of the values exceeds 30 (for example in the trigger with the $E \times pr$ setting): Len(JSONPath("\$[?@>30]", ToJSON(Split(tv.Data, ",", "-1")))) > 0

6.3.10.3. Encode Functions

Function Name	Arguments	Description	Example
URLPath Escape	URLPathEscape(s)	Escaping $\ensuremath{\mathbb{S}}$ to a string that can be safely placed in a URL path segment	URLPathEscape("test1?test2 test3") -> "test1%3Ftest2%20test3"
URLPath Unescap e	URLPathUnescape(s)	Undo any escaped string with URLPathEscape	
URLQuer yEscape	URLQueryEscape(s)	Escaping s to a string that can be safely placed in a URL query	URLQueryEscape("test1?test2 test3") -> "test1%3Ftest2+test3"
URLQuer yUnesca pe	URLQueryUnescape(s)	Undo the escaped strings with URLQueryEscape	
MD5	MD5	Return MD5 in byte sequence b	
SHA1	SHA1	Return SHA1 of byte sequence b	
SHA256	SHA256	Return SHA256 of byte sequence b	
BASE64	BASE64	Returns BASE64 of the byte sequence b. If true is specified with pad, =padding is performed (the default is true)	
DecodeB ASE64	DecodeBASE64(s[, pad])	Decode BASE64s. pad=true = BASE64 with padding (the default is true)	
BASE64U RL	BASE64URL	Returns the BASE64 used in the URL or file name for the byte sequence b. If true is specified in the pad, =padding is performed (the default is true)	
DecodeB ASE64UR L	DecodeBASE64URL(s[, pad])	Decode BASE64s. pad=true = BASE64 with padding (the default is true)	

6.3.10.4. Date Functions

Function Name	Arguments	Description	Example
Now	Now([timezone])	Returns the date and time type for the current date and time.	
Year	Year(t[, timezone])	Returns the year of date and time type t . If timezone is specified, it is interpreted as the time zone.	
Month	Month(t[, timezone])	Returns the month of date and time type t . If timezone is specified, it is interpreted as the time zone.	
Day	Day(t[, timezone])	Returns a day of type t . If timezone is specified, it is interpreted as the time zone.	
Hour	Hour(t[, timezone])	Return the time of date and time type t . If timezone is specified, it is interpreted as the time zone.	
Minute	Minute(t[, timezone])	Return the minutes of date and time type t . If timezone is specified, it is interpreted as the time zone.	
Second	Second(t[, timezone])	Return seconds of date and time type t . If timezone is specified, it is interpreted as the time zone.	
Weekday	Weekday(t[, timezone])	Return the day of the week for date and time type t . If timezone is specified, it is interpreted as the time zone. (0 is Sunday.)	
ToLocal	ToLocal(t)	Convert date and time type ${\tt t}$ to system time zone	
ToUTC	ToUTC(t)	Convert date and time type ${\tt t}$ to UTC	
ToTimez one	ToTimezone(t, timezone)	Converts a date and time type t to a specified time zone	
DateFor mat	DateFormat(t, layout)	Convert a date and time type t to a string with the specified layout. The key date that you can rearrange as you desire is 2006-01-02 15:04:05.999 MST with 01 representing the month, 02 representing the day, 15 representing the hours, 04 representing the minutes 05 representing the seconds, 2006 representing the year in four digits and 999 representing the microseconds. MST is the timezone (Mountain Standard Time). This is based on the GoLang date formatting standard, which you can look up here.	

DatePar se	DateParse(layout, s[, timezone])	Interprets $\ensuremath{\mathtt{s}}$ along the layout and returns a date/time type	
ToInt	ToInt(timestamp)	Turn the timestamp into a unix timestamp	ToInt(cv.P ayload.Tim estamp)

Example usage of the Now function:

• • •		Action Editor - WriteToFile @ Localh	nost		<u><</u>
WriteToFile					/
FileWrite-1 File Write	Add Step				
R r	+				
		■> Pre Mappings	drag and drop to reorder mappings.	+	Ū
Filename:	(cp.Filename)	1 cv.Payload = Now+","+tv.Da	ıta+"\r"		
V Append	(cp.Append) This property is required.				
		B→ Post Mappings	drag and drop to reorder mappings.	+	Ū

Gravio uses GoLang Date formatting. More details can be found <u>in the GoLang date format source code</u> <u>file</u>.

6.3.10.5. Environment Functions

Function Name	Arguments	Description
Env	Env(s)	Return environment variables

6.3.10.6. Regular Expression Functions

Function Name	Arguments	Description	Example
RegExpM atch	RegexMatch(re, s)	Returns a Bool to see if the regular expressions re and s match	RegexMatch("G.*o", "Gravio HubKit") -> true
RegExpF ind	RegexFind(re, s)	Returns the first string that matches the regular expressions re and s	RegexFind("i.", "Gravio HubKit") -> "io"
RegExpF indSubm atch	RegexFindSubmatch(re, s)	If the first string and parenthesized subexpressions of the regular expressions re and s match, return an array	RegexFindSubmatch("(G.*o) (H.*t)", "Gravio HubKit") -> ["Gravio HubKit", "Gravio", "HubKit"]
RegExpF indAll	RegexFindAll(re, s[, n])	Returns an array of all strings where the regular expressions re and s match	RegexFindAll("i.", "Gravio HubKit") -> ["io", "it"]
RegExpR eplace	RegexReplace(re, s, repl)	Returns a string with the regular expressions re and s replaced by a matched repl. repl can use subexpressions such as \$1.	
UUID	UUID	Returns a UUID string, where sep is a separator (empty string by default)	

6.3.10.7. Arithmetic Functions

Function Name	Arguments	Description	Example
Abs	Abs(v)	Returns absolute value	
Acos	Acos(v)	Returns the inverse cosine	
Acosh	Acosh(v)	Returns the inverse hyperbolic cosine	
Asin	Asin(v)	Returns the inverse sine	
Asinh	Asinh(v)	Returns the inverse hyperbolic sine	
Atan	Atan(v)	Returns the inverse tangent	
Atan2	Atan2(y, x)	Returns the inverse tangent of y/x	
Atanh	Atanh(v)	Returns the inverse hyperbolic tangent	
Cbrt	Cbrt(v)	Return cubic root	
Ceil	Ceil(v)	Returns the value rounded up to the nearest whole number	
Copysig n	Copysign(x, y)	Returns a value of sign y with magnitude x	
Cos	Cos(v)	Returns the cosine	
Cosh	Cosh(v)	Returns the hyperbolic cosine	
Erf	Erf(v)	Returns the error function	
Erfc	Erfc(v)	Returns the complementary error function	
Exp	Exp(x)	Returns e raised to the power x	
Exp2	Exp2(x)	Returns 2 raised to the power x	
Expml	Expm1(x)	Returns e to the power of x, minus 1	
Floor	Floor(v)	Returns the value rounded down to the nearest whole number	
Hypot	Hypot(x, y)	Returns Sqrt(xx + yy)	
Inf	Inf(sign)	Returns positive infinity if sign>=0, otherwise returns negative infinity	
IsInf	lsInf(v, sign)	Returns true if v is infinity according to the sign	
IsNaN	IsNaN(v)	Returns true if v is Not a Number	
Log	Log(v)	Returns the natural logarithm	

Log10	Log10(v)	Returns the base-10 logarithm	
Log1p	Log1p(v)	Returns the natural logarithm of $v + 1$	
Log2	Log2(v)	Returns the base-2 logarithm	
Max	Max(v1[, v2, v3,])	Returns the maximum value among the specified values	
Min	Min(v1[, v2, v3,])	Returns the minimum value among the specified values	
NaN	NaN()	Returns Not a Number	
PI	PI()	Returns the value of pi	
Pow	Pow(x, y)	Returns x raised to the power y	
Round	Round(v[, n])	Returns the value rounded to the nearest whole number. If n is specified, it rounds to the nth decimal place	
Signbit	Signbit(v)	Returns true if the value is negative	
Sin	Sin(v)	Returns the sine	
Sinh	Sinh(v)	Returns the hyperbolic sine	
Sqrt	Sqrt(v)	Returns the square root	
Random	Random([max])	Returns a random number. If no argument is provided, it returns a floating-point number between 0 and 1. If an argument is provided, it treats it as the maximum value and returns an integer between 0 and that maximum value	
Tan	Tan(v)	Returns the tangent	
Tanh	Tanh(v)	Returns the hyperbolic tangent	
Trunc	Trunc(v[, n])	Returns the integer part of the value. If n is specified, it truncates at the nth decimal place	
Degrees	Degrees(v)	Converts radians to degrees	
Radians	Radians(v)	Converts degrees to radians	
FtoC	FtoC(v)	Converts Fahrenheit to Celsius	
CtoF	CtoF(v)	Converts Celsius to Fahrenheit	
GtoLBM	GtoLBM(v)	Converts grams to pounds	
LBMtoG	LBMtoG(v)	Converts pounds to grams	
GtoOZM	GtoOZM(v)	Converts grams to ounces	
OZMtoG	OZMtoG(v)	Converts ounces to grams	
MtoIN	MtoIN(v)	Converts meters to inches	

INtoM	INtoM(v)	Converts inches to meters	
MtoFT	MtoFT(v)	Converts meters to feet	
FTtoM	FTtoM(v)	Converts feet to meters	

7. Using the Gravio Al Option

This section describes how to install and use the Gorilla IVAR (Intelligent Video Analytics Recorder) and Gorilla BAP (Biometric Authentication Provider) provided by <u>Gorilla Technology</u> for Gravio Enterprise AI Edition Gold / Platinum.

Gorilla Technology is a privately held company established in 2000, that specializes in video intelligence and IoT technology, supporting a wide range of video-centric and content management applications for retail, enterprise and surveillance. Their machine learning and deep learning video analysis algorithms identifies, analyses and extracts information from digital content to drive business intelligence solutions and automation.

7.1. Gorilla IVAR and BAP Modules

Gorilla IVAR (Intelligent Video Analytics Recorder), BAP (Biometric Authentication Provider) installer and documentation can be found on your <u>Asteria customer portal</u>, depending on your agreement and license.

If you have access, after logging in and selecting the "Download" tab, you should see the following view:

製品	
Gravio	
Gravio Coordinator Setup	
Gorilla BAP	Download
Gorilla IVAR	Download

Each download button is displayed to the right of the solution available. Both IVAR and BAP can be downloaded in zip file format and each zip file contains the installer and documentation.

7.2. Installation of Gorilla BAP

Things to prepare in advance

·BAP account Root, Administrator, Application user password

```
·BAP license key
```

Installation environment

Prepare a Windows 10 PC and Chrome browser to install BAP. You will also need to be connected to the internet as you will be registering a license.

Notes before installing

BAP uses <u>PostgreSQL</u>. If PostgreSQL is already installed, it may not be installed correctly due to conflicts such as version differences, therefore please uninstall any previous PostgreSQL installation you may have. Also delete the data folder.

Installation procedure

Unzip the downloaded zip. When expanded, a BAP folder will be created. Inside you will find the Gorill a Biometric Authentication Providor_<version number>.Setup application. Please run it.

Select Setup Language					
17	Select the language to use during the installation:				
	English	\sim			
	OK Cancel				



Click the Next button to proceed with the installation.

🕼 Setup - Gorilla Biometric Authentication Provider		_	_	X
Select Destination Location				R
Where should Gorilla Biometric Authentication Provider be installed?				Gorilla
Setup will install Gorilla Biometric Authentication Provider into the follo	owing folder.			
To continue, click Next. If you would like to select a different folder, click Bro	owse.			
C:¥Program Files¥Gorilla Biometric Authentication Provider			B <u>r</u> owse	
			browse	
At least 1,549.7 MB of free disk space is required.				
	< <u>B</u> ack	<u>N</u> ext >	Can	cel

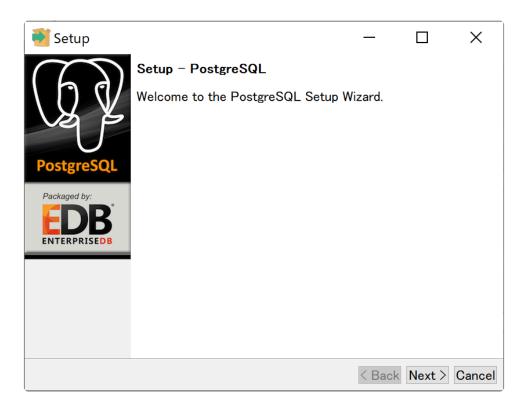
Please click Next button to install in the standard folder.

🕼 Setup - Gorilla Biometric Authentication Provider 🦳 —		×
Database Options		ß
Create a new database or connect to an existing database.		Gorilla
Create a new BAP database.		
< gack Next >	Can	el

Press the Next button.

f Setup - Gorilla Biometric Authentication Provider	_	×
Database Settings		A
Set database connection parameters.		Gorilla
Database IP Address		
127.0.0.1		
Database Port		
5432		
Database Username		
postgres		
Database Password		
< <u>B</u> ack Next >	Ca	ncel

For the Database Password, set the PostgreSQL password that will be set later. Click the Next button to start the PostgreSQL installer.



Press the Next button.

Setup	_		X
Installation Directory			P
Please specify the directory where PostgreSQL v Installation Directory C:¥Program Files¥PostgreS			
InstallBuilder	< Back	Next >	Cancel

Please click the Next button to install in the standard folder.

Setup	_		×
Data Directory			P
Please select a directory unde Data Directory C:¥Program File			
InstallBuilder	< Back	Next >	Cancel

Please click the Next button to install in the standard folder.

🍯 Setup			_		×
Password					
Please provide a pass Password Retype password	sword for the database	superuser (p	ostgres).		
InstallBuilder			< Back	Next > (Cancel

Register the PostgreSQL password you registered earlier and click the Next button.

<table-of-contents></table-of-contents>	_		×
Port			
Please select the port number the server shou Port 5432	ıld listen on.		
InstallBuilder	< Ba	ck Next >	Cancel

Since the standard port is used, just press the Next button.

Setup	_		×
Advanced Options			
Select the locale to be used by the new database c Locale [Default locale]	luster.		
InstallBuilder	< Back	Next >	Cancel

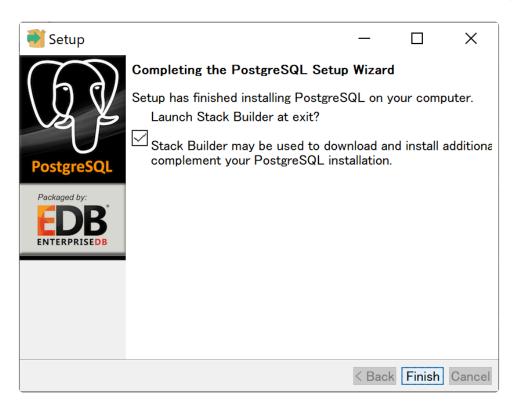
Press the Next button without making any changes.

Setup	_		×
Ready to Install			
Setup is now ready to begin installing PostgreSQL on y	our comp	uter.	
InstallBuilder	< Back	Next >	Cancel

Press the Next button.

<table-of-contents></table-of-contents>	_		×
Installing			
Please wait while Setup installs PostgreSQL on your Installing	r computer.		
Unpacking C:¥Program Files¥PostgreSQL¥9.5¥lib¥lib	pg.dll		
InstallBuilder	< Back	Next >	Cancel

The file copy will start.



When the installation is complete, uncheck "Stack Builder may be used ..." and press the Finish button.

🕼 Setup - Gorilla Biometric Authentication Provider	_		×
Database Settings			ß
SQL Scripts			Gorilla
BAP is complete.			
< gark Mr	ext >	Cano	el

After the installation of BAP is completed, the initial settings will be continued. Click the Next button.

Initial settings

Betup - Gorilla Biometric Authentication Provider	_		×
BAP System User Settings			13
BAP system users			Gorilla
Root Account Name			
root			
Root Account Password			
Administrator Account Name			
admin			
Administrator Account Password			
Application Account Name			
Application Account Password			
Application Metadata			
< <u>B</u> ack	<u>N</u> ext >	Can	el

Create three users in BAP: Root, Administrator, and Application. The Admin account is used for the operation.

Register for Root Account Password, Administrator Account Password, and Application Account Password respectively, and click the Next button.

🕼 Setup - Gorilla Biometric Authentication Provider	_		X
BAP System User Settings			ß
			Gorilla
Initialize the database. (This may take a few minutes).			
< Back New	t >	Cano	el

Press the Next button.

🕼 Setup - Gorilla Biometric Authentication Provider	-	\times
Database Settings		R
SQL Scripts		Gorilla
Initializing		
[09:50:56.813] ExitCode(0)		

The file copy will start.

륡 Setup - Gorilla Biometric Authentication Provider		×
Ready to Install		ß
Setup is now ready to begin installing Gorilla Biometric Authentication Provider on your computer.		Gorilla
Click Install to continue with the installation.		
Destination location: C:¥Program Files¥Gorilla Biometric Authentication Provider		^
Setup type: BAP		
Selected components: Gorilla Biometric Authentication Provider		
Start Menu folder: Gorilla Biometric Authentication Provider		
<	>	~
Install	Can	icel

Press the Install button. The MMS installer will start.

Select Se	tup Language	×
1	Select the language to use during the installation:	
	English	~
	OK Cancel	

Press the OK button.

🕼 Setup - Gorilla MMS for BAP version 1.3.3.7484	_		×
Select Destination Location Where should Gorilla MMS for BAP be installed?			/S Gorilla
E Setup will install Gorilla MMS for BAP into the following folder.			
To continue, click Next. If you would like to select a different folder, clic	k Brow	/se.	
m Files¥Gorilla Biometric Authentication Provider¥Gorilla MMS for BAP	Br	owse	
At least 130.6 MB of free disk space is required.			
<u>N</u> ext >	•	Ca	ncel

Please click the Next button to install in the standard folder.

Festup - Gorilla MMS for BAP version 1.3.3.7484	- 🗆 🗙	<
Select Start Menu Folder Where should Setup place the program's shortcuts?	Goril	la
Setup will create the program's shortcuts in the following Start Me	nu folder.	
To continue, click Next. If you would like to select a different folder, click	Browse.	
Gorilla MMS for BAP	Browse	
Don't create a Start Menu folder		
< <u>B</u> ack <u>N</u> ext >	Cancel	

Just press the Next button.

🚏 Setup - Gorilla MMS for BAP version 1.3.3.7484 🦳 🗌	×	
Ready to Install Setup is now ready to begin installing Gorilla MMS for BAP on your computer.	Gorillo	a
Click Install to continue with the installation, or click Back if you want to review or change any settings.		
Destination location: C:¥Program Files¥Gorilla Biometric Authentication Provider¥Gorilla MMS for B	AI ^	
Start Menu folder: Gorilla MMS for BAP		
<	•	
< <u>B</u> ack Install	Cancel	

Press the Install button.

Setup - Gorilla MMS for BAP version 1.3.3.7484 —		×
Installing Please wait while Setup installs Gorilla MMS for BAP on your computer.) Gorilla
Extracting files C:¥Users¥minor¥AppData¥Local¥Temp¥is-VKSP0.tmp¥vc_redist_x64_2015.exe		
	С	ancel

The file copy will start.

🕼 Setup - Gorilla MMS for BAP version 1.3.3.7484	- 🗆 X
MMS Connection DataBase Type Setting	R
Set MMS Connection DataBase Type	Gorilla
Choose DataBase Type	
Postgres SQL	
	N
	<u>N</u> ext >

Just press the Next button.

🕼 Setup - Gorilla MMS for BAP version 1.3.3.7	7484	—		_
Postgres Connection Setting Set Postgres Connection Parameters			Gorille	z
IP Address				
127.0.0.1				
Port				
5432				
DB Name				
bap				
User				
postgres				
Password				
gravio				
	< <u>B</u> ack	<u>N</u> ext >		

Make sure that the value set in the PostgreSQL installation is displayed, and click the Next button.

Setup - Gorilla MMS for BAP version 1.3.3.7	7484	_		\times
MMS Server Type Setting				Sec.
Set MMS Server Type				Gorilla
All feature MMS server. Including Model_Ter	mplate server and	d Thumbnail serv	er	
Model_Template se \vee				
	_	•••		
	< <u>B</u> ack	<u>N</u> ext >		

Just press the Next button.

🕼 Setup - Gorilla MMS for BAP version 1.3.3.7	484	_		\times
Other Settings Set other settings			1) Gorilla
☑ Enable to save data in local database				
	< <u>B</u> ack	<u>N</u> ext >		

Just press the Next button.

🕼 Setup - Gorilla MMS for BAP version 1.3.3.	7484 -	- 🗆 ×
Select Local Database Location		æ
Where should Local databse files be stored?		NG.
		Gorilla
m Files¥Gorilla Biometric Authentication Pro	vider¥Gorilla MMS for BAP	Browse
		Dronseni
	< <u>B</u> ack <u>N</u> ext >	

Please click the Next button to install in the standard folder.



When the MMS installation is complete, click the Finish button.

률 Setup - Gorilla Biometric Authentication Provider 🦳 —		X
		æ
		<u>A</u>
Please wait while Setup installs Gorilla Biometric Authentication Provider on your computer.		Gorilla
Extracting files		
C:¥Program Files¥Gorilla Biometric Authentication Provider¥cublas64_10.dll		
r		
	Can	cel

Then the file copy will proceed.

妃 Setup - Gorilla Biometric Authentication Provider 🦳 —		×
Web Services Settings		A
Configure BAP		Gorilla
Base Web Services URL path for HTTP/HTTPS (E.g. http://ip:port/base_path)	_	
bap		
Web Service HTTP Port		
18000		
Web Service HTTPS Port		
18443		
Next >		

Since it is a standard setting, just press the Next button.

🕵 Setup - Gorilla Biometric Authentication Provider 🦳 🗕	×
Face Feature Selection	ß
Please select a face feature version for this BAP service	Gorilla
Feature version 60032084 V	
< geak Next >	

(color-red) Be sure to select 60032084 as the Feature version, as it cannot be used with the default version in the current BAP version. %

Setup - Gorilla Biometric A	uthentication Provider	_	×
Gorilla	Completing the Gorilla Biometric Auteric Auteric Setup Wizard To complete the installation of Gorilla Biometric Authentication Provide computer. Would you like to restart now? • Yes, restart the computer now • No, I will restart the computer later		
	< <u>Back</u>	<u>F</u> inish	

When the installation is complete, restart the PC, by clicking the Finish button.



Installed files will be displayed and terminal windows may appear irregularly. They can safely be ignored.

7.2.1. Gorilla BAP License Registration

License registration

After installing BAP, use the Chrome browser to open the following address:

https://localhost:18443/bap/portal

Note: This assumes that you operate Chrome on the same PC as the BAP server. When operating on a different PC, change "localhost" accordingly



Your connection is not private

Attackers might be trying to steal your information from **localhost** (for example, passwords, messages or credit cards). Learn more

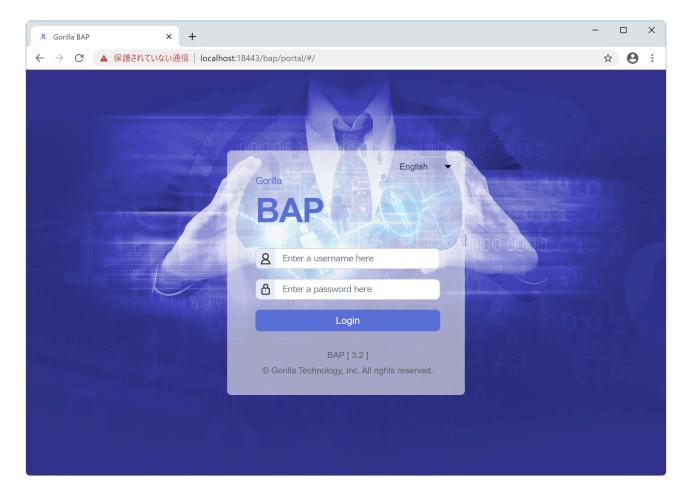
NET::ERR_CERT_INVALID

Help improve Chrome security by sending <u>URLs of some pages that you visit, limited system</u> information and some page content to Google. <u>Privacy Policy</u>

Advanced

Reload

Note: A warning is displayed first because you are using a self-signed certificate with https. If you see this warning, press the Advanced button to access the localhost (insecure) link.



Please register the admin and password of BAP Administrator and press the Login button.

🙎 Gorilla	BAP	× +				- 0	×
$\leftarrow \rightarrow 0$	3 ▲ 保護さ	れていない通信 localhost:18	3443/bap/portal/#/Groups			☆ 8	
Gorillo	BAP	User Setting	gs Operations	Product is not Admin Setting	activated. Please	e activate the Product Ko admin Logo	ey. out
S G	roups	A Users					
Grou	up List —				New Group	lete Group Select All	
	#	Group Name	Group Members	Group Owner	Group Description	Date	•
			« (1	> >>			•

After logging in, the User Setting screen will be displayed.

orilla BAP	User Settings	Oper	ations	Product is Admin Sett	not ac ings	tivated. Plea	the Prod admin	uct Ke Logo	e) iu
L Accounts	System Information								
BAP Infor	mation	System Ir	nformati	on	L	icense –			
BAP Version	3.2.9.7508	Operating System	Windows	10 Pro		Product Key			
FDRCmdLib Version	6.9.2001.1209	Processor		Core(TM) i7- PU @ 2.20GHz		Expiry Date			
FID Feature Version(s)	[60032084]	Graphics Processor	Intel(R) I Graphics			Installation Path			
FDR-Core	6.9.2.38041	Memory	15.9 GB			Identity limitation			
Version		Time Zone	(UTC+09) Sapporo,	:00) Osaka, Tokyo		User			
Software Edition	N/A					identity limitation			
Web Portal Version	3.2.8.6800					Proxy Support			

Next, register the acquired BAP license key and press the Activate button to activate it. Your PC must be connected to the internet to authenticate.

7.2.2. Unregistering the BAP License

Unregister the license

If you want to move your BAP installation to another PC, be sure to deregister the installed license beforehand.

Click the Deactivate button in the Admin Setting -> System Information -> License and confirm that it has been deactivated.

Note: If BAP is uninstalled without deregistering the license beforehand, the license will remain in the registered state. Consequently, this license can not be used on another PC. Your PC must be connected to the internet to unregister.

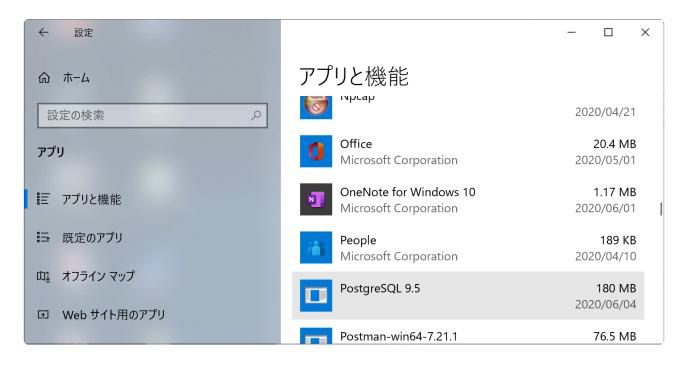
7.2.3. Uninstalling of Gorilla BAP

Open Settings from the Windows Start menu to open apps and features.



Uninstall Gorilla Bap Cron Service

Then uninstall Gorilla Biometric Authentication Provider and Gorilla MMS for BAP uninstall respectively.



Then uninstall PostgreSQL.

Delete the data folder

Don't forget to delete the data folder used by BAP.

PostgreSQL	c:\Program Files\PostgreSQL
Data	c:\Program Data\Gorilla Biometric Authentication Provider
Gorilla data	c:\Program Files\Gorilla Biometric Authentication Provider, c:\Program Files\Gorilla Technology Group, Inc.

7.3. Installation of Gorilla IVAR

Things to prepare in advance

- Password for the IVAR operational account Administrator
- IVAR license key

Installation environment

Prepare a Windows 10 PC and Chrome browser to install IVAR. You will also need to be connected to the internet as you will be registering a license.

Notes before installing

IVAR uses <u>MongoDB</u>. If MongoDB is already installed, IVAR may not be installed correctly due to conflicts such as version differences, so please uninstall MongoDB before proceeding. Also, delete the data folder.

Installation procedure

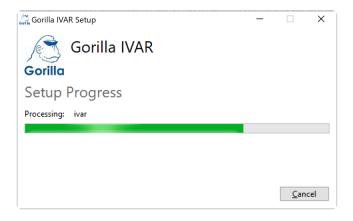
Unzip the downloaded zip. When expanded, an IVAR folder will be created, please open its content.

Within the zip file, there is another a zip file @ivar-x.x.x-std-win-x86_64.zip containing the actual server. Please unzip it and open it.

It contains the IVARInstallUtility application, please open this application:

IVAR Install Utility		- ×
ivar-1.8.16.42905-st	Component Info	ormation
d	Gorilla IVAR	N/A
	account-manager	N/A
	comm-server	N/A
	event-manager	N/A
	media-server	N/A
	iot-manager	N/A
	ivar	N/A
	ivar-portal	N/A
	vms-portal	N/A
	snmp-trap-server	N/A
Gorilla	· · · ·	Install

When started up, the module required for IVAR is displayed in Component Information and it is N/A. Click the Install button here to start the installation.



Installed files will be displayed and prompts will appear irregularly. Please wait without operating the screen during installation.

C:¥Program Files¥Go	rogram Files¥Gonlla¥ivar-agent¥run.exe AR > IVAR > ivar-1.8.16.42905-std-win-x86_64 >		in-x86_64 ≯	⊸ ⊡ ,×	
:¥Program Files¥	fGorilla¥ivar−	agent>7za.exe x files.zip -aos			植類
-Zip (a) 18.03 b	oeta (x64) : C	opyright (c) 1999-2018 Igor Pavlov	: 2018-03-04		ファイル フォルダー
canning the driv file, 37151400	ve for archive				
xtracting archiv	ve: files.zip				

IVAR Install Utility		- ×
ivar-1.8.16.42905-st	Component Info	ormation
d	Gorilla IVAR	1.8.16.42905
	account-manager	2.1.3
	comm-server	3.6.4
	event-manager	3.9.11
	media-server	1.9.4
	iot-manager	2.3.0
	ivar	1.8.16
	ivar-portal	1.10.13
	vms-portal	1.10.13
, C	snmp-trap-server	1.0.3
Gorilla	Uninsta	ll Finished&Exit

When the installation is complete, the version number of each module will be displayed.

7.3.1. Initial setup and license registration of Gorilla IVAR

Initial settings

After installing IVAR, use Chrome to open the following address:

https://localhost:8002/

Note: It is assumed that you will operate Chrome on the same PC where IVAR is being installed. When operating on a different PC, change "localhost" according to the server's IP address.



Your connection is not private

Attackers might be trying to steal your information from **localhost** (for example, passwords, messages or credit cards). Learn more

NET::ERR_CERT_INVALID

 Help improve Chrome security by sending <u>URLs of some pages that you visit, limited system</u> information and some page content to Google. <u>Privacy Policy</u>

Advanced

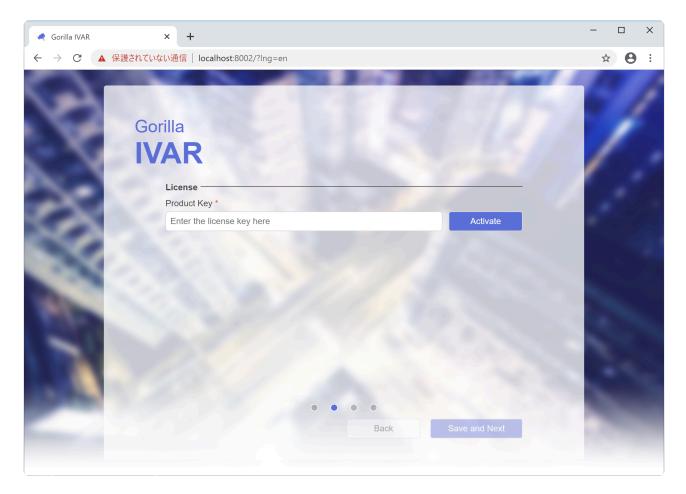
Reload

Note: A warning is displayed first because you are using a self-signed certificate with https. If you see this warning, press the Advanced button to access the localhost (insecure) link.

🦪 Gorilla IVAR	× +		- 🗆 X
\leftrightarrow \rightarrow C \blacktriangle	保護されていない通信 localhost:80	002/?lng=en	☆ 😆 :
	Gorilla IVAR	Language Selection English v Administrator (admin) Password *	
Charles and the second		Enter a password here	
1000		Password Confirmation *	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		Re-enter the password here	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
-		Reset Create	

Register the IVAR Administrator password and press the Create button.

License registration



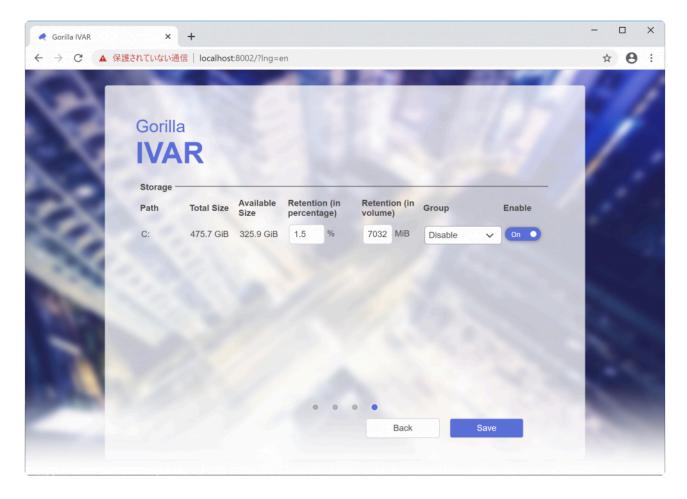
Then enter the obtained IVAR license key and press the Activate button to activate the license. Your PC must be connected to the internet to authenticate.

When authentication is complete, click the Save and Next button.

Gorilla IVAR	× +		- 🗆 X
\leftarrow \rightarrow C \blacktriangle 保護されてい	<mark>ない通信 localhost</mark> :8002/?lng=en		☆ 🔒 :
ST		CALLSON // 1-	61
	orilla		
	/AR		1 .
	Server Information	7.4.7	
100 C	IVAR Name *		
Sec. 20.0	Gorilla IVAR		
	Physical Address		
	Physical Address		
and the second s	Latitude / Longitude	11/1 30 30 30	1000
	Latitude	Longitude	a second second
100	Description		
	Description		and the second second
100			1
		Back Save and Next	

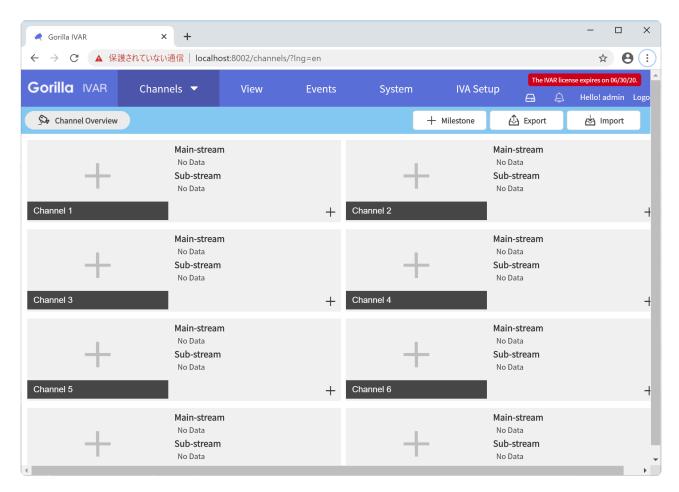
Next, the screen for registering Server Information appears. Adjust the settings to your requirements and press the Save and Next button.

Note: You can also register the information on the settings screen after installation.



Then the storage registration screen appears. Specify the drive to save the video data. When this setting is completed, press the Save button.

This concludes the initial settings process and opens the channel screen.



License check

To see your registered license, open About from the System menu.

🧔 Gorilla IVAR	× +							- 0	×
← → C ▲ 保護されていな	い通信 localhost	8002/setting/abo	ut?lng=en					☆ 8	•
Gorilla IVAR Char	nnels 🔻	View	Events	System	IVA Setup	A	Ą	Hello! admin L	.ogout
i About 🚓 Basic	O Accounts		🦲 Ser						
IVAR Information				General Setti	ngs ———				
ID Version Total Channels Maximum Analytic Channels Analytic Core Channels		n : 1 is : 0	,		IVAR Name Physical Address Latitude Longitude Description	Gorilla IVAR	rt	Save	
Analytic Channel Expiry Date Analytic Core Version	2099-01-01 21:0 BI-CORE v2.3.3 FDR-CORE v6.7 IPM-CORE v3.3 ODC-CORE v1. LPR-CORE v5.8 MMS/MMSC v1.	7.0 .0 5.0		License —	Product Key Details Expiry Date	License Check Verif		Resync	
System Information			- 0						

The license registered in License is displayed.

7.3.2. Unregistering the Gorilla IVAR License

Unregistering license

If you want to move your IVAR installation to another PC, be sure to deregister the installed license beforehand.

Make sure it is deactivated by pressing the Deactivate button in System -> About -> License.

Note: If IVAR is uninstalled without deregistering the license beforehand, the license will remain in the registered state. Consequently, this license can not be used on another PC. Your PC must be connected to the internet to unregister.

7.3.3. Uninstalling of Gorilla IVAR

Uninstall

Unzip the zip file that you used to install IVAR. It contains the IVARInstallUtility application.

IVAR Install Utility		- ×
ivar-1.8.16.42905-st	Component Info	ormation
d	Gorilla IVAR	1.8.16.42905
	account-manager	2.1.3
	comm-server	3.6.4
	event-manager	3.9.11
	media-server	1.9.4
	iot-manager	2.3.0
	ivar	1.8.16
	ivar-portal	1.10.13
	vms-portal	1.10.13
R.	snmp-trap-server	1.0.3
Gorilla	Uninsta	II Finished&Exit

When started, the Component Information shows the modules installed by IVAR. Press the Uninstall button to remove them.



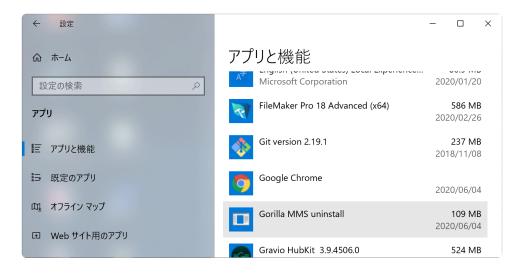
Then press the Uninstall button to start uninstalling.

IVAR Install Utility			- ×
	account-manager	N/A	^
ivar-1.8.16.42905-st d	comm-server	N/A	
u	event-manager	N/A	
	media-server	N/A	
	iot-manager	N/A	
	ivar	N/A	
	ivar-portal	N/A	
	vms-portal	N/A	
	snmp-trap-server	N/A	
	ivar-update	1.1.1	
A	ivar-agent	N/A	
l AZ	MongoDB	3.4.13	~
Gorilla	Install	Finish	ed&Exit

As soon as the modules are removed, they show up as N/A.

Note: The ivar-update and MongoDB are not uninstalled automatically with this process. You will need to uninstall the Gorilla MMS separately via the Windows Settings.

Open Settings from the Windows Start menu to open apps and features.



Uninstall Gorilla MMS.

This will remove the ivar-update, MongoDB and mongodb_config respectively.

Delete the data folder

Also delete the data writing folder used by IVAR.

MongoDB c:\data, c:\Program Files\MongoDB

Video data	c:\records
Gorilla data	c:\Program Files\Gorilla MMS

7.4. Testing the Gravio Gorilla Connection

In this chapter, we test the connection between Gravio and Gorilla by counting the number of people in the image recognition process of Gorilla's camera image. The data gathered is then used as a trigger to send the processed data to Gravio.

In Gravio, the an IVAR is set to start an arbitrary action.

Preparation

Prepare a PC with Gorilla IVAR/BAP installed, one ONVIF camera, a PC with Gravio GS/HubKit installed and a Chrome browser. Gravio requires an Enterprise license and the **HubKit requires a registration in advance with a Coordinator.** In this example we use the ONVIF camera TS-NA220W from IO Data.

Setting flow

IVAR camera + image recognition settings

- 1. Register the ONVIF camera with IVAR
- 2. Set the image recognition
- 3. Confirm image recognition on the Live system

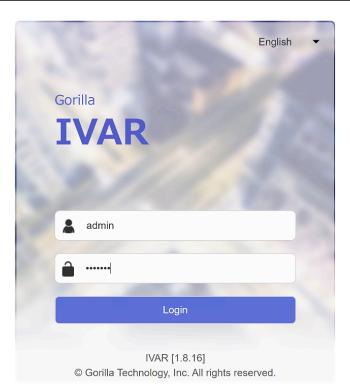
Setting up Gravio and IVAR integration

- 4. Set up IVAR in Gravio Studio
- 5. Register the event
- 6. Confirm event reception in the Data Viewer of Gravio Studio

Gravio IVAR Trigger Settings

- 7. Creating an action for invocation
- 8. Set an IVAR trigger
- 9. Confirm execution of the action by triggering a noticeable activity

7.4.1. IVAR Camera and Image Recognition Setup



Log in to IVAR using the admin account.

1. Register the ONVIF camera with IVAR

Shannel Overview				+ Milestone	🕰 Export	🖄 Import
Channel 1	Main-stream No Data Sub-stream No Data	+	Channel 2	ŀ	Main-stream No Data Sub-stream No Data	
Channel 3	Main-stream No Data Sub-stream No Data	+	Channel 4	ŀ	Main-stream No Data Sub-stream No Data	

After logging in, the channel screen will be displayed. Press the + button to register channel 1.

Copyright © 2023 ASTERIA Corporation

View E Device Settings	Reference Channel:Channel
Device Type	
RTSP Manually add an RTSP streaming camera	
ONVIF Automatically search ONVIF Profile S IP cameras	
Video File Upload a video clip	
Capture Card/USB Camera Select a local streaming device	
Next	

The camera used is an ONVIF camera, so select ONVIF and press the Next button.

EN Viev		Device 🄅 Settings			🦨 Channel:Channel
ONVIF	Device Lis	st			
	ltem 🔺	IP Address 🔺	Device Name ▲		
	1	192.168.68.140:80	IODATA%20TS-NA220W	*	
Log into	the Device : L	Inselected			
IP Addre	ess	IP Address			
Usernan	ne	Username			
Passwor	rd	Password			
	Back	Next			

The cameras installed on the same network are displayed in the list.

B Viev		Device 🄅 Settings			🥠 Channel:Ch
ONVIF	Device Lis	st			
	ltem 🔺	IP Address 🔺	Device Name ▲		
V	1	192.168.68.140:80	IODATA%20TS-NA220W	\$	
Log into	the Device : I0	DDATA%20TS-NA220W			
IP Addre	SS	192.168.68.140			
Usernam	ie	admin			
Passwor	d	•••••			
	Back	Next			

Since we will use IO DATA TS-NA220W this time, select the checkbox, enter the Username and Password and press the Next button.

C View	Device Setting:			🥠 Channel:Channe
Device Pr	ofile List			
Item 🔺	Profile Name 🔺	Codec 🛦	Resolution ▲	
1	profile1	H264	1920 x 1080	
2	profile2	H264	1280 x 720	
Main- stream Main-strean	profile2	Sub- stream Please select a profile v Sub-stream: RTSP over TCP On		
Enable Sub	-stream Off			
			Back	Apply

The profiles that can be used with the camera are displayed in the list, so select Main-stream. Since this is a demo, select profile2 and press the Apply button.

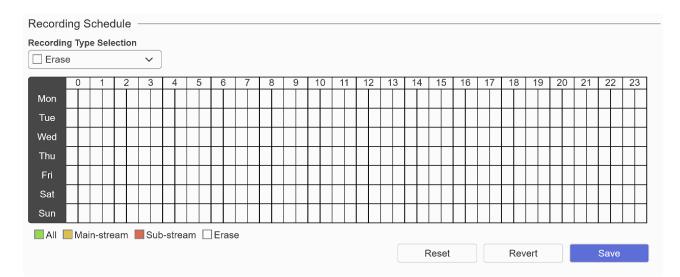
N View E Device	Settings			🧟 Channel:Channel
Device Information				
Туре	ONVIF			
IP Address	192.168.68.140			
Camera IE	{177b22e7-e3bf-da55 22e7e3bfda55}	-177b-		
MAG	34:76:C5:B6:A5:AE			
Mode	I TS-NA220W			
Vendo	IODATA			
Version	1.03.09			
File Time	2			
Main-stream Profile	profile2			
Main-stream Path	rtsp://192.168.68.140:	20930/ipcam_h264s1.sdp		
RTSP over TCF	Yes			
		Remove Device		
Video Stream Profile Settin	gs —			_
profile1		pro	file2	
Encoding h26	4 ~	Encoding	h264 🗸]
H.264 Profile Mai	n 🗸	H.264 Profile	Main v	
Resolution 192	0x1080 🗸	Resolution	1280x720 V	
Frame Rate 15	~	Frame Rate	15 ~	

The camera has been registered. To remove it, press the Remove button.

CI View	📑 Devic	e	🗘 S	ettings																	,	R C	Chan	nel:	Chann
	Desc	ription									J	Maxii	num	Rete	ntion	(in	days)	7							
	Lo	cation												R	ecore	ding	Path	C	:						~
Longitud	le Coord	linates																							
	le Coord									_)									Reve	t		ę	Sav	e
Latita	00014	mateo					_			_	J														
				Re	evert			Sa	ve																
Recording So	chedule	ə —																							
Recording Type	Selectio	on																							
All		~																							
0	1 2	3	4	5	6	7	8	9	1	0	11	12	13	1	4 1	5	16	17	18	19	20	21	22	2	23
Mon			\square																						
Tue																									
Wed																									
Thu			\square																						
Fri																									
Sat																									
Sun																									
📕 All 📕 Mair	ı-stream	Sul	b-strea	am 🗌]Eras	е																			_
															Res	set			Re	vert			Sav	/e	

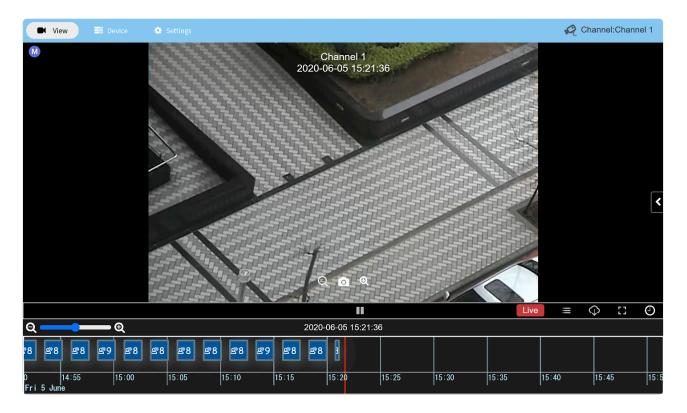
The image is automatically saved when the camera settings are completed, so change the settings so that the image is not saved in the demo so that the hard disk is not compressed.

Press the Setting button to open the Recording Schedule below.



Select Erase in Recording Type Selection, and then clear the recorded Main-stream (yellow) by specifying a range (white).

Press the Save button to change the settings.



Press the View button to switch to the live image.

2. Image recognition settings

Analytic Setup		
Profile List	Q Q	 Add a new IVA profile. Please <u>click on the plus icon (+)</u> to add an IVA Profile. Active: A profile is applied on Analytic Schedule and is live and active. Inactive: A profile is applied on Analytic Schedule, but no analytics are ongoing. Unscheduled: A profile is saved but isn't applied to any schedule.

Next, set the image recognition. This time, as a demo, we will set People Count, which counts the number of people captured in the camera.

In addition, there is also face recognition that registers users in advance and a function that recognizes user behaviour transitions.

Open Analytic Setup from the IVA Setup menu.

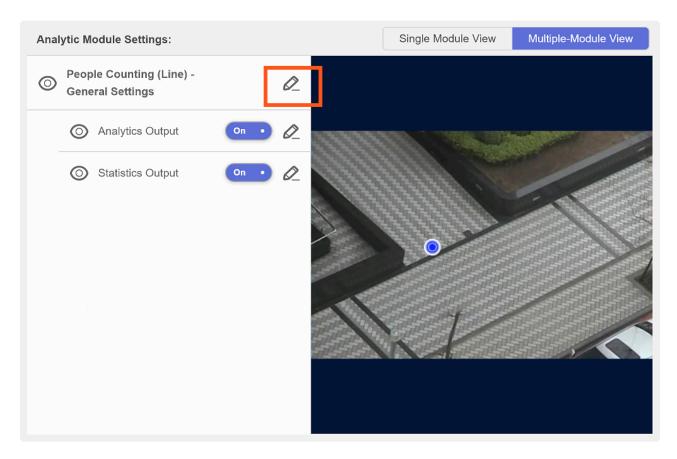
Click the + button on the bottom left or the click on the plus icon (+) link.

Create Profile	×
Channel Selection	
Channel 1	~
Stream Selection	
Main-stream	~]
Settings Template Selection	
Intelligent Behavior Analysis - People Counting	~
Any channel and template applied cannot be re-seled	cted.
Cancel Save	

In Create Profile, select Channel 1 for Channel Selection, select Intelligent Behavior Analysis-People Count for Settings Template Selection and click the Save button to save.

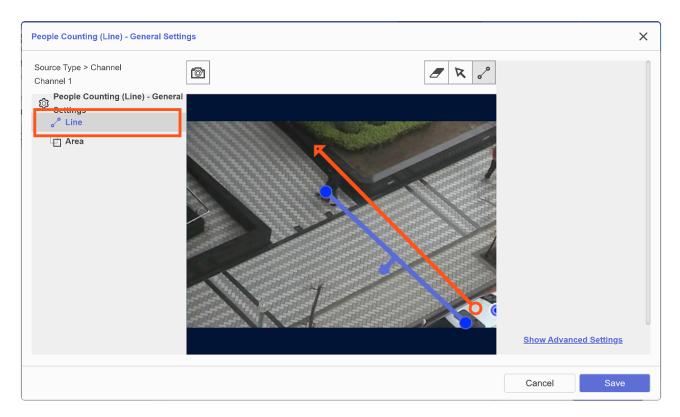
• Analytic Setup		edute
Profile List	2 Q	Add a new IVA profile. Please <u>click on the plus icon (+</u>) to add an IVA Profile.
Sr Channel 1	^	 Active: A profile is applied on Analytic Schedule and is live and active. Inactive: A profile is applied on Analytic Schedule, but no analytics are ongoing. Unscheduled: A profile is saved but isn't applied to any schedule.

When saved, new_profile will be displayed on Channel 1 on the left, so select it.



Set the conditions under which the People Count is valid. The demo sets a line to recognize and counts the number of people moving across that line.

Click the pencil icon.

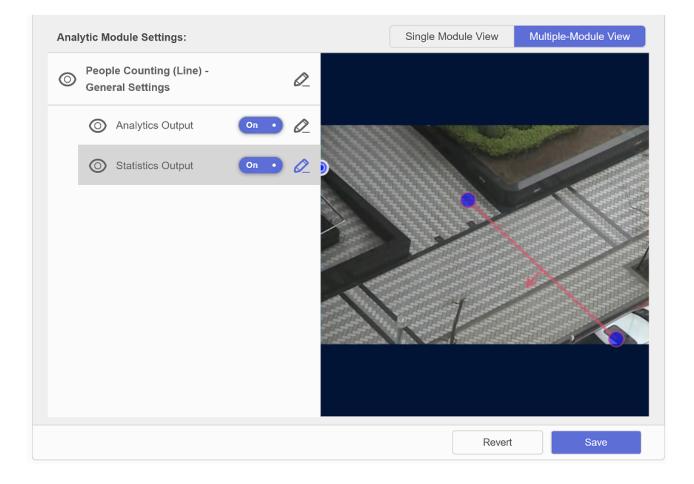


Select LINE and draw a line with the mouse at the point where the image is recognized. Double-click to confirm.

You can specify whether to cross the line from left to right or from right to left depending on the direction of drawing the line.

In the demo, this is the setting when the line is crossed from the right to the left.

Press the Save button to save.



Confirm the recognized setting conditions and press the Save button to save.

Schedule Settings				
Off Always On User-defined	<u>Schedule Settings</u>			
			Revert	Save

To enable the settings, select Always On for Schedule Settings and press the Save button.

3. Confirm image recognition in Live

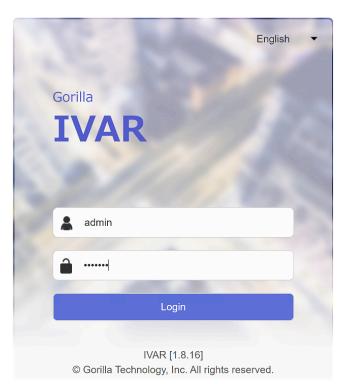
Open Channel 1 from the Channels menu and select View to see the live video.

It is displayed on the right side when the image of the camera is recognized and the event of People

Count occurs.

7.4.2. Connecting Gravio and IVAR

In order to link Gravio and IVAR, Log into IVAR using your admin account:



4. Setting IVAR in Gravio Studio

VAR Information ———		General Sett	ings ———			
ID	{c54ac30f-348e-4375-b01f-85b8e92e16fe}]	IVAR Name	Gorilla IVAR		
Version	ivar-1.8.16.42905-std-win-x86_64	_	Physical Address			
Total Channels	8					
Maximum Analytic Channels	2		Latitude			
Analytic Core Channels	All : 1		Longitude			
	Business Intelligence : 0 Human Detection : 1 Behavior Analysis : 0 License Plate : 0		Description		Revert	Save
Analytic Channel Expiry Date	2099-01-01 21:00:00					
Analytic Core Version	BI-CORE v2.3.3 FDR-CORE v6.7.0 IPM-CORE v3.3.0	License —	Product Key			

Select the System menu to open the About menu and copy the IVAR Information ID including {}.

✓ tanaka-surface + ② 道 ● ○ ■ Area NVAR Message Subscribing Configuration × DNS名前/IPアドレスを追加 192.168.68.139 × IVARサー/(-IDを追加 192.168.68.139 × IVARサー/(-ID + 100 × IVARサー/(-ID +	* 🔟 v
IVAR Message Subscribing Configuration × DNS名前/IPアドレスを追加 192.168.68.139 ×	
DNS名前/IPアドレスを追加 192.168.68.139 ×	
IVARサーバーIDから作加 (c54ac30f-348e-4375-b01f-85b8e92e16fe)	
追加	
INARリスト HUBKT URL TO USE FOR GORILLA IVAR SERVER CONFIGURATION	
HubKit Endpoint: https://192.168.68.109.29448/ivar/event	
O fr fa fa O ill P ¢	

Select HubKit from Gravio Studio and open IVAR Message Subscribing Configuration from the device panel.

To add DNS name/IP address, enter the address of the PC where IVAR/BAP is installed.

To add the IVAR server ID, paste the ID you just copied.

Click the Add button to register.

Then copy the HubKit Endpoint.

🔲 IVA Events 🔻 🔛 Subs	scriptions Settings	
Intelligent Video Analysis E	Events	
Name 🔺	Channel 🛦 Event Types 🛦 Image Types 🛦 Protocol 🛦 Type 🛦 Receiver 🛦 Receiver Response 🛦	
System Events		+
Name 🔺	Channel 🔺 Event Types 🛦 Protocol 🛦 Type 🛦 Receiver 🛦 Receiver Response 🛦	

Select Events in IVAR to open Subscriptions Press the + button.

Name		Туре	
Event Subscription Name		JSON	~
Enable		Format	
On •		1	~
Channel			
Unspecified Channel		Event Types	~
Event Types	Event Type Selection	Human Detection [Snapshot Alert]	
	shot Alert],Human Detection ot Alert],Face Recognition	✓ Human Detection [Quality-assured Snapshot Alert]	
[Snapshot/Known Person],Face Recognition [Quality- assured Snapshot Alert],Face Recognition		✓ Face Recognition [Snapshot/Known Person]	00
[Snapshot/Unknown Per Recognition,Intrusion De		Face Recognition [Quality-assured Snapshot Alert]	
	[Cleared Event Alert],Line	_ Face Recognition	

Enable and open Event Types Selection and select All Events.

Name		Туре	
Event Subscription Name		JSON	~
Enable		Format	
On •		1	~
Channel		Protocol	
Unspecified Channel		HTTPS	
	Event Type Onlastice	URL	
Event Types	Event Type Selection	https://192.168.68.109:29448/ivar/event	
[Quality-assured Snaps	oshot Alert],Human Detection hot Alert],Face Recognition	Add Headers	
	on],Face Recognition [Quality-		0 0
assured Snapshot Alert],Face Recognition [Snapshot/Unknown Person],License Plate Recognition,Intrusion Detection [Triggered Event Alert],Intrusion Detection [Cleared Event Alert],Line		Basic Authentication Username	

Change the Protocol to HTTPS and pace the HubKit Endpoint you just copied to the URL. Press the Save button to save.

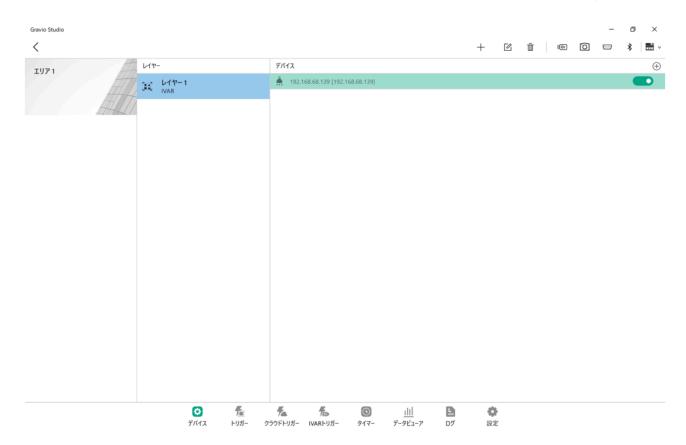
IVA Events V 🔁 Subscriptions 💠 Settings										
								+		
Name 🔺	Channel 🛦	Event Types 🔺	lmage Types ▲	Protocol 🛦	Туре 🛦	Receiver 🛦	Receiver Response 🔺			
Event Subscription Name	Unspecified Cha nnel	Human Detection [Snapshot Alert], Hu man Detection [Qu ality-assured Snap shot Alert], Face Re cognition [Snapsho VKnown Person], F ace Recognition [Snapsho Vt/Nnown Person], F ace Recognition [Snapsho ot/Unknown Perso n], License Plate Re cognition, [Snapsho ot/Unknown Perso n], License Plate Re cognition, Intrusion Detection [Triggered Event Alert], Intru sion Detection [Trigg ered Event Alert], Li ne Crossing [Clear ed Event Alert], Gen eral Direction [Trigg gered Event Alert], Gen eral Direction [Clear Event Alert], General Direction [Cleared Event Alert], General Direction [Cleared Event Alert], n Triggered Event Alert], for the start of the start of the start the start of the start of the start of the start the start of the start of the start of the start the start of the start of the start of the start of the start the start of the start of the start of the start of the start the start of the st	All	HTTPS	JSON	https://192.1 68.68.109:2 9448/ivar/ev ent	- 2020-06-05 14:24:01 C	On •	O_	

Once saved, it will be displayed in the event list. Click the trash can icon to delete.

5. Event registration

Gravio Studio		- 0 ×
<		+ C ü © O = * = ·
דעד ו	レイヤーの追加 ×	
	レイヤー名 レイヤー1 SENSING DEVICE TYPE 11 @ 11-A ③ Gravio-TwoButtonSwitch-JP	
	 IVAR PictureOnvifDevice Gravio-Lidar-USB 保存 	
		0 87

Select a device in Gravio Studio and add areas and layers. Select IVAR as the layer and press the save button.



Activates the saved IVAR layer.

6. Confirm event reception in Data Viewer in Gravio Studio

Gravio Studio								– ø ×
<		エリア Any	> レイヤー Any ~	デバイス Any 〜 開始	台日時 2020/06/05 🗎 0	00 終了日時 2	2020/06/05 🛅 23	59 LIVE 📅 🗸
エリア	レイヤー	デバイス	サービス	センサータイプ	送信元ID	データID	受信日時	デバイス値
፲ ሀア 1	レイヤー 1	192.168.68.139	IVAR	PEOPLE_COUNTING_	2baf2828-b7ac-44df-a3d4-aaf	436B7C2D-C3AA-4DE	2020/06/05 14:32:59	{"peopleCounting":{"1
፲ ሀア 1	レイヤー 1	192.168.68.139	IVAR	PEOPLE_COUNTING_	2baf2828-b7ac-44df-a3d4-aaf	42E51A14-770F-4FAE	2020/06/05 14:32:52	{"peopleCounting":{"f



Open the data viewer and verify that IVAR is sending the detected events.

7.4.3. Setting up IVAR Triggers

7. Creating an action to be called by IVAR

Create an action to call on the IVAR trigger. In this example, we will create an action that triggers a Slack message. If you have Slack integrated, this is an easy way to confirm that the action has been triggered.

8. Setting IVAR Trigger

リガー名	≜ サーバーの名前		♣ アクション		. ↓ 状態
		新しいIVARトリガーを追加	מנ	×	
		名前	IVARトリガー-1		
		アクション名	Action1	<u> </u>	
		エリア	IU7 1	<u>~</u>	
		レイヤー	レイヤー 1	~	
		IVARサーバー	任意の値	~	
			✓ 1 ✓ 2 ✓ 3 ✓ 4		
		チャネル	✓ 5 ✓ 6 ✓ 7 ✓ 8		
			すべてを選択解除する		
		() 顏認識 ()) 人を数える 🛛 区域監視		
		イベントタイプ	PEOPLE_COUNTING_ANY	~	
		人の数	> ~ 1		
		Use Forward f			
		-			
			キャンセル 保存		
				_	

Select IVAR Trigger and press + button to open Add New IVAR Trigger.

Select the action, area, and layer according to the setting value, and when counting the number of people, select PEOPLE_COUNTING_ANY as the event type.

Enter conditions such as >1 and >0 for the number of people.

Press the save button to save.

Gravio Studio				- 0 ×
tanaka-surface				+ 📾 🗸
トリガー名	≜ サーバーの名前	♣ アクション	≜ トリガータイプ	ᢤ 状態 ᢤ
IVARトリガー-1		Action1	PeopleCountingTrigger	



Activate the saved IVAR trigger.

9. Confirm execution of action in IVAR trigger

The specified action is executed when an event that is enabled and matches the IVAR trigger condition is sent from IVAR.

Since we are triggering a Slack component in this example, a Slack notification will should be triggered.

8. Advanced

8.1. How to create a machine learning model for computer vision object recognition

One of the big new features of Gravio 4 is the way you can create inference files to use Artificial Intelligence and Machine Learning to detect objects in visual feeds, such as from CCTV security camera systems based on ONVIF.

Please refer to the ONVIF section of this documentation to learn how to connect your network camera to Gravio 4.

Please note that you need a Gravio Enterprise Software License to create and deploy your own image inferences within your Gravio Edge IoT infrastructure. It support object detection and image classification for images. Video support is coming soon.

Once you have the possibility to create your own image inference files and teach Gravio to detect anything you want it to recognise in a picture, the possibilities are only limited by the quality of the picture of your camera and your learning model accuracy.

In essence, Gravio 4 leverages the power of Google's TensorFlow framework.

Our AI expert team will be able to help you creating these bespoke models, please get in touch with us on <u>sales@gravio.com</u>.

Once your model is created, you can upload it to your Gravio Coordinator, from which your Gravio Edge Nodes can deploy the inference files locally and therefore interact with the local camera systems. To deploy such a model, please consult your Gravio Coordinator documentation.

This section describes how to create a machine learning model for object recognition (<u>Darknet YOLO v2</u> <u>format</u>) and convert it to a format for use with TensorFlow. Currently, that's what the Edge IoT platform requires to function at its best.

(Please note, TensorFlow model formats work with Gravio HubKit Version 4.0 later only.)

These are the steps required:

- 1. Collect images for training. The more the better the model will be later.
- 2. Create the training data from the collected images.
- 3. Create a machine learning model from the training data.
- 4. Convert the machine learning models to a format TensorFlow can understand.

Supplemental Material: Annotation Data Creation with LabelImg

1. Collect the Data Images

Prepare the image data to be used for the machine learning data of object recognition:

1. Create a new folder for storing images in the working folder on your computer and name the folder im ages.

2. Prepare the image data that contains the object to be recognized and place it in that newly created im ages folder.

Please note the following points.

- The image file format should be JPEG, and the file extension should be ".jpg". (Mixing different file extensions, such as .jpeg or .png, will result in errors during learning.)
- The image size should be at least 416 × 416 pixels.
- The number of images should be several hundred to several thousand for each object to be recognized.
- Use alphanumeric notation and sequential numbers for file names to make management more convenient. for example: image001.jpg, image002.jpg, etc.



2. Create the Training Data

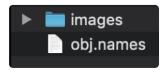
The training data consists of (1) prepared image data, (2) class information data. The latter is a list of names of objects to be recognized. Thirdly, we require annotation data (3) (annotation information indicating the rectangular area in the image of the object to be recognized) for each image. Here is how to add Class information data and annotation data:

1. Class information data is a list of names of objects to be recognized. Create a new file with a text editor and write one item to be recognized on each line. For example, if you want to build a learning model that recognizes three objects: person, dog, and cat, put the labels on a line each. The ID numbers of the objects to be recognized are assigned by sequential numbers starting at 0. (person=0, dog=1, cat=2)

ſ	
	person
	dog
	cat

2. Complete the file editing of the class information data and save it. You can name the file as you wish, but we will name it obj.names, under the working folder on the same computer as the images folder.

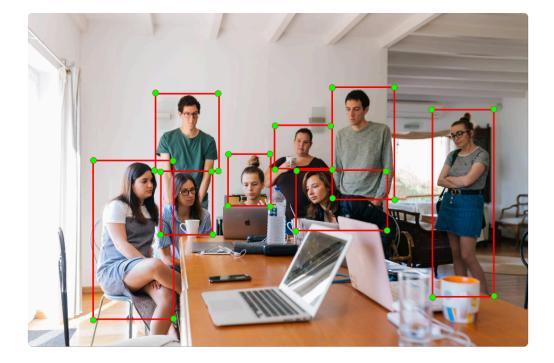
You can name the file anything you like.



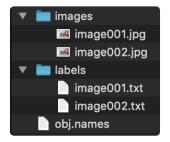
Next, in the working folder, create a new folder for storing the annotation data files and name it labels. The folder directly under the working folder will look like like this:



4. Annotate the objects in each image under the *images* folder. The annotation for each object is represented by a rectangular area. In the example photo below, the annotation of "person" is illustrated.



In practice, the annotation data is saved in the form of a text file within the labels folder. The filename extension .jpg of the corresponding image data must be saved with an identical name but with the extension converted to .txt.



In the annotation data file, each line should contain the following information as annotation data for one object:

object ID (number), coordinates of the center point of the rectangular area (x,y), and size (w,h).

The first line in the next screenshot represents the identifier 0 (=person), (x,y)=(0.221543, 0.712291),

(w,h)=(0.166489, 0.532322). The coordinates (x,y) and size (w,h) of the rectangular area of the object to be recognized are expressed as a ratio to the whole image, and the values range from 0 to 1.

0	0.221543	0.712291	0.166489	0.532322
0	0.314362	0.618915	0.112766	0.278532
0	0.318617	0.416600	0.125532	0.346369
0	0.542021	0.486433	0.140426	0.281724
0	0.644149	0.591381	0.189362	0.255387

The following tool is available for adding annotations to an image using GUI (in English). For more details, please refer to <u>Annotation Data Creation with LabelImg</u> at the end of this document.

Labellmg is available from https://github.com/tzutalin/labellmg

3. Creating a Machine Learning Model

Create a learning model in the following steps:

1. Prepare Darknet

In the terminal environment of the computer where you want to create the training model, create the darknet environment by following the steps below.

```
git clone https://github.com/pjreddie/darknet
cd darkent
make
```

If you are building the training environment on a GPU (CUDA) environment, edit the darknet/Makefile and set GPU=1 as the first line before executing the last make command.

2. For the first training, get the trained weight data from the following location.

wget https://pjreddie.com/media/files/darknet19 448.conv.23

3. Set up your training data.

```
cd data
mkdir learning_data (folder of your choice)
```

Place the image data, annotation data, and class information data prepared in the steps 1 and 2 above in that folder:

```
darknet/data/learning_data/images/*.jpg
```

```
darknet/data/learning_data/labels/*.txt
darknet/data/learning_data/obj.names
```

4. Prepare the training data list and validation data list.

```
darknet/data/learning_data/train.txt
darknet/data/learning_data/test.txt
```

In train.txt and test.txt, enter the file paths from the data folder onwards as shown below to avoid duplication of file names. Only the image files listed in train.txt will be used for learning.

```
data/learning_data/images/img001.jpg
data/learning_data/images/img002.jpg
data/learning_data/images/img003.jpg
...
```

5. Prepare the learning configuration file.

Create a new file darknet/cfg/obj.data and enter the following:

```
classes = 3
train = data/learning_data/train.txt
valid = data/learning_data/test.txt
names = data/learning_data/obj.names
backup = backup
```

6. Prepare the model configuration file. In this section, we will copy the already prepared darknet/cf g/yolov2-voc.cfg configuration file and rewrite its contents.

cp darknet/cfg/yolov2-voc.cfg darknet/cfg/obj.cfg

Adjust the newly created obj.cfg as follows: The value of Filters will be 40 if the number of classes is 3: ((3+5)*5 = 40)

```
Line 3: batch=64
Line 4: subdivisions=8
Line 237: filters=(actual number of classes to be recognized + 5) * 5
Line 242: anchors (*)
Line 244: classes=3 (actual number of classes to be recognized)
```

(*) You can continue learning with the values of anchors as they are, but recalculating the values of anchors using the following tools may improve the accuracy.

Reference: Recalculation tool for anchors values https://github.com/Jumabek/darknet_scripts

7. Start the learning process

In the darkent folder, execute the following to generate the training model data (*.weights) under the darknet/backup/ folder.

. /darknet detector train cfg/obj.data cfg/obj.cfg darknet19 448.conv.23

When the training starts, the output will be similar to:

. . .

Region Avg IOU: 0.905463, Class: 0.626457, Obj: 0.836158, No Obj: 0.006927, Avg Recall: 1.000000, count: 8 Region Avg IOU: 0.837368, Class: 0.976554, Obj: 0.842887, No Obj: 0.006556, Avg Recall: 1.000000, count: 8 Region Avg IOU: 0.893971, Class: 0.960798, Obj: 0.876742, No Obj: 0.007555, Avg Recall: 1.000000, count: 8 Region Avg IOU: 0.872773, Class: 0.711470, Obj: 0.888209, No Obj: 0.006718, Avg Recall: 1.000000, count: 8 Region Avg IOU: 0.894234, Class: 0.986793, Obj: 0.884681, No Obj: 0.006898, Avg Recall: 1.000000, count: 8 Region Avg IOU: 0.847557, Class: 0.994500, Obj: 0.849292, No Obj: 0.006747, Avg Recall: 1.000000, count: 8 Region Avg IOU: 0.802273, Class: 0.650419, Obj: 0.794552, No Obj: 0.006926, Avg Recall: 1.000000, count: 8 Region Avg IOU: 0.866342, Class: 0.840821, Obj: 0.860806, No Obj: 0.006149, Avg Recall: 1.000000, count: 8 9531: 0.661146, 0.704077 avg, 0.001000 rate, 2.704480 seconds, 609984 images ...

The number at the beginning of the last line (shown in red) represents the number of steps. As the learning progresses, the average value of the error (shown in blue) becomes smaller.

Learning can be stopped at any time, but to create a highly accurate recognition model, the average value of the error should be less than 1. In some cases, more than tens of thousands of steps may be required, and depending on the operating environment, it may take several days or weeks to complete.

8. Resume learning

To resume learning, do the following: Under the backup folder, there will be a number of files with the extension .backup or .weights. If you specify one of the files with the most recent extension (usually .backup), you can resume training using the last saved training model.

. /darknet detector train cfg/obj.data cfg/obj.cfg backup/(the name of the lat est file under the backup folder)

As a result of the above steps, the following three files will be available after the training is completed.

darknet/backup/*.weights (the part marked with * specifies the name of the latest file generated under the backup folder) darknet/cfg/obj.cfg, darknet/cfg/obj.names, darknet/cfg/obj.names

4. Converting a machine learning model to the format used by TensorFlow

The following example shows how to convert three files (*.weights, obj.cfg, obj.names) into protocol buffers format (*.pb) that can be used by programs written in TensorFlow. We are using the DarkFlow conversion tool (<u>https://github.com/thtrieu/darkflow</u>):

1. Installing the TensorFlow environment

Follow the official TensorFlow installation procedure to install TensorFlow in the computer environment where you will work. (Python 3 example is shown here.)

https://www.tensorflow.org/install

```
pip3 install --upgrade pip
pip3 install tensorflow==1.15
```

(Note: The version of TensorFlow must match the environment in which the converted model will be used.)

2. Install OpenCV for Python.

pip3 install opencv-python

3. Set up DarkFlow with the following steps.

```
git clone https://github.com/thtrieu/darkflow.git
cd darkflow
sed -i -e 's/self.offset = 16/self.offset = 20/g' darkflow/utils/loader.py
python3 setup.py build_ext --inplace
pip3 install -e .
pip3 install .
```

4. Create a models folder to store the three files created in section 3, "Creating Machine Learning Models". The name of each file to be stored is assumed to be obj.weights, obj.cfg, and obj.names.

mkdir models

(Store obj.weights, obj.cfg, and obj.names under the models folder)

5. Under the DarkFlow folder, convert each file with the following command.

```
flow --model models/obj.cfg --load models/obj.weights --labels models/obj.name
s --savepb
```

6. The above steps will generate two files under the built_graph folder after the conversion.

obj.pb... Neural network model file for machine learning obj.meta ... Meta information file

These files can be deployed to your Gravio infrastructure for distribution to the edge.

8.2. Annotation Data Creation with Labellmg

In this chapter, we learn how to use LabelImg.

At the end of "2. Create the Training Data" of our <u>instructions on how to create Image Inferences</u>, we introduced the annotation data creation tool **LabelImg**. Learn here how to create annotation data using LabelImg. These are the steps:

1. Check your OS version (Windows, Mac, Linux, etc.) and the current python version support in the "Installation" section of the (LabelImg Github Page) and install it according to the description below.

2. Follow the "Steps (YOLO)" section in the "Usage" part of the LabelImg documentation.

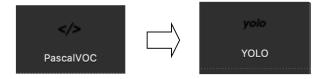
(1) Write the name of the class you want to recognize in data/predefined_classes.txt under the folder where LabelImg is installed. (2) Write the same obj.names that you created in step 1 of <u>Create</u> <u>Model</u>. For example, if you want to recognize person, dog, and cat, the contents should be as this:



3. Start LabelImg with the python command as described in "Installation". For example, in a python3 environment, type the following command in a terminal environment to start it.

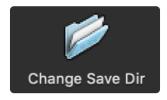
python3 labelimg.py

4.Click on the "PascalVOC" button in the toolbar on the left of the LabelImg screen to switch the display to "YOLO". (It is important to switch the setting to YOLO when you start the program.)



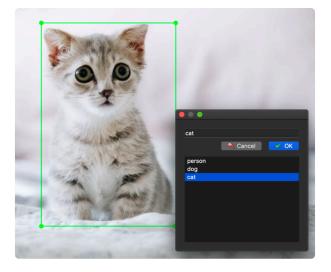
5. Click on the "Open Dir" button on the toolbar on the left of the LabelImg screen, and select images, which you created as a folder for storing images, in the working folder on your PC. The first image in the images folder will be displayed in the center of the LabelImg screen.

6. Specify the destination for the annotation data file after the operation. Click the "Change Save Dir" button on the toolbar on the left of the screen, and select the "labels" folder in the working folder on your computer that you created in step 3 of <u>Create Model</u>



7. Press "w" on the keyboard while the screen is displayed to add annotations to the image. Drag the mouse over the image to determine the rectangular area.

8. Once you have determined the rectangular area with the mouse, a screen for selecting the appropriate object from the object names listed in data/predefined_classes.txt will appear. In the following example, cat is selected.

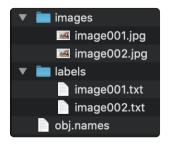


After you have finished determining the annotation rectangle area for all objects in one image, press the "Save" button on the toolbar on the left of the screen. An annotation data file named ~.txt corresponding to the image name will be generated under the "labels" folder specified in step 6 above. At the same time, a file named classes.txt will also be generated under the labels folder.

See this example:



10. After completing the annotation process for all images in the images folder, move the classes.txt file in labels to a working folder on your computer and rename it obj.names.



This is it. That's how you use LabelImg to annotate your pictures. If you have any questions or concerns, please don't hesitate to join our slack channel at <u>https://bit.ly/gravioslack</u>

8.3. Using the Gravio Coordinator

Because Gravio is a distributed system consisting of either computers (macOS, Windows or Linux) running the HubKit or the Gravio Hub itself, there is a need to coordinate those edge nodes.

More information about the Gravio Coordinator can be found in the Gravio Coordinator documentation

9. Integrating Third Parties

10. Gravio Hub (Gravio Hub 2)

For the <u>Gravio Standard package or higher</u>, you get one or more Gravio Hubs. The Gravio Hub is the Edge Device that gathers all the data and processes. It is essentially a small computer. The specifications of the Gravio Hub are below:



CPU: Rockchip RK3399 (6 core) RAM 4GB Radio: Wireless <u>LAN</u>, Zigbee, Bluetooth Internal Storage: 32GB eMMC/Ubuntu 1804 with Gravio HubKit pre-installed Dimensions: W97mm × L97mm × H29mm Weight: 135g

10.1. Indicator light status and button operation on Gravio Hub 2

indicator light status

The LEDs on the side of the Gravio Hub 2 light up in various colors and patterns to indicate the following

LED	Status	Comment
blue	when first booted out of the box	Access point mode
White light on	after Wifi setup or wired LAN connection	normal operation mode
Solid green	LTE Mode	disconnected WAN, connect to the Gravio Hub via its Access Point Wifi and the IP address 192.168.96.1
Flashing green for 5 seconds	LTE Mode + WAN connected or wifi router mode (HubKit activated) , connect to the Gravio Hub via its Access Point Wifi and the IP address 192.168.96.1	
Red Dot Light	Docker initialization error	
Blue LEDs blinking with gradient	command mode	See button operation

Button Functions

In Gravio Hub 2, double-clicking the button enters the command mode to execute the following commands.

AP Mode (Setup mode)

Press the button once to put the Gravio Hub 2 in AP mode; the LED will be lit blue.

Caution : When in LTE mode, it does not switch to AP mode.

Initialize Wifi information and return to access point mode

Clicking the button once will initialize the Wifi information and return to access point mode.

Power Off

If the button is held down, the Gravio Hub 2 will power down and the LED will turn solid RED.

Exit the Command Mode

Double-click to exit command mode; the LED will return to a solid white LED.

10.2. Migration Guide from Gravio Hub to Gravio Hub 2

This section describes the procedure for customers using Gravio Hub ("Hub1") to migrate to Gravio Hub 2 ("Hub2").

Before starting

It is assumed that the data in the currently operated Hub1 will be backed up and restored to Hub2 for operation.

Please start Hub1 and configure the network settings for Hub2 using UpdateManager in advance. Since Hub2 will be connected to the same network as Hub1, set up a WiFi access point or wired LAN connection or set up a temporary IP address using DHCP/static address while performing the migration procedure.

Please start UpdateManager on Hub1 and Hub2 and keep them logged in before proceeding with the migration procedure.

migration procedure

The migration procedure to Hub2 consists of the following 7 steps.

- 1. Update the version of Coordinator
- 2. Update the version of HubKit
- 3. Update the version of Zigbee
- 4. Backup your data in Hub1
- 5. Download the backup file in Hub1
- 6. Restore on Hub2
- 7. Change the network on Hub2

For more information on how to use UpdateManager, please refer to here.

1. update the version of Coordinator

Make sure that the version of the Coordinator software in Hub1 and Hub2 are the same.

In Hub1, update to the latest version from the Gravio Coordinator software update in the Gravio Settings tab.

In Hub2, update the Gravio Coordinator software to the latest version from the Gravio Settings tab.

2. Update HubKit Version

Make sure that the HubKit software versions of Hub1 and Hub2 are the same.

In Hub1, update to the latest version from the Gravio HubKit software update in the Gravio Settings tab. In Hub2, update to the latest version from the Gravio HubKit software update in the Gravio Settings tab.

3 Updating the Zigbee Version

Make sure the Zigbee software versions of Hub1 and Hub2 are the same.

On Hub1, update the Zigbee software to the latest version from the Gravio Settings tab. In Hub2, update the Zigbee software to the latest version from the Zigbee software update in the Gravio Settings tab.

4. Backup data in Hub1

On Hub1, click the Backup button in the Gravio Settings tab under HubKit / Coordinator Data Backup to back up the data.

It will take some time to process the data stored in Hub1 so that it can be downloaded.

If an error occurs during the process, it may be due to the large amount of data being saved, so please delete unnecessary data by deleting the media file and try again. Refer to <u>here</u> for the location of the media file.

5. download the backup file in Hub1

In Hub1, under the Gravio Settings tab, press the Export button in HubKit / Coordinator Data Backup to download the backup file to your local PC.

6. Restore in Hub2

In Hub2, import the backup file saved in the local PC by HubKit / Coordinator Data Backup in the Gravio Settings tab.

By importing the backup file of Hub1 into Hub2, the data of Hub1 has been migrated to Hub2.

7. Change the network of Hub2

If you want to operate Hub2 as a new hostname or IP address different from that of Hub1, the migration is completed at this point.

The network configuration information is not inherited by importing a backup file, so if you want to use the same hostname and IP address as Hub1, stop Hub1 and change it in the network settings of Hub2.

11. Gravio Hub (Gravio Hub version 1)

Gravio Hub is available for rental to subscribers of Gravio Standard or higher service menu.

Gravio Hub version 1 is a square housing model.



Gravio Hub version 1 users can exchange it for Gravio Hub 2 equipment, please contact us.

11.1. Gravio Hub (Gravio Hub version 1) initial settings

This section will discuss the initial setup of Gravio Hub.

To use the Gravio Hub, you will need to do the following two things.

- 1. Configure WiFi network settings to connect Gravio Hub to your network.
- 2. Gravio Hub is running on a LinuxOS based on Ubuntu1804. It is designed to log in to LinuxOS as needed. For this reason, we ask that you change the password for your login account to login to Linux in the initial settings when you use it to increase security.

Please prepare your WiFi network settings (network name and password to connect to) and the new password for the login account in advance.

Note: Please save the password for your new login account in a safe place. If you lose the password, you will not be able to log in to Linux.

To configure these settings, we have prepared a function and an application that allows you to do so from your iOS or Android device.

Please follow the instructions below to set them up.

The following accessories are rented with the Gravio Hub, including the following Gravio Hub





• Gravio USB-C adapter !



Gravio USB-C Cable



· Power supply box !



The Gravio Hub has one USB-C connector to which you can connect a USB-C adapter or a USB-C cable.

When connecting the USB-C cable to the power cable only

Connect the power box to the power supply by making the following connections.



installing the Gravio Hub in the LAN

Connect the Gravio Hub to the power supply and start it up.

11.2. Indicator light status and button operation on the Gravio Hub (Gravio Hub version 1)

indicator light status

The Gravio logo on the Gravio Hub lights up in various colors and patterns to indicate the following

LED	Staus	Comment
Blue	When first started up out of the box	Access Point Mode
White	After Wifi setup or wired LAN connection	Normal Mode
Flashing green	At initialization of Docker	This process takes about 2 minutes
Flashing green for 5 seconds	Finished setting of Docker	
Flashing red for 5 seconds	Docker initialization error	
Blue	Initialize Wifi information and return to access point mode	Hold the button down for 3 seconds to enter this state.
Yellow	Prepare to stop power supply	Holding the button for 5-6 seconds, the Gravio Hub will be ready to stop.
Red	Power off	If the button is held down for more than 7 seconds, the Gravio Hub will stop powering

button operation

initialize Wifi information and return to access point mode

Hold the button for 3 seconds to initialize Wifi information and return to access point mode

prepare to power off

Press and hold the button for 5-6 seconds to prepare the Gravio Hub for deactivation

power off

Holding the button down for more than 7 seconds will power off the Gravio Hub

11.3. How to stop Gravio Hub

How to stop Gravio Hub (version 1)

To stop Gravio Hub, please follow the steps below.

Press and hold the button shown below, and the Gravio symbol on the top surface will change from "blue" to "yellow" to "red" and finally the light will turn off.

This will turn off the Gravio Hub.



12. Troubleshooting

In this section we talk about how to identify and rectify issues with Gravio.

12.1. General Gravio Troubleshooting

Symptom	Explanation	Remedy	Comments
Gravio Studio is not behaving as expected	Gravio Server connection is unstable or Gravio Server is not running	Ensure that there is a stable connection between Gravio Studio and the Server is running	
Windows: The Gravio Edge Service remains in "starting…" mode	There is likely to be an issue with the stored data in C:\ProgramData	Details view, find the Gravio*exe files and end them by clicking on "End	
Some Sensors are not sending information	Either they are out of range or out of power	If the sensors are energy harvesting, please put them in the sun or other natural light for a few hours and see if that fixes the issue. Also move closer to the dongle receiver.	D4
Error: This server has already been registered in Gravio Studio			
Step of Action is not being executed	There may have been an error in the previous step	Check if any of the previous steps had an error	You can set to exception ha and determin Gravio should case of an er exception
New dongle or device doesn't appear in options or drop- down	Driver may not be installed	Find the respective drivers and install them	
Gravio Studio is not connecting properly to Gravio Servers	The relevant ports may not be open	Please check the port requirements under <u>Which</u> <u>ports does Gravio require?</u>	
Gravio Studio is not connecting properly	The Server may have stopped	You can use the GravioTools (Windows), the Menu Bar App (Mac OSX) or the command sy stemctl stop/start gravioxxxxx.sevice	

		to restart the server. The best order is to stop edge, action and then control. And vice versa for start. Install the driver by
The Gravio Dongle is not recognised	The driver may not be installed	launching the Gravio Tool and select "install driver" from the tray
Finding out Gravio Version		In Windows, you can see it in the System Settings, in macOS you can see it in the "about" screen and in Linux you can use the command sudo apt sea rch gravio
Where do I find the Sensor DB?	Place where the sensor data is stored	<pre>on Linux that's in /var/o pt/gravio/action/dB however in Mac, you will find it in /Library/Appl ication Support/Gra vio/action/db and in Windows in C:\Program Data\Gravio\action\ db</pre>
How do I update the Zigbee dongle firmware?	There may be a newer version of the Firmware	<pre>Mac: You can use the file /Applications/Gravi o\ HubKit.app/Conte nts/Resources/gssos x/zigbeefirmwareupd ate and run sudo ./zig beefirmwareupdate -f irmware/file> -d /d ev/<yourdeviceid>, for example \$ sudo ./z igbeefirmwareupdat e -f /Users/usernam e/Downloads/V 0.8.0.2.bin -d /de v/cu.usbserial-D000 HOXS, the device ID starts with .cu. The firmware upload can take up to 5</yourdeviceid></pre>

		minutes	
How do I find out the ID of my USB dongle?	You may need to find out if the device is connected, and what ID it has	Mac: Try to run /Applica tions/Gravio\ HubKi t.app/Contents/Reso urces/gssosx/iotool , if it shows something like 6015,0403, usbseria 1-D000HOXS this means your dongle is connected	More details be found in / y/Logs/gra gbeefirmwa
How to disable camera detection?	If your computer is overloaded, you may want to switch off the camera detection to release resources	You can set OpencvType InitializationExcep tion to true in edge/co nf/opencv.config	This is usuall hardware spe especially wir hardware that able to cope load.
I cannot connect to my local HubKit on Windows. Why?	Loopback may be disabled	Please run the WindowsL oopbackManager.exe and ensure that "Gravio" is ticked on as an exception	If you do not the LoopBac Manager, you download it f
I cannot connect to my Gravio Hub and it's not connected to the network	You may have locked yourself out of the Gravio Hub	Please long press the reset button while the Hub is connected to power to reset the Wifi settings to Access Point mode so you can reconnect using the password graviohub.	This will only the Gravio H settings (no o settings or da Access Point meaning you able to conne Wifi following instructions. the Gravio Lo is blue, this s that the Hub Access Point

Services Connection Firmware Updates Execute Services Control Manager Trigger Manager *(stopped) Action Manager *(stopped) Serial Port Manager Bluetooth Manager Video Manager Video Manager MQTT Manager Show 'Not Running' Warning on startup	Please check if the ports are being used elsewhere, including from an old Gravio installation	Uninstall the other software	If it's an old C ensure that y uninstalled it including the o* folders fro r/local/bi ibrary/App on Support /Library/I
Some of the Gravio services are not starting	On Mac, there could be a conflict with Brew	There is a fix using http://flat- leon.hatenablog.com/ entry/ mac_runtime_error_libjpeg	commands to Gravio Brew compatible: o r/local/li mv libjpeg b libjpeg b backup ln -s /Sys brary/Fran s/ImageIO. ork/Resour bJPEG.dylib mv libtiff b libtiff. b.backup ln -s /Sys brary/Fran s/ImageIO. ork/Resour bTIFF.dylib mv libpng. libpng.dyl kup ln -s /Sys brary/Fran

			<pre>bPng.dylik G.dylib mv libGIF. libGIF.dyl kup ln -s /Sys brary/Fram s/ImageIO. ork/Resour bGIF.dylik F.dylib {</pre>
I like to increase the logging level	Logging is not insightful enough	You can add a config.j son file to ./HubKit/vi dmgr/config/	"I "Level": ' } }

12.2. Sensors Troubleshooting

Symptom	Explanation	Remedy	Comments
Energy harvesting door/contact sensor not reacting	The sensor may have run out of battery	Put the sensor into direct sunlight for a few hours. You can also see if the sensor connects to the dongle if a light flashes up at the dongle if you put the magnet next to the sensor.	The sensor also emits a regular signal every few hours with the current status (open/close) to indicate it's "still alive"

13. Appendix

13.1. Which ports does Gravio require?

Each server module of Gravio's HubKit, the Update Manager, and the Coordinator use the following ports:

Inbound

Service Name / Process Name	Protocol	Port
Update Manager	HTTP	8080
Coordinator	HTTPS	443
Gravio Control Manager	HTTPS	29442
Gravio App Service	HTTPS	29443
Endpoint for IVAR	HTTPS	29448

Outbound

Service Name	Protocol	Port
DNS	UDP/TCP	53
NTP	UDP	123
HTTPS Server	HTTPS	443

When installing HubKit and Gravio Studio on a separate PC, it is necessary to open the port for "Gravio Control Manager – HTTPS: 29442" in the firewall among these port numbers.

When using HubKit and Chrome cast, it is necessary to open the port for "Gravio App Service – HTTPS: 29443" on the PC where HubKit is installed among these port numbers.

13.2. Gravio HubKit Data Directory

When the Gravio HubKit is installed, it creates a data directory to store configuration files and data.

On Windows 10

C:\ProgramData\HubKit\

On macOS

/Library/Application Support/HubKit/

On Linux/Raspberry

On Linux/Raspberry, the following directories are mounted as volumes because the system runs on Docker.

/home/gravio/hubkitrepo4/data

13.3. Saving Media data path for Camera device

Images acquired from the camera by ONVIF or USB will be stored in the following directory for each camera device and stored in each date directory.

Areas	Layers	On Logical Device		
Demo Area	Layers Device List Zigbee No available Device Serial No available Device Bluetooth No available Device Camera Sony	Physical Device ID: Camera192.168.1.13 Physical Device Name: Sony Capture Type: Picture © Capture Interval(s): 1 0 Scan		

Windows 10

C:/ProgramData/HubKit/mediadata

Mac

/Library/Application Support/HubKit/mediadata

Linux/Raspberry/Gravio Hub

On Linux/Raspberry, since it runs on Docker, the following directories are mounted as volumes /home/gravio/hubkitrepo4/data/mediadata

When viewed from within Docker, the directory is /var/opt/hubkit/mediadata directory.

If you like the path of the image to be stored in the sensor database, you will need to add a Camera layer and assign the camera to that layer. Note, for data to be captured in the database, it needs to be in a layer.

Also if you like your harddisk not to be filled up, you can set the amount of days the pictures should be stored under "Settings" then "Disk Management".

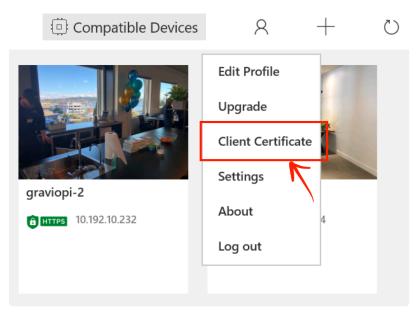
You can find more about how to setup a ONVIF Camera by watching this video: <u>https://www.youtube.com/watch?v=8dkSIz_5810</u>

13.4. Restricting access to the Gravio Hub from Gravio Studio

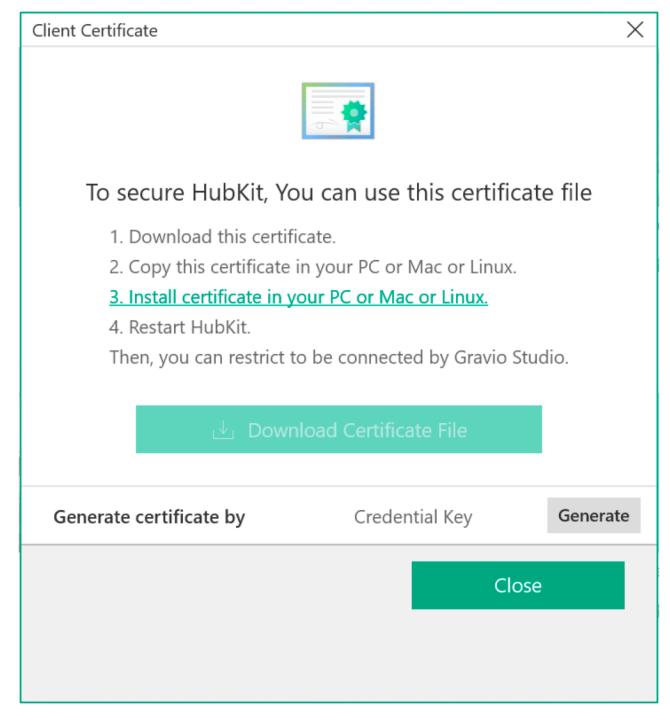
To restrict Gravio Studio access to the Gravio Hub, install the Gravio Studio client certificate used for the that particular Gravio Hub.

Note: This feature is available only in Gravio Basic, Gravio Standard and Gravio Enterprise subscriptions.

1. Log in to Gravio Cloud with Gravio Studio and select "Client Certificate" from the menu:



2. Enter a *Credential Key* (= password) at the bottom and press the "Generate" button to create a certificate.



3. Select "Download Certificate File" to download the certificate to your PC.

For MacOS

Put the downloaded certificate in the following directory. /Library/Application Support/HubKit/clientcert

Open the "Settings..." menu in the Gravio HubKit Toolbar application, and select the "Connection" tab and check the "Use client authentication" checkbox. After that, start the HubKit.

For Gravio Hub / Linux

Login via SSH, and put the downloaded certificate in the following directory.

/home/gravio/hubkitrepo4/etc/clientcert

Create "config.json" file which contains the following information in "/home/gravio/hubkitrepo4/etc/ ctrlmgr/conf" directory

```
{
  "Client" : {
    "UseClientCertificates" : true
  }
}
```

Then Restart Gravio Hub

After registering the certificate to the Hub, restart the Gravio HubKit. Restarting will enable client authentication.

13.5. How to install Gravio server Root CA certificates.

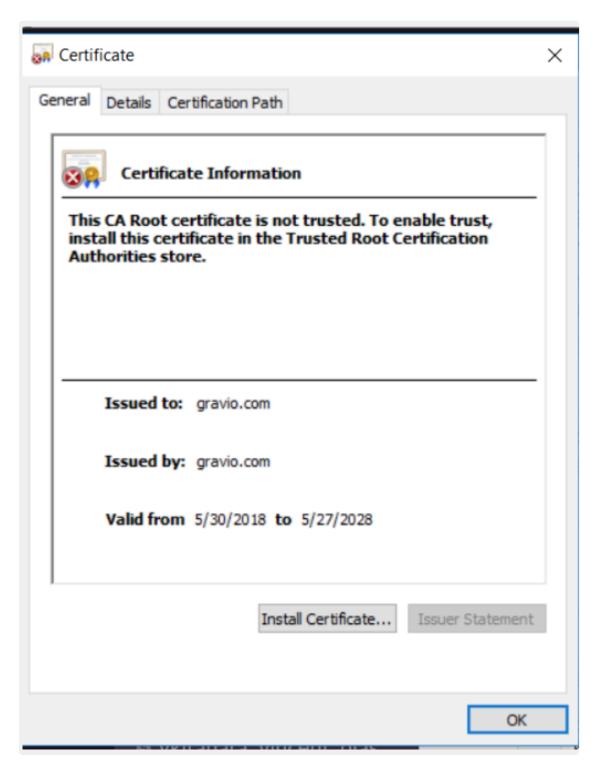
In order to make the secure connection, you will need to install the downloaded certificates to your operating system. HubKit can then verify that you are allowed to access it.

Installing the Certificate on Windows 10

Double click on the certificate file from Explorer

Open File - Security Warning							
Do you	want to ope	en this file?					
	Name:	C:\downloaded.crt					
	Publisher:	Unknown Publisher					
	Type:	Security Certificate					
	From:	C:\downloaded.crt					
		Open Cancel]				
🗹 Alwa	Always ask before opening this file						
۲	potentially	from the Internet can be useful, this file type can harm your computer. If you do not trust the source, n this software. <u>What's the risk?</u>					

On the certificate window, click on "Install Certificate"



On the Import Wizard, select "Local Machine" and press Next

- 3	

🚰 Certificate Import Wizard	
Welcome to the Certificate Import Wizard	
This wizard helps you copy certificates, certificate trust lists, and certificate revocation lists from your disk to a certificate store.	
A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.	
Store Location	
O Current User	
Local Machine	
To continue, dick Next.	
Next Cance	el

On the screen that follows, select the "Place all certificates in the following store" radio button, and then select "Trusted Root Certification Authorities". Press Next and then Finish.

←	F Certificate Import Wizard	×
	Certificate Store	
	Certificate stores are system areas where certificates are kept.	_
	Windows can automatically select a certificate store, or you can specify a location for the certificate.	l.
	Automatically select the certificate store based on the type of certificate	
	Place all certificates in the following store	
Selec	ct Certificate Store ×	
Selec	ct the certificate store you want to use.	
	Personal Trusted Root Certification Authorities	
	Enterprise Trust	
-	Intermediate Certification Authorities	
	Intrusted Certificates)
<	>	
S	how physical stores	
	OK Cancel Next Cance	el

Installing the Certificate on Mac OS X High Sierra

Open "Keychain Access" using Spotlight Search. Select the "System" Keychain category, and drag and drop the key from Finder or the Desktop. You will be prompted for your password.

• • •	Keychain Access					
Click to lock the	System keychain.		Q Search			
Keychains login Cloud System System Roots	Constituent Self-signed root certificate Expires: Sunday, June 10, 2035 22:16:00 Japan Stand A This certificate has not been verified by a third part					
	Name	Kind	Expires	 Keychain 		
	Apple Worldwide Developer Relations Certification Authority	certificate	Feb 8, 2023 6:48:47	System		
	gravio.com	certificate	May 22, 2028 13:55:05	System		
	com.apple.systemdefault	certificate	Jun 10, 2035 22:16:00	System		
	com.apple.kerberos.kdc	certificate	Jun 10, 2035 22:16:01	System		
	com.apple.kerberos.kdc	certificate	Jun 10, 2035 22:16:01	System		
Category All Items All Items Secure Notes My Certificates Y Keys Certificates						
	+ 1 Copy	5 items				

Right click on the installed certificate (gravio.com), and select "get info". Click on the down arrow next to "Trust" and on the dropdown next to X.509 Basic Policy, select "Always Trust". Close the Window and you will be prompted for your password. The certificate is installed.

Certificate Self-signed root certificate	
 Expires: Monday, May 22, 2028 13:55:05 Japan Standard Time ▲ This certificate has not been verified by a third party ▼ Trust 	
When using this certificate: Use Custom Settings ᅌ ?	
Secure Sockets Layer (SSL) no value specified	
Secure Mail (S/MIME) no value specified	
Extensible Authentication (EAP) no value specified	
IP Security (IPsec) no value specified	
Code Signing no value specified	
Time Stamping no value specified	
X.509 Basic Policy Always Trust	

Installing the Certificate on Linux (Ubuntu)

1. Install the ca-certificates program using "@sudo apt-get install -y ca-certificates@"

- 2. Move the Gravio certificate file to the folder "@/usr/local/share/ca-certificates@"
- 3. Update certificates by using "@sudo update-ca-certificates@". (Note: The Gravio services may need to be restarted to be able to verify the certificate).

13.6. How to Side-Load Gravio Studio for Windows

Sideloading procedures for Gravio Studio for Windows

Sideloading is the process of installing an application from an installer file rather than from the App Store. In some cases, for example in a corporate environment, the App store may not be available. Or a computer may not be connected to the internet. In this case, you can install Gravio Studio via sideloading. Please note, that side-loading does not support in-app purchases.

1. Download the and extract Sideloading Pack

Download the ZIP file from the Gravio.com website

Ensure that you always download from the Gravio.com domain.

2. Installing the Certificate

The pack contains 2 files: the installer file and the certificate.

Name ^	Date modified	Туре	Size
属 Gravio.Studio_3.8.3457.0_x64	6/22/2020 11:37 AM	Security Certificate	2 KB
🎁 Gravio.Studio_3.8.3457.0_x64	6/22/2020 11:37 AM	MSIXBUNDLE File	41,287 KB

Click on the certificate first to launch the certificate installation process.

neral Details Certification Path	Ne		Properties Open	Select all Select none Invert selection				
This certificate is intended for the following purpose(s): • Ensures software came from software publisher • Protects software from alteration after publication	ick >	GravioStudioSidelo				~	U	
• 1.3.6.1.4.1.6449.1.2.1.3.2		Name	K		modified	Туре	1	Size
		Gravio.Stud	io_3.8.3457.0_x64 io_3.8.3457.0_x64		/2020 11:37 AM /2020 11:37 AM	Security Certificate MSIXBUNDLE File		2 KB 41,287 KB
Issued by: Sectigo RSA Code Signing CA								
Issued by: Sectigo RSA Code Signing CA Valid from 4/3/2020 to 7/3/2023 Install Certificate Issuer Statement	l							
Valid from 4/3/2020 to 7/3/2023								
Valid from 4/3/2020 to 7/3/2023								
Valid from 4/3/2020 to 7/3/2023								
Valid from 4/3/2020 to 7/3/2023								

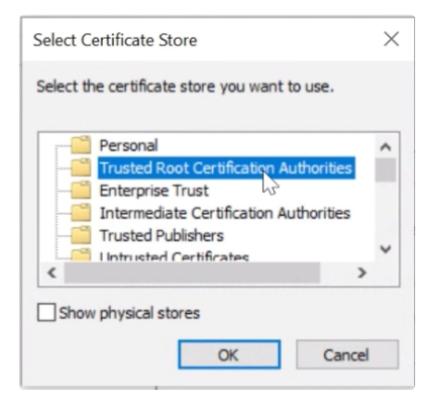
and install on your local machine:

	\times
🔶 🐉 Certificate Import Wizard	
Welcome to the Certificate Import Wizard	
This wizard helps you copy certificates, certificate trust lists, and certificate revocation lists from your disk to a certificate store.	'n
A certificate, which is issued by a certification authority, is a confirmation of your ider and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.	ntity
Store Location	
Current User Local Machine	
Cocal Machine	
To continue, dick Next.	
Next	Cancel

After clicking "Next" you will see a confirmation screen, click "Yes" to confirm that you want to go ahead with the installation, then you will see the Certificate Import Wizard. Here please select to manually choose the store:

Certificate Store			
Certificate sto	res are system areas where cer	tificates are kept.	
Windows can the certificate	automatically select a certificate	store, or you can specif	fy a location for
Automa	tically select the certificate store	based on the type of c	ertificate
Place al	certificates in the following stor		
	ate store:	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
			Browse

And click on the "Browse" button. In the popup that opens, please select the "Trusted Root Certification Authorities" option:



After this, click the "Next" button to proceed:

Certificate			
Certi	cate stores are system areas where certifi	cates are kept.	
Wind the o	ws can automatically select a certificate st rtificate.	ore, or you can specify	a location for
C	Automatically select the certificate store b	ased on the type of ce	rtificate
	Place all certificates in the following store		
	Certificate store:		
	Trusted Root Certification Authorities		Browse

On the next screen, confirm the options you have chosen and click on "Finish":

÷	🛃 Certificate Import Wizard	×
	Completing the Certificate Import Wizard	
	The certificate will be imported after you click Finish.	
	You have specified the following settings:	
	Certificate Store Selected by User Trusted Root Certification Authorities Content Certificate	
	Finish	Cancel

This concludes the installation of the certificate.

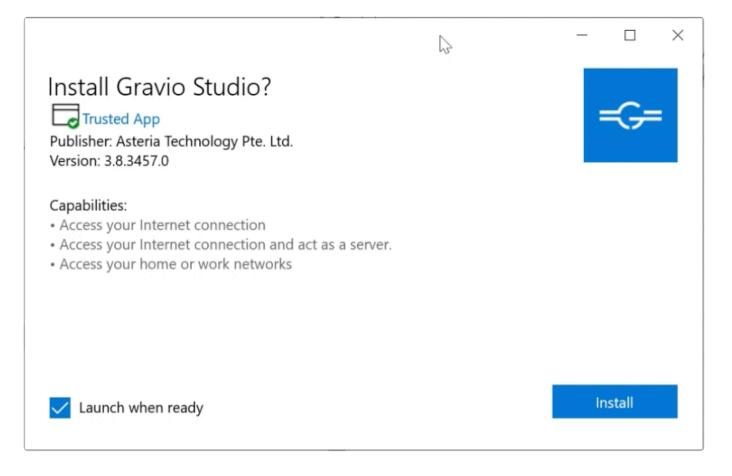
3. Installing the Application

Now, please ensure that you have Windows 10 version 1904 or later, and then double click on the installation package to launch the installation:

Name ^	Date modified	Туре	Size
属 Gravio.Studio_3.8.3457.0_x64	6/22/2020 11:37 AM	Security Certificate	2 KB
Gravio.Studio_3.8.3457.0_x64	6/22/2020 11:37 AM	MSIXBUNDLE File	41,287 KB
12			

The following confirmation window will open. Click on the "Install" button and follow the steps install

Gravio Studio:



If you encounter any problems, please join our Slack Channel and ask for help: <u>Gravio World Wide</u> <u>Community</u>

13.7. Zigbee Firmware Update

dongle is shown below.

Download the firmware from Here

1. When using a Mac

Prepare a Mac with the Gravio HubKit4 installed.

Plug the Zigbee dongle into the USB port of your Mac and launch the terminal. Insert the dongle with the Gravio logo on the top.

In Terminal app.

\$ ls -lsa /dev/cu.usbserial-*

to see the device name of your Zigbee dongle. In the example, it would be /dev/cu.usbserial-DO00HPT3 $_{\circ}$

```
sudo /Applications/Gravio HubKit 4.app/Contents/Resources/gssosx/zigbeefirmwa
reupdate -f <path>/V0.9.2.bin -d /dev/cu.usbserial-D000HPT3
```

DO00HPT3 should be replaced with the actual device name you are using.

Please use the firmware update once the update is finished. Also, the sensors already paired together can be used as they are (the pairing will be maintained).

2. When using Windows

Prepare a Windows environment in which Gravio HubKit4 is installed.

Plug the Zigbee dongle into the Windows USB port and launch PowerShell. Insert the dongle with the Gravio logo on top.

	畫 デバイス マネージャー		— 🗆
	ファイル(F) 操作(A) 表示(V) ヘルプ(H)		
id id	 ◆ ● 記 ○ □ □ □ □ ● ▲ × ● ▼ OSHIVUKIKIAF39 > □ DVD/CD-ROM ドライブ > □ DE ATA/ATAPI コントローラー ◇ ① オーディおの入力および出力 ○ ① カメラ = キーボード > □ 2/ビューター ◇ ① サウンド、ビデオ、およびゲーム コントローラー > ○ フンピューター ◇ ① サウンド、ビデオ、およびゲーム コントローラー > ○ フンピューター ◇ ① サウンド、ビデオ、およびゲーム コントローラー > ○ フンピューター ◇ ① オージィの入力などの ○ フンピューター > ○ フンピューター > ○ オンデレデ・ドイス > ○ ディスフレ ドライブ > ○ ディスフレ ドライブ > ○ ディスフレ アダブター > ○ アジ ハシー ワゴイス デバイス > ○ ブロセッサ > ○ プロセッサ ▼ ボート (COM と LPT) 	JSB Serial Port (COM3)のプロ/ 全般 ポートの設定 ドライ/ USB Serial Port (C プロバイダー: 日付: バージョン: デジタル署名者: ドライバーの詳細() ドライバーの詳細() ドライバーの天下(P) デブイスを無効にする(D) デバイスを知知にする(D)	~ 詳細 イベント

Launch Device Manager and see the COM port (COM and LPT) of the Zigbee dongle. In the example, let's say COM3.

In Powershell or CMD.exe

cd "c:\Program Files\GravioHubKit4"

and change the current directory by typing

.¥ZigbeeFirmwareUpdate.exe -f <path>/V0.9.2.bin -d COM3

Replace COM3 with the actual COM port you are using.

The firmware will be updated when the update is finished and you can use it. Also, the sensors you have already paired can be used as they are (the pairing will be maintained).

13.8. How to set up the Panasonic i-PRO Camera for Motion Detection, Congestion and Alarms

The camera used is the WV-S1135V for i-PRO camera settings.

Access the WV-S1135V camera's web page to open the settings. Please refer to the i-PRO manual for instructions on how to use the WV-S1135V and how to operate the web page.

Network Camera WV-S1135V	WV-S1135V	
ライブ画 設定	ソフトウェア管理	管理ログ
-機能拡張ソフトウェア	カメラ固有データ	
ソフトウェア管理	機器ID番号	
動作スケジュール 管理ログ	残ROM容量	83400 kbytes
AI-VMD AI:思维检知	残RAM容量	42400 kbytes
AI/LHE	SDKバージョン	1.70
+かんたん設定	ソフトウェアバージョン	2.36
+基本	RAM容量拡張モード	O on ® off
+映像/音声 +マルチスクリーン +アラーム +ユーザー管理 +ネットワーク +スケジュール +メンテナンス	 RAM協審部項モードをOnに設定すると、SDメモリ ・ 深RAM協審が51200 kbytes以下の場合はOfficです。 RAM協審部項モードをOnに設定する必要のある機 日本でで使用の場合 https://xxci.ero.com/aspes/application-alatfo 日本以外でで使用の場合 https://xxci.ero.com/acidobal/en/surveillance/i-cro- 	ません。 能加速ソフトウェアは下記URLを参照してください。 r <u>m-list</u>
+サポート	AI-VMD	アンインストール
	バージョン	3.21
	受機状況 登録状況	訪用期間:90日 登録画面へ>>
	画面表示	
	AI混雜検知	アンインストール
	バージョン	1.61
	<	•

AI Motion Detection

To use AI motion detection, you need to install AI-VMD (WV-XAE200WUX) on the camera. Please use version 3.2 or higher.

For AI motion detection settings that detect AI-recognized actions, count function settings, detailed settings, etc., please refer to the i-PRO manual for how to set up on the i-PRO side. To integrate with Gravio, open the count function settings screen.

Please register the URL of Gravio's i-PRO settings screen for HTTP transmission.

AI-VMD股定面面 ①モード選択 > ②AI動体検知股定 > ③カウント機能設定 > ④詳細設定 >	<u> ⑤スケジュール設定</u> > <u>⑥ア</u>	<u>ラーム段定</u>
検知ラインとマスクエリアは、それぞれ最大8か所まで設定できます。	ライン設定	HTTP送信 MQTT送信 その他
また、対象物が検知ラインを通過する前後各1秒以上映るように画角調整してください。	カウント情報をHTTPで外部サーバ-	
2028/07/08 14:07:10	ハワシト情報をHTTPC外部サーバ- HTTPの送信情報は、外部インター]	
In Out	送信先1	☑ 送信
	送信先アドレス	
	送信先パス名	/ipro/info/WV-XAE200WUX
0 0	SSL	® On ○Off
	送信先ポート番号	29448 (1-65535)
	ユーザー名	
	パスワード	
	送信間隔	5min 🗸
	送信先2	□送信
	送信先アドレス	yura:
	送信先パス名	/AIPeopleCounting 前於
	SSL	© On Off
		設 定

AI Congestion Detection

To use AI congestion detection, you need to install WV-XAE207W on the camera. Please use version 1.6 or higher.

For basic settings that detect AI-recognized actions, MQTT transmission settings, detailed settings, etc., please refer to the i-PRO manual for how to set up on the i-PRO side. To integrate with Gravio, open the HTTP transmission screen.

Please register the URL of Gravio's i-PRO settings screen as the transmission destination.

基本	HTTP送信	MQTT送信	詳細
カウント情報をHTTPで外部サーバー	に送信することができます。		
HTTPの送信情報は、外部インターフ	マイス仕様書をご参照ください	ha	
送信先1	☑ 送信		
送信先アドレス		削除	
送信先パス名	/ipro/info/WV-XAE207W	削除	
SSL	⊛ On ○ Off		
送信先ポート番号	29448 (1-65535)		
ユーザー名			
パスワード			
送信閣稿	5min 🗸		
送信先2	□ 送信		
送信先アドレス		削除	
送信先バス名	/AIOccupancyDetectionAg	利除	
SSL	◎ On ○ Off		
送信先ポート番号	443 (1-65535)		
ユーザー名			
パスワード			
送信間隔	5min 🗸		

Alarms

Alarms are set up from the menu to set the motion detection area for the alarm and open notifications. Please register the URL of Gravio's i-PRO settings screen for HTTP alarm notifications.

Network Camera WV-S1135V	WV-S1135V
ライブ画 設定	アラーム 動作検知エリア 妨害検知エリア 音検知 通知
-機能拡張ソフトウェア	<u> 独自アラーム通知</u> HTTPアラーム通知
ソフトウェア管理	HTTPアラーム通知 アラーム
動作スケジュール 管理ログ AI-VMD AI混雑検知	通知先1 図 https://:29448 酒 除 ユーザー名 パスワード 通知データ //pro/alarm?ip=%ip&mac=%mac&time=%stime&gmt=%b
+かんたん設定 +基本	通知先2< 図 http:// 所 体 ユーザー名
+映像/音声	パスワード 通知データ /cgi-bin/comalarm.cgi7CMD=01
+マルチスクリーン -アラーム アラーム 動作検知エリア 妨害検知エリア	通知先3 http:/// 別 除 ユーザー名
音検知 通知	通知先4 ユーザー名 http:/// 別 除 パスワード
+ユーザー管理 +ネットワーク	バスジート 通知データ /cgi-bin/comalarm.cgi7CMD=01
+スケジュール +メンテナンス +サポート	通知先5 http:// 別 除 ユーザー名 パスワード 通知データ /cgi-bin/comalarm.cgi7CMD=01
	設定

13.9. How to obtain an API Key for OpenAI

To use the OpenAlCompletion, OpenAlChat, OpenAlImage, OpenAlAudio components, please create an account with OpenAl and obtain an API Key.

1. Creating an account

Sign up from the "Sign Up" at the top right of the here OpenAI's site.

2. Confirming the Organization Id

Log in with the account you signed up for on the OpenAI's site.

Open the Manage Account menu of your account.

Overview Documentation	API reference Examples Playground
DRGANIZATION	Organization settings
Settings	Organization name
Jsage	Human-friendly label for your organization, shown in user interfaces
Rate limits	Personal
Members	Organization ID
Billing	Identifier for this organization sometimes used in API requests
JSER	_
API keys	Save

When you select Setting from the left menu, the Organization ID will be displayed on the Organization settings screen.

You will use it in the Organization Id property of each component. To use the OpenAlCompletion, OpenAlChat, OpenAlImage, and OpenAlAudio components, you need to create an account with OpenAl and obtain an API Key.

1. Creating an account

Sign up from the "Sign Up" at the top right of the OpenAI's site here.

2. Checking the Organization Id

Log in with the account you signed up for on the OpenAI site.

Open the "Manage Account" menu of your account.

ORGANIZATION	Organization settings
	0 0
Settings	Organization name
Usage	Human-friendly label for your organization, shown in user interface
Rate limits	Personal
Members	Organization ID
Billing	Identifier for this organization sometimes used in API requests
USER	
API keys	Save

When you select "Settings" from the left menu, the "Organization ID" will be displayed on the "Organization settings" screen.

This will be used in the "Organization Id" property of each component.

3. Obtaining the API Key

When you select "API keys" from the left menu, the "API keys" screen will be displayed.

API keys

Your secret API keys are listed below. Please note that we do not display your secret API keys again after you generate them.

Do not share your API key with others, or expose it in the browser or other client-side code. In order to protect the security of your account, OpenAI may also automatically rotate any API key that we've found has leaked publicly.

NAME	KEY	CREATED	LAST USED 🛈		
	sk			1	団
	sk			i	団
	sk			i	団
+ Create new secret key					

Default organization

If you belong to multiple organizations, this setting controls which organization is used by default when making requests with the API keys above.

Personal		\sim
----------	--	--------

Note: You can also specify which organization to use for each API request. See Authentication to learn more.

Press the "Create new secret key" button and create it by specifying the "Name".

The "KEY" will be used in the "API Key" property of each component.

You have now obtained the API Keys for OpenAI.

3. Obtaining the API Key

When you select API keys from the left menu, the API keys screen will be displayed.

API keys

Your secret API keys are listed below. Please note that we do not display your secret API keys again after you generate them.

Do not share your API key with others, or expose it in the browser or other client-side code. In order to protect the security of your account, OpenAI may also automatically rotate any API key that we've found has leaked publicly.

NAME	KEY	CREATED	LAST USED ①		
	sk			1	団
	sk			/	۵
	sk			/	创
+ Create new secret key					

Default organization

If you belong to multiple organizations, this setting controls which organization is used by default when making requests with the API keys above.

Personal \lor

Note: You can also specify which organization to use for each API request. See Authentication to learn more.

Press the Create new secret key button and specify a Name to create it.

You will use the KEY in the API Key property of each component.

This is how you can obtain OpenAl's API Keys.

13.10. How to use Text2SQL to create SQL from Prompts

The TextSQL function provided in the database-related components is a feature that can generate SQL statements from Japanese input into the prompt to get the data you want using the ChatGPT function of OpenAI. In order to use the TextSQL function, you need to obtain the API Key and OrganizationId from OpenAI in advance. Please check <u>here</u> on how to get them.

1. Preparation

Please get the API Key and OrganizationId from OpenAI. Then, set the properties in each databaserelated component so that you can correctly connect to the database.

2. Selecting a Table in Text2SQL

X Text 2 SQL Which tables would you like to include? The more tables you select, the worse peformance may be. Select All Deselect All Selected Table Name Column 0 Column 2 Column 1 Colum Customers customer_id first_name last_name email id email users name active Cancel Next

When you press the Text2SQL button, the Text2SQL panel will open.

3. Generating SQL Statements from Prompts

When the Text2SQL panel opens, if you can connect to the database correctly, the tables will be displayed in a list, so select the table you want to use.

When you press the Next button, the prompt input panel will be displayed.

Text 2 SQL	×
ENTER PROMPT	
Usersテーブルから最新の1行を取得する	
	Generate
GENERATED SQL	Ŋ
SELECT * FROM users ORDER BY id DESC LIMIT 1	
Back Test Query	Accept

Enter the data you want to get in Japanese in the prompt. When you press the Generate button, the generated SQL statement will be displayed in GENERATED SQL.

When you press the Test Query button, a panel for executing SQL and getting data will be displayed.

When you press the Accept button, the generated SQL statement will be copied to the SQL property of the component.

13.11. Setting up Google Cloud Storage

The following is an example configuration of how to send and receive files to and from Google Cloud Storage using the GCS Upload/Download component.

Configuration flow

Follow the steps below to configure the settings on the Google Cloud Platform

1. create a service account in IAM and create and download a key file.

2. connect the service account created in 1. as an authority to the bucket in Google Cloud Storage, and specify "Storage Legacy Bucket Owner" and "Storage Legacy Object Owner" as roles.

In the case of GCSDownload component, specify "Storage Legacy Bucket Read" and "Storage Legacy Object Read" as roles.

3. For the GCS Upload/Download component, specify the bucket specified in 2. and the key file specified in 1.

Advanced Preparation

Create a bucket in Google Cloud Storage in Google Cloud.

Create a service account in the Google Cloud console

Go to IAM and Administration from the Google Cloud console and create a service account.

	Google Cloud Se Gravi	io-Test-2022-04 ▼	Q Search Products, resources, do	ocs (/)			2.	. 9	: C
θ	IAM & Admin	Service accounts	+ CREATE SERVINE ACCOUNT	👕 DELETE	* MANAGE ACCESS	C REFRESH	E HELP AS	SISTANT	IEARN 🗢
+•	IAM	Service accounts f	or project "Gravio-Test-2022-04"						
Θ	Identity & Organization	A service account represent	ts a poogle Cloud service identity, such as code r	unning on Comput	e Engine VMs, App Engine app	s, or systems running ou	utside Google. <mark>Learn m</mark>	ore about ser	vice accounts.
٩	Policy Troubleshooter		used to secure service accounts and block risk ccount organization policies.	y service account f	eatures, such as automatic IAM	/I Grants, key creation/u	pload, or the creation o	f service acc	ounts entirely.
	Policy Analyzer NEW								
	Organization Policies	Filter Enter prope	erty name or value Statue Name	a 🛧 Descri	ntion Key ID K	ev creation date 0	Auth 2 Client ID	A	

Set the Service Account Name and Service Account ID.

≡	Google Cloud 💲 Gra	vio-Test-2022-04 - Q Search Products, resources, docs (/)	D 🖡 🛛 🗄 🖸
θ	IAM & Admin	← Create service account	E HELP ASSISTANT
+•	IAM	Service account details	
Θ	Identity & Organization	Gravio-Service	
٩	Policy Troubleshooter	Display name for this service account	
	Policy Analyzer NEW	Service account ID * gravio-service X C	
	Organization Policies	Email address: gravio-service@gravio-test-2022-04.iam.gserviceaccount.com	
연	Service Accounts	Service account description	
==	Workload Identity Federat	Describe what this service account will do	
•	Labels		
	Tags	CREATE AND CONTINUE	
\$	Settings	Grant this service account access to project	
Ø	Privacy & Security	(optional)	
	Identity-Aware Proxy	Grant users access to this service account (optional)	
	Roles		
≡	Audit Logs	DONE CANCEL	

Allow this service account to access the project and "Allow users to access this service account" are optional, so do not specify anything and click "Finish" to save the settings to display them in the list.

	Google Cloud So Gravid	o-Test-2022-04 🔻	Q Search Products, resour	ces, docs (/)) 🕨 🌲 🥐	: C
θ	IAM & Admin	Service accounts	+ CREATE SERVICE ACCC	DUNT 👕 DELETE	+ MANAGE ACCESS	C REFRESH	HELP ASSISTANT	S LEARN
+ <u>•</u>	IAM	Service accounts	for project "Gravio-Test-202	22-04"				
Θ	Identity & Organization	A service account represe	nts a Google Cloud service identity, such a	as code running on Comput	e Engine VMs, App Engine apps	, or systems running outside Go	oogle. <u>Learn more about serv</u>	ice accounts.
٩	Policy Troubleshooter		e used to secure service accounts and b account organization policies.	lock risky service account f	eatures, such as automatic IAM	Grants, key creation/upload, or	the creation of service acco	unts entirely.
٥	Policy Analyzer NEW	= Filter Enter prop	erty name or value				0	
	Organization Policies	Email	Status	Name 🛧 Descri	otion Key ID Ke	ey creation date OAuth 2 C	Client ID 😧 Act	
<u>•</u>	Service Accounts		State					
	Workload Identity Federat							
۹	Labels	□ <u>gravio-ser</u> 2022-	vice@gravio-test-	Gravio- Service	No keys	1124719 Г	24940682938540	
	Tags	04.iam.gserv	ceaccount.com					
\$	Settings		Enabled					

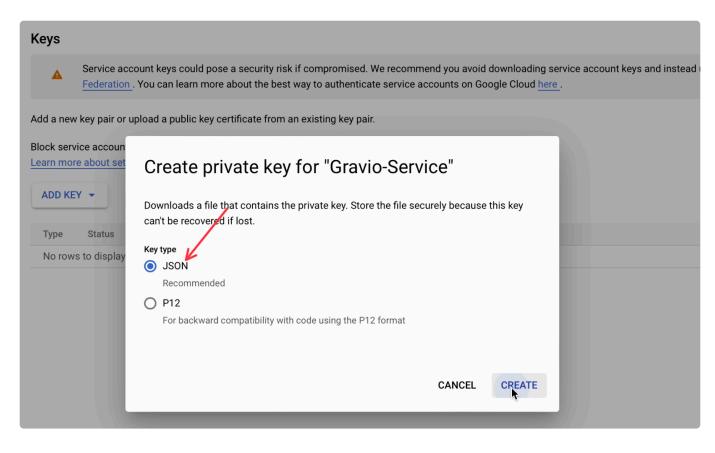
Select "Manage Keys" from the operations.

	Google Cloud 💲 Gravi	o-Test-2022-04 🔻	Q Search Products, res	ources, docs (/)) 🖪 🌲	0 i	С
θ	IAM & Admin	Service accounts	+ CREATE SERVICE A	CCOUNT 👕 DELETE	+ MANAGE ACCESS	C REFRESH		ит 🗢	LEARN
+•	IAM	Service accounts	for project "Gravio-Test-2	2022-04"					
Θ	Identity & Organization	A service account represer	ts a Google Cloud service identity, s	uch as code running on Com	pute Engine VMs, App Engine	apps, or systems running outside G	oogle. <u>Learn more abo</u>	ut service ac	ccounts.
٩	Policy Troubleshooter		e used to secure service accounts a ccount organization policies.	nd block risky service accou	nt features, such as automatic	IAM Grants, key creation/upload, o	r the creation of servic	e accounts e	entirely.
	Policy Analyzer NEW								
E	Organization Policies	Filter Enter prop	erty name or value Status	Name 🛧 Des	cription Key ID	Key creation date OAuth 2	Client ID	Actions	
연코	Service Accounts			•					
	Workload Identity Federat								
•	Labels		vice@gravio-test-	Gravio-	No		924940682938540	:	
	Tags	2022- 04.iam.gservi	ceaccount.com	Service	keys	6			
٠	Settings		Enabled						

Select "Add a key"

	Google Cloud 🚦 Grav	io-Test-2022-04 🗸 Q Search Products, resources, docs (/)) » • • • C
θ	IAM & Admin	← Gravio-Service	E HELP ASSISTANT
+•	IAM	DETAILS PERMISSIONS KEYS METRICS LOGS	
Θ	Identity & Organization	Keys	
٩	Policy Troubleshooter	Service account keys could pose a security risk if compromised. We recommend you avoid downloading service account keys and in	stead use the Workload Identity
	Policy Analyzer NEW	Federation. You can learn more about the best way to authenticate service accounts on Google Cloud here.	
	Organization Policies	Add a new key pair or upload a public key certificate from an existing key pair.	
연	Service Accounts	Block service account key creation using organization policies. Learn more about setting organization policies for service accounts	
	Workload Identity Federat	ADD KEY 👻	
۹	Labels	Create new key Key creation date Key expiration date	
	Tags	Upload existing key	
	a		

Create the key type as "JSON".



When created, the key file will be downloaded to your PC.

F	Priv	at	e key saved to your computer
	A		gravio-test-2022-04-edff01af759e.json allows access to your cloud resources, so store it securely. Learn more best practices
			CLOSE

Set the service account as a principal in Google Cloud Storage

Set the service account created in IAM and Administration as a principal in Google Cloud Storage.

Make sure you have a bucket. If you don't have one yet, create one:

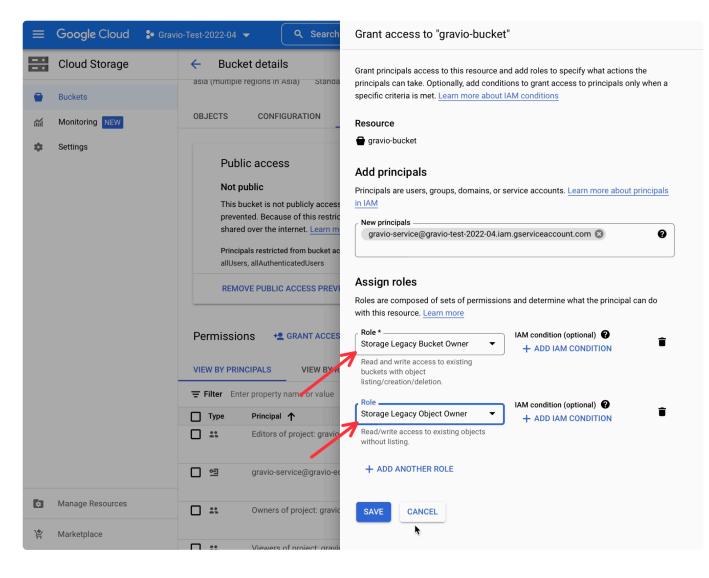
	Google Cloud	😓 Grav	io-Test-2	2022-04 🔻	Q Search Products, res	sources, docs (/)) 🔉 🌲 🥹 🗄	С
	Cloud Storage		÷	Create a buc	ket				E HELP ASSISTANT	<1
■	Buckets Monitoring NEW Settings		•	gravio-bucket Tip: Don't include LABELS (OPTINUE CONTINUE Choose whe Location: us (multip Location type: Multi	ique, permanent name. <u>Naming gu</u> any sensitive information IONAL) Pere to store your data ble regions in United States)		Goo =	Dod to know Location pricing Storage rates vary depending on the storage of your bucket. Pricing details Current configuration: Multi-region / Standard Item us (multiple regions in United States) With default replication ESTIMATE YOUR MONTHLY COST		
				Default storage cla	ss: Standard					

Select the bucket to read/write from the Google Cloud Storage browser menu and select "Create" for the principal from "Permissions".

	gle Cloud 🔹	Gravio-Test-2022-04 🗸 🔍 🔍 Q. Search Products, resources, docs (/)) 🛛 🌲	?	: C
Cloud	ld Storage	← Bucket details			C REFRESH	E HELP ASSIST		LEARN
Bucket	oring NEW	asia (multiple regions in Asia) Standard Not public None OBJECTS CONFIGURATION PERMISSIONS PROTECT	TION L	IFECYCLE OBSERVAE				
Setting	Settings	Public accesss Not public Dis bucket is not publicly accessible since public access is being prevented. Because of this restriction, objects cannot be publicly shared over the internet. Learn more Principals restricted from bucket access: allUsers, allAuthenicatedUsers REMOVE PUBLIC ACCESS PREVENTION Permissions VIEW BY PRINCIPALS VIEW BY PRINCIPALS		Access control Uniform: No object-leve 90 days left to change this st All object access is controlle cannot have their own acces object access, you can switc Learn more SWITCH TO FINE-GRAINED	d by bucket permissions s control lists (ACLs). To	ble dashboar(erformance, availab ets. and objects allow per-	liity	
		Filter Enter property name or value					0	III
		Type Principal ↑ □ •• Editors of project: gravio-test-2022-04	Name	Role Storage Legacy Rucket Own	Inheritance	A.		

Enter the service account you created above in the "New Principal" field.

Add "Storage Legacy Bucket Owner" and "Storage Legacy Object Owner" to "Roles" and save.



Save the new principal and it will appear in the list.

	Google Cloud	Gravio-Test-2022-04	✓ Q Search Products, resources, docs (/)				0 : C
	Cloud Storage	← Buck	et details		C REFRESH	E HELP ASSISTANT	r 🗢 LEARN
-	Buckets	OBJECTS	CONFIGURATION PERMISSIONS PROTECTION	LIFEGYCLE UBS			
M	Monitoring NEW	Publ	ic access	Access control	Understand your with a customize	able dashboard	×
\$	Settings	Not p	ublic	Uniform: No object	-leve Gain visibility into the p and health of your buc	performance, availability kets.	
			This bucket is not publicly accessible since public access is being		90 days left to change this setting		
	prevented. Because of this restriction, objects cannot be publicly shared over the internet. <u>Learn more</u> Principals restricted from bucket access: allUsers, allAuthenticatedUsers		All object access is controlled by bucket permissions and objects cannot have their own access control lists (ACLs). To allow per- object access, you can switch to fine-grained access within 90 days. Learn more				
		REMO	REMOVE PUBLIC ACCESS PREVENTION Permissions +2 GRANT ACCESS -2 REMOVE ACCESS VIEW BY PRINCIPALS VIEW BY ROLES		SWITCH TO FINE-GRAINED		
		= Filter Ente	er property name or value				0 III
		🔲 Туре	Principal 🔨	Name Role	Inh	neritance	
			Editors of project: gravio-test-2022-04	Storage I	Legacy Bucket Owner	ľ	
				Storage I	Legacy Object Owner		
			gravio-service@gravio-edge.iam.gserviceaccount.com	Storage I	Legacy Bucket Owner	i	
				Storage I	Legacy Object Owner		
			gravio-service@gravio-test-2022-04.iam.gserviceaccount.com	Gravio-Service Storage I	Legacy Bucket Owner	1	
	Manage Resources				Legacy Object Owner		
			Owners of project: gravio-test-2022-04	Storage I	Legacy Bucket Owner	ľ	
`} ₽	Marketplace			Storage I	Legacy Object Owner		

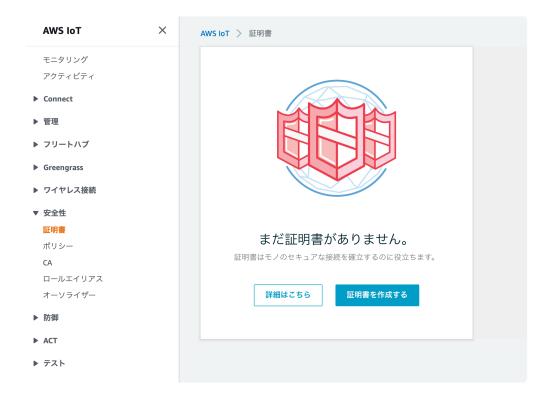
Configuration in the Google Cloud Console is finished.

13.12. How to set up AWS IoT MQTT

This guide takes you through the steps to use AWS IoT with MQTT

Create and Download the Certificate

Open AWS IoT, select "Certificates" in the left menu "Security" and click "Create Certificate".



Select 1-Click Create Certificate (recommended).

AWS IoT > 証明書 > 証明書を作成する	
証明書を作成する	
証明書は、AWS IoT へのデバイスの接続を認証するために使用されます。	
1-Click 証明書作成 (推奨) AWS IoT の認証局を使用して証明書、パブリックキー、プライベートキーを作成します。	証明書を作成
CSR による作成 所有しているプライベートキーに基づいて固有の証明書署名リクエスト (CSR) をアップロ ードします。	≜ CSR による作成
お持ちの証明書を使用する CA 証明書を登録し、1 つ以上のデバイスに独自の証明書を使用します。	開始方法

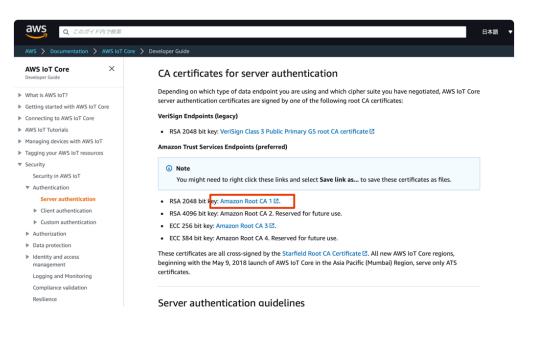
Once the certificate is created, you will be able to download 3 certificates, download all of them.

Note that no public key will be used.

Select "Download" to download the certificate for the Amazon IoT root CA.

証明書が作成されました!						
およびパブリックキー;	シンロードして、安全な場所に保存します。証明書は 取得できなくなります。 、次の情報をダウンロードします。	はいつでも取得できます	が、このページを閉	じると、プライベートキー		
このモノの証明書	b2a8fa28df.cert.pem ダウンロード					
パブリックキー	b2a8fa28df.public.key ダウンロード					
プライベートキー	b2a8fa28df.private.key ダウンロード					
また、AWS IoT のルー AWS IoT のルート CAタ 有効化	ヽCA をダウンロードする必要があります。 ウンロード					
キャンセル			完了	ポリシーをアタッチ		

Click on the link RSA 2048 bit key : Amazon Root CA 1 to view the certificate and copy and paste the text into your editor.



----BEGIN CERTIFICATE----

MIIDQTCCAimgAwIBAgITBmyfz5m/jAo54vB4ikPmljZbyjANBgkqhkiG9w0BAQsF ADA5MQswCQYDVQQGEwJVUzEPMA0GA1UEChMGQW1hem9uMRkwFwYDVQQDExBBbWF6 b24gUm9vdCBDQSAxMB4XDTE1MDUyNjAwMDAwMFoXDTM4MDExNzAwMDAwMFowOTEL MAkGA1UEBhMCVVMxDzANBqNVBAoTBkFtYXpvbjEZMBcGA1UEAxMQQW1hem9uIFJv b3QgQ0EgMTCCASIwDQYJKoZIhvcNAQEBBQADggEPADCCAQoCggEBALJ4gHHKeNXj ca9HgFB0fW7Y14h29Jlo91ghYP10hAEvrAIthtOgQ3pOsqTQNroBvo3bSMgHFzZM 906II8c+6zf1tRn4SWiw3te5djgdYZ6k/oI2peVKVuRF4fn9tBb6dNqcmzU5L/qw IFAGbHrQgLKm+a/sRxmPUDgH3KKHOVj4utWp+UhnMJbulHheb4mjUcAwhmahRWa6 VOujw5H5SNz/0egwLX0tdHA114gk957EWW67c4cX8jJGKLhD+rcdqsq08p8kDi1L 93FcXmn/6pUCyziKrlA4b9v7LWIbxcceVOF34GfID5yHI9Y/QCB/IIDEgEw+OyQm jgSubJrIqg0CAwEAAaNCMEAwDwYDVR0TAQH/BAUwAwEB/zAOBgNVHQ8BAf8EBAMC AYYwHQYDVR00BBYEFIQYzIU07LwMlJQuCFmcx7IQTgoIMA0GCSqGSIb3DQEBCwUA A4IBAQCY8jdaQZChGsV2USggNiMOruYou6r4lK5IpDB/G/wkjUu0yKGX9rbxenDI U5PMCCjjmCXPI6T53iHTfIUJrU6adTrCC2qJeHZERxhlbI1Bjjt/msv0tadQ1wUs N+qDS63pYaACbvXy8MWy7Vu33PqUXHeeE6V/Uq2V8viTO96LXFvKWlJbYK8U90vv o/ufQJVtMVT8QtPHRh8jrdkPSHCa2XV4cdFyQzR1bldZwgJcJmApzyMZFo6IQ6XU 5MsI+yMRQ+hDKXJioaldXgjUkK642M4UwtBV8ob2xJNDd2ZhwLnoQdeXeGADbkpy rqXRfboQnoZsG4q5WTP468SQvvG5 ----END CERTIFICATE----

Configure the Policy

Next, configure a policy: open AWS IoT, select "Policies" under Safety, and click "Create Policy".



Enter a name for the policy, enter "iot:" **for the action,** "" for the resource ARN, check "Allow" for the effect and click "Create".

ポリシーの作成	
ポリシーを作成して、認可アクションのセットを定義します。1 つ以上のリソース (モノ、トピック、トピック: ます。 loT ポリシーの詳細については、「AWS loT ポリシーのドキュメントページ」を参照してください。	フィルター) のアクションを承認でき
名前	
gravio_mqtt	
ステートメントを追加 ポリシー構文は、リソースで実行できるアクションの種類を定義します。	アドバンストモート
アクション	
iot.*	
リソース ARN	
効果	
✓ 許可 □ 拒否	
ステートメントを追加	
	作成

The policy has been created.

AWS IoT 〉 証明書 〉 b	2a8fa28df81a1e752709cafc0b7a6a	a8d0c91d8563a155086b9edfdd3b352b61	
証明書			
b2a8fa28df8 _{アクティブ}	1a1e752709cafc0b7a	a6a8d0c91d8563a155086b9edfdd3b352b61	
テンティン		:	アクション 🝷
詳細	ポリシー		
ポリシー			
モノ	gravio_mqtt	***	
コンプライアンス違			
反			

Associating a Policy with a Certificate

Select "Certificates" under Safety and click on the certificate you created.

E明書		作成
証明書の検索		
□ 名前	ステータス	
b2a8fa28df81a1e752709cafc0b7a6a8d0c91d8563a155086b9edfdd3b352b61	アクティブ	

Select the action and click on "Attach Policy".

アクティブ		アクション
羊細	証明書 ARN	有効化 無効化 取り消し
ポリシー Eノ		転送を許可する 転送を拒否する
コンプライアンス え	arn:aws:iot:ap-northeast-1:565210943228:cert/b2a8fa28df81a1e75	52 転送を取り消す 転送を開始する ポリシーのアタッチ
	詳細	モノをアタッチ ダウンロード
	発行者 OU-Amazon Web Services O\=Amazon.com Inc. L\=Seattle ST\=Washington C\=US 件名	削除
	CN=AWS loT Certificate 作成日 10月 07, 2021, 10:01:42 (UTC+0900)	

Check the policy you just created and click "Attach".

証明書にポリシーをアタッチする
ポリシーは、次の証明書にアタッチされます。 b2a8fa28df81a1e752709cafc0b7a6a8d0c91d8563a155086b9edfdd3b352b61 1 つ以上のポリシーを選択
Q ポリシーの検索 ✔ gravio_mqtt 表示
1 個のポリシーを選択済み キャンセル アタッチ

Check the Entry Point

Check the MQTT publish and subscribe entry points.

Click on the "Settings" menu on the left. Endpoints will be displayed and use this one.



After confirming the settings up to the endpoint, the configuration in AWS IoT is finished.

MQTTPublisher configuration in Gravio Studio

In Gravio Studio, set the MQTTPublisher properties as follows

- Topic can be any value.
- Client ID is a unique value.

Step 1 MQTTPublish	ステップの追加			
2 2 2 2 2 2 2 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1	+			
Properties				
基本プロパティセット			(cp.BaseProperty)
(なし)				\sim
トピック				(cp.Topic)
graviotopic				
クライアントID				(cp.Clientld)
gravio1				
QoS				(cp.QOS)
QoS 0				\checkmark
Retain				(cp.Retain)

URL is "ssl://" followed by the entry point.

The port is "8883" and the username and password are left blank.

Properties	
URL	(cp.URL)
ssl://	
ポート	(cp.Port)
8883	
ユーザ名	(cp.Username)
パスワード	(cp.Password)

Select the downloaded files for the certificate, private key, and root certificate. Leave the private key passphrase blank.

🗮 Properties	
証明書	(cp.Certificate)
ファイルを選択する	
秘密鍵	(cp.PrivateKey)
ファイルを選択する	
秘密鍵パスフレーズ	(cp.PrivateKeyPassword)
ルート証明書	(cp.RootCA)
ファイルを選択する	

You are now set up to send data from MQTTPublisher to AWS IoT's MQTT.

13.13. How to configure Azure IoT Hub (MQTT)

Here is an example of how to send messages to Azure IoT Hub (MQTT).

Preparations

Prepare a Linux or Mac to create a certificate.

Downloading the tools

To use a certificate in Azure IoT Hub, please download the command line tools to your Linux or Mac from <u>here</u>.

For Windows, execute the bash command from PowerShell and use bash.

Enter the following commands to create a certificate that can be pasted into the field.

Unzip the downloaded zip file and move to the tools directory. cd <path>/azure-iot-sdk-c-main/tools

Give the tool execution permissions. chmod +x ./certGen.sh

Creating a CA certificate

Run the tool to create a CA certificate. ./certGen.sh create_root_and_intermediate

Creating a device certificate

Run the tool to create a certificate for the device. ./certGen.sh create_device_certificate <device id> % is where you specify the device ID.

Create a public key for the device.

openssl pkcs12 -in certs/new-device.cert.pfx -clcerts -nokeys -out <device i
d>.crt

% If you are asked to enter a password, enter the password that is displayed on the screen.

Create a private key for the device. openssl pkcsl2 -in certs/new-device.cert.pfx -nocerts -nodes -out <device i d>.key **%If you are asked to enter a password, enter the password that is displayed on the screen**.

.crt and .key will be used in Gravio Studio.

If you are using multiple devices, please create one for each device.

Creating an IoT Hub in Azure

Log into Azure and display and create the IoT Hub:



Create a new resource group. In the sample, we named it "iothub".

IoT ハブ …

Microsoft

基本 ネットワーク 管理 タグ 確認および作成

何十億にも及ぶ IoT アセットに接続し、監視および管理できるように、IoT ハブを作成します。 詳細情報

プロジェクトの詳細

デプロイとコストを管理するために使用するサブスクリプションを選択します。フォルダーなどのリソース グループを使用して、リソースの整理と管理を行うことができます。

サブスクリプション * i	Azure subscription 1	\sim
リソース グループ * ①	新規作成	\sim
インスタンスの詳細 loT Hub 名 * ①	リソース グループは、Azure のソリューションに関連 するリソースを保持するコンテナーです。	
領域 * ①	名前 * iothub イ	~

Enter the IoT Hub name. In the sample, we named it "gravio-mqtt".

IoT ハブ …

Microsoft

基本 ネットワーク 管理 タグ 確認および作成

何十億にも及ぶ IoT アセットに接続し、監視および管理できるように、IoT ハブを作成します。 詳細情報

プロジェクトの詳細

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サブスクリプション * (i) 」	Azure subscription 1	\checkmark
リソース グループ * 🕠	(新規) iothub 新規作成	\checkmark
インスタンスの詳細		
IoT Hub 名 * ()	gravio-mqtt	\checkmark
領域 * ①	Japan East	\checkmark

Specify the network.

IoT /	-			
基本	ネットワーク	管理	タグ	確認および作成
loT ハフ 詳細情報		' ホスト名	名経由でパ	ブリックに接続することも、プライベート エンドポイントを使用してプライベートに接続することもできます。
接続の	冓成 *			● パブリック アクセス
				○ プライベート アクセス (推奨)
				このリソースが作成された後に、この設定を変更したり、別の接続方法を構成したりすることができます。 詳細情報

Specify the scaling level and units in Management. In the sample, we selected "F1:Free Level".

1

IoT ハブ . . .

Microsoft

確認および作成 基本 ネットワーク 管理 タグ

それぞれの IoT ハブには、特定レベルの特定数のユニットがプロビジョニングされます。レベルとユニット数によって、1 日に 送信できるメッセージの最大クォータが決まります。 詳細

スケーリング レベルとユニット

価格とスケールティア* ()

F1: Free レベル \backslash ソリューションに合った正しい loT ハブのレベルを選択する方法について

 \bigcirc IoT ハブ F1 のユニット数 🕕 IoT ハブをスケーリングできる度合いを決定します。ニーズが増大した場合は、後でこれを変更できます。

Defender for IoT

オフ

Microsoft Defender for IoT は、Azure IoT Hub、IoT Edge、デバイスに脅威からの保護のための追加のレイヤーを付加する個 別のサービスです。このサービスに対しては個別に課金されます。Defender for IoT ではデータを処理した後、IoT Hub とは異 なる地理的な場所に格納する場合があります。詳細情報

価格とスケールティア ①	F1	device-to-cloud メッセージ 🛈	有効
1日あたりのメッセージ ①	8,000	メッセージ ルーティング (i)	有効
月あたりのコスト	0.00 USD	cloud-to-device コマンド (i)	有効
Defender for IoT (i)	無効	IoT Edge (i)	有効
		デバイス管理 ①	有効

ロールベースのアクセス制御

アクセス許可モデルを Azure ロールベースのアクセス制御 (RBAC) のみに、または共有アクセス ポリシーと RBAC の組み合わ せに変更します。 詳細情報

○ RBAC のみ

● 共有アクセス ポリシー + RBAC

インスタンス内の要素を管理するには、IoT Hub データ API に対するアクセスが必要です。以下の推奨されるロールを選択し て、API へのフル アクセスを自分自身に許可してください。アクセスの制御 (IAM) を使用して、後で適切なロールを選択するこ ともできます。 詳細情報

loT ハブ データ共同作成者ロールに自分を割り当てる ⁽⁾

詳細設定

スケーリング

Device-to-cloud パーティション (i)

Confirm and create with the content of the settings.

 \cap

2

IoT ハブ・ Microsoft

🔮 検証に成功しました。

基本	ネットワーク	管理	タグ	確認および作成
基本				
サブスク	リ プション			Azure subscription 1
リソース	ヽ グループ			iothub
領域				Japan East
loT Hub)名			gravio-mqtt
ディザス	ヽター リカバリーカ	が有効		はい
ネット	フーク			
接続の構	 咸			パブリック アクセス
プライへ	ベート エンドポイン	ット接続		なし
公衆ネッ	ハトワーク アクセス	スを許可す	ける	有効
管理				
価格とス	スケールティア			F1
IoT ハブ	、 F1 のユニット数			1
1日あた	りのメッセージ			8,000
Device-	to-cloud パーティ	ション		2
月あたり)のコスト			0.00 USD
Defend	er for IoT			無効

タグ

When the deployment is complete, "gravio-mqtt" will be created.

	 🛄 削除	◇ キャンセル Ĺ	▶ 再デプロイ 🚽 ダウ	ッンロード 🖒 最新の	情報に更新
。 概要	o デ	プロイが完了	てしました		
2 入力				明 44.味力, 2022/0/7 10	-F-2-44
∃ 出力	- サフ	プロイ名: gravio-mqt ブスクリプション: Az	ure subscription 1	開始時刻: 2022/9/7 10 相関 ID: e88c3b91-186	.52.44 6b-4b67-8a00-b56bf4cc0599 <u></u>
テンプレート	リン	/ース グループ: ioth	ub		_
	へ展開	の詳細			
		リソース	種類	状態	操作の詳細
	v	gravio-mqtt	Microsoft.Device	s/lotH OK	操作の詳細
	へ 次の	手順			
	loT	デバイスの追加と構成	む お勧め		
	デバ	イス メッセージング	のルーティング規則の構成	↓ お勧め	
		リソースに移動			

Select "gravio-mqtt", open and create the certificate.

ホーム > IoT Hub > gravio-mqtt							×
 	こちらでデバイス認証の	証明書をアップロードして	て管理します。詳細情報				
🔎 クエリ	€ 新しい証明書をアッ	ップロードすると、自動的に	証明書を確認できます (既存の)	証明書の状態は変更されないことに	注意してください)。 <u>詳細情報</u>		
ハブ設定	十 追加 () 最新の	連邦に再発					
組み込みのエンドポイント		用報に更利					
ሂ メッセージ ルーティング	名前	作成日時	期限切れ	サブジェクト	サムプリント	状態	
🕒 ファイルのアップロード	お果がありません。		ALL ALL	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		P () B	
🚕 フェールオーバー							
プロパティ							
□ ロック							
セキュリティ設定							
🔶 ID							
📍 共有アクセス ポリシー							
≪→ ネットワーク							
🏓 証明書							

In Add Certificate, enter the certificate name and specify the CA certificate created in the prepreparation. Set "Confirm certificate status at upload time" to On.

ホーム > IoT Hub > gravio-mqtt gravio-mqtt 証明書					☆ 証明書の追加 ×
 ○ 検梁 (Cmd+/) 《 ◇ 東新プログラム ● クェリ ハブ設定 			て管理します。詳細情報 に証明書を確認できます (既存の	証明書の状態は変更されな	証明書名 * ○ gravio-mqtt-certs
 組み込みのエンドポイント メッセージルーティング ファイルのアップロード フェールオーバー 	名前結果がありません。	作成日時	期限切れ	サブジェクト	↑ この証明書は、手動で確認する必要がないため、自動的に検証 詳細情 されます。
 プロパティ ロック セキュリティ設定 					
 ☆ ID ↑ 共有アクセスポリシー ↔ ネットワーク ▲ 証明書 					

When you save the certificate, it will be displayed in the list.

ホーム > IoT Hub > gravio-mqtt ♪ gravio-mqtt 証明書 IoT Hub							×
 	こちらでデバイス認証の証	明書をアップロードして管理	します。詳細情報				
🔎 クエリ	🔒 新しい証明書をアッ	プロードすると、自動的に証明	書を確認できます (既存の証明書	の状態は変更されないことに注意	してください)。 <u>詳細情報</u>		
ハブ設定		おに 下が					
● 組み込みのエンドポイント	十 追加 🖒 最新の情	報に更新					
Ҳ メッセージ ルーティング	名前	作成日時	期限切れ	サブジェクト	サムプリント	状態	
🕒 ファイルのアップロード	gravio-mqtt-certs	2001/1/1	2022/10/7	Azure IoT Hub CA Cert T.	. 412747FCB3C98FB2CE0	✓確認済み	
杰 フェールオーバー	5						
プロパティ							
□ □ック							
セキュリティ設定							
🔶 ID							
📍 共有アクセス ポリシー							
≪→ ネットワーク							
🏓 証明書							

Open and create the device.

ホーム > gravio-mqtt-97105242 概要	훈 > gravio-mqtt		
igravio-mqtt デバ	イス 🖈 …		×
	loT Hub 内のデバイスを表示、作成、	削除、更新します。	
ス 概要	デバイス名		
📄 アクティビティ ログ	デバイス ID の入力		
⁸ タ アクセス制御 (IAM)	デバイスの検索		クエリを使用して検索
タグ	🕂 デバイスの追加 🖒 最新の†	青報に更新 🛄 削除	
🤌 問題の診断と解決			
🗲 イベント	デバイス ID	状態	前回の状態の更 認証の クラウ
🧿 価格とスケール			
デバイス管理	表示する loT デバイスがありません。		
■ デバイス			
💁 loT Edge			
♀ 構成			
🧼 更新プログラム			
鼻 クエリ			

The device ID is the ID specified in the device certificate. Select "X.509CA Signed" for the type of authentication.



When you save the device, it will be displayed in the list.

ホーム > IoT Hub > gravio-mo	qtt					
gravio-mqtt 5	デバイス	x				×
	Ic	T Hub 内のデバイスを表示、作成、	削除、更新します。			
え 概要	Ŧ	デバイス名				
📄 アクティビティ ログ		デバイス ID の入力				
⁹ 2、アクセス制御 (IAM)		デバイスの検索			クエ	リを使用して検索
🗳 タグ		🕂 デバイスの追加 💍 最新の	情報に更新 🛄 削除			
∂ 問題の診断と解決						
🗲 イベント		デバイス ID	状態	前回の状態の更新	認証の種類	クラウ
💿 価格とスケール		d001	Enabled		CertificateAuthority	0
デバイス管理		0001	Linabled	-	CertificateAuthonty	0
■ デバイス						
💁 loT Edge						
😤 構成						
🧼 更新プログラム						
🏓 クエリ						

Open the overview and record the hostname. The hostname is the entry point for the Azure IoT Hub.

	→ 移動 🗸 📋 削除	🕐 最新の情報に更新 🔗 フィードバック			
☆ 概要					
📄 アクティビティ ログ	へ 基本				JSON ビュ
💊 アクセス制御 (IAM)	リソース グループ (<u>移動</u>)	: <u>iothub</u>	ホスト名	: gravio-mqtt.azure-devices.net	
タグ	状態	: Active	価格とスケールティン	ア : F1 - 無料	
/> 問題の診断と解決	現在の場所	: Japan East	IoT Hub のユニット	数:1	
7 イベント	サブスクリプション (<u>移動</u>): <u>Azure subscription 1</u>			
	サブスクリプション ID	: fc1ebad9-8266-456d-bf0e-02512c9d0546			
🧿 価格とスケール	タグ (<u>編集</u>)	: <u>タグを追加するにはここをクリック</u>			
デバイス管理					

Setting up the MQTTPublisher in Gravio Studio

Set the properties of the MQTTPublisher in Gravio Studio as follows.

Property name	Description
Торіс	Specify "devices/" + device ID + "/messages/events/". For example, "devices/d002/ messages/events/"
Client ID	Specify the device ID. For example, "d001"
QoS	(Leave as default)
Retain	(Leave as default)
Timeout	(Leave as default)
URL	Specify the hostname following "ssl://". For example, "ssl://gravio-mqtt.azure- devices.net"

Port	Specify 8883
Username	Specify the hostname + "/" + device ID. For example, "gravio-mqtt.azure-devices.net/ d001"
Password	(Don't specify)
Certificate	Specify the public key of the device created in the pre-preparation
Secret Key	Specify the private key of the device created in the pre-preparation
Secret Key Passphrase	(Don't specify)
Root Certificate	(Don't specify)

With this, the settings for sending data from MQTTPublisher to Azure IoT Hub (MQTT) are complete.

13.14. How to Register Azure Apps (Microsoft365)

• • •

Here is an example of how to post an Excel file to Microsoft365 using the WriteToExcel365 component. In order to use this component, you need to have a contract and prior setup with Microsoft365 for Business and OneDrive for Business.

Preparing Microsoft365 for Business and OneDrive for Business

Please prepare a Microsoft365 account and log in to the <u>Azure Portal</u>. From the contract page, select "Register App" to register your app.

すべてのサービス > アプリの登録 >
アプリケーションの登録
* 名前
このアプリケーションのユーザー向け表示名 (後で変更できます)。
gravioexcel
サポートされているアカウントの種類
このアプリケーションを使用したりこの APLにアクセスしたりできるのはだれですか?
● この組織ディレクトリのみに含まれるアカウント (Asteria Corporation のみ - シングル テナント)
◯ 仕息の組織ディレクトリ内のアルワント (仕息の Azure AD ディレクトリーマルナデデント)
○ 任意の組織ディレクトリ内のアカウント (任意の Azure AD ディレクトリ - マルチテナント) と個人の Microsoft アカウント (Skype、Xbox など)
○ 個人用 Microsoft アカウントのみ
選択に関する詳細
リダイレクト URI (省略可能)
ユーザー認証が成功すると、この URI に認証応答を返します。この時点での指定は省略可能で、後ほど変更できますが、ほとんどの認証シナリオで 値が必要となります。
Web Ø: https://example.com/auth

After creating the app, open the details page and note down the Application ID and Directory (Tenant) ID displayed. These values, along with your Microsoft365 account's email address and password, will be set in the properties of the WriteToExcel365 component.

すべてのサービス > アプリの登録 > 職 gravioexcel ター・・			×
	📋 削除 🜐 エンドポイント 🖽 プレビュー機能		
 概要 クイックスタート 	👔 少しお時間があれば、Microsoft ID プラットフォーム (以前は開発者向け Azure	AD) に関するフィードバックをぜひお寄せください。 →	
🖌 統合アシスタント	へ 基本		
 管理 ブランド ③ 認証 * 正明南とシークレット 	表示名 : graviencel アプリケーション (クライ: オプジェクト ID : ディレクトリ (テナント)ID : サポート されているアカウ: 売加する範疇のみ	クライアントの資格情報 : 証明書またはシークレットの進加 リダイレクト URI : リダイレクト URI を追加する アプリケーション ID の URI : アプリケーション ID URI の追加 ローカル ディレクトリで… : gravioexcel	
 トークン構成 → APIのアクセス許可 	ウホートされていらアカワ…: 加減 9 6副職のみ ● 新しく強化されたアプリの登録へようこそ。アプリの登録 (レガシ) からの多	(児点を確認することをご希望ですか? 詳細情報	×
 ▲ API の公開 職 アプリロール ▲ 所有者 	2020年6月30日以降、Azure Active Directory 認証ライブラリ (ADAL) は されますが、機能更新プログラムは提供されません。アプリケーションを、	はよび Azure AD Graph に新しい機能はもう追加されません。テクニカル サポートとセキュリティ更新プログラムは今後も豊供 Microsoft 認証ライブラリ (MSAL) および Microsoft Graph にアップグレードする必要があります。 詳細情報	×
 ユールと管理者 プレビュー マニフェスト 	概要 ドキュメント		
サポート + トラブルシューティング		フォームを使用してアプリケーションを作成する バ、オープンソース ライブラリ、アプリケーション管理ツールです。標準に基づく最新の原語	
861.1.++#_L 11/2 7 L		レス、パープシンテム ジージンパン アンファンコン目在シールとする Weak Employed エ セスと保護、ユーザーと観客のサインインの追加を行うことができます。 詳細情報 C ³	

Next, from the authentication menu, confirm that the type of accounts that are supported is "Accounts only included in this organization directory" and set "Allow public client flow" to "Yes" and save.

すべてのサービス > アプリの登録 > gravi	ioexcel
	¢ …
<mark>・</mark> 検索 (Cmd+/) 《	🔄 保存 🗙 破棄 📗 🛇 フィードバックがある場合
概要	● お時間があれば、フィードバックをお寄せください。 →
📣 クイック スタート	
🚀 統合アシスタント	プラットフォーム構成
管理	このアプリケーションが対象としているプラットフォームまたはデバイスによっては、リダイレクト URI、特定の認証設定、プラ ットフォームに特有のフィールドなど追加構成が必要となる場合があります。
🧮 ブランド	┼ プラットフォームを追加
● 認証	十 フラットフォームを追加
↑ 証明書とシークレット	
トークン構成	サポートされているアカウントの種類
→ APIのアクセス許可	このアプリケーションを使用したりこの API にアクセスしたりできるのはだれですか?
🙆 API の公開	● この組織ディレクトリのみに含まれるアカウント (Asteria Corporation のみ - シングル テナント)
1 アプリ ロール	○ 住意の組織アイレクトリ内のアカワント (住意の AZURé AU アイレクトリ・マルチアアント)
🏜 所有者	判断に役立つヘルプの表示
🝰 ロールと管理者 プレビュー	
11 マニフェスト	▲ サポートされている機能が一時的に異なるため、既存の登録に関して個人用 Microsoft アカウントを有効にしないでくだ ×
サポート + トラブルシューティング	さい。個人アカウントを有効にする必要がある場合、マニフェスト エディターを使用して有効にできます。 これらの制 限に関する評価情報。
∥ トラブルシューティング	
🧟 新しいサポート リクエスト	詳細設定
	パプリック クライアント フローを許可する ①
	次のモバイルとデスクトップのフローを有効にする: (はい いいえ)
	 アプリによってプレーンテキストパスワードを収集する(リソース所有者のパスワード賃格情報フロー) 詳細情報(ご キーボードなし(デバイス コード フロー) 詳細情報(ご ・ドメイン参加済みの Windows の SSO (Windows 軟合認証フロー) 詳細情報(ご)

Select "Add Platform" and choose "Mobile and Desktop Applications" for the platform configuration.





 \times

```
Web アプリケーション
```



モバイル アプリケーションとデスクトップ アプリケーション



Check the first item of the Redirect URI, enter "https://localhost" in the Custom Redirect URI, and press the configure button to save.

デスクトップとデバイスの構	成 ×
く すべてのプラットフォーム	クイック スタート ドキュメント 🗗
リダイレクト URI ユーザー認証に成功した後に認証応答 (トークン) を注 URL とも呼ばれます。 リダイレクト URI と制限の詳	
https://login.microsoftonline.com/common/com/common/common/com/common/common/com/common/com/com/com/com/com/com/com/com/com/com	
カスタム リダイレクト URI	
https://localhost	\

Next, from the manifest menu, set "oauth2AllowIdTokenImplicitFlow" and "oauth2AllowImplicitFlow" to "true" and save.

すべてのサービス > アプリの登録 > grav	vioexcel
👩 gravioexcel マニフ	ェスト 🖉 …
<mark>></mark> 検索 (Cmd+/) 《	🔄 保存 🗙 破集 👎 アップロード 🚽 ダウンロード 🛇 フィードバックがある場合
100 概要	⑦ アプリケーションが正常に更新されました。
📣 クイック スタート	
🚀 統合アシスタント	下のエディターを使用すると、JSON 表現を直接変更してこのアプリケーションを更新できます。詳細については、以下を参照してください。 Azure A します。
管理	15 "informationalUrls": {
■ ブランド	16 "termsOfService": null, 17 "support: 18 "privacy": null,
● 認証	19 "marketing": null
↑ 証明書とシークレット	20 }, 21 "keyCredentials": [],
トークン構成	<pre>21 Regulations: [], 22 "knownClientApplications": [], 33 "logoUrl": null,</pre>
→ APIのアクセス許可	24 "logoutUrl": null,
💁 API の公開	<pre>25 "name": "gravioexcel", 26 "oauth2AllowIdTokenImplicitFlow": true,</pre>
III アプリロール	27 "oauth2AllowImplicitFlow": true,
	28 "oouth2Remissions": [], 29 "oouth2RequirePostResponse": false,
🎥 所有者	30 "optionalClaims": null,
🚨 ロールと管理者 プレビュー	<pre>31 "orgRestrictions": [],</pre>
III マニフェスト	<pre>32 "parentalControlSettings": { 33 "countriesBlockedForMinors": [],</pre>
	34 "legalAgeGroupRule": "Allow"
サポート + トラブルシューティング	35 }, 36 "passwordCredentials": [].
パシ トラブルシューティング	36 "passwordcredentiats": [], 37 "preAuthorizedApplications": [],
🧝 新しいサポート リクエスト	<pre>38 "publisherDomain": "handbooks.net",</pre>
MON9//- P 991XP	39 "replyUrlsWithType": [48 {
	41 "url": "https://localhost",
	42 "type": "InstalledClient"
	43 },
	45 "url": "https://login.microsoftonline.com/common/oauth2/nativeclient", 46 "type": "InstalledClient"
	40 Type: Instatteottent

Next, from the API permissions menu, click "Add Permission" and select "Microsoft Graph" from the frequently used Microsoft APIs.

検索 (Cmd+/) 《	🕐 最新の情報に到	「新 🕴 💙 フィ	ードバックがま	る場合					
概要									
クイック スタート		AC217819 7011-14 401			7 46 0 11 1		7 16 77	プリごとにカスタマイズ	(
統合アシスタント	管理者の同意 組織の値が反照	か必要 列には、組 良されていない場合:	幅の助走個が表 があります。 🖥	たされます。たたし、 細情報	ユーサーの回題	1.は、アクセス計可	、ユーサー、アフ	/ J C C K J X 9 Y 1 X	C C Z X 9 *
1	構成されたアクヤ	77 許可							
プランド			ワー環としてユ	ーザーか管理者から	アクセス許可;	が付与されている	場合、API を呼	び出すことが承認さ≀	れます。横
認証	は、アプリケーショ								
証明書とシークレット	十 アクセス許可の	D追加 🗸 Aster	ia Corporation	に管理者の同意を与	∋えます				
トークン構成	API / アクセス許可	「の名前	種類	説明				管理者の同意が必要	医状!
API のアクセス許可	✓ Microsoft Graph	(1)							
API の公開	User.Read		委任済み	Sign in and read	user profile			いいえ	
アプリ ロール									
所有者	アクセス許可とユー	ザーの同意を表示は	らよび管理する	ために、エンタープ	ライズ アプリ	ケーションをお診	ぱしください。		
		ADI 白4							×
PI を選択します Microsoft API 所属する維	日織で使用している	5 API 自分	ንወ API						×
PI を選択します	日織で使用している	5 API 自分	うの API						×
PI を選択します Microsoft API 所属する維 よく使用される Microsoft	l織で使用している t API	5 API 自分	ንወ API						×
PI を選択します Microsoft API 所属する維 よく使用される Microsoft Microsoft	l織で使用している t API Graph				- 2001 - 211	4			×
PI を選択します Microsoft API 所属する維 よく使用される Microsoft Office 365、 Intune、Out	l織で使用している t API	+ Security、W	/indows 10					セスで	×
PI を選択します Microsoft API 所属する維 よく使用される Microsoft Microsoft Office 365、	l織で使用している t API : Graph Enterprise Mobility	+ Security、W	/indows 10					セスで	×
PI を選択します Microsoft API 所属する維 よく使用される Microsoft Office 365、 Intune、Out	l織で使用している t API : Graph Enterprise Mobility	+ Security、W	/indows 10					セスで	×
PI を選択します Microsoft API 所属する維 よく使用される Microsoft Office 365、 Intune、Out	l織で使用している t API : Graph Enterprise Mobility	+ Security、W	/indows 10					セスで	×
PI を選択します Microsoft API 所属する組 よく使用される Microsoft Office 365、 Intune、Out きます。	a織で使用している t API Enterprise Mobility tlook/Exchange、Or	+ Security、W neDrive、OneN	/indows 10 Note、Share	Point、Planner	などに単一	エンドポイン Data Expor	ト経由でアク ⁺ rt Service fo	r	×
PI を選択します Microsoft API 所属する紙 よく使用される Microsoft Office 365、 Infune、Out きます。	a織で使用している t API Enterprise Mobility look/Exchange、Or ement	+ Security、W neDrive、OneN	/indows 10 Note、Share	Point、Planner	などに単一 	エンドポイン Data Expo Microsoft	ト経由でアク・ rt Service fo Dynamics 3(r 55	×
PI を選択します Microsoft API 所属する維 よく使用される Microsoft Office 365, Intune, Out きます。 Microsoft Office 365, Intune, Out きます。 Microsoft の は きます。 Microsoft の は きます。 Microsoft の は きます。 Microsoft の は きます。 Microsoft ひ は きます。 Microsoft ひ は きます。 Microsoft ひ は きます。 Microsoft Services Microsoft Services Microsoft Services Microsoft Services	a織で使用している t API Enterprise Mobility tlook/Exchange、Or ement	+ Security、W neDrive、OneN	Yindows 10 Note、Share Gervice Mar 利用できる	Point、Planner Aggement 遺能の大部分	などに単一 Nicro	エンドポイン Data Expor	ト経由でアク・ rt Service fo Dynamics 3(cs CRM 組織れ	r 55 から外部	×
PI を選択します Microsoft API 所属する組 よく使用される Microsoft Office 365、 Intune、Out きます。 Azure Rights Manage Services 検証済みのユーザーに、保護さ	a織で使用している t API Enterprise Mobility tlook/Exchange、Or ement	+ Security、W heDrive、OneN	Yindows 10 Note、Share Gervice Mar 利用できる	Point、Planner Aggement 遺能の大部分	などに単一 Nicro	エンドポイン Data Expo Microsoft Dosoft Dynamid	ト経由でアク・ rt Service fo Dynamics 3(cs CRM 組織れ	r 55 から外部	×
PI を選択します Microsoft API 所属する維 よく使用される Microsoft Office 365, Intune, Out きます。 Microsoft Office 365, Intune, Out きます。 Microsoft の は きます。 Microsoft の は きます。 Microsoft の は きます。 Microsoft の は きます。 Microsoft ひ は きます。 Microsoft ひ は きます。 Microsoft ひ は きます。 Microsoft Services Microsoft Services Microsoft Services Microsoft Services	a織で使用している t API Enterprise Mobility tlook/Exchange、Or ement	+ Security、W heDrive、OneN	Yindows 10 Note、Share Gervice Mar 利用できる	Point、Planner Aggement 遺能の大部分	などに単一 Nicro	エンドポイン Data Expo Microsoft Dosoft Dynamid	ト経由でアク・ rt Service fo Dynamics 3(cs CRM 組織パ	r 55 から外部	×
PI を選択します Microsoft API 所属する維 よく使用される Microsoft Office 365、 Intune、Out さます。 Azure Rights Manage Services 検証済みのユーザーに、保護さ テンツの読み取りと書き込みを す	a織で使用している t API Enterprise Mobility look/Exchange、Or ement れたコン	+ Security、W heDrive、OneM Azure S Azure portal で へのプログラム	/indows 10 lote、Share Service Mar 利用できる によるアク1	Point、Planner Aggement 遺能の大部分	などに単一 Micro 宛先I	エンドポイン Data Expo Microsoft osoft Dynamic こデータをエク	ト経由でアク ⁺ rt Service fo Dynamics 34 cs CRM 組織 っスポートしま	r 55 から外部	×
PI を選択します Microsoft API 所属する維 よく使用される Microsoft Office 365, Intune, Out きます。 Microsoft Office 365, Intune, Out きます。 Microsoft の は きます。 Microsoft の は きます。 Microsoft の は きます。 Microsoft の は きます。 Microsoft ひ は きます。 Microsoft ひ は きます。 Microsoft ひ は きます。 Microsoft Services Microsoft Services Microsoft Services Microsoft Services	a織で使用している t API Enterprise Mobility look/Exchange、Or ement れたコン	+ Security、W heDrive、OneN	/indows 10 lote、Share Service Mar 利用できる によるアク1	Point、Planner Aggement 遺能の大部分	などに単一 Micro 宛先I	エンドポイン Data Expo Microsoft Dosoft Dynamid	ト経由でアク ⁺ rt Service fo Dynamics 34 cs CRM 組織 っスポートしま	r 55 から外部	×
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For API permission requests, select "Delegated Permissions" and to select permissions, enter "File" and the permissions "Files" will be displayed, so expand it and check "Files.ReadWrite" and press the configure button.

API :	アクセス許可の要求	×
M ht	の API Aicrosoft Graph ttps://graph.microsoft.com/ <u>ドキュメント で</u> ーションに必要なアクセス許可の種類	
アプリ	れたアクセス許可 ケーションは、サインインしたユーザーとして API にアクセスす があります。	アプリケーションの許可 アプリケーションは、サインインしたユーザーなしで、パック グラウン ド サービスまたはデーモンとして実行されます。
アクセス	7 許可を選択する	すべて展開
🔎 File		X
	普理者の同意が必要" 列には、組織の既定値が表示されます。ただし、- *す。この列には、ご自分の組織や、このアプリが使用される組織の値が	ユーザーの同意は、アクセス許可、ユーザー、アプリごとにカスタマイズでき [×] が反映されていない場合があります。 詳細情報
アク	クセス許可	管理者の同意が必要
∨ Op	enld アクセス許可	
	profile ① View users' basic profile	いいえ
∨ File	es (1)	
	Files.Read ① Read user files	いいえ
	Files.Read.All ① Read all files that user can access	いいえ
	Files.Read.Selected ① Read files that the user selects (preview)	いいえ
	Files.ReadWrite ① Have full access to user files	いいえ
	Files.ReadWrite.All ① Have full access to all files user can access	เงเงえ
	Files.ReadWrite.AppFolder ① Have full access to the application's folder (preview)	いいえ

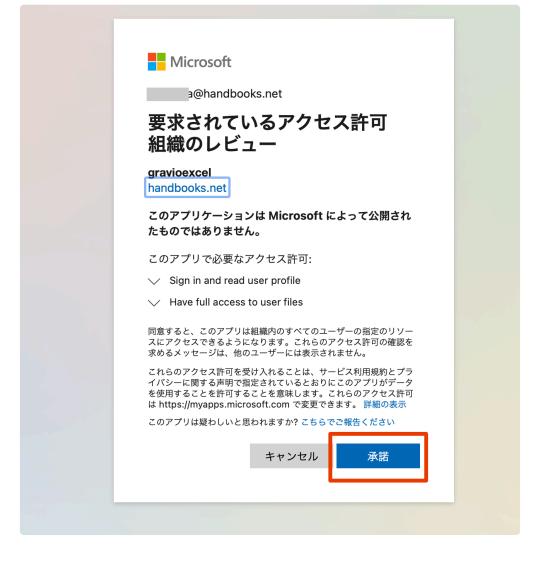
Confirm that "Files.ReadWrite" is displayed under API / Permission Name and click "Give Admin Consent". When the confirmation dialog appears, click "Yes".

プランド					
ブランド) 認証	構成されたアクセス許可				
	アプリケーションは、同意のプロ		Lーザーか管理者からアクセス許可が付 Jを含める必要があります。 <mark>アクセス</mark>	は与されている場合、API を呼び出すことが承認さ 許可と同意に関する詳細情報	れます。構成
1233 1233 1233 1233 1233 1233 1233 1233	アプリケーションは、同意のプロ は、アプリケーションに必要なす	べてのアクセス許可	Jを含める必要があります。 アクセス		れます。構成
 ? 認証 ? 証明書とシークレット 	アプリケーションは、同意のプロ は、アプリケーションに必要なす	べてのアクセス許可			れます。構成
 ② 認証 ↑ 証明書とシークレット トークン構成 	アプリケーションは、同意のプロ は、アプリケーションに必要なす	べてのアクセス許可	Jを含める必要があります。 アクセス		
 ● 값印書とシークレット ■ トークン構成 ● APIのアクセス許可 	アプリケーションは、同意のプロ は、アプリケーションに必要なす 十 アクセス許可の追加	ペてのアクセス許可 Asteria Corporatio	Jを含める必要があります。 アクセス n に管理者の同意を与えます	牛可と同意に関する詳細情報	
 ○ 認証 ・ 証明書とシークレット トークン構成 ▲ APIのアクセス許可 ▲ APIの公開 	アプリケーションは、同意のプロ は、アプリケーションに必要なす + アクセス許可の追加 API/アクセス許可の名前	ペてのアクセス許可 Asteria Corporatio	Jを含める必要があります。 アクセス n に管理者の同意を与えます	牛可と同意に関する詳細情報	
課題 証明書とシークレット ドークン構成 APIの欠かせス許可 APIの公開 てプリロール	アプリケーションは、同意のプロ は、アプリケーションに必要なす + アクセス許可の追加 API / アクセス許可の名前 ◇Microsoft Graph (2)	ペてのアクセス許可 Asteria Corporatio 種類	「を含める必要があります。 アクセス」 n に管理者の同意を与えます 説明	作可と同意に関する詳細情報 管理者の同意が必	更 状態

	≪ 🖒 最新の情報に更新 💛	フィードバックが	ある場合		
概要	管理者の同意の確認を与	えます。			
🎒 クイック スタート			いて、要求されたアクセス許可に対する同意有	と付与しますか? この操作により、このア	プリク
🐔 統合アシスタント	ードが、以下の一覧の内容に一	敗するよう更新さ	れます。		
管理	はいいえ				
ブランド	Sec. 1				
 認証 	構成されたアクセス許可				
	アプリケーションは、同意のプロ		ーザーか管理者からアクセス許可が付与されてい た今めスペラがあります。アクセス許可が付与されてい		す。桐
認証 証明書とシークレット	アプリケーションは、同意のプロ		ーザーか管理者からアクセス許可が付与されてい を含める必要があります。 アクセス許可と同意		す。樹
8.111	アプリケーションは、同意のプロ	べてのアクセス許可	「を含める必要があります。 アクセス許可と同意		す。栁
 認証 証明書とシークレット トークン構成 	アプリケーションは、同意のプロ は、アプリケーションに必要なす	べてのアクセス許可	「を含める必要があります。 アクセス許可と同意		す。構 状!
 ○ 認証 ご 証明書とシークレット □ トークン構成 ◇ APIのアクセス許可 	アブリケーションは、同意のブロ は、アブリケーションに必要なす 十 アクセス許可の追加 🗸	べてのアクセス許可 Asteria Corporatio	「を含める必要があります。 アクセス許可と同意 n に管理者の同意を与えます	に関する詳細情報	
 認証 証明書とシークレット トークン構成 APIのアクセス許可 APIの公開 アブリロール 	アプリケーションは、同意のプロ は、アプリケーションに必要なす + アクセス許可の追加 ✓ API / アクセス許可の名前	べてのアクセス許可 Asteria Corporatio	「を含める必要があります。 アクセス許可と同意 n に管理者の同意を与えます	に関する詳細情報	
 ○ 認証 > 証明書とシークレット > トークン構成 >> APIのアクセス許可 >> APIの公開 	アプリケーションは、同意のプロ は、アプリケーションに必要なす + アクセス許可の追加 く、 API / アクセス許可の名前 、Microsoft Graph (2)	べてのアクセス許可 Asteria Corporatic 種類	を含める必要があります。 アクセス許可と同意 n に管理者の同意を与えます 説明	に関する詳細情報 管理者の同意が必要	

Click "Enterprise Application" and click "Give Admin Consent" under permissions. When the "Review permissions for the organization of the required permissions" opens, click "Accept".

すべてのサービス > アブリの登録 > gra 					
	💟 最新の情報に更新 📗 💟 フィ	ードバックがる	5る場合		
- 概要	A アプリケーションに対するアクセ	ス許可を編集し	ています。ユーザーは、既に同意したことがある場合で	でも同意が必要になります。	
🦀 クイック スタート					
💉 統合アシスタント					
管理	管理者の同意が必要"列には、 組織の値が反映されていない場合	i織の既定値が表 があります。 👔	示されます。ただし、ユーザーの同意は、アクセス許可 #細情報	可、ユーザー、アプリごとにカスタマイス	できます。こ
■ ブランド					
133 133	構成されたアクセス許可				
📍 証明書とシークレット			ーザーか管理者からアクセス許可が付与されてい。 を含める必要があります。アクセス許可と同意に		℩ます。構成∶
トークン構成					
→ APIのアクセス許可	┿ アクセス許可の追加 ✓ Aste				
🧆 API の公開	API / アクセス許可の名前	種類	説明	管理者の同意が必要	状態
🔣 アプリロール	Microsoft Graph (2)				
🏄 所有者	Files.ReadWrite	委任済み	Have full access to user files	いいえ	
🍰 ロールと管理者 プレビュー	User.Read	委任済み	Sign in and read user profile	いいえ	
すべてのサービス > アプリの登録 > gra gravioexcel アクセ エンタープライズ アプリケーション 《 職 概要		। हर २न	ードパックがある場合		
すべてのサービス > アプリの登録 > gra gravioexcel アクセ エンターフライズ アプリケーション «	ス許可 …	🕅 २न	ードパックがある場合		
すべてのサービス > アプリの登録 > gra gravioexcel アクセ なンタープライズアプリケーション 《 職 概要	ス許可 … ○ 更新 ✓ アクセス許可の確認 アクセス許可 組織とそのデータに対するアクセス許 アーションを始合して、セルンサービ 管理者はこのテナント内のすべてのユ るには、下のボタンをクリックします。	可をアプリケー ス アクセスを 1 ーザーに代わっ 。	ードパックがある場合 ションに付与するには、"管理者がすべてのユーサ 効にするかアプリケーションに選発ユーザーを割 て同意を付与できます。これにより、エンドユー		
すべてのサービス > アプリの登録 > gra □ gravioexcel アクセ エンターフライズアプリケーション ≪ Щ 夜要 Щ デプロイ計画 管理 Щ プロパティ ♪ 所有者 ♪ ロールと管理者 (プレビュー) ♪ ユーザーとグループ	ス許可 … ご 更新 ✓ アクセス許可の確認 アクセス許可 組織とそのデータに対するアクセス許 ケーションを統合して、セルフサーゼ 管理者はなデナント内のすべてのユ るには、下のボタンをクリックします。 Asteria Ca	可をアプリケー ス アクセスを 1 ーザーに代わっ 。	ションに付与するには、"管理者がすべてのユーサ 対抗にするかアプリケーションに直接ユーザーを割 て同意を付与できます。これにより、エンド ユー		
すべてのサービス > アブリの登録 > gravioexcel アクセ こ こ の の の の の の の の の の の の の の の の の	ス許可 … ○ 更新 ✓ アクセス許可の確認 アクセス許可 組織とそのデータに対するアクセス許 ケーションを総合して、セルフサービ 管理者はこのテナント内のすべてのユ るには、下のボタンをクリックします。 Asteria C 管理者の同意 ユーザーの同意	可をアプリケー ス アクセスを 1 ーザーに代わっ 。	ションに付与するには、"管理者がすべてのユーサ 対抗にするかアプリケーションに直接ユーザーを割 て同意を付与できます。これにより、エンド ユー		
すべてのサービス > アプリの登録 > gra □ gravioexcel アクセ エンターブライズアブリケーション « ■ 根要 ① デプロイ計画 管理 11 プロパティ → 所有者 ▲ ロールと管理者 (プレビュー) → ユーザーとグループ ③ シングル サインオン	ス許可 … ② 更新 ✓ アクセス許可の確認 アクセス許可 組織とそのデータに対するアクセス許 ケーションを総合して、セルフサービ 管理者にこのデナント内のすべてのユ るには、下のボタンをクリックします。 Asteria C 管理者の同意 ユーザーの同意 ○ アクセス許可の検索	可をアプリケー ス アクセスを 1 ーザーに代わっ 。	ションに付与するには、"管理者がすべてのユーサ 対効にするかアプリケーションに直接ユーザーを割 て同意を付与できます。これにより、エンドユー *冠者の同意を与えます	IP当てる"の3つの方法を使用できま サービスアリケーションを使用すると	す。 <mark>詳細につ</mark> きに同意をす
	ス許可 … ② 更新 ✓ アクセス許可の確認 アクセス許可 組織とそのデータに対するアクセス許 ケーションを続合して、セルフサービ 管理者はこのデナント内のすべてのユ るには、下のボタンをクリックします Asteria Cl 管理者の同意 ユーザーの同意 ○ アクセス許可の検索 API名	可をアプリケー ス アクセスを 1 ーザーに代わっ 。	ションに付与するには、"管理者がすべてのユーサ 対効にするかアプリケーションに直接ユーザーを割 て同意を付与できます。これにより、エンドユー *冠者の同意を与えます	IP当てる"の3つの方法を使用できま サービスアリケーションを使用すると	す。 <mark>詳細につ</mark> きに同意をす
	ス許可 … ② 更新 ✓ アクセス許可の確認 アクセス許可 組織とそのデータに対するアクセス許 ケーションを続合して、セルフサービ 管理者はこのデナント内のすべてのユ るには、下のボタンをクリックとます Asteria Cl 管理者の同意 ユーザーの同意 ○ アクセス許可の検索 API名 Microsoft Graph	可をアプリケー ス アクセスを 1 ーザーに代わっ 。	ションに付与するには、"管理者がすべてのユーサ 対効にするかアプリケーションに直接ユーザーを割 て同意を付与できます。これにより、エンドユー れま者の同意を与えます ↑」 相 限	IP)当てる*の3つの方法を使用するま *ザーはアプリケーションを使用すると	す。 <mark>詳細につ</mark> きに同意をす
	ス許可 … ② 更新 ✓ アクセス許可の確認 アクセス許可 超線とそのデータに対するアクセス許 ケーションを続合して、セルフサービ 管理者はこのデナント内のすべてのユ るには、下のボタンをクリックはス の ないまって、セルフサービ 管理者の同意 ユーザーの同意 ○ アクセス許可の検索 API名 Microsoft Graph Microsoft Graph	可をアプリケー ス アクセスを 1 ーザーに代わっ 。	ションに付与するには、"管理者がすべてのユーサ 対効にするかアプリケーションに直接ユーザーを割 て同意を付与できます。これにより、エンドユー な遅者の同意を与えます ↑↓ 個 限 Sign in and read user profile	IP)当てる*の3つの方法を使用するま ・ザーはアプリケーションを使用すると ↑↓ 種類 Delegated	す。 <mark>詳細につ</mark> きに同意をす
	ス許可 … ② 更新 ✓ アクセス許可の確認 アクセス許可 超線とそのデータに対するアクセス許 ケーションを続合して、セルフサービ 管理者はこのデナント内のすべてのユ るには、下のボタンをクリックはス の ないまって、セルフサービ 管理者の同意 ユーザーの同意 ○ アクセス許可の検索 API名 Microsoft Graph Microsoft Graph	可をアプリケー ス アクセスを 1 ーザーに代わっ 。	ションに付与するには、"管理者がすべてのユーサ 対効にするかアプリケーションに直接ユーザーを割 て同意を付与できます。これにより、エンドユー な遅者の同意を与えます ↑↓ 個 限 Sign in and read user profile	IP)当てる*の3つの方法を使用するま ・ザーはアプリケーションを使用すると ↑↓ 種類 Delegated	す。 <mark>詳細につ</mark> きに同意をす
	ス許可 … ② 更新 ✓ アクセス許可の確認 アクセス許可 超線とそのデータに対するアクセス許 ケーションを続合して、セルフサービ 管理者はこのデナント内のすべてのユ るには、下のボタンをクリックはス の ないまって、セルフサービ 管理者の同意 ユーザーの同意 ○ アクセス許可の検索 API名 Microsoft Graph Microsoft Graph	可をアプリケー ス アクセスを 1 ーザーに代わっ 。	ションに付与するには、"管理者がすべてのユーサ 対効にするかアプリケーションに直接ユーザーを割 て同意を付与できます。これにより、エンドユー な遅者の同意を与えます ↑↓ 個 限 Sign in and read user profile	IP)当てる*の3つの方法を使用するま ・ザーはアプリケーションを使用すると ↑↓ 種類 Delegated	す。 <mark>詳細につ</mark> きに同意をす



With this, the preliminary preparations are complete.

13.15. How to register a bot for LINE WORKS (Pre-June 2023 Version)

In order to use the LINE WORKS component, the LINE WORKS administrator needs to initialize the Bot.

LINE WORKS Developers

1. Creating a LINE WORKS Developers account

Create an account from here and create a Bot for LINE WORKS.

2. API settings

The LINE WORKS component uses the API, so select the API menu. Do not use API 2.0 (beta).

nsole	使いやすく最適化された次世代 API(beta)をご体験ください。 <u>API 2.0 (beta) 認証情報に移動</u>
.0 (beta)	- 従来のAPIを使用するための認証設定面面です。 <u>従来のAPIガイド</u>
0	-
連携	API ID API供過設定 利用
IL Apps	発行されたIDがありません。
Statistics	発行
ain ID :	
in iD: tID:	Service API Consumer Key 0
	Redirect URLの利用には、Service API Consumer Keyごとに対応するRedirect URLの登録が必要です。 Redirect URL 登録
	発行されたkeyがありません。
	Server API Consumer Key トークンガ
	発行されたkeyがありません。
	発行
	Server List(固定IPタイプ) 満了日につ
	関係づけられたKey サーバー名 IP 登録日 Token Token満了日 管理 No.
	38.70
	通知
	追加 Server List(旧登録タイプ) Dの登录につ
	Server List(ID登録タイプ) Dの登録につ
	Server List(ID登録タイプ) Dの登録につ
	Server List(ID登録タイプ) IDの登録につ 関係づけられたKey サーバータ ID 参照日 原原キー 学問

© WORKS MOBILE Japan Corp.

3. Issuing an API ID

Press the "Issue API ID" button to create it. The created API ID will be used in the LINE WORKS component properties.

4. Issuing a Server API Consumer Key

Press the "Issue Server API Consumer Key" button to create it. The created Server API Consumer Key will be used in the LINE WORKS component properties.

The usage scope of the Server API is set to "Add/Inquiry". Please set the Token validity period and automatic extension according to the operation rules. For the test environment, set it to automatically renew after 365 days.

5. Adding a Server List

You can use either a fixed IP type or an ID registration type for the Server List.

You can use the fixed IP type if the Gravio Hubkit is connected to the Internet and has a global fixed IP address.

Usually, please use the ID registration type. An ID and an authentication key will be issued for the ID registration type, which will be used in the LINE WORKS component properties.

Download the key file by pressing the download button for the authentication key.

6. Creating a Bot

e		
ta)	Bot	Bot API の概要
	Bot名 ◆ 検索条件を入力 検索	
	登録されたBot 0個	登録
	Bot未登録	
	Botを登録してみましょう。	
	* 登録したBotをメンバーに公開するには、管理者面面のサ <mark>ービス>Bot</mark> から設定を行ってください。 * メッセージの送受信はAPIで行います 。Botガイド をご参照ください。	
	NAC ANALY III MALE I ANALY CONTINUES	

Press the Bot registration button from the Bot menu.

		Bot登録	Bot API の概要	
* は必須項目 📃 Bo	otリストへ	Bot多国語対	応 🔹	
「プロフィール画	i像」	参照 ・画像の推奨サイズは640 x 640pxです。10MB のみ登録できます。 ・ファイル名に特殊文字は使用できません。 	未満のファイル	
* Bot名		100文字以内で入力してください。	0/100	
* 「説明」		100文字以内で入力してください。	0/100	
Bot No. (Bot Id)	I	Botの登録完了時に発行されます。		
API Interface		● 従来のAPI ○ API 2.0 (beta)		
固定メニュー		<mark>固定メニュー登録API</mark> で設定します。		
Callback URL		On Off		
Botポリシー	トークルームへ の招待	 ■ 複数人のトークルームに招待可 * 無効にするとBotとの1:1トークのみ可能になります。ただし、Botとのトメンバーは権限が必要です。権限股定は管理者画面で行います。 * 有効にすると、複数人のトークルームにBotを招待できます。管理者画面 、全メンバーがこのBotを利用可能になります。特定メンバーのみに権限を できません。 	での設定時には	
• 「管理者」	* 主担当	名前またはメールアドレスを検索		
- 日本有」	副担当	名前またはメールアドレスを検索		
		保存 キャンセル		

Enter the Bot name and description, select the conventional API for the API Interface, check the Bot policy to allow invitation to multiple people's chat rooms, and set the main person in charge of the administrator.

When the registration is completed, the Bot No: will be displayed, which will be used in the LINE WORKS component properties.

LINE WORKS Admin

1. Logging into the LINE WORKS admin screen

Administrators log in from <u>here</u> to display the LINE WORKS administration screen.

2. Bot settings

本設定	—		(+)		
メンバー	田中	実 さん、こんにち	は !		
サービス					
掲示板 トーク		会社情報 会社情報および言語設定	組織 組織の追加/修正/移動	グループ グループの追加/修正	外部ユーザーとのトー 外部とのトーク機能設定
カレンダー アドレス帳		チーム/グループ機能 ノート/フォルダ機能設定	掲示板管理 カテゴリー/権限設定	31 会社カレンダー メンバー全員が共有する予	定 Botの登録及び管理
アンケート チーム/グループ		管理者権限 市理者指定および権限管理	インストール状況 Appインストール状況を確認		
Bot テンプレート ビデオ通話					
セキュリティ	メンバ-	-の奴	プラン利用状況	*	有ストレージ
統計	2 名	通知	Free	アップグレード	7.9 мв
監査					(0%) ^{40/1944} 5.0 GB
モニタリング	登録待き - パスワ	 の ードの再設定が必要 	ライトプランにアップグ 彩な管理者機能でさらに す!		
アップグレード		ールの再送信が必要 0			
パートナー	一時停止 削除	- O O			ンパーの招待方法について
アプリディレクトリ	利用中	2	サービスの利用設定をしま 今すぐ設定する >		iega>
		(一承認 メンバーの招待 > 0	LINE WORKSの活用方法		NE WORKS セットアップガイド

Select Bot from the service menu and press the Bot add button.

メイン > サービス > Bot Bot ?					Bot追加
すべて 0					Q
画像 Bot名	說明	Bot No.	使用権限	担当者	

The Bot created in LINE WORKS Developers will be displayed, so press the add button.

メイン > サービス > Bot > Bot 追加				
Bot追加 前に戻る				
Developer Console に登録されている Bot ∛	E選択してリストに追加します。			
すべて 1				Q
画像 Bot名	脱明	Bot No.	担当者	Bot追加
gravio-bot	bot	141		追加

When you redisplay the Bot screen, the added Bot will be displayed.

メイン > サービス > Bot					
Bot ?					Bot追加
すべて 1					Q
画像 Bot名	説明	Bot No.	使用権限	担当者	
gravio-bot 🕯	bot	141	すべて		

3. Adding a Bot to a chat room

If you want to use the Bot in a chat room, please create a new chat room or add it to an existing chat room.

4. Confirmation of the chat room ID

1 基本設定	
メンバー	
サービス	
セキュリティ	
? 統計	
監査	
管理者画面	
揭示板	
Drive	
カレンダー	
アドレス帳 タスク	
アンケート	
画面共有	
ノート	
N-0	
通話 テンプレート	
Developer Console	

Even if you create a chat room with the LINE WORKS app or website, the chat room ID will not be displayed.

Therefore, please have a member send a message in the chat room where the Bot will be used.

After a while, select Talk from the audit menu and search, and the

13.16. How to register a bot for LINE WORKS

To use the LINE WORKS component, the LINE WORKS administrator must perform initial Bot settings.

LINE WORKS Developers

1. Creating a LINE WORKS Developers Account

Create an account from here and set up a Bot for LINE WORKS.

2. Creating an App

The LINE WORKS2 component uses API 2.0, so create a new app from the API 2.0 menu.

API 2.0	アプリリスト	
Bot		
組織連携		gravio
API Statistics	+	3
SSO		
SAML Apps	アプリの新規追加	更新日
IPT		
API 1.0(提供終了予定)		

When you create an app, Client ID and Client Secret will be generated. Use these in the LINE WORKS2 component properties. For the Redirect URL, please specify "http://127.0.0.1:48888/callback". This will also be used in the LINE WORKS2 component properties.

gravio		API ガイド
Client ID	<u>コピー</u>	
Client Secret	שב-	
Redirect URL	http://127.0.0.1:48888/callback	
Service Account ?	発行 Service Accountは管理者と同じ権限が付与され、選択したScopeのすべてのリソー にアクセスできます。 Service Accountを発行すると、管理者にサービス通知が送信 れます。	
OAuth Scopes ?	管理 bot	
· Private Key は 1 つのみ有効です。再発	プリのみで使用します。 でAccess Token取得時に使用する重要なキーです。情報の管理に十分ご注意ください。 行の際、既存のPrivate Keyは利用できません。 1、Refresh Tokenの有効期限は発行から90日です。	
	変更 リストに戻る <u>削除</u>	

For OAuth Scopes, press the manage button and select 'bot' from the list.

3. Creating a Bot

)	Bot	Bot API の概要
	Bot名 検索条件を入力 	検索
登録	されたBot 0個	登録
	Bot未登録	
	Botを登録してみましょう。	
	したBotをメンバーに公開するには、管理者画面のサ <mark>ービス>Bot</mark> から設定を行ってください。	
	したBotをメンバーに公開するには、管理者画面の サービス>Bo tから設定を行ってください。 セージの送受信はAPTで行います。 <mark>Botガイド</mark> をご参照ください。	

Press the Bot registration button from the Bot menu.

		Bot 修正	Bot API の概
* は必須項目 📃 Ba	otリストへ	Bot多国語対応	ž
「プロフィール画	像」	 参照 ・画像の推奨サイズは640 x 640pxです。10MB# のみ登録できます。 ・ファイル名に特殊文字は使用できません。 	に満のファイル
* Bot名		gravio-bot	10/100
* 「説明」		bot	3/100
Bot ID			
API Interface		 API 1.0 ● API 2.0 * API 1.0は、2023年4月30日をもってサービスの提供を終了する予定です API Interfaceおよび利用中のAPIをAPI 2.0に切り替えてください。 アッ イド 	
固定メニュー		未設定	
Callback URL		On Off	
Botポリシー	トークルームへ の招待	✓ 複数人のトークルームに招待可 ・無効にするとBotとの1:1トークのみ可能になります。ただし、Botとのト するメンバーは権限が必要です。権限設定は管理者画面で行います。 ・有効にすると、複数人のトークルームにBotを招待できます。管理者画面でには、全メンバーがこのBotを利用可能になります。特定メンバーのみに権利 ることはできません。	での設定時
•「管理者」	* 主担当	名前またはメールアドレスを検索 ×	
16,22,8	副担当	名前またはメールアドレスを検索	
		保存 キャンセル Bot削除	

Enter the Bot name and description. Select API 2.0 for the API Interface. For the Bot policy, check 'Can be invited to multi-user chat rooms' and set the main administrator. After registration is complete, the Bot No: will be displayed. Use this in the LINE WORKS2 component properties.

LINE WORKS Admin

1. Logging in to the LINE WORKS Management Screen

Administrators log in from here to display the LINE WORKS management screen.

2. Bot Settings

基本設定						
メンバー		田中	実 さん、こんにち	kd !		
サービス						
揭示板			会社情報 🔒 🕹 会社情報および言語設定	組織 組織の追加/修正/移動	グループ グループの追加/修正	外部ユーザーとのトー 外部とのトーク機能設定
トーク カレンダー		_				0
アドレス帳			チーム/グループ機能 ノート/フォルダ機能設定	掲示板管理 カテゴリー/相限設定	31 会社カレンダー メンバー全員が共有する予	定 Botの登録及び管理
アンケート		0	管理者権限 二	インストール状況		
チーム/グループ			算社会社会社会社会社会社会社会社会社会社会社会社会社会社会社会社会社会社会社会	Appインストール状況を確認		
Bot						
テンプレート ビデオ通話						
セキュリティ	~	メンバ・	ーの数	プラン利用状況	#	有ストレージ
: 統計	-	2 %	追加	Free	アップグレード	7.9 мв
		= 1				0% 利用中
監査		登録待:	5 0	ライトプラン にアップグ		利用中 5.0 gB
モニタリング			- 7ードの再設定が必要 0	彩な管理者機能でさらに す!	快適に利用できま	全体
アップグレード		- 招待> 一時傳」	 ベールの再送信が必要 0 L O 			
パートナー		利除	0			ンバーの招待方法について
アプリディレクトリ		利用中	2	サービスの利用設定をしま 今すぐ設定する >	(U25) C	itelia >
				LINE WORKSの活用方法		NE WORKS セットアップガイド

Select 'Bot' from the service menu and press the 'Add Bot' button.

×イン > サービス > Bot Bot ②					Bot追加
すべて 0					Q
画像 Bot名	說明	Bot No.	使用権限	担当者	

The Bot created in LINE WORKS Developers will be displayed. Press the 'Add' button.

メイン > サービス > Bot > Bot 追加				
Bot追加 前に戻る				
Developer Console に登録されている Bot を選	択してリストに追加します。			
すべて 1				Q
画像 Bot名	脱明	Bot No.	担当者	Bot追加
gravio-bot	bot	141		追加

When you re-display the Bot screen, the added Bot will be displayed.

メイン > サービス > Bot					
Bot 💿					Bot追加
すべて 1					Q
画像 Bot名	説明	Bot No.	使用権限	担当者	
gravio-bot	û bot	141	すべて		

3. Adding a Bot to the Chat Room

If you want to use the Bot within a chat room, create a new chat room or add it to an existing chat room.

4. Confirming the Chat Room ID

本設定	
-71	
ビス	
セキュリティ	
統計	
監査	
理者画面	
Drive	
レンダー	
ドレス帳	
スク	
ケート	
ĩ	
-	
7	
レート	
eloper Conso	e

Even if you create a chat room using the LINE WORKS app or website, the chat room ID is not displayed. Therefore, have a member send a message in the chat room where the Bot will be used.

After a while, select 'Talk' from the audit menu and search. The chat room ID will be displayed. Use this in the LINE WORKS2 component properties.

With this, the preliminary preparation is complete.

13.17. About Gravio Hub and Gravio Zigbee Receiver

The maximum number of devices that can be connected to the Gravio Hub and Gravio Zigbee receiver is 64.

13.18. Note Regarding CO2 Sensors

It takes about 20 minutes after the data is received for Gravio CO2 to obtain a stable value of CO2 in the environment concerned.

If the CO2 sensor value is unnaturally high for a long time.

If the CO2 sensor value is unnaturally high for a long time, try resetting the CO2 sensor.

How to reset : Press and hold the pairing button for 18 seconds. Then release it, and if successful, a white LED will appear for about 2 seconds and then turn off.

This will reset it back to the "Reference value of 400 ppm CO2 in Sweden".

13.19. How to set up Gmail to send email : Basic Authentication (SMTP)

Example settings for sending email using a Gmail email address

Item	Description
Mail Server	smtp.gmail.com
Port Number	587
Sending Email Address	Gmail email address
SMTP Username	Username (left side of @ in the Gmail email address)
Password	Account password
Recipient Email Address	Email address to receive email notifications

% The following settings must be done in Gmail settings.

Turn on "2-Step Verification" and create an "App Password" and specify that password. <u>https://support.google.com/accounts/answer/185833?hl=en&authuser=1</u>

← App passwords

App passwords let you sign in to your Google Account from apps on devices that don't support 2-Step Verification. You'll only need to enter it once so you don't need to remember it. Learn more

Your app password	s		
Name	Created	Last used	
			Î
			Î
Select the app and	device you want to generate t	he app password for.	
Gravio	×		
			GENERATE

• For the app selection, choose 'Mail', and for the device name, enter any value like "Gravio".

13.20. How to set up sending e-mail with OAuth2.0 : Advanced Authentication (OAuth2)

This document explains how to set up advanced authentication (OAuth2) for sending mail with the Mail component.

Advanced authentication (OAuth2) has been tested and confirmed to work with Gmail and Outlook. To set up OAuth2, use GCP for Gmail and Azure for Outlook.

Correct settings require accurate knowledge of GCP or Azure.

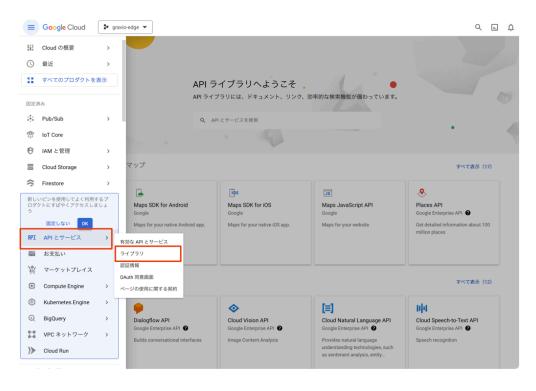
If you are unsure about the detailed setting method, please contact Google for GCP and Microsoft for Azure.

1. How to set up mail sending in Gmail

Flow of setting method

We will set up the following steps in GCP.

1-1. Enable GMail API from the API service library.



Select the library from the API service menu.

oogle Workspace			すべて表示(29
Coogle Drive API	31 Google Calendar API	M Gmail API	E Google Sheets API
Google Enterprise API	Google Enterprise API	Google Enterprise API	Google
Create and manage resources in Google Drive.	Manage calendars and events in Google Calendar.	View and manage Gmail mallbox data.	Read and write Google Sheets data

Select Gmail API.

Gmail API Google Enterprise API	
View and manage Gmail mailbox data.	
有効にする この API を試す じ	
概要 ドキュメント サポート 関連プロダクト	
概要	
With the Gmail API, you can view and manage Gmail mailbox data like threads, messages, and labels.	詳細
詳細ピ	タイプ: <u>SaaS & APIs</u> 最終更新日: 2023/02/07
	政家史新日, 2023/02/07 カテゴリ: <u>Google Enterprise APIs, Google Workspace</u>
	サービス名: gmail.googleapis.com

Enable Gmail API.

1-2. Press the Create button by selecting "External" from the OAuth consent screen menu.



1-3. Register Gmail's scope in the scope.

API	API とサービス	アプリ登録の編集
\$	有効な API とサービス	🕑 OAuth 同意画面 — 2 スコープ — 🕄 テストユーザー — ④ 概要
册 0 -	ライブラリ 認証情報	スコープとは、アプリのユーザーに許可を求める権限を表します。スコ ープを定めることで、プロジェクトからユーザーの Google アカウント
92	OAuth 同意画面	にある特定の種類のプライベートなユーザーデータへのアクセスが可能 になります。詳細 2
=, /	ページの使用に関する契約	スコープを追加または削除
		非機密のスコープ
		API 个 範囲 ユーザー向けの説明
		表示する行がありません
		API ↑ 範囲 ユーザー向けの説明
		表示する行がありません
		▲ 制限付きのスコープ
		制限付きのスコープとは、機密性の高いユーザーデータへのアクセスをリクエスト するスコープです。
		API ↑ 範囲 ユーザー向けの説明
		表示する行がありません
		保存して次へキャンセル

For scope, specify necessary permissions such as "Gmail view all mail, create, send, complete delete".

- 1-4. Register the Gmail email address that sends GMail mail in the test user.
- 1-5. Check the contents registered in the summary.



1-6. Click Create Credentials from the Credentials Menu and select OAuth 2.0 Client ID.

API	API とサービス	認証情報 + 認証情報を作成	富 削除 ▶ 削除した認証情報を復元	
¢	有効な API とサービス	有効な API にアクセスするための認証情報・	を作成します。 <u>詳細</u>	
Ш	ライブラリ	API +-		
0+	認証情報	□ 名前	作成日 🗸	制限
:2	OAuth 同意画面	表示する API キーがありません		WIK
Ξ¢	ページの使用に関する契約	OAuth 2.0 クライアント ID		
		□ 名前	作成日 🗸	種類
		表示する OAuth クライアントがありませ	:h	

1-7. Please select "Web application" for the type of application and give it a name. Please add "http://127.0.0.1:48888/callback" to the authenticated redirect URI and save it.

API	API とサービス	← OAuth クライアント ID の作成
#PI	API とサービス 有効な API とサービス ライブラリ 認証情報 OAuth 同意画面 ページの使用に関する契約	クライアント ID は、Google の OAuth サーバーで個々のアプリを識別するために使用し ます。アプリが複数のブラットフォームで実行される場合、それぞれに独自のクライア ント ID が必要になります。詳しくは、OAuth 2.0 の設定 IZをご覧ください。OAuth クラ イアントの種類の詳細 IZ アプリケーションの種類・ ウェブアプリケーション ▼ 名前・ ウェブクライアント 1 OAuth 2.0 クライアントの湿別するために
		のみ使用され、エンドユーザーには表示されません。 ● 下で追加する URI のドメインは、<u>OAuth 同意画面</u>に承認済みドメイン ピ として自動で追加されます。 承認済みの JavaScript 生成元 ② ブラウザからのリクエストに使用します 中 URI を追加 中 URI を追加 非 URI を追加 中 にを追加 ま: 設定が有効になるまで5分から数時間かかることがあります キャンセル

1-8. When you check the data saved from the Credentials menu in OAuth2.0 Client ID2, the Client ID, Client Secret ID, and Authenticated Redirect URI are displayed, so please take a note for use in the component.

RPI APIとサービス	← ウェブアプリケーションのクライアント ID 🔋 🛤	
	名前・ ウェブクライアント 1	クライアント ID
o⊷ 認証情報	OAuth 2.0 クライアントの名前。この名前はコンソールでクライアントを識別するために のみ使用され、エンドユーザーには表示されません。	作成日
☆ OAuth 同意画面 ■ ₀ ページの使用に関する契約	● 下で追加するURIのドメインは、 <u>OAuth同意画面に決壊済みドメイン</u> 2 として自動で追加されます。	クライアント シークレット クライアントシークレットの変更処理中である場合は、ダウンタイムを発生させずに手動でシー
	承認済みの JavaScript 生成元 ● プラウザからのリクエストに使用します + URI を追加	クレットをローテーションできます。 クライアントシークレ ット 作成日 ステータス ●有効化満み
	承認済みのリダイレクト URI ● ウェブサーバーからのリウエストに使用します	+ ADD SECRET
	URI 1 * http://127.0.0.1:48888/callback	
	+ URIを追加	
	注: 設定が有効になるまで 5 分から数時間かかることがあります	
	保存 キャンセル	

In the above settings, the public status is "Test", and it is a mode where mail can be sent only to test users. By setting this mode to "Public", you can send mail from email addresses other than the test user. If you are unsure about the detailed setting method, please contact Google. There may be cases where we cannot support individual GCP setting methods.

Now that we have the Client ID, Client Secret ID, and Authenticated Redirect URI required for OAuth 2.0, the preliminary preparation is complete.

2. How to set up mail sending in Outlook

To use OAuth2.0 in Outlook, you need a contract with Microsoft365 for Business.

Flow of setting method

We will set up the following steps in Azure.

When sending mail, if an error like MailSend: failed to send mail: 535 5.7.139 Authentic ation unsuccessful, SmtpClientAuthentication is disabled for the Tenant. Visi t https://aka.ms/smtp_auth_disabled for more information. occurs, please enable authenticated SMTP settings in Microsoft 365 management center from 2-9 onwards.

2-1. Register the app in the Azure service.



Click the Create App button.

<u>ホーム</u> > アプリの登録 ☆ …
🕂 新規登録 🌐 エンドポイント 🤌 トラブルシューティング 🖒 最新の情報に更新 🛓 ダウンロード 🖼 ブレビュー機能 🗌 🔗 フィードバックがある場合
すべてのアプリケーション 所 有しているアプリケーション 削除されたアプリケーション 個人用アカウントからのアプリケーション

Click the New Registration button.

ホーム > アプリの登録 >
アプリケーションの登録
* 名前
このアプリケーションのユーザー向け表示名 (後で変更できます)。
gravic-outlook 🗸
サポートされているアカウントの種類
このアプリケーションを使用したりこの API にアクセスしたりできるのはだれですか?
○ この組織ディレクトリのみに含まれるアカウント (Synon,Inc. のみ - シングル テナント)
○ 任意の組織ディレクトリ内のアカウント (任意の Azure AD ディレクトリ - マルチテナント)
 任意の組織ディレクトリ内のアカウント(任意の Azure AD ディレクトリ - マルチテナント)と個人の Microsoft アカウント (Skype、Xbox など)
◯ 個人用 Microsoft アカウントのみ
選択に関する評細
リダイレクト URI (省略可能)
ユーザー認証が成功すると、この URI に認証応答を返します。この時点での指定は省略可能で、後ほど変更できますが、ほとんどの認証シナリオで 値が必要となります。
Web

Specify the name of the application, supported account information, and redirect URI. Specify "http://localhost:48888/callback" for the Redirect URI.

2-2. When the app is registered, basic information is displayed in the summary.

🚦 gravio-outlook	ра	
♀ 検索	 () 前除 () エンドポイント 10 プレビュー機能	
概要		
クイック スタート	へ基本	
統合アシスタント	表示名 : gravio-outlook	クライアントの資格情報 : <u>証明書またはシークレットの追加</u>
町日/システント	アプリケーション (クライ :	リダイレクト URI : <u>1 個の Web、0 個の SPA、0 個のパブリック クライアン</u>
理	オブジェクト ID :	アプリケーション ID の URI : <u>アプリケーション ID URI の追加</u>
プランド化とプロパティ	ディレクトリ (テナント) ID :	ローカル ディレクトリで : gravio-outlook
認証	サポートされているアカウ : <u>すべての Microsoft アカウント ユーザー</u>	

2-3. Click Add Permission from the API Permissions Menu.

π−Δ > gravio-outlook 	りのアクセス許可 ☆				
	🜔 最新の情報に更新 📗 🔗 🕫	フィードバックが	ある場合		
概要					
🍊 クイック スタート	構成されたアクセス許可 アプリウーションは、同意のプロセスの一環としてユーザーが管理者からアクセス許可が付与されている場合、API を呼び出すことが決認されます。構成されたアクセス許可の一覧に は、アプリケーションに必要なすてのアクセス許可を含める必要があります。アクセス許可と問題に関する詳細情報				
🚀 統合アシスタント					
管理	+ アクセス許可の追加 ✓	に管理す	者の回意を与えます		
🧮 プランド化とプロパティ	API / アクセス許可の名前	種類	說明	管理者の同意が必要 状態	
3 認証		THE MAL	80.92	IN YEAR OLIVIAL AVER AVER	
📍 証明書とシークレット	✓ Microsoft Graph (1)				
トークン構成	User.Read	委任済み	Sign in and read user profile	いいえ	
● APIのアクセス許可					
 API の公開 	個々のアプリに関する同意済みのア	クセス許可とテナ	・ントの同意設定を表示および管理するには、	、エンタープライズ アプリケーションお試しください。	

2-4. Select the Microsoft Graph of the Microsoft API and check Mail.Send and offline_access to add them.

API アクセス許可の要求			\times
API を選択します			
Microsoft API 所属する組織で使用して	こいる API 自分の API		
よく使用される Microsoft API			_
	pility + Security、Windows 10 の大量のデータを 、OneDrive、OneNote、SharePoint、Planner な		
Azure Service Management Azure portal で利用できる機能の大部分 へのプログラムによるアクセス	Dynamics 365 Business Central Dynamics 365 Business Central のデー タと機能へのプログラムによるアクセス	Office 365 Management APIs Office 365 と Azure AD のアクティビティログからユーザー、管理者、システム、ボリシーのアクションとイベントに 関する情報を取得します	1
OneNote OneNote ノートブックでノート、リス ト、画像、ファイルなどを作成して管理 します	Power BI Service Power BI のデータセット、テーブル、行 などのダッシュポード リソースへのプロ グラムによるアクセス	SharePoint SharePoint データとリモートで対話しま す	

API	アクセス許可の要求	×
V I	cの API Microsoft Graph https://graph.microsoft.com/ ドキュメント c? ケーションに必要なアクセス許可の種類	
アプリ	されたアクセス許可 Jケーションは、サインインしたユーザーとして API にアクセスす 愛があります。	アプリケーションの許可 アプリケーションは、サインインしたユーザーなしで、バック グラウン ド サービスまたはデーモンとして実行されます。
アクセ	ス許可を選択する	すべて展開
🔎 ma	il	×
	"管理者の同意が必要" 列には、組織の既定値が表示されます。ただし、 ます。この列には、ご自分の組織や、このアプリが使用される組織の値が アクセス許可	ユーザーの同意は、アクセス許可、ユーザー、アブリごとにカスタマイズでき [×] が反映されていない場合があります。 <u>詳細情報</u> 管理者の同意が必要
∨ o	penId アクセス許可	
	email ① View users' email address	เ งเง <i>ิ</i>
> м	lailboxSettings	
∨м	lail (1)	
	Mail.Read ① Read user mail	いいえ
	Mail.Read.Shared ① Read user and shared mail	いいえ
	Mail.ReadBasic ① Read user basic mail	いいえ
	Mail.ReadBasic.Shared ① Read user and shared basic mail	いいえ
	Mail.ReadWrite ① Read and write access to user mail	いいえ
	Mail.ReadWrite.Shared ① Read and write user and shared mail	いいえ
	Mail.Send ① Send mail as a user	いいえ
	Mail.Send.Shared ① Send mail on behalf of others	いいえ

API アクセス許可の要求	×
くすべての API ● Microsoft Graph https://graph.microsoft.com/ ドキュメント ♂ アプリケーションに必要なアクセス許可の種類	
委任されたアクセス許可 アプリケーションは、サインインしたユーザーとして API にアクセスす る必要があります。	アプリケーションの許可 アプリケーションは、サインインしたユーザーなしで、パック グラウン ド サービスまたはデーモンとして実行されます。
アクセス許可を選択する	すべて展開
₽ off	×
() "管理者の同意が必要"列には、組織の既定値が表示されます。ただし、 ます。この列には、ご自分の組織や、このアプリが使用される組織の値	ユーザーの同意は、アクセス許可、ユーザー、アプリごとにカスタマイズでき [×] が反映されていない場合があります。 <u>詳細情報</u>
アクセス許可	管理者の同意が必要
── OpenId アクセス許可 (1)	
Maintain access ① Maintain access to data you have given it access to	いいえ

2-5. Once saved, it will be displayed in Configured Permissions. Click Grant admin consent for your organization to give consent.

R	 る新の情報に更新	フィードバックが	ある場合			
8						
イック スタート	構成されたアクセス許可					
テシスタント	アプリケーションは、同意のプロセスの一覆としてユーザーか管理者からアクセス許可が付与されている場合、APIを呼び出すことが承認されます。構成されたアクセス許可の一覧に は、アプリケーションに必要なすべてのアクセス許可を含める必要があります。 アクセス許可と同意に関する冒筆機構					
	────────────────────────────────────	に管理4	皆の同意を与えます			
ランド化とプロパティ						
ント15とノロバテイ	API / アクセス許可の名前	R01 010	按印	管理者の同意が必要	状態	
シド化とフロバティ		種類	19 前	管理者の同意が必要	状態	
	✓ Microsoft Graph (3)					
		種類 委任済み	१९११ Send mail as a user	管理者の回意が必要 いいえ	0	に付与されま ・・・
	✓ Microsoft Graph (3)					

2-6. Note the client ID and redirect URI.

👖 gravio-outlook	A	
Statio catioon		
▶ 検索	※ 间 削除 🌐 エンドポイント 💀 プレビュー機能	
概要		
🎍 クイック スタート	へ基本	
ℓ 統合アシスタント	表示名 : gravio-outlook	クライアントの資格情報 : <u>証明書またはシークレットの追加</u>
MU/ 2012	アプリケーション (クライ	リダイレクト URI : <u>1 個の Web、0 個の SPA、0 個のパブリック クライアント</u>
理	オブジェクト ID :	アプリケーション ID の URI : <u>アプリケーション ID URI の追加</u>
■ ブランド化とプロパティ	ディレクトリ (テナント) ID :	ローカル ディレクトリで… : gravio-outlook
• 認証	サポートされているアカウ : <u>すべての Microsoft アカウント ユーザー</u>	

2-7. Click New Client Secret in the Certificates and Secrets menu to create it.

ホーム > アプリの登録 > gravio-outloo	
💡 gravio-outlook 証時	月書とシークレット 👒 …
	🔗 フィードバックがある場合
 ● 概要 ▲ クイックスタート ✓ 統合アシスタント 	資格情報は、Web アドレスの版定が可能な場所で (HTTPS スキーでを使用して) トークンを受信する際に、機密性の高いアプリケーションが認証サービスに対して自身を識別できるよう にするためのものです。より高いレベルで保証するには、資格情報として (クライアント シークレットではなく) 証明書を使うことをお勧めします。
管理 ゴランド化とプロバティ	⑦ アプリケーション登録証明書、シークレット、フェデレーション資格情報は、下のタブにあります。 ×
 認証 証明書とシークレット 	歴明書 (0) クライアント シークレット (0) フェデレーション資格備報 (0)
 III トークン構成 ◆ API のアクセス許可 	トークンの要求時にアプリケーションが目前の ID を証明するために使用する発売の文字列です。アプリケーション パスワードと呼ばれることもあります。 十 新しいクライアント シークレット
 APIの公開 エブリロール 	説明 有効期限 値 ① シークレット ID
	このアプリケーションのクライアント シークレットは作成されていません。

Create a client secret.

クライアント シークレ	ットの追加 ×
説明	このクライアント シークレットの説明を入力し
有効期限	730日 (24 か月) 〜

You can specify an expiration date for the client secret.

2-8. Display the client secret.

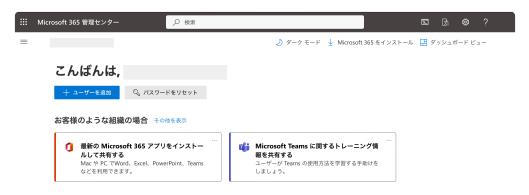
ホーム > アプリの登録 > gravio-outloo	ok 明書とシークレット ☆ …				
▶ ▶ 検索 《	₽ フィードバックがある場合				
 概要 クイックスタート 	お時間があれば、フィードバックをお寄せく	ください。 →			×
🚀 統合アシスタント 管理			って) トークンを受信する際に、機密性の高いアプ フライアント シークレットではなく) 証明書を使う		自身を識別できるよう
■ ブランド化とプロパティ● 認証	証明書 (0) クライアント シークレット ((1) フェデレーション資	格情報 (0)		
 ご明書とシークレット トークン構成)ID を証明するために使用す	る秘密の文字列です。アプリケーション パスワー	- ドと呼ばれることもあります。	
 APIのアクセス許可 APIの公開 	┿ 新しいクライアント シークレット 説明	有効期限	值 ①	シークレット ID	
III アプリ ロール A 所有者				D	D 🗎

The value is the client secret, so please note it.

Now that we have the Client ID, Client Secret, and Redirect URI required for OAuth 2.0, the preliminary preparation is complete.

2-9. Enable authenticated SMTP settings in the Microsoft 365 management center.

Open Microsoft 365 Management Center.



Select Active Users from the left menu.

	Microsoft 365 管理センター	₽ 検索	\$ 12 S	?
=	ホーム 〉 アクティブなユーザー		り ダーク	7 モード
	アクティブなユーザー			
	推奨処置 (1)			~
	ユーザーの追加 🖹 ユーザーテンプレ	レート 🔥 複数のユーザーを追加 🤮 多要素認証 ・・・		. =
	□ 表示名 ↑	ユーザー名	ライセンス	四 列の選択
	AD Manager	:	ライセンスなし	
		÷	ライセンスなし	
			Microsoft 365 Business Premium	

When you select the target user, a panel will open on the right.



Select Manage Mail Apps in the Mail tab.



Please enable authenticated SMTP and save it. The set contents may not be reflected immediately, so if the same error continues to occur in sending mail, please try again after a while. If the error continues to occur, please check the settings again.

13.21. Gravo File Path Handling

Some component properties like <u>FileWrite</u> or <u>SlackFilesUpload</u> are making references to folders and file paths. On this page, we describe how files can be referenced in Gravio.

The Default Folder

All paths referenced on Gravio refer to the below paths on the respective operating systems:

Windows: C:\ProgramData\HubKit\action\actmgr\data\
Mac: /Library/Application Support/HubKit/action/scripts/actmgr/data/
Linux: /var/opt/hubkit/action/scripts/actmgr/data/
Linux with Docker (e.g. on a Raspberry Pi): /home/gravio/hubkitrepo4/data/actmgr/data/
which is then mounted on /var/opt/hubkit/actmgr/data if you are accessing it from within Gravio.

Therefore you have 3 ways of making references to files:

1. Direct Reference

Mac and Linux:

File path	Description
sample.txt	Sample.txt in the actmgr/data/ folder.
./sample.txt	Refers to sample.txt in the actmgr/data/ folder.

Windows:

File path	Description			
sample.txt	Refers to sample.txt in the $actmgr data folder$.			
.\\sample.txt	Refers to sample.txt in the actmgr\data\ folder.			

2. Relative References

Mac and Linux:

File path	Description		
<pre>///gravio/sampl e.txt</pre>	Refers to gravio/sample.txt 4 levels up from the actmgr/data/ folder.		

Windows:

File path	Description
-----------	-------------

\\\\\\gravio\\sa	Refers to gravio\\sample.txt, which is four levels up from the ac
mple.txt	tmgr\data\ folder.

3. Absolute References

Mac and Linux:

File path		Description		
	/home/gravio/sample.txt	Refers to /home/gravio/sample.txt under the root.		

Windows:

File path	Description
c:\\temp\\sample.txt	Refers to c:\temp\gravio\sample.txt under c: drive.

In the example, it is assumed that the sample.txt file is readable by the user under which Gravio is operated.

Log Folders

Windows: C:\ProgramData\HubKit\logs\
Mac: /Library/Logs/HubKit/
Linux: /var/log/hubkit/

13.22. Automatic Update Manager Updates

The Update Manager installed on the Gravio Hub, both the Linux version and the ARM64 version (Raspberry), is set to automatically update every day at 2:00 AM, so no update operation is required. In addition, the Update Manager installed on the Gravio Hub will also automatically update whenever the Gravio Hub is restarted.

13.23. Hardware environment when using software sensors

1. Performance Guidelines When Using Inference Files

For a PC using an Intel i7 CPU, it has been verified to work with 2 ONVIF cameras set to save images at intervals of more than 10 seconds. This is not a guarantee that it will always work in your environment due to the amount of memory installed, whether the external storage device is an SSD, or I/O processing, but please use it as a guideline. Also, for PCs using the ATOM chipset, it has been verified to work with one camera set to save images at intervals of more than 20 seconds.

ONVIF compatible cameras are limited to devices that support ONVIF Profile T.

CPU/Chipset	Image save setting when using inference files with ONVIF camera (Guideline)
i7	2 cameras with an interval of more than 10 seconds
ATOM	1 camera with an interval of more than 20 seconds

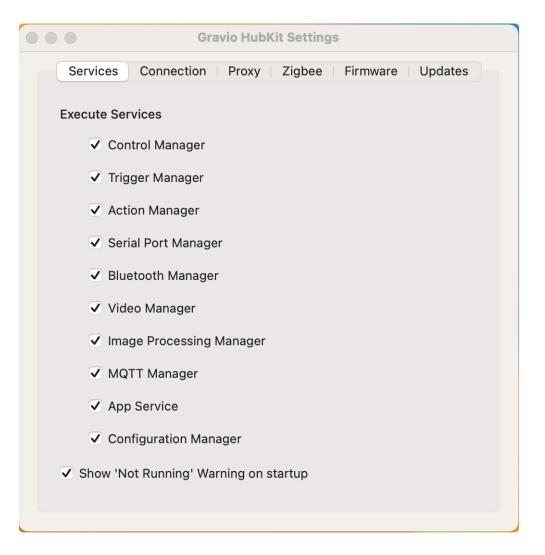
13.24. HubKit Settings

HubKit Configuration Guide

1. If you are using Mac

Select the 'Settings' menu from the HubKit icon in the top menu bar of macOS.

1. Services



Use this when you need to start or stop the services that make up the HubKit individually. If you want to display a warning when a service is stopped at the time of launching HubKit, select 'Show Service Stop Warning at Startup'.

2. Connection

	Gra	vio HubK	it Settings			
Services	Connection	Proxy	Zigbee	Firmware	Updates	
Enable C	lient Certificate	Authentic	cation			
No Client	Certificates are	in use.				
			Add N	lew Certifica	ate 🔟	
* You need	to stop HubKit 1	to change	e this settir	ng.		

Select 'Use Client Authentication' if you want to restrict the Gravio Studio that connects to the HubKit. For instructions on how to install the certificate, refer to <u>If you want to restrict access from Gravio Studio</u> to the hub.

*Please stop HubKit if it is running.

3. Proxy

	Gravio HubK	it Settings		
Services Con	nection Proxy	Zigbee	Firmware	Updates
Use HTTPS Pro	оху			
Proxy URL:				
Username:				
Password:				
Use HTTP Prox	ху			
Proxy URL:				
Username:				
Password:				
* You need to sto	p HubKit to change	e this settir	ıg.	Save

Set this if you need to route HubKit through a proxy server when using internet services. Enter the account information (proxy URL, username, password) for the Proxy server to be used for each of the HTTPS and HTTP protocols.

*HubKit must be stopped to configure this setting.

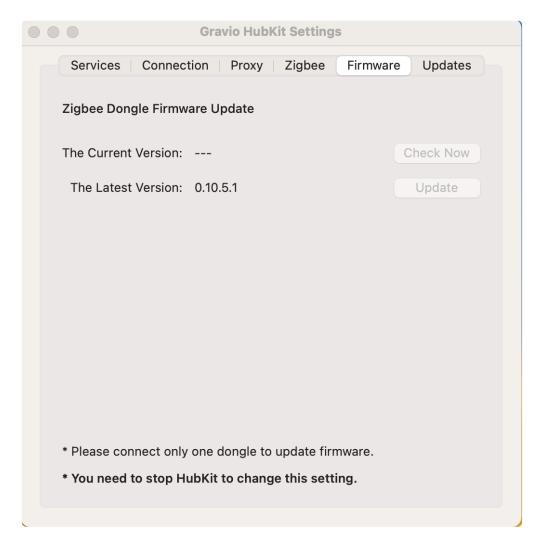
4. Zigbee

	Gravio Hubk	it Settings)	
Services	Connection Proxy	Zigbee	Firmware	Updates
Zigbee Pairing	g Data Backups		Ва	ckup Now
			Rest	ore 🕅
· Please conn	ect only one dongle to	backup/res		
	stop HubKit to chang			

Press the 'Backup Now' button to backup pairing information from the Zigbee dongle's sensor when you want to backup or transfer to another dongle. If you want to restore the backup pairing information, select the backup content and press the 'Restore' button.

*Please stop HubKit if it is running.

5. Firmware



Refer to <u>How to update Zigbee firmware</u> for firmware updates.

6. Update

		Gravio HubKit Settings	S
Ser	vices Connecti	on Proxy Zigbee	Firmware Updates
✓ A	utomatically check	k for updates:	Daily 🗘
Last	Check at:		Jul 27, 2023 9:11:33
		Check Now	

Set the timing to regularly check if there is a newer version of HubKit. Press the 'Check Now' button to check immediately for the latest version.

A confirmation dialog will be displayed if there is a newer version. Follow the menu to install if you choose to update.

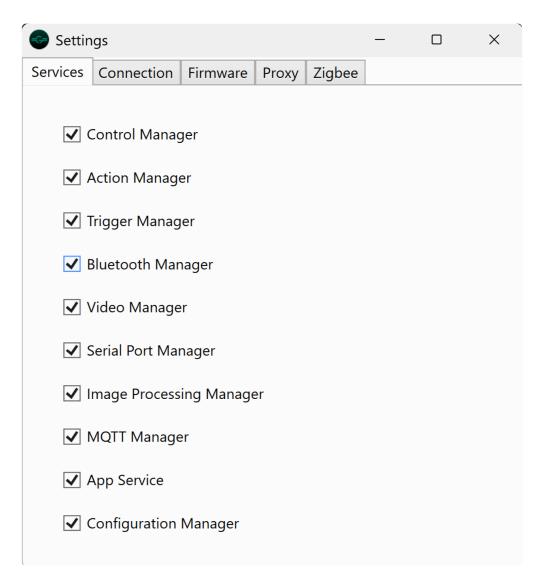
2. If you are using Windows

Execute 'GravioTools4' from the 'GravioHubKit' menu in the Windows10 start menu.

When GravioTools4 starts, an icon is displayed in the task bar. Right-click to display the menu and select the 'Settings' menu.

Gravio HubKit is running
Start Service
Stop Service
Initial Setup
Settings
Check for updates
About Services
Quit

1. Services



Use this when you need to start or stop the services that make up the HubKit individually. If you want to display a warning when a service is stopped at the time of launching HubKit, select 'Show Service Stop Warning at Startup'.

2. Connection

Settir	ngs				-	×
Services	Connection	Firmware	Proxy	Zigbee		
<u> </u>	Jse Client Cert	ificates				
No Clier	nt Certificates a	are in use				
		Add Ne	w Certif	icate		

Select 'Use Client Authentication' if you want to restrict the Gravio Studio that connects to the HubKit. For instructions on how to install the certificate, refer to <u>If you want to restrict access from Gravio Studio</u> to the hub.

*Please stop HubKit if it is running.

3. Firmware

Settin	igs				-		×
Services	Connection	Firmware	Proxy	Zigbee			
Update							
Current	version:					Confirm	
Latest ve	ersion: 0.10	.5.1				Update	
*Conner	t only one 7:						
	t only one Zig stop Hubkit to)			

Refer to <u>How to update Zigbee firmware</u> for firmware updates.

4. Proxy

📀 Settin	gs				_		×
Services	Connection	Firmware	Proxy	Zigbee			
Use	Https proxy						
Proxy	URL:						
User n	ame:						
Passwo	ord:						
Use	Http proxy						
Proxy	URL:						
User n	ame:						
Passw	ord:						
					Sav	e	
*Please s	stop Hubkit to	change thi	is setting	9			

Set this if you need to route HubKit through a proxy server when using internet services. Enter the account information (proxy URL, username, password) for the Proxy server to be used for each of the HTTPS and HTTP protocols.

*HubKit must be stopped to configure this setting.

5. Zigbee

Settin	igs				-		×
Services	Connection	Firmware	Proxy	Zigbee			
Zigbee p	pairing data ba	Backup	ackup				
					Resto	re [Delete
*Connec	t only one Zig	bee receive	er				
*Please	stop Hubkit to	change thi	s setting	g			

Press the 'Backup Now' button to backup pairing information from the Zigbee dongle's sensor when you want to backup or transfer to another dongle. If you want to restore the backup pairing information, select the backup content and press the 'Restore' button.

*Please stop HubKit if it is running.

6. Update

When GravioTools4 starts, an icon is displayed in the task bar. Right-click to display the menu and select 'Download the latest version'.

A confirmation dialog will be displayed if there is a newer version. Follow the menu to install if you choose to update.

13.25. Credits and Attributions

Software Libraries Used

Under BSD-2-Clause License

- github.com/godbus/dbus
- github.com/pkg/errors

Under BSD-3-Clause License

- pkg.go.dev/golang.org/x/text
- pkg.go.dev/golang.org/x/net
- pkg.go.dev/golang.org/x/sys
- pkg.go.dev/golang.org/x/crypto
- pkg.go.dev/golang.org/x/image
- pkg.go.dev/golang.org/x/oauth2
- pkg.go.dev/golang.org/x/net
- github.com/muka/ble
- github.com/bugst/go-serial
- github.com/PaesslerAG/gval
- github.com/PaesslerAG/jsonpath
- github.com/generikvault/gvalstrings
- github.com/gorilla/mux

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- github.com/coreos/go-systemd
- github.com/aws/aws-sdk-go
- github.com/hajimehoshi/go-mp3
- github.com/hajimehoshi/oto
- github.com/spf13/cobra
- github.com/tensorflow/tensorflow

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- github.com/fatih/structs
- github.com/mattn/go-colorable
- github.com/mattn/go-isatty
- github.com/mgutz/ansi
- github.com/mgutz/logxi
- github.com/sigurn/crc16
- <u>github.com/sigurn/utils</u>
- github.com/StackExchange/wmi
- github.com/go-ole/go-ole

- github.com/hashicorp/mdns
- github.com/rs/cors
- github.com/dgrijalva/jwt-go
- <u>github.com/mattn/go-sqlite3</u>
- <u>github.com/montanaflynn/stats</u>
- github.com/robfig/cron
- github.com/spf13/viper
- github.com/stretchr/testify
- github.com/jmoiron/sqlx
- github.com/mattn/go-pointer
- github.com/mattn/go-tflite
- github.com/satori/go.uuid
- github.com/sirupsen/logrus

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- LICENSE: github.com/golang-migrate/migrate/
- LICENSE: github.com/golang/freetype
- <u>LICENSE</u>: <u>github.com/shirou/gopsutil</u>
- ISC LICENSE: github.com/nfnt/resize
- ISC LICENSE: github.com/davecgh/go-spew
- MPL-2.0 License: github.com/go-sql-driver/mysql
- Zlib License: github.com/kardianos/service

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13.26. Gravio Apps Framework

Gravio will also provide a framework, that allows third party companies to build native mobile applications that integrate seamlessly into the Gravio Edge infrastructure. APIs provided by Gravio's edge servers can provide data or be triggered by an authenticated application.

Gravio apps open an entire new ecosystem of providers and developers who can build on top of an existing Gravio edge network.

Examples of Gravio Apps:

- A branded "ACME Industrial Maintenance" company application that can be used to check all of ACME's plants on site that are being monitored by Gravio Edge Servers and connected sensors.
- A branded "Joe's Restaurant Chain" application that allows its guests to use their phones to check queue lengths or restaurant occupancies in real-time.
- A branded "Farmer Co." application that allows farmers to retrieve sensor information out in the fields using their mobile phones.
- A city authority that can use mobile applications to retrieve information from local traffic monitoring and control systems.

The Kitchen Sink Gravio App will be available soon here. If you wish to be notified when it goes live, please write us an e-mail to support@gravio.com

14. Security and Authentication

If you have Gravio Standard or better, you can secure your Gravio HubKit against your Gravio Studio machine using a Client Authentication method. This means you generate an authentication certificate from your Gravio Studio machine, which will be deployed on the Gravio HubKit server. Any Gravio HubKit server that has the client certificate authentication setting enabled will ensure that only Gravio Studios with the respective counterparts are allowed to access it.

To create the certificate, open your Gravio Studio and generate the from the main menu:

Ś	Gravio Studio 4	Connections	Edit
	About Gravio Studio	o 4	
	Profile		
	Change Password		
	Client Auth		
	Log out		
	Services	>	
	Hide Gravio Studio	4 %H	
	Hide Others	ΝЖЭЛ	
	Show All		
	Quit Gravio Studio	4 %Q	

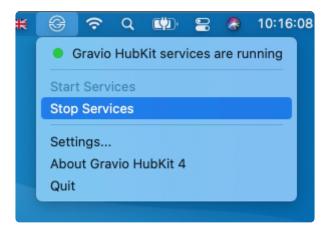
You will have to enter a key, based on which the certificate will be issued.

To secure Gravio Server, You can use this certificate file 1. Download this certificate file. 2. Copy it to your PC, Mac, or Linux. 3. Install certificate in your PC, Mac, or Linux. 4. Restart Gravio Server. Now, your connection to Gravio Server is restricted	
 2. Copy it to your PC, Mac, or Linux. 3. Install certificate in your PC, Mac, or Linux. 4. Restart Gravio Server. 	e.
Now, your connection to oravio derver is restricte	ed.
Your certificate file generated: Not Generated Download Certificate File	
Generate Certificate by Genera	ate

Click the "Generate" button. At this point, the Certificate matching this Gravio Studio is generated. You can download it to your computer, so you can deploy it on the respective Gravio HubKits.

•••	Client Authentication
To secu	re Gravio Server, You can use this certificate file.
	 Download this certificate file. Copy it to your PC, Mac, or Linux. Install certificate in your PC, Mac, or Linux. Restart Gravio Server.
	Now, your connection to Gravio Server is restricted.
Your certi	ficate file generated: 12/10/2021, 10:15
	Download Certificate File
0	
Generate Ce	
••••••	Generate

In the "Settings" > "Connection" menu of HubKit, there is an option to upload the certificates. Note that you will have to stop the server in order to do so.



Click on "Settings..." again and enable the certificate authentication in the "Connections" tab. Upload the just downloaded certificate.

•	Gravio H	lubKit Se	ttings	
Services	Onnection	Zigbee	Firmware	Updates
Enable Clie	nt Certificate Au	Ithenticati	on	
No Client Ce	ertificates are in	use.		
		-	dd New Cer	tificate
* You need to	stop HubKit to	change th	is setting.	

Your connection is now authenticated.

Note that if another Gravio Studio tries to access the HubKit now, you will get an error message similar to the following:

