

# Testimony - Quick Start Guide

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Basis Technologies

# Table of Contents

- 1. Introduction ..... 1
- 2. Product Overview ..... 2
  - 2.1. Testimony Process..... 3
  - 2.2. Technical Overview ..... 4
- 3. Quick Start Guide ..... 6
  - 3.1. Test Plan and System Connections ..... 7
    - 3.1.1. Creating a Test Plan ..... 8
    - 3.1.2. System Setup ..... 10
    - 3.1.3. Authorisations ..... 20
    - 3.1.4. Managing Test Plans ..... 21
  - 3.2. Performing a Recording ..... 23
    - 3.2.1. Recording Preparation ..... 24
    - 3.2.2. Start Recording ..... 30
    - 3.2.3. Monitoring a Recording ..... 33
    - 3.2.4. Stop Recording ..... 35
  - 3.3. Review Recordings/Transfer to Repository ..... 37
  - 3.4. Building the Execution Queue ..... 40
  - 3.5. Analyzing Coverage ..... 42
  - 3.6. Performing a Playback ..... 44
    - 3.6.1. Preparing Playback ..... 45
    - 3.6.2. Start Playback..... 49
    - 3.6.3. Monitor Playback ..... 50
    - 3.6.4. Stop Playback..... 51
  - 3.7. Review Playback Results ..... 52
- 4. Glossary ..... 54

# 1. Introduction

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Welcome to the Testimony Quick Start Guide, a user oriented tour of the Testimony screens and functionality. This guide provides a high level overview of the product and then documents the general process to create and playback an SAP recording.

This Guide should be used in conjunction with the other available Testimony documentation and templates.

Remote support is also available from Basis Technologies if required via the contact details outlined at the end of this guide.

## 2. Product Overview

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Testimony is a one of a kind, digital regression test generation and execution product developed by Basis Technologies.

It is installed on and operates within the SAP ABAP stack and is particularly used to reduce the duration and cost of regression testing SAP systems.

It does this by eliminating effort in:

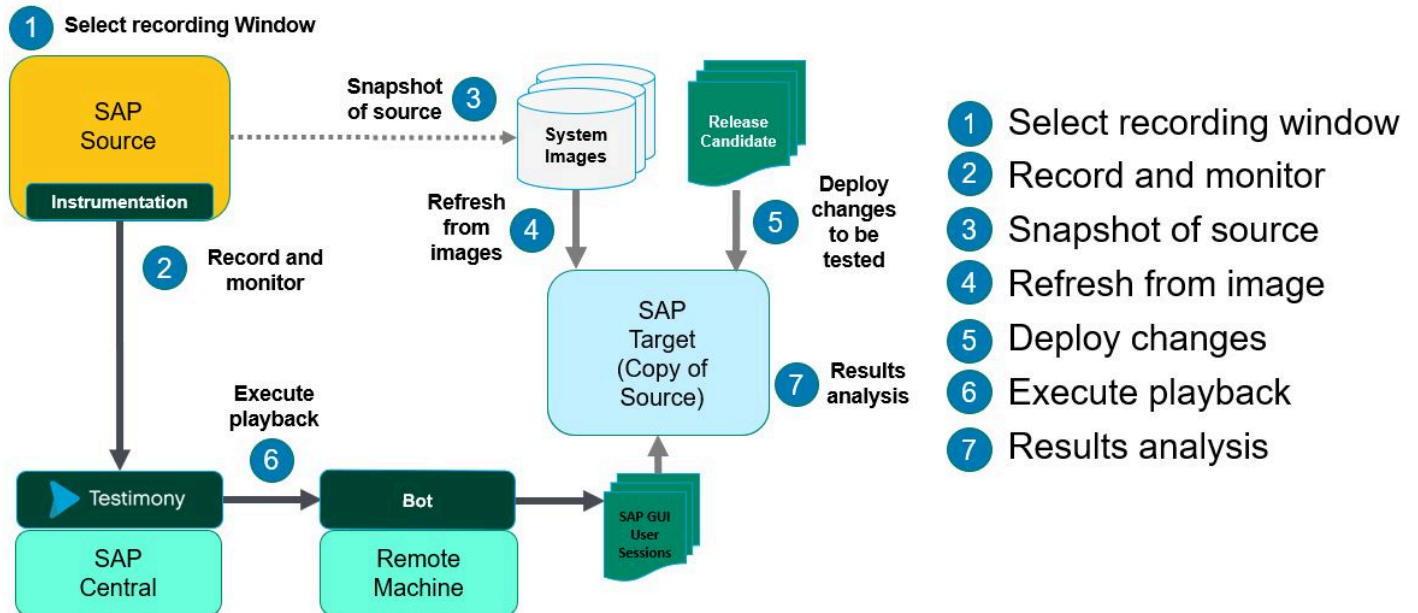
- Regression test coverage analysis and planning
- Regression test script development
- Regression test execution (including initial defect analysis)
- Test user maintenance
- Test data creation

It uniquely generates regression test scripts that reflect how your business teams really use their SAP applications on a day to day, month on month, and year on year basis.

This product comes to the fore when managing the following risk scenarios, when you cannot afford to break the as-is production service:

- SAP Upgrades and Support Packs
- SAP Cloud re-platforming
- System migrations
- Kernel upgrades
- Application of ongoing SAP security patches
- Regular production support and maintenance
- Project releases

## 2.1. Testimony Process



## 2.2. Technical Overview

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The following steps provide an overview at a more technical level of how the Testimony product operates.

### Installation Process

Testimony is installed as a third-party add-on solution to a central ABAP system (typically your SAP Solution Manager system). Transports are provided, which include code and enhancements that must be installed on the recording (Source) systems and the playback (Target) systems. Please see the link [here](#) to the installation guide.

### Test Plan Configuration

All Testimony processes are executed within the organization of a “Test Plan”. These represent the regression test cycle(s) that are currently being performed for the necessary scenario (e.g. HANA DB migration, AWS re-platforming, technical upgrade etc). Within the central Testimony system, you must configure a test plan and provide some basic information relating to it (e.g. which the system(s) involved for recording and playback, which users are involved from a testing perspective). RFC destinations must be setup to allow Testimony to trigger both the recording and playback processes.

### Recording Setup

A setup activity is then run to prepare the system to be recorded. After this point, the system is ready to enable you to activate the “recording” function in Testimony. Please note that until you perform this activation, there is zero impact on production service.

### Recording Activation

When you are ready to perform a regression test cycle, the Testimony Administrator is able to activate the recording process. This will record all technical operations upon the SAP source system including activities such as SAP GUI dialog transactions and RFC / BAPI calls. Immediately after activating the recording, a backup of the source (SAP production) system should be taken. This will be used as the basis for the creation of the playback system. It is typically envisaged that a period of approximately 24 hours of operational activity would be recorded. At the end of the 24 hour recording period, the Testimony Administrator deactivates the recording process. Due to the unique manner in which Testimony operates, the impact on the production system is near zero (in terms of response times and system performance).

### Coverage Analysis

The recording process has in effect automatically generated an entire test script library covering a percentage of the customers actual SAP system usage. After the recording process is finished, the testing team can understand the level of coverage they have with the recording based upon the usage information of what the customer actually uses over the past M months (where M is typically 3 months). If key transactions are missing (e.g. month end processes) then the coverage analysis within Testimony can provide this information. In this case, you can either test these processes outside of Testimony or look to

include the periods when these processes run in your next Testimony recording.

## **Playback Process**

Once the recording and coverage process are run, then it is possible to execute the playback process. The playback (target) system that was built from the production database backup must now be started. The Testimony playback agent must be setup on the target system and “bots” run upon supporting infrastructure including Windows based machines. The bots simulate the actions of users as well as other external systems during the playback. Changes that are being made must be deployed to the target system (e.g. upgrade process, project release transports deployed, database migrated). Once the landscape is ready, the playback process can begin. This is simply a process of starting the “execution queue” and allowing it to execute (technically). If issues arise, notifications can be sent to appropriate test team members. The queue can be restarted if problems are detected.

## **Results Review**

After the playback process has completed, the test team can review the results. They are specifically looking for issues that have arisen during the playback where the “expected output” differs from the “actual output”. Any discrepancies identified can be automatically generated as defects. The testing and development team can review these defects (once created) and provide a resolution. Once the bulk of defects are resolved, a new test cycle can be created and the system copy image restored. The playback process can be repeated to ensure that defects identified have been correctly resolved.

## 3. Quick Start Guide

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The quick start guide is to be used after installation and includes the key basic steps required to create a recording and a playback. Please check the installation guide [here](#) if that process is not complete. It details the process steps required to allow you to use Testimony for a Regression test cycle. It assumes a reasonable level of knowledge of the Testimony architecture, as well as some knowledge of SAP systems architecture and SAP Basis.

Each section in the Quick Start Guide covers a separate step of the overall process. The steps should be followed in the order in which they are described.

- [Test Plan and System Connections](#)

A test plan must first be created and configured prior to any recordings being performed or playbacks.

- [Performing a Recording](#)

This is the process for activating and monitoring the recording on the source systems.

- [Review Recordings/Send to Repository](#)

Once recording is complete, you should review the recordings that have been captured and move them to the Testimony script repository.

- [Performing a Playback](#)

This is the process to prepare for, execute and monitor the playback of recorded activities on the target systems.

- [Review Playback Results](#)

The end result of the process which highlights discrepancies between what was recorded from the live system and what potential issues have been identified in the test system that is played back into.

## 3.1. Test Plan and System Connections

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### Overview

The Test Plan in Testimony is the “container” for all testing activities that take place within Testimony. Each Test Plan can be configured to represent a regression test cycle such as a Monthly Release, Project or SAP Upgrade undergoing testing. You can have as many Test Plans setup in the system as required. Typically you will create a new test plan for each recording, although you can repeat multiple playbacks within the same test plan.

Within each Test Plan, you define:

- A plan name and description, as well as some attributes about the scenario (e.g., Upgrade Testing) and whether or not the test plan is currently active.
- The systems that are participating in the testing phase. Each test plan must have at least one source system (in which the recording takes place) and one target system (into which the recording is played back). Multiple recording and playback “pairs” are also possible.
- The mapping of systems, which tells Testimony that a recording executed on System A will be played back in System B.
- The users who will be involved in the testing, and their roles.

Existing test plan definitions can be copied, bringing across all of the information (including systems, system mappings and user roles) into the new test plan. This makes the creation of multiple test plans for the same system pairings much easier.

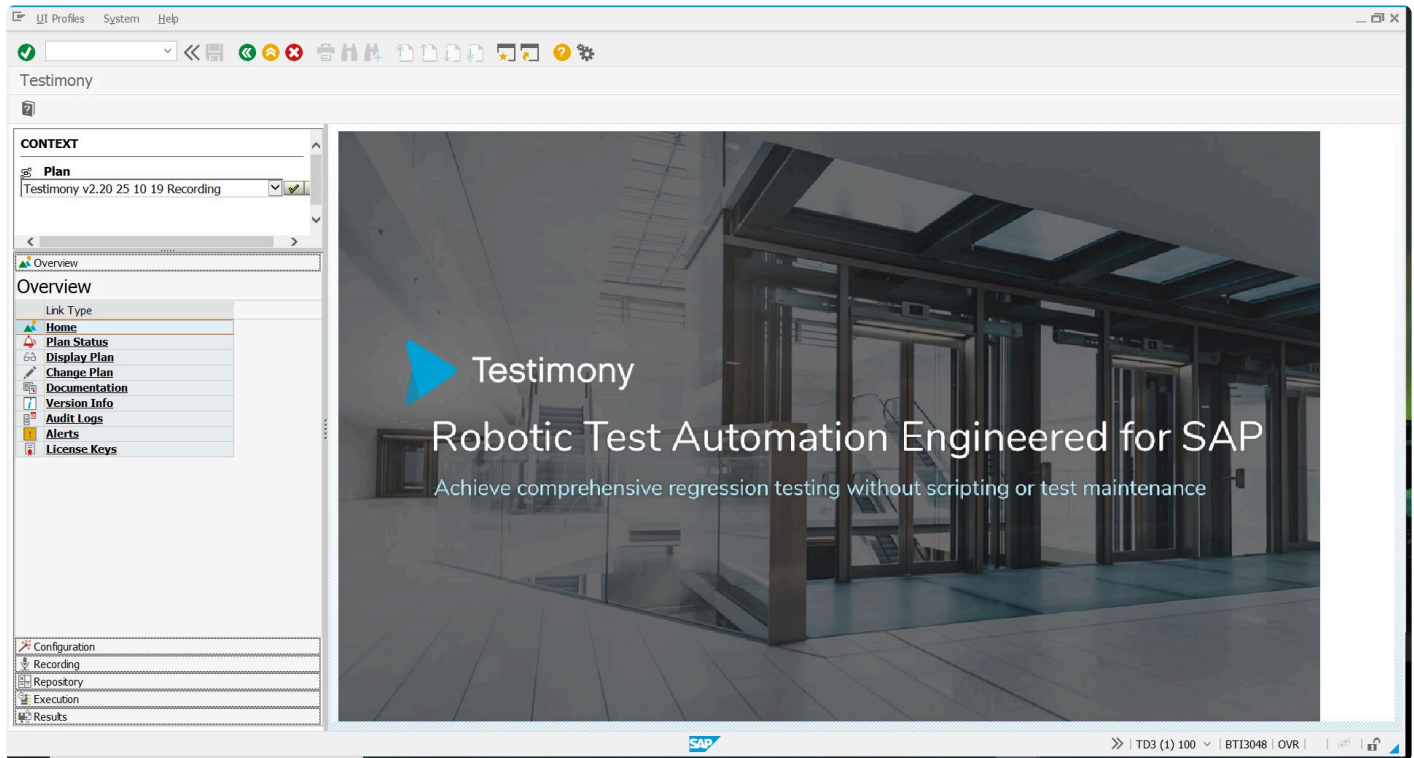
### Process Steps

- [Creating a Test Plan](#)
- [System Setup](#)
- [Authorisations](#)
- [Managing Test Plans](#)

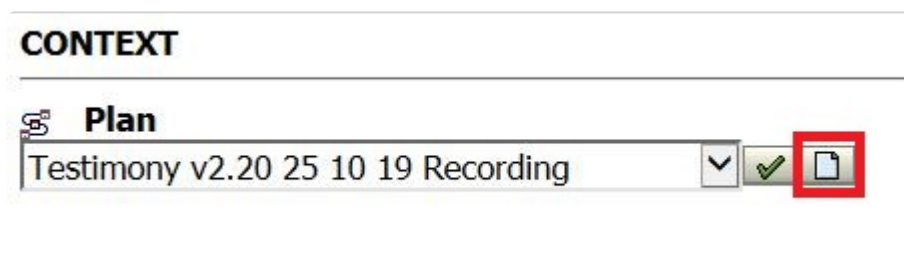
## 3.1.1. Creating a Test Plan

### Access Testimony

Once logged into the Testimony central system, enter transaction **/n/bti/aut**. This will display the Testimony main menu.




To create a new blank plan, select the create button




You will be presented with a screen where you enter a test plan name and a description, specify the scenario and mark the plan as active. Once complete click Save

Identification

Test plan ID

 Save

 Cancel

Header

Systems

Systems mapping

Authorisations

Parameters

Description

Test plan name

Test plan description

Configuration

Scenario

Status

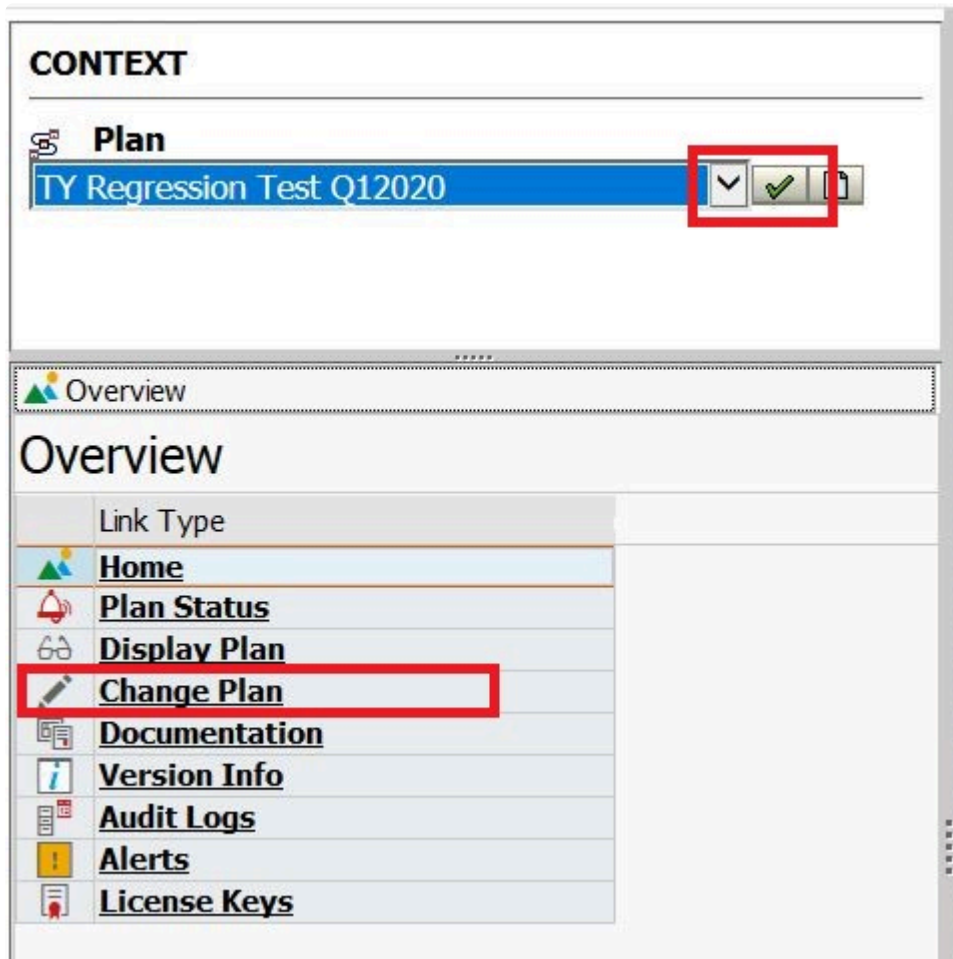
Once saved, you'll see the following status. From here, you will update the plan with the relevant system information



## 3.1.2. System Setup

### Select Test Plan to change

Use the drop down menu to select your newly created Test Plan and click the Tick. Now you can click Change Plan



### Systems

In the main window, you will see the Test Plan header information. Select the Systems tab and click the Create button. It's good practice to start by creating your Source (Recording) system

Identification

Test plan ID: 001006

Save Cancel

Header **Systems** Systems mapping Authorisations Parameters

Test Plan Systems

Type	Syst. type	Name	SID	System description
------	------------	------	-----	--------------------

In the Identification section, enter the required information as follows:

- System name: A 4-character internal identification for the system. Note that this is different than the standard 3-character SAP SID but it is suggested you use your SAP SID along with “R” for your Source (Recording) system and “P” for your Target (Playback) system. The 4-character identifier allows you to specify the same SAP system for both recordings and playback (for example, when performing initial smoke testing of Testimony).
- A short-text description for the system.
- A longer system description

Creation of a new system

Identification

System name: TY1R

System short text: TY1 Recording

System description: Ty1 Source (Recording) System

In the Configuration section, enter the initial technical information to allow the Testimony central system to connect to this remote system.

For a source system (i.e., a system that will be recorded), only the following information is required:

- System ID: The SAP SID
- Client: The client of the remote system to which the central system should connect
- RFC destination: the RFC destination to the remote system. This should already have been set up as part of the initial installation and configuration phase.
- System type: whether the system is a source (recording) system or a target (playback) system.
- System role: whether the system is a production system or a test system
- System component: the SAP system component (ECC, BW, etc.)
- IP Address: you can get the IP address of the system by clicking on the “Get via RFC” button. This will connect to the remote system using the RFC destination that you specified during the technical setup.

The screenshot shows a software configuration window with two tabs: 'Configuration' (active) and 'Remote Data'. The 'Configuration' tab contains a form with the following fields and values:

Configuration	
System ID	TY1
Client	800
RFC destination	AUT_TY1_SRC
System type	Source system
System role	Test system
System component	ECC
IP address	10.0.0.22

Below the IP address field is a button labeled 'Get via RFC' with a small icon of a document and a magnifying glass.

For a target system (i.e., a system into which your recordings will be played back) the following additional information is needed so that the playback bots know how to connect:

- Connection type: Whether the bots will connect directly to an application server or will use logon load balancing

If the connection type is “Application server”:

- Target host: The host name of the application server
- Instance No.: The SAP instance number

Creation of a new system

Identification

System name: TY1P

System short text: TY1 Playback

System description: TY1 Playback

Configuration

System ID: TY1

Client: 800

RFC destination: AUT\_TY1\_PLAYBACK

System type: Target system

System role: Test system

System component: ECC

IP address: [Empty field] [Get via RFC]

Technical settings

Connection type

☒ Application server ☐ Message server and logon group

Application server details

Target host: [Empty field]

Instance No.: [Empty field]

Misc. details

SAP router: [Empty field]

If the connection type is "Message server and logon group":

- Message server: The host name of the SAP message server
- Message server port: The port number (usually 36nn) that the message server listens on
- Logon group: The logon group (from SMLG) that the bots should use to connect to the system

Creation of a new system

Identification

System name: TY1P

System short text: TY1 Playback

System description: TY1 Playback

Configuration

System ID: TY1

Client: 800

RFC destination: AUT\_TY1\_PLAYBACK

System type: Target system

System role: Test system

System component: ECC

IP address: [Empty field] [Get via RFC]

Technical settings

Connection type: ☒ Message server and logon group

Message server and logon group details

Message server: [Empty field]

Message server port: [Empty field]

Logon group: [Empty field]

Misc. details

In the Misc. details section enter any (optional) configuration:

- SAP router: If you are using a SAP router to secure access to the playback system, enter the SAP router string here
- Gateway host: Enter the SAP gateway host
- Gateway service: Enter the SAP gateway service id

Misc. details

SAP router: [Empty field]

Gateway host: [Empty field]

Gateway service: [Empty field]

Once complete click the Tick to save your configuration. You'll receive the following status message. At this point you should also save your plan

✓ System created, now save the plan

Repeat the same steps to configure additional systems. You will minimally need a Source and Target system defined.

You should now have at least 2 systems defined in your plan

Identification

Test plan ID001006

SaveCancel

Header



Systems

Systems mapping

Authorisations

Parameters

Test Plan Systems

Type	Syst. type	Name	SID	System description
	Source system	TY1R	TY1	TY1 Recording
	Target system	TY1P	TY1	TY1 Playback

## Systems Mapping


It is now necessary to map the systems so that Testimony knows which recording system equates to which playback system. This is a required step, even if you only have two systems in the test plan. In the test plan screen, go to the Systems mapping tab. Here you will see the systems you have defined. Click on the Create Link button


Header

Systems

Systems mapping

Authorisations

 Create link

 Delete link

Source systems

System TY1R

TY1 / 800

TY1 Recording

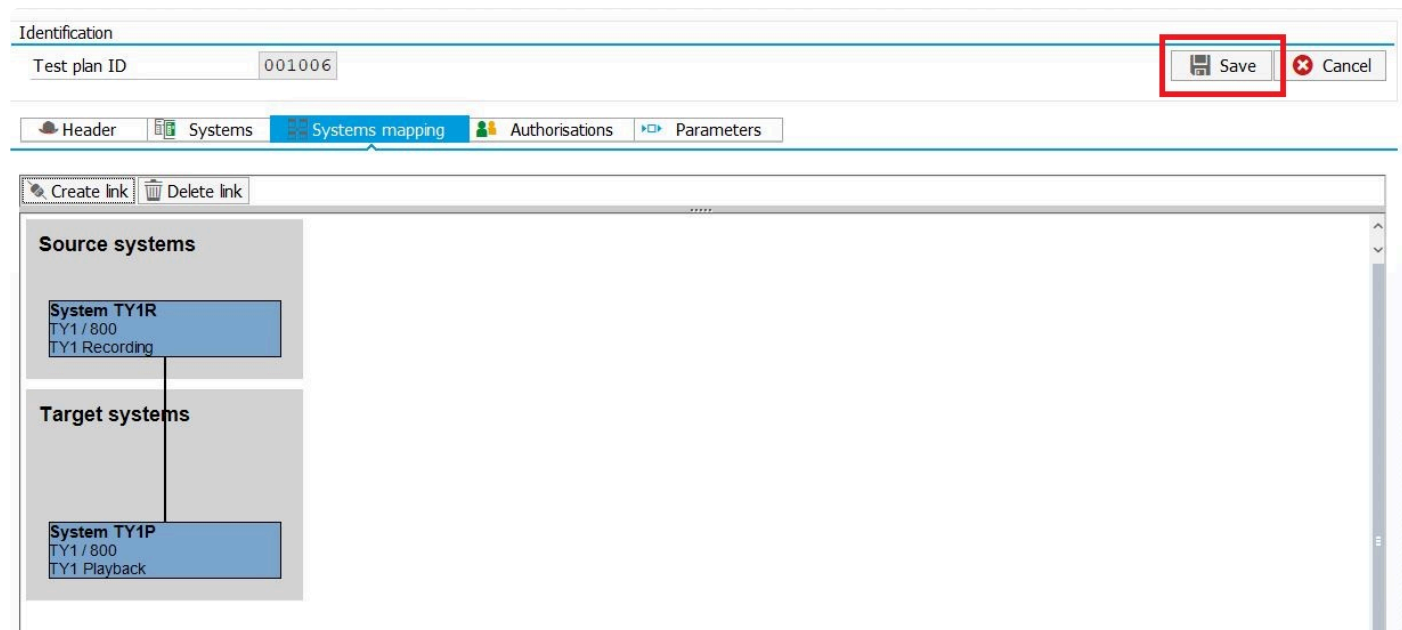
Target systems

System TY1P

TY1 / 800

TY1 Playback

At this point, your cursor will change to a Pencil. Draw a line between the two systems you want to link and you get the following screen where you can click the Save button to save your System Mapping.



## Remote data

The retrieval of remote data from the source system enables Testimony to perform a number of important functions. Firstly, it allows text descriptions of objects (e.g., transaction codes, screens, etc.) to be displayed, making the job of interpreting the output from Testimony much easier. It also allows Testimony to gather certain technical information (e.g., screen field definitions) which are an important part of Testimony's "learning" process.

Remote data extraction only needs to be run in one system for each SAP component type (e.g., once in ECC, once in SRM, etc.). Other systems of the same component type can share this information. Basis Technologies recommends that this data be extracted from a test system to avoid putting any additional overhead on production.

The remote data extraction needs to be run when a new system landscape is first added to Testimony, and then when there is a major upgrade or release. For example, if you are applying support packages then a further extraction will be required so that Testimony has the most up-to-date definitions of the objects that it uses. We also recommend that, in any case, the extraction is run at least every 6 months so that Testimony can be kept up-to-date.

To extract the remote data, within the Change Plan screens, navigate to your source system and go to the Remote Data tab: You will see all of the remote data types that Testimony needs to extract, and also that the remote data extraction has not yet been executed.

Modification of system TY1R

Identification

System name

TY1R

System short text

TY1 Recording

System description

Ty1 Source (Recording) System

Configuration

Remote Data

Remote Data Source Plan

Remote Data Plan

001006 TY Regression Test Q12020

Remote Data Sys. Name

TY1R TY1 Recording (Remote data not run)

Remote Data Sources

Typ	Remote Data Type	Sts	Status	Dat	Last Execution Information	Rows Stored	Last Object
	Data domains		Not executed		Never executed	No data	
	Data elements		Not executed		Never executed	No data	
	Table fields		Not executed		Never executed	No data	
	Tables and Structures		Not executed		Never executed	No data	
	Application components		Not executed		Never executed	No data	
	Change Documents		Not executed		Never executed	No data	
	Dialog screen fields		Not executed		Never executed	No data	
	Dialog screens		Not executed		Never executed	No data	
	Program parameters		Not executed		Never executed	No data	
	Executable programs		Not executed		Never executed	No data	
	Idocs		Not executed		Never executed	No data	
	Messages		Not executed		Never executed	No data	
	Number Range Objects		Not executed		Never executed	No data	
	Object components		Not executed		Never executed	No data	
	Object texts		Not executed		Never executed	No data	
	RFC parameters		Not executed		Never executed	No data	

You can start the remote data extraction by clicking on the “Run remote data in background” button.

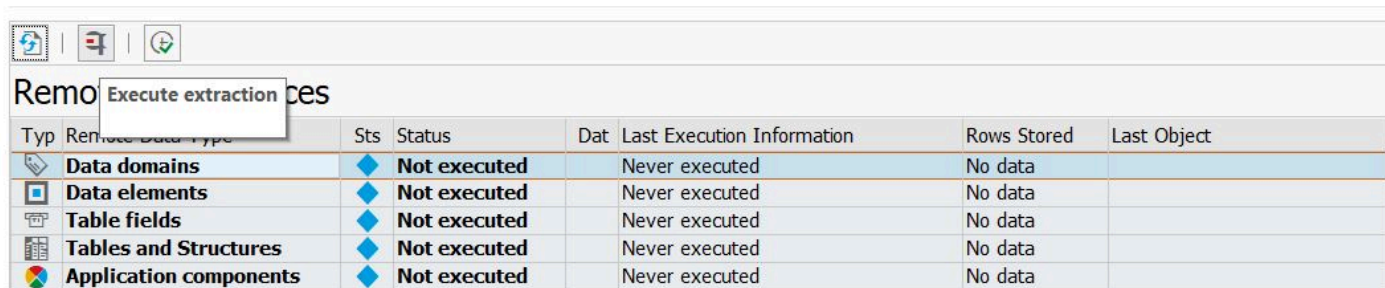
Remote Data

Run Remote data in background

Typ	Remote Data	Sts	Status	Dat	Last Execution Information
	Data domains		Not executed		Never executed
	Data elements		Not executed		Never executed

This will start a background job in the Central System which submits requests via RFC to the source system to gather the required data.

Alternatively, you can extract the data for individual components by selecting the component and clicking on the “Execute extraction” button.

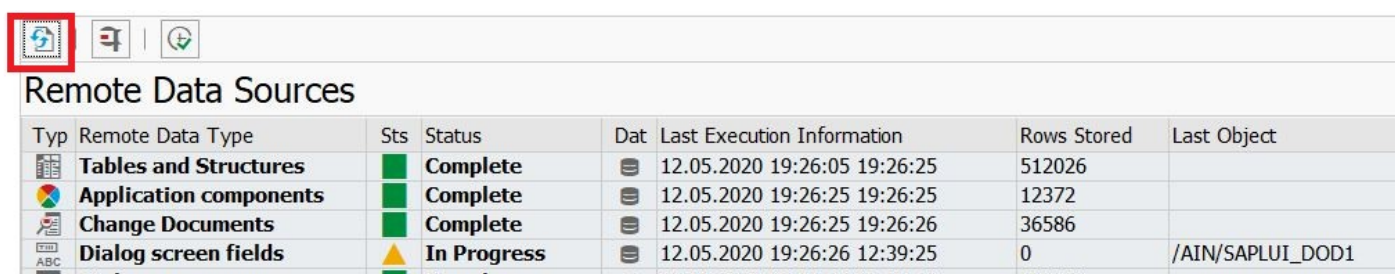


The screenshot shows the 'Remote Data Sources' table. A tooltip 'Execute extraction' is visible over the Refresh button icon in the top toolbar.

Typ	Remote Data Type	Sts	Status	Dat	Last Execution Information	Rows Stored	Last Object
	Data domains		Not executed		Never executed	No data	
	Data elements		Not executed		Never executed	No data	
	Table fields		Not executed		Never executed	No data	
	Tables and Structures		Not executed		Never executed	No data	
	Application components		Not executed		Never executed	No data	

**Note that some of the data extraction steps (in particular, the extractions of Dialog screen fields, Table fields and Program parameters) can take a very long time.**

If submitting the extraction in the background, you can check on the status of the extraction process from within this screen by using the Refresh button.



The screenshot shows the 'Remote Data Sources' table. The Refresh button icon in the top toolbar is highlighted with a red box.

Typ	Remote Data Type	Sts	Status	Dat	Last Execution Information	Rows Stored	Last Object
	Tables and Structures		Complete		12.05.2020 19:26:05 19:26:25	512026	
	Application components		Complete		12.05.2020 19:26:25 19:26:25	12372	
	Change Documents		Complete		12.05.2020 19:26:25 19:26:26	36586	
	Dialog screen fields		In Progress		12.05.2020 19:26:26 12:39:25	0	/AIN/SAPLUI_DOD1
	Dialog screen fields		Complete		12.05.2020 15:02:14 15:02:40	200050	

**Note that extracting all of the remote data from a system can take 18-24 hours.**

If you have already extracted the remote data for one system, then you can re-use this data, avoiding the need to re-run this process. To do this, go into Change Plan and change your source system, then navigate to the Remote Data tab.

You will see that the Remote Data Plan and Remote Data Sys. Name fields are editable via drop-downs. Select the plan whose remote data you wish to use, and the system field will be automatically updated, as will the extraction statuses of the remote data objects.

Modification of system TY1R

Identification

System name

TY1R

System short text

TY1 Recording

System description

Ty1 Source (Recording) System

Configuration

Remote Data




Remote Data Source Plan

Remote Data Plan







000590 Remote Data Job

Remote Data Sys. Name

TY1R TY1 Recording (Remote data last run 20200512 )

Remote Data Sources

Typ	Remote Data Type	Sts	Status	Dat	Last Execution Information	Rows Stored	Last Object
	<b>Tables and Structures</b>		<b>Complete</b>		12.05.2020 19:26:05 19:26:25	512026	
	<b>Application components</b>		<b>Complete</b>		12.05.2020 19:26:25 19:26:25	12372	

Click on the tick to confirm your selection, and then save the plan.

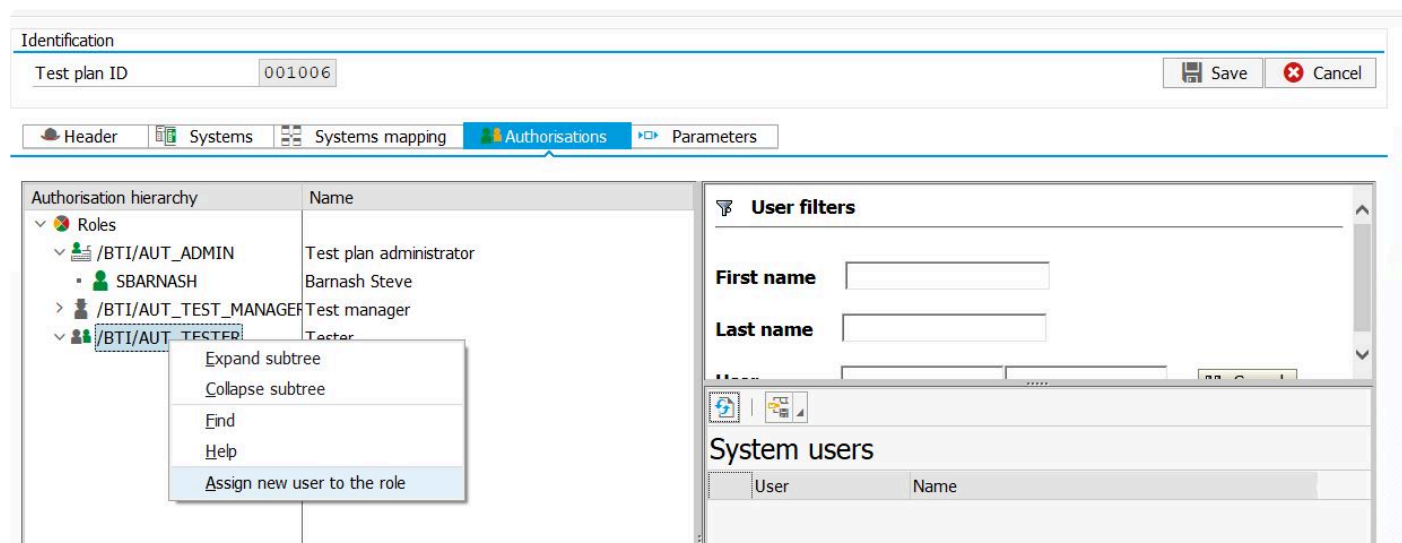
## 3.1.3. Authorisations

Testimony comes with three internal roles:

- /BTI/AUT\_ADMIN: The test plan administrator
- /BTI/AUT\_TEST\_MANAGER: The test manager
- /BTI/AUT\_TESTER: A tester role

Each test plan must have at least one administrator and by default the user who creates a test plan is automatically assigned to the test plan administrator role.

As an optional step, you can add users into your test plan that belong to one or more **“User Roles”**. A role represents a set of actions that users in that role are allowed to perform (e.g. activate a recording or view scripts). In this screen, you can control which users belong to which roles for the current test plan. To assign a user a role on a plan, right mouse click on the role and then search for the user and select them. Once you save the plan, the user is assigned to the role.

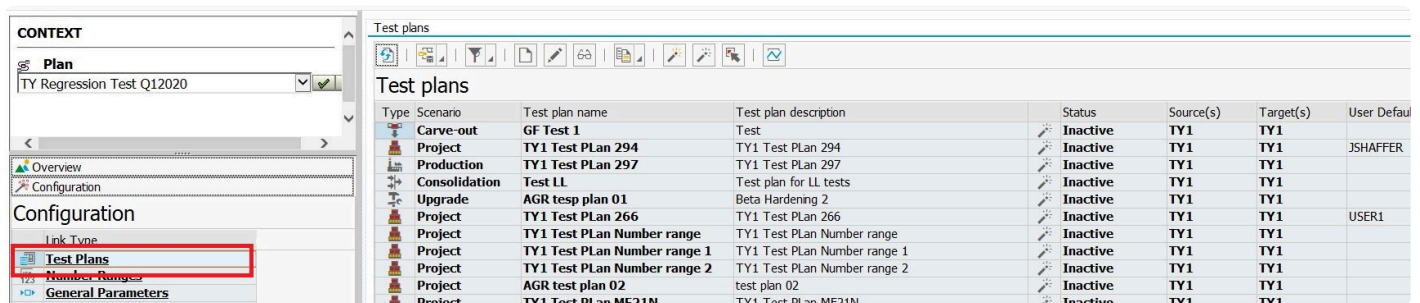


## 3.1.4. Managing Test Plans

As well as maintaining Test Plans from the Overview -> Change Plan screen (as previously shown) it is also possible to maintain them without first having to select the individual plan.

Navigate to Test Plans item from the Configuration section. You will see a list of all Test Plans defined in the system. From this screen you can perform the following actions to your Test Plans:

- Create Plan
- Display Plan
- Change Plan
- Copy Plan
- Activate Plan
- Deactive Plan
- Analyse Plan



Type	Scenario	Test plan name	Test plan description	Status	Source(s)	Target(s)	User Default
Carve-out		GF Test 1	Test	Inactive	TY1	TY1	
Project		TY1 Test Plan 294	TY1 Test Plan 294	Inactive	TY1	TY1	JSHAFFER
Production		TY1 Test Plan 297	TY1 Test Plan 297	Inactive	TY1	TY1	
Consolidation		Test LL	Test plan for LL tests	Inactive	TY1	TY1	
Upgrade		AGR test plan 01	Beta Hardening 2	Inactive	TY1	TY1	
Project		TY1 Test Plan 266	TY1 Test Plan 266	Inactive	TY1	TY1	USER1
Project		TY1 Test Plan Number range 1	TY1 Test Plan Number range 1	Inactive	TY1	TY1	
Project		TY1 Test Plan Number range 2	TY1 Test Plan Number range 2	Inactive	TY1	TY1	
Project		AGR test plan 02	test plan 02	Inactive	TY1	TY1	
Project		TY1 Test Plan MF21N	TY1 Test Plan MF21N	Inactive	TY1	TY1	

### Copy a Test Plan


If you have a test plan that you wish to duplicate, then the **Copy Test Plan** function allows you to do this, copying across not only the test plan header information but also the system assignments and mappings and the user assignments. This is a great time saver to creating new Test Plans

Simply select the Test Plan you want to copy and click the Copy Test Plan button. You have the choice to create the copy with a recorded data or not.



If you selected to copy with Recorded Data, you'll then need to give the new copied project a name and optionally select copying Filter Sets. Once these fields are complete, click the Execute button.

Copy Test Plan with recorded data



Selected Plan

Plan ID

001006

Test plan name

TY Regression Test Q12020

Copy to

Test plan name


☒ Copy Business Transactions

☐ Copy Filter Sets

## Deactivate Test Plan

By default, new test plans are created as active plans, meaning that they are available for selection in the drop-down list in the plan context menu. If you wish to remove a plan from this list (for example, if it is an old plan that should no longer be used) then you can deactivate from the configuration screen. Simply select the plan and click on the Deactivate Plan button and the plan's status will change to inactive.

Test plans



Test plans


Type

Scenario

Test plan name

Test plan description


Status



Project

TY1 regression Q4

Q4 2019 regression testing

 Inactive

Likewise, you can reactivate an Inactive Test Plan in order to make it visible in the drop-down list by selecting the Test Plan and clicking on the Active Test Plan button

Page 22 of 56

## 3.2. Performing a Recording

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### Overview

The Recording phase can occur once a Test Plan has been created with the associated Source and Target systems identified. It's important to have an understanding of the anticipated activity load on the source system to help guide the amount of time for which the recording should be active.

### Process Steps

- [Recording Preparation](#)
- [Start Recording](#)
- [Monitor Recording](#)
- [Stop Recording](#)

## 3.2.1. Recording Preparation

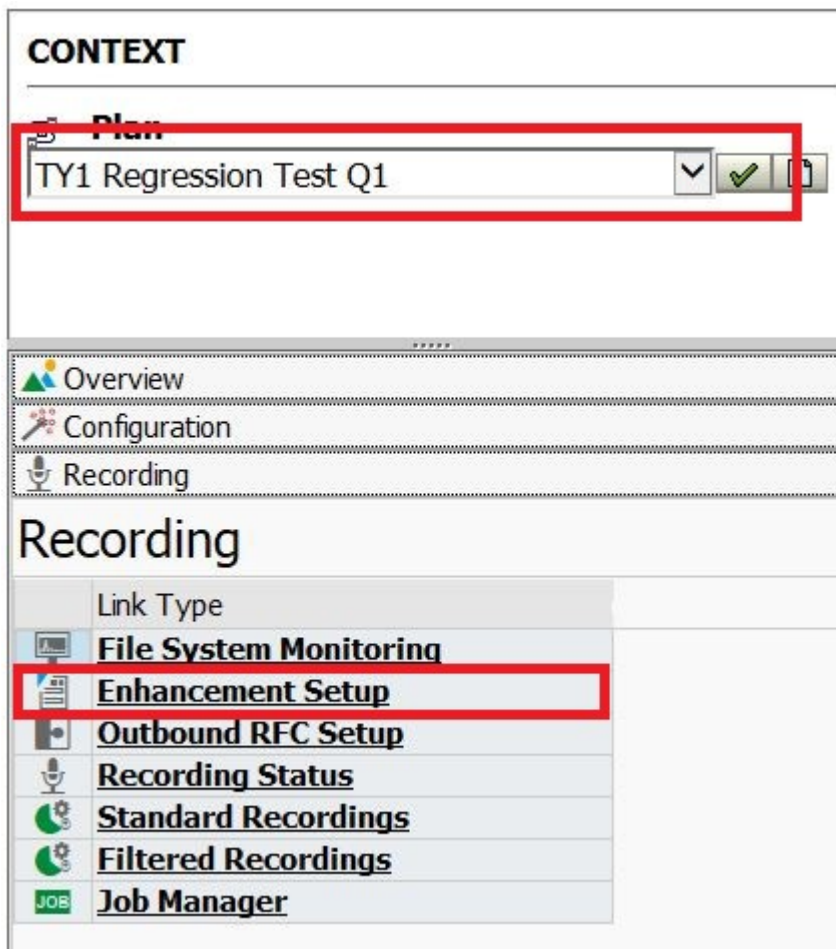
### Overview

When you are ready to run a test phase leveraging the recording / learning capability in Testimony, you need to first prepare the source systems.

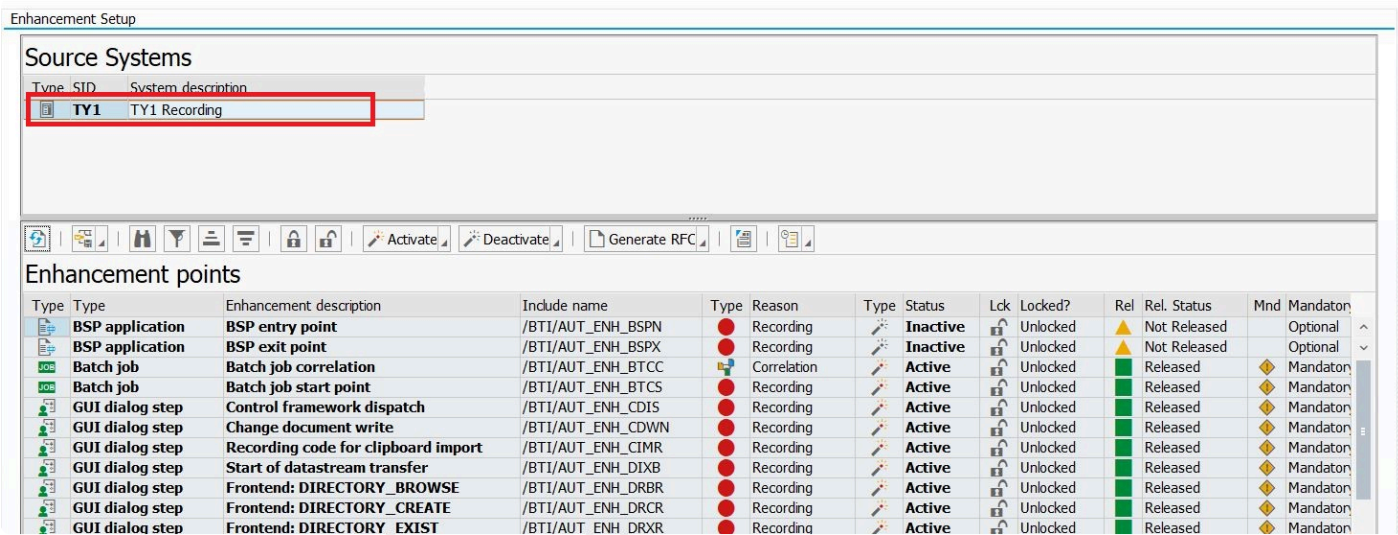
### Process Steps

1. Select Test Plan to use
2. Generate Inbound RFC Capture – Prepares for inbound RFC calls to be captured. This is an optional step and only needed once per recording system and only if you will be recording RFC calls.
3. Activate enhancements – Prepares the system for capture of all interactions.
4. Execute Check Steps – Validation that the Source system is ready for recording

**1. Select Test Plan from the drop down and click on the Tick. From there, you'll need to click on the Enhancement Setup option within the Recording Section**



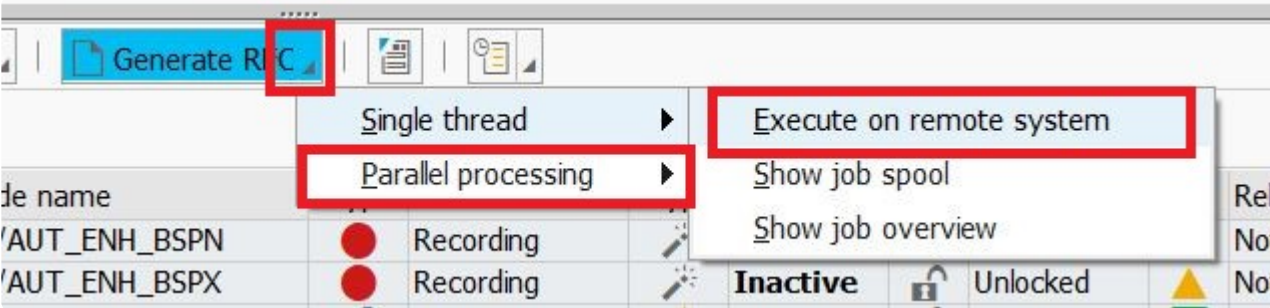
On the right panel, you'll see your defined Source System(s). Double click on the system to show the Enhancement Points screen below



## 2. Generating the RFC Wrapper Programs – OPTIONAL

If you are planning on recording RFCs, then you will need to generate the RFC wrapper programs. These are small pieces of code that are executed before and after each RFC function module is called in order to capture the required information for the playback.

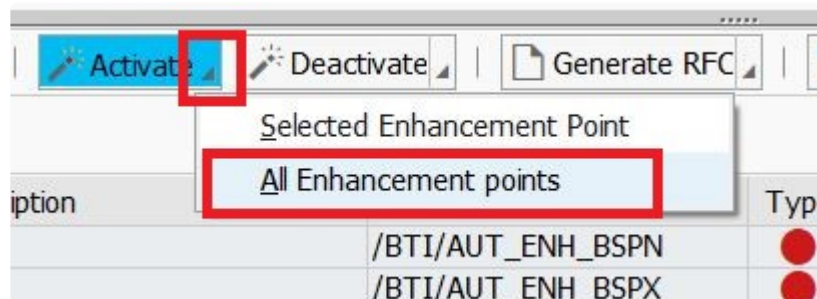
In the Enhancement Points section, click the button Generate RFC and select Parallel Processing -> Execute in Background.



This will submit several background jobs in the source system which analyse each RFC-enabled function module and create a wrapper program for it. This can take an hour or more to run, so execute this step well in advance of the time at which you want to start your recording.

## 3. Activating recording enhancements

Testimony enhancements need to be activated in the source (recording) system before a recording can take place, but after the optional Generate RFC step is complete. If you are not already there, navigate to the Enhancement Setup section and click on the Source system. You should see a list of enhancement points and their current status (which should be Inactive). To activate the enhancements, click the Activate button and then choose “All Enhancement points”



You will be shown a pop-up giving information on the number of enhancements to be activated. Click on Proceed and after a few seconds the enhancements will be activated.



Note that some enhancement points (with Locked and/or Unreleased statuses) will not be activated.

Type	Type	Enhancement description	Include name	Type	Reason	Type	Status	Lck	Locked?	Rel	Rel. Status	Mnd	Mandator
BSP application	BSP entry point		/BTI/AUT_ENH_BSPN	Recording	Inactive	Unlocked	Not Released	Optional					
BSP application	BSP exit point		/BTI/AUT_ENH_BSPX	Recording	Inactive	Unlocked	Not Released	Optional					
Batch job	Batch job correlation		/BTI/AUT_ENH_BTCC	Correlation	Active	Unlocked	Released	Mandatory					
Batch job	Batch job start point		/BTI/AUT_ENH_BTCS	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Control framework dispatch		/BTI/AUT_ENH_CDIS	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Change document write		/BTI/AUT_ENH_CDOWN	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Recording code for clipboard import		/BTI/AUT_ENH_CIMR	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Start of datastream transfer		/BTI/AUT_ENH_DIXB	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Frontend: DIRECTORY_BROWSE		/BTI/AUT_ENH_DRBR	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Frontend: DIRECTORY_CREATE		/BTI/AUT_ENH_DRCR	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Frontend: DIRECTORY_EXIST		/BTI/AUT_ENH_DRXR	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Override F4 settings in recording		/BTI/AUT_ENH_F4AX	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Frontend: FILE_COPY		/BTI/AUT_ENH_FCOR	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Frontend: FILE_EXIST		/BTI/AUT_ENH_FEXR	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Frontend: FILE_GET_ATTRIBUTES		/BTI/AUT_ENH_FGAR	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Dialog output flush		/BTI/AUT_ENH_FLUS	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Frontend: FILE_OPEN_DIALOG		/BTI/AUT_ENH_FODR	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Frontend: FILE_SAVE_DIALOG		/BTI/AUT_ENH_FSDR	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	ALV grid: Selected cells		/BTI/AUT_ENH_GRCL	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	Control framework ALV edit events		/BTI/AUT_ENH_GRID	Recording	Active	Unlocked	Released	Mandatory					
GUI dialog step	ALV grid: Selected columns		/BTI/AUT_ENH_GRSC	Recording	Active	Unlocked	Released	Mandatory					



When activating the recording enhancements for the first time after the transports are imported, you may see this error:

**“Failed to activate the enhancement point : Include /BTI/AUT\_ENH\_GRZC cannot be found...”**

If you encounter this error, follow the below steps to correct it.

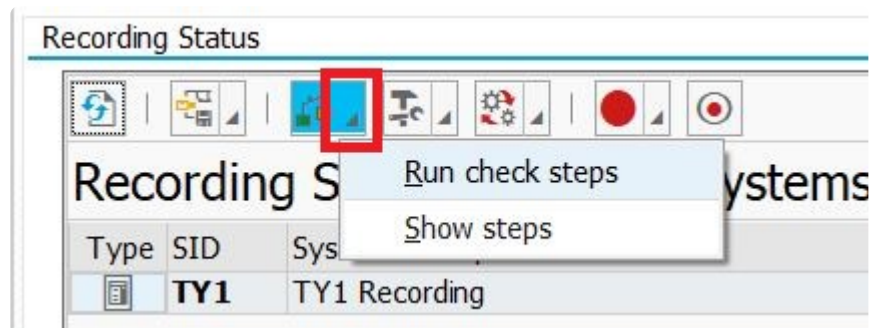
- In Testimony, deactivate all the recording enhancements
- In the Source System
  - Go to transaction SE24
  - Display class CL\_SALV\_GRZ\_CONTROLLER
  - Go to -> Sections -> Public section
  - Utilities -> Update navigation index
- Exit Testimony
- Open Testimony
- Activate the recording enhancements

## 4. Execute Check Steps

Once the enhancements are activated, you can execute the recording Check Steps  
Select Recording -> Recording Status from the left-hand navigation pane.



The Recording Status screen will appear on the right. Select the Source System and Click on the Check Steps button and choose “Run check steps”

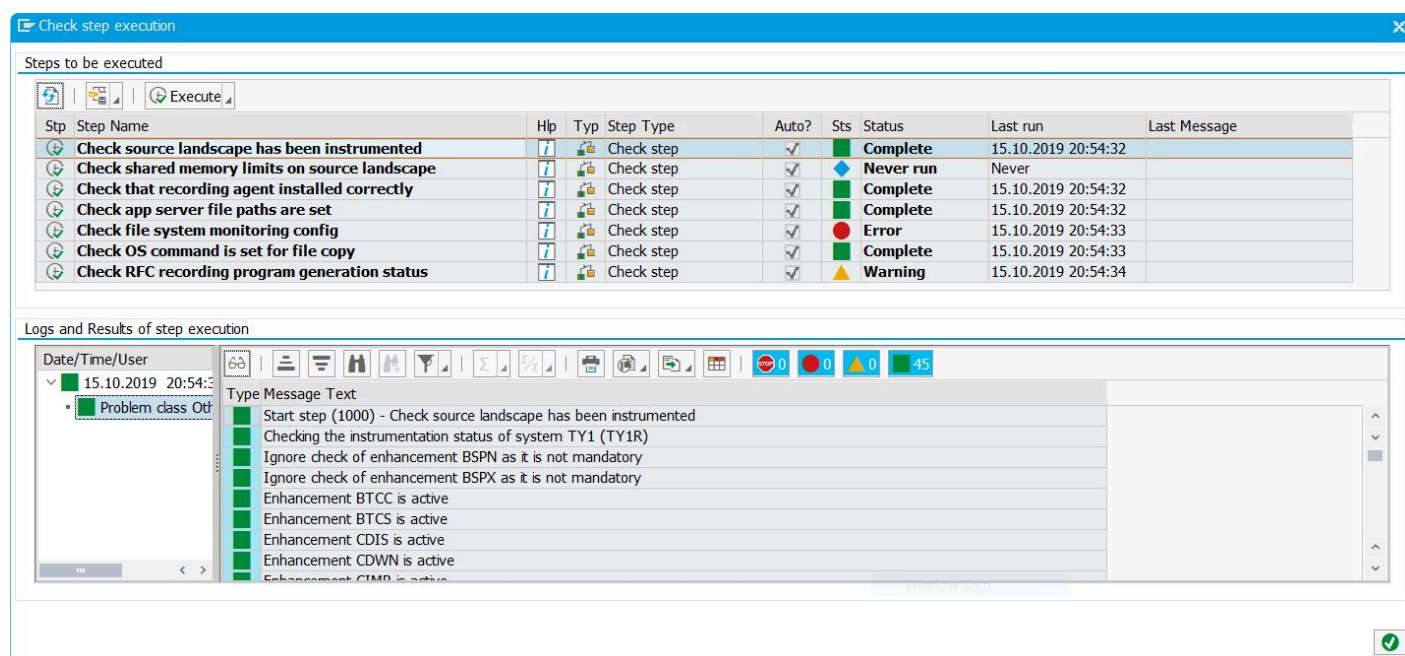


Choose Yes in the following pop-up.



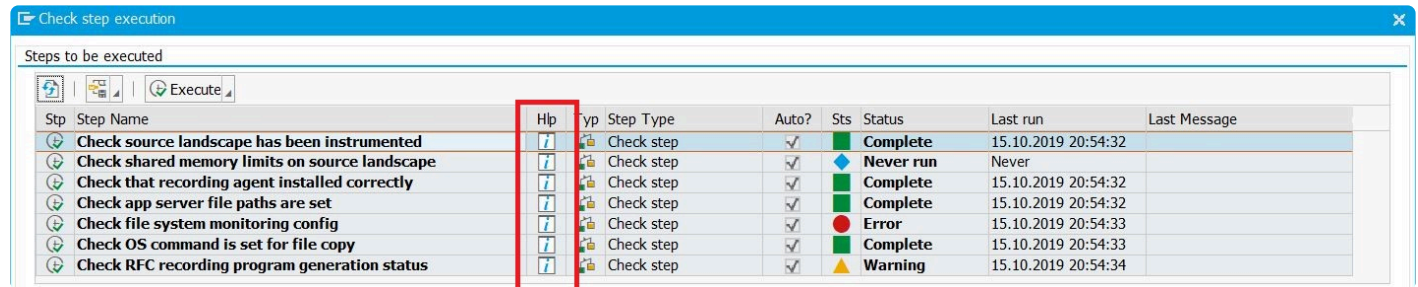
The check steps will run, and results will be returned in a pop-up screen, as below.

To help troubleshoot errors there are logs providing information on the error, double click on the line in error and then double click the log on the bottom left. The example below shows the error received if you do not active the Enhancement Points in the Source system.



There is also help available to guide you in resolving any Check Step errors. Simply click on the blue help

icon on the row in question.



You can also use the buttons below to hide the Information, Warning or Error messages if there are a large volume of messages to check.



Once you have finished analysing errors, close the pop-up screen and you can repeat the Check Steps as needed.

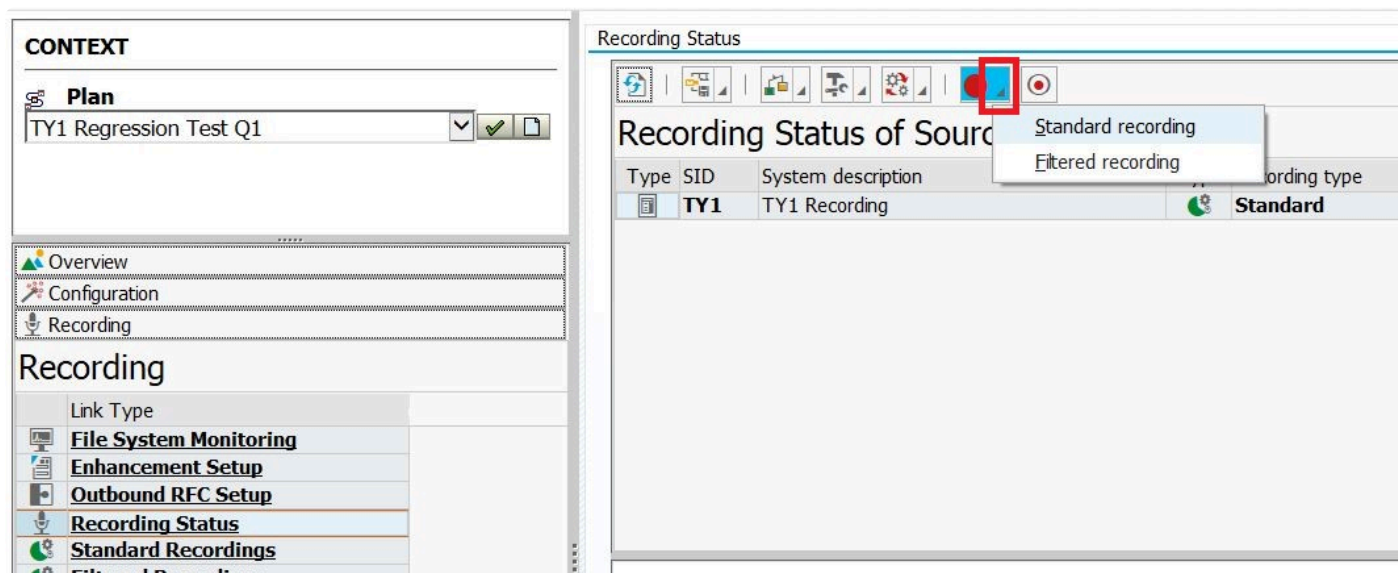
## 3.2.2. Start Recording

### Overview

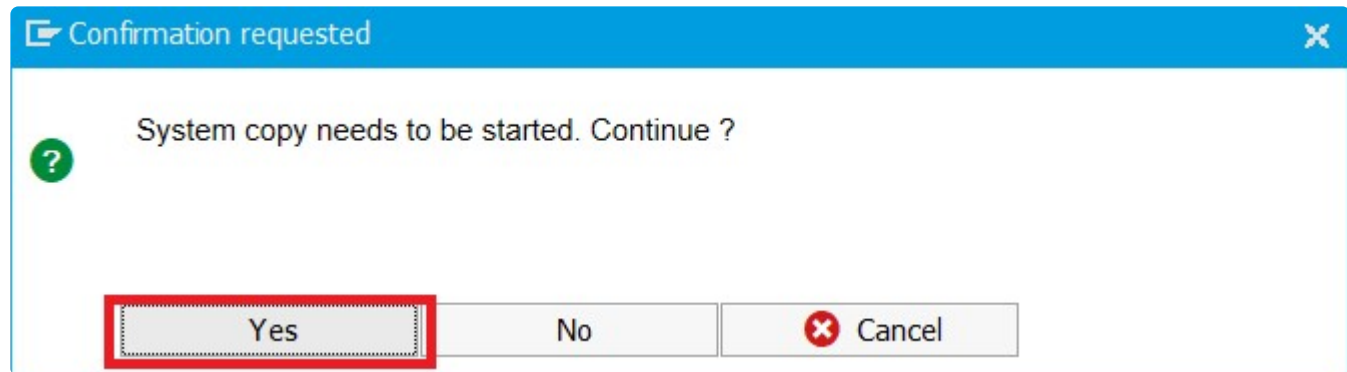
There are two types of recordings you can perform with Testimony. The most common and the one that will be shown below is a **Standard Recording**. A Standard Recording will record all activity in the Source system until the recording is stopped. The second type of recording is a **Filtered Recording** and is only needed when you want to limit your recording to particular users, transactions or activity types.

✿ It's a best practice to time the beginning of your system backup (or snapshot) to synch with the beginning of your recording for use in a point-in-time restore of the Playback system. Be sure to coordinate your activities with the technical resources required to create your backup.

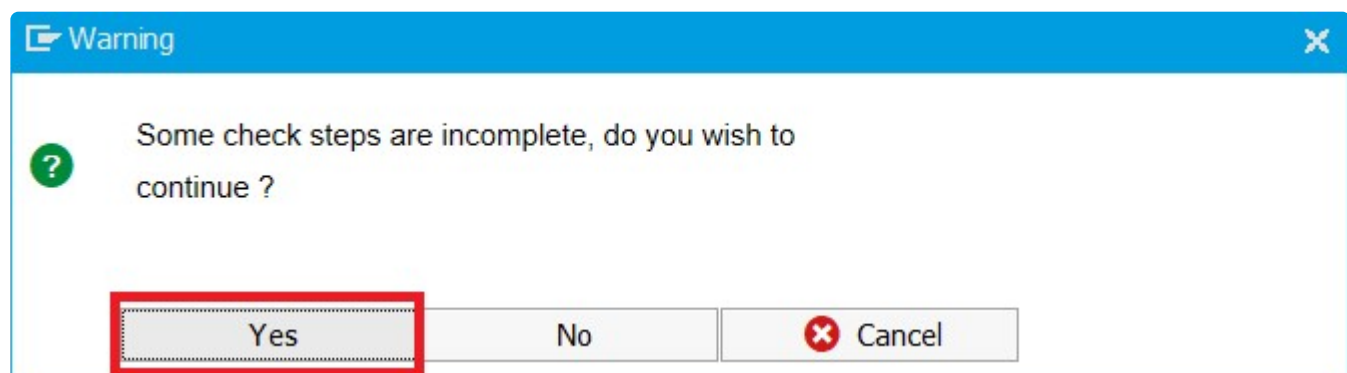
To start a Standard Recording, navigate to the Recording Status option on the Context Menu and then click on the Start Recording button and choose "Standard recording"



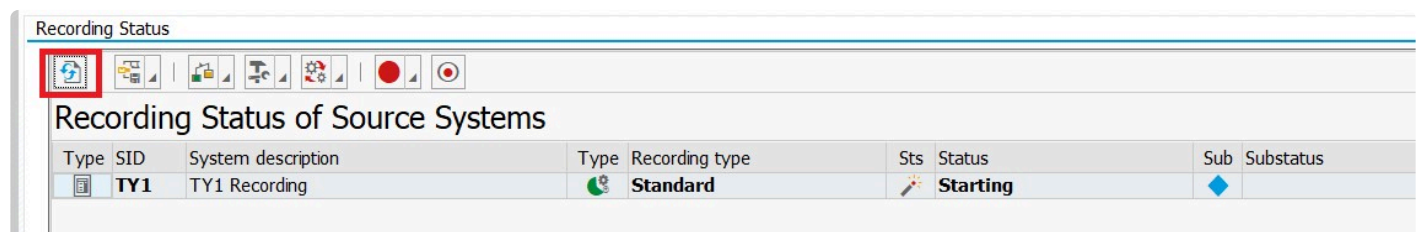
Confirm that you wish to continue at the next pop-up by clicking Yes. (This is just to remind you to initiate the backup from which the playback system will be built.)



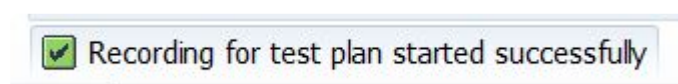
If not all of the check steps completed successfully you will get this pop-up. Click Yes if you've analysed the checks.



At this point, the recording should begin. To check, click on the refresh button until the status shows as Running.

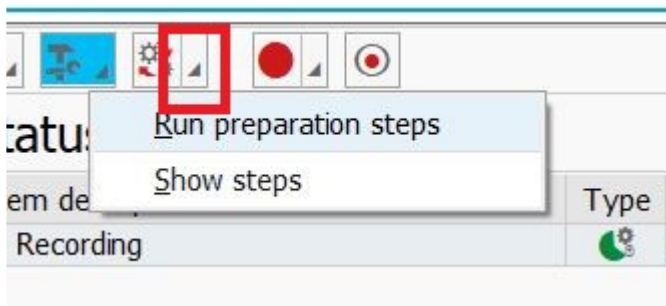


The SAP status bar will also show the following message

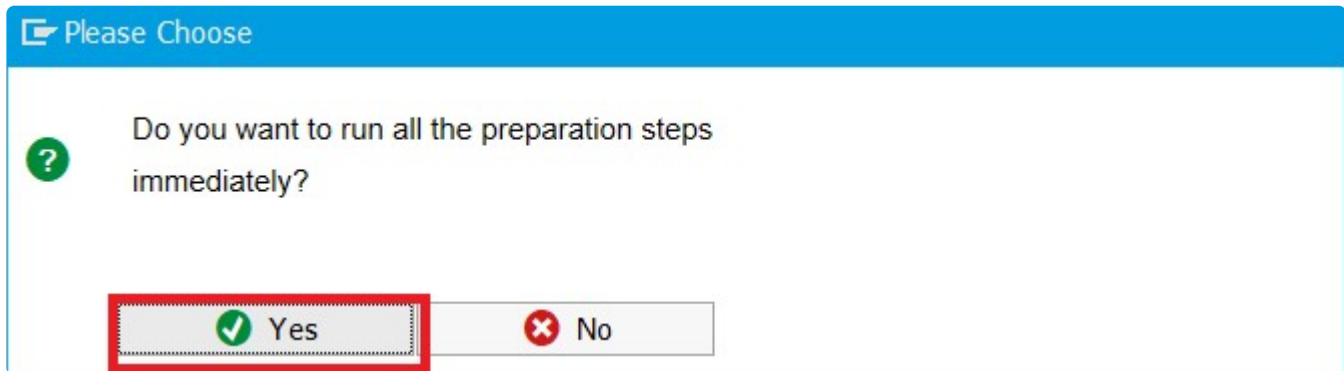


At the start of the recording process, Testimony will run "Preparation Steps". If any of these steps fail, then you will see the recording go into a "Preparation Error" status. In this case, you can check the results of the preparation steps by clicking on the Preparation steps button and choosing "Show steps". This will allow you to navigate to the logs for each step and analyse the cause of the problem.

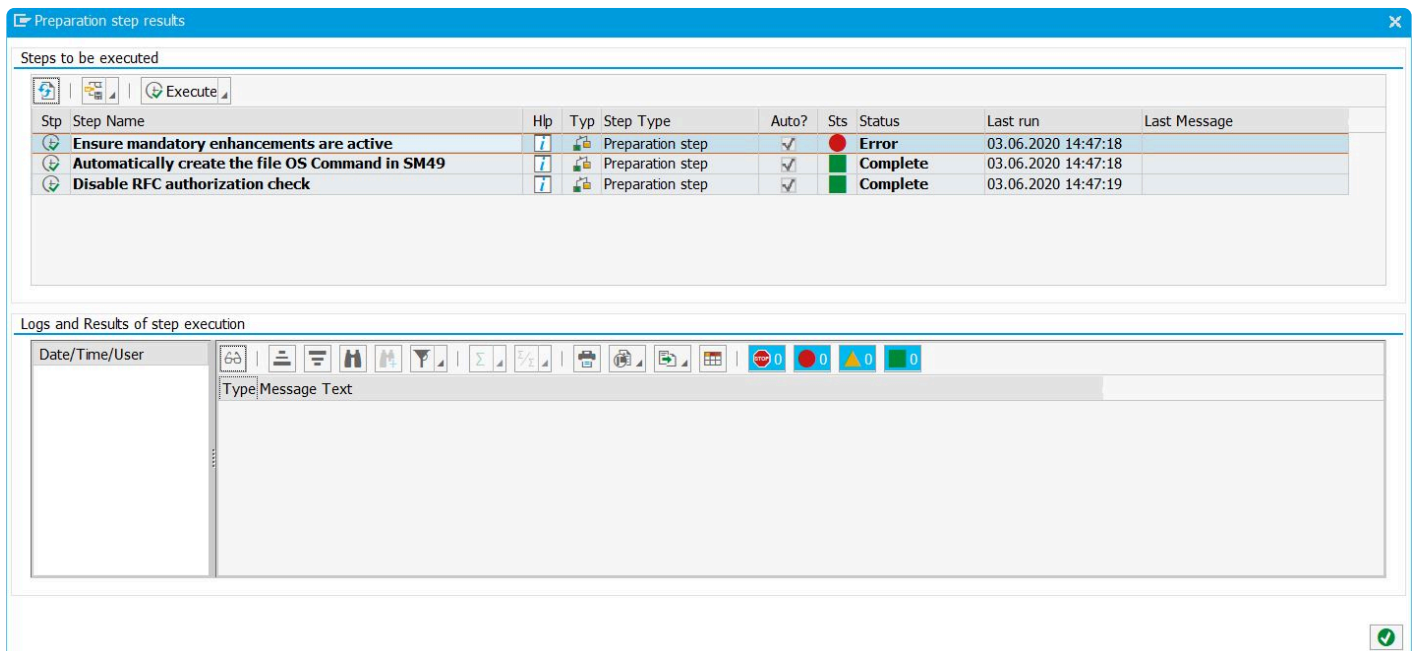
Once you have analysed and resolved any preparation errors, you can restart the playback.



Answer yes on the following pop-up:



The preparation steps should run successfully. If not, you will need to analyse the error.



Close this pop-up window.

## 3.2.3. Monitoring a Recording

---

### Overview

During the recording phase, which may last for any length of time, it is important whilst you become accustomed to Testimony that you monitor the production systems that are being recorded.

There are various standard SAP tools that can be used to monitor the SAP system for anomalies. Most of these transactions would be run directly in the system to be monitored. These include:

- (1) **Monitor Short-dumps (ST22)** – Testimony has been designed to ensure that it has no impact on production. However, in the early days of use of Testimony, you might like to ensure that users and batch jobs are not being impacted by monitoring for any short-dumps. Run transaction ST22 in the systems being recorded and look for any short-dumps directly specifying that Testimony related objects are involved (i.e. /BTI/AUT\* related objects). You might like to check this more regularly after recording is turned on (e.g. every 5 minutes), then reduce the frequency as the recording progresses (e.g. every 1 hour after the first hour of recording is complete).
- (2) **Monitor Long Running Processes (SM66)** – We recommend the use of SM66 (rather than SM50) since it is across all application servers of the system you are monitoring. In this transaction, you are looking for long running background processes that would usually be fast, this is to check for a batch job that has become long running.
- (3) **Monitoring Testimony jobs (/BTI/AUT)** – The main job that runs on the source system is /BTI/AUT\_SAVE\_BTRAN\_PERIODIC. Every minute, it saves data out of the shared memory and into the database and will run for the full length of the recording. The central system also checks this job is running to update the central system and ensure that the RFC connection to the source system is still operating.
- (4) **Monitor Shared Memory** – Testimony achieves what it does with near zero impact on production by using shared memory to save the recording before the job above runs to move this to the database. Shared memory is allocated per application server on the system being recorded and is set via the profile parameter **rsdb/esm/buffersize\_kb**. As a part of the installation there will be recommendations on the amount of shared memory that will be required.

To monitor shared memory in the Central System the “Shared Memory Explorer” should be used. It enables a view of all the app servers on one system as well as the objects contained in each app server’s shared memory, it details the memory availability and usage as well as the maximum objects available and their usage.

If the RFC user to the source system does not have the correct authorisations the Shared Memory Explorer view can be restricted. In this case you can use the SAP standard transaction ST02 on the source system to monitor each application server. This transaction only shows you the shared memory of the application server you are currently logged onto. In order to check other application servers, you should use transaction SM51 in order to jump between the application servers and then once switched, run transaction ST02.

You should be checking the row that says “**Exp./ Imp. SHM**”. The column “Alloc. KB” shows how much has been allocated for that particular application server. This should be reflected in the profile parameter setting in transaction RZ11. The current level of shared memory (the amount of free space) is then seen in the following column “**Freesp. KB**”. Other processes in SAP can use up the shared memory (not just Testimony), so this means you’ll see this value typically lower than what was allocated in the profile parameter.

The key task is to ensure that this value does not get close to zero (0KB) or any shared memory limits set with the “Shared Memory Limits” option. If the shared memory limit is reached or no shared memory is left then Testimony will abort the recording.

(5) **System Messages (SM21)** – You can check various system messages via transactions in SM21 whilst the recording is running. Short-dumps would be reflected in here. If there looks to be any anomalies that you do not expect, then investigate appropriately and if required, deactivate the recording.

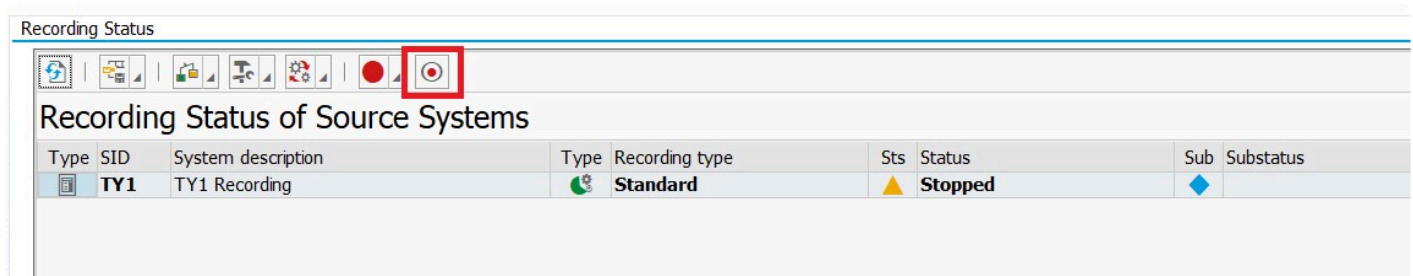
If any significant impacts are detected (e.g. from a performance or impact perspective), you can deactivate the recording immediately.

(6) **Recording Table Entries** – In the system being recorded (Source), new entries for captured steps will be written into table /BTI/AUT\_BUTR at least every 60 seconds as they are flushed from the shared memory. Depending on activity, this may be more frequent. To check that entries are still being written, go into transaction SE16 on the Source system and click ENTER. In the screen that follows, click on the “Nimber of Entries” button and verify that the row count is increasing.

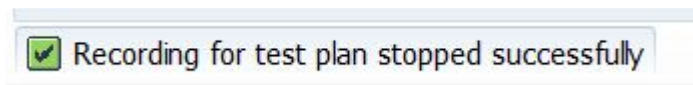
## 3.2.4. Stop Recording

Once you have executed the recording for the time period you planned, stop the recording as follows:

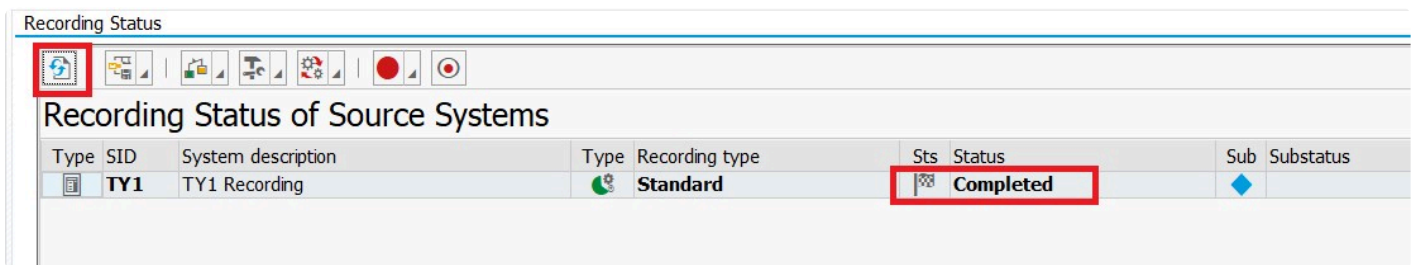
Navigate to Recording -> Recording Status. Double-click on the Recording Status row for your system and you should see your recording running in the Recording history pane.



The Recording status should change to **Stopped** and the SAP status bar will also show the following message



Press the refresh button, and you'll see the status move from Stopped, to Post-Processing, to Data Transfer, and finally to **Completed**. If you executed a long recording in a busy system, then the data transfer step can take some time.



One of the Post-Processing steps is to deactivate the Recording Enhancements on the Source system, but it's always good practice to doublecheck. Navigate to the Enhancement Setup option within Recording and review the Status. You may need to use the refresh button to get the most-up-to-date status of the enhancements.

**CONTEXT**

Plan  
TY1 Regression Test Q1

Overview  
Configuration  
Recording

Recording

Link Type  
File System Monitoring  
**Enhancement Setup**  
Outbound LDC Setup  
Recording Status  
Standard Recordings  
Filtered Recordings  
Job Manager

**Enhancement Setup**

Source Systems

Type	SID	System description
TY1		TY1 Recording

Enhancement points

Type	Type	Enhancement description	Include name	Type	Reason	Type	Status	Lck	Locked?	Rel	Rel. Status
BSP application		BSP entry point	/BTI/AUT_ENH_BSPN	Recording		Inactive		Unlocked		Not Released	
BSP application		BSP exit point	/BTI/AUT_ENH_BSPX	Recording		Inactive		Unlocked		Not Released	
Batch job		Batch job correlation	/BTI/AUT_ENH_BTCC	Correlation		Inactive		Unlocked		Released	
Batch job		Batch job start point	/BTI/AUT_ENH_BTCS	Recording		Inactive		Unlocked		Released	
GUI dialog step		Control framework dispatch	/BTI/AUT_ENH_CDIS	Recording		Inactive		Unlocked		Released	
GUI dialog step		Change document write	/BTI/AUT_ENH_CDWN	Recording		Inactive		Unlocked		Released	
GUI dialog step		Recording code for clipboard import	/BTI/AUT_ENH_CIMR	Recording		Inactive		Unlocked		Released	
GUI dialog step		Start of datastream transfer	/BTI/AUT_ENH_DIXB	Recording		Inactive		Unlocked		Released	
GUI dialog step		Frontend: DIRECTORY_BROWSE	/BTI/AUT_ENH_DRBR	Recording		Inactive		Unlocked		Released	
GUI dialog step		Frontend: DIRECTORY_CREATE	/BTI/AUT_ENH_DRCR	Recording		Inactive		Unlocked		Released	

If any are still Active, click on the Deactivate button to turn them off individually or all at once.

Enhancement points

Type Type Enhancement description Include

Activate Deactivate Generate RFC

Selected Enhancement Point  
All Enhancement points

## 3.3. Review Recordings/Transfer to Repository

### Verifying that recording has captured activity

After the recording has been completed, the captured recordings will be moved from the source systems into the central system. You are then able to review what has been captured. To check that your recording has captured activity (and that it was the activity you expected), click on the Standard Recordings or Filtered Recordings item (depending on the type of recording you ran) in the Recordings tray in the left-hand navigation pane.

**Business Transactions : standard recordings**

Type	SID	System description	Sessions	Steps	Started	Ended
TY1	TY1	TY1 Recording	754	6310	25.10.2019 11:35:05	25.10.2019 12:13:26

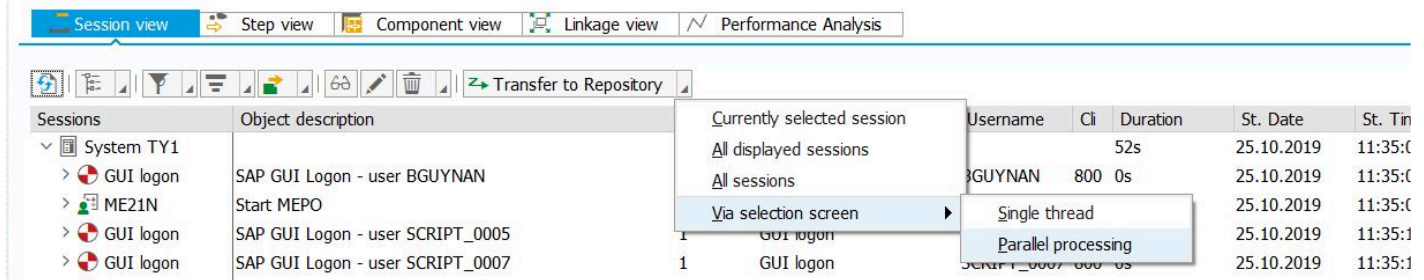
**Session view**

Sessions	Object description	Nb stp	Type	Username	Cl	Duration	St. Date	St. Time	Test script status
System TY1		100				52s	25.10.2019	11:35:05	
> GUI logon	SAP GUI Logon - user BGUYNAN	1	GUI logon	BGUYNAN	800	0s	25.10.2019	11:35:05	Test script cre
> ME21N	Start MEPO	8	GUI start transactio	BGUYNAN	800	46s	25.10.2019	11:35:08	Test script cre
> GUI logon	SAP GUI Logon - user SCRIPT_0005	1	GUI logon	SCRIPT_0005	800	0s	25.10.2019	11:35:18	Test script cre
> GUI logon	SAP GUI Logon - user SCRIPT_0007	1	GUI logon	SCRIPT_0007	800	0s	25.10.2019	11:35:18	Test script cre
> GUI logon	SAP GUI Logon - user SCRIPT_0003	1	GUI logon	SCRIPT_0003	800	0s	25.10.2019	11:35:18	Test script cre
> GUI logon	SAP GUI Logon - user SCRIPT_0001	1	GUI logon	SCRIPT_0001	800	0s	25.10.2019	11:35:18	Test script cre
> GUI logon	SAP GUI Logon - user SCRIPT_0006	1	GUI logon	SCRIPT_0006	800	0s	25.10.2019	11:35:18	Test script cre
> GUI logon	SAP GUI Logon - user SCRIPT_0002	1	GUI logon	SCRIPT_0002	800	0s	25.10.2019	11:35:18	Test script cre
> GUI logon	SAP GUI Logon - user SCRIPT_0004	1	GUI logon	SCRIPT_0004	800	0s	25.10.2019	11:35:18	Test script cre
> GUI logon	SAP GUI Logon - user SGARG	1	GUI logon	SGARG	800	0s	25.10.2019	11:35:19	Test script cre
> FB03	Display Document: Initial Screen	12	GUI start transactio	SCRIPT_0007	800	35s	25.10.2019	11:35:19	Test script cre
> VA03	Display Sales Order: Initial Screen	13	GUI start transactio	SCRIPT_0003	800	32s	25.10.2019	11:35:19	Test script cre
> FI03	Display Bank : Initial Screen	5	GUI start transactio	SCRIPT_0006	800	9s	25.10.2019	11:35:20	Test script cre
> GUI logon	SAP GUI Logon - user SCRIPT_0008	1	GUI logon	SCRIPT_0008	800	0s	25.10.2019	11:35:20	Test script cre
> CR13		10	GUI start transactio	SCRIPT_0005	800	31s	25.10.2019	11:35:21	Test script cre

The main thing to validate here is that the Start Date/Time from the recording is what you had planned. It's a best practice to keep your entire recording. You can easily remove individual components later in the process.

### Transfer Recording to Repository

In this step, the "business transactions" that have been generated automatically via the recording process must be first transferred to the test repository. At this stage you ensure that only those recordings are transferred that happened on or after the database snapshot is taken. Dialog/batch processes and user sessions that began prior to the start of the recording will not be considered viable and should not be transferred to the repository. This is performed by choosing the Transfer to Repository drop-down menu and choosing the method for transfer. For large recordings, it is recommended to transfer via selection screen and parallel processing.



Here is an example where the selection screen is used to select the exact time frame of when the recording and the system backup were in synch to ensure the most accurate recording.

### Transfer Business Transactions to Repository - Parallel processing

Technical Settings

Identification

Plan ID: 000829

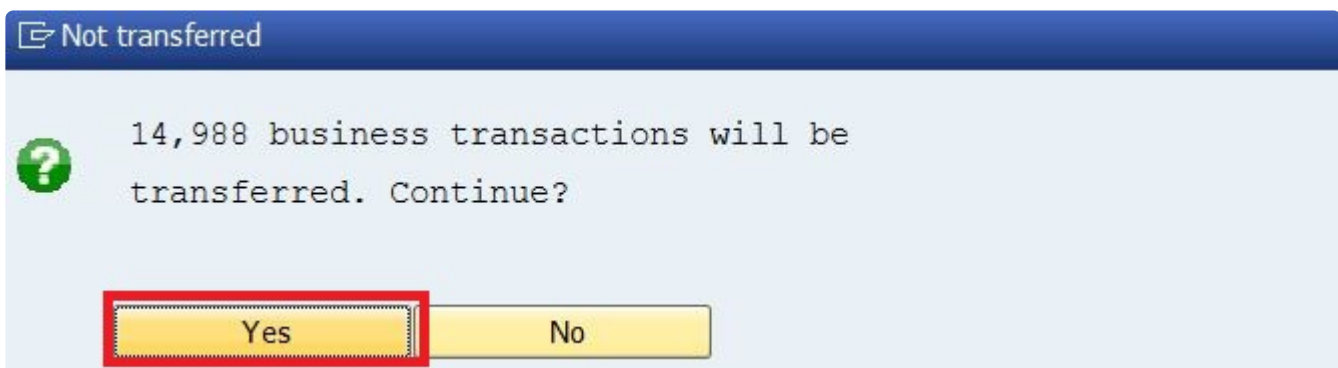
System number: TY1R

Recording type: 01

Selection criteria

Client	800	to		
Object type		to		
User name		to		
Object name		to		
Status		to		
Start date	02.06.2020	to	02.06.2020	
Start time	00:00:00	to	23:59:59	

Once you select your transfer option, you'll receive a pop-up box where you can click "Yes" to continue



At this point, your recorded scripts are stored in the Testimony Repository and can be used to create an Execution Queue. The Test Script status should show "Test Script Created"

Test script status	
<input checked="" type="checkbox"/>	Test script created
<input checked="" type="checkbox"/>	Test script created
<input checked="" type="checkbox"/>	Test script created
<input checked="" type="checkbox"/>	Test script created
<input checked="" type="checkbox"/>	Test script created
<input checked="" type="checkbox"/>	Test script created

## 3.4. Building the Execution Queue

### Overview

The test scripts that have been created in the test repository must be transferred to the execution queue in preparation for the playback process. For a given Test Plan, only a single active execution queue can exist. Historical execution queues can also be seen here.

### Process Steps

1. Select Test Plan to use
2. Navigate to the Repository
3. Select Standard Scripts or Filtered Scripts
4. Double click on the Source System which will display the list of scripts in the Repository for the selected Test Plan
5. Click on "Transfer to Execution Queue". If you've filtered the scripts when you transferred them to the repository, you can select all scripts. Otherwise you may want to narrow your selection via Selection screen

The screenshot displays the 'Testimony' software interface. On the left, the 'CONTEXT' pane shows 'Plan' with 'TY1 Regression Test Q1' selected. Below it, the 'Repository' pane lists various script categories: Business Scenarios, Standard Scripts, Filtered Scripts, Test Script Library, Script Transformation, and Maintain User Set. The main area is titled 'Test Script Repository' and contains a 'Source Systems' table.

Type	SID	System description	Scripts	Steps	Started	Ended
TY1		TY1 Recording	3056	9252	22.10.2019 13:43:07	22.10.2019 14:32:34

Below the table, there are tabs for 'Business scenarios', 'Session view', 'Script view', 'Component view', and 'Linkage view'. The 'Session view' tab is active, showing a list of sessions and a detailed view of the selected session. The 'Add to Execution queue' button is visible in the top right of the session view.

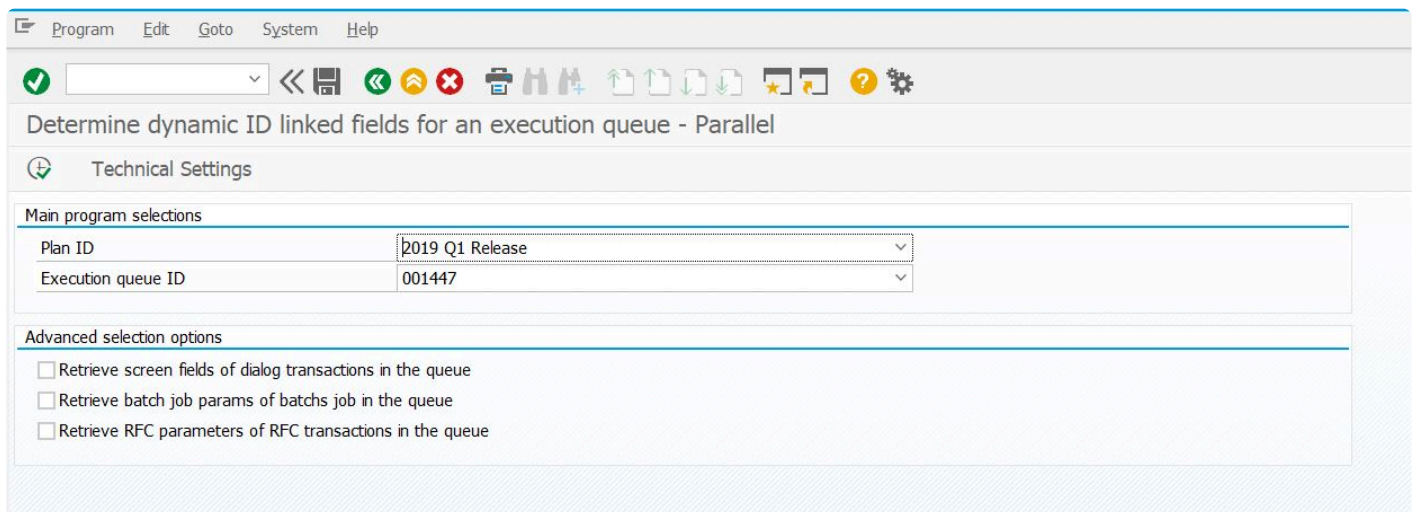
You will see the following status as the transfer is taking place



You will also see the following popup box to ask about the generation of Dynamic IDs.



it is highly suggested that you always run the Dynamic ID. If your recording is large, select “Multi Thread”. You’ll be taken to the follow screen where you select the the Plan ID and Execution ID for which you want to run the Dynamic ID process. If you choose not to run the dynamic ID process at this time, you will need to do so prior to starting the execution queue playback. This is done by selecting the execution queue in the list and clicking the “Dynamic ID Generation” button.



## 3.5. Analyzing Coverage

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### Overview

The recording process has effectively generated an entire test script library covering over N% of the customer's actual SAP system usage. The amount of coverage depends greatly on the length of the recording as well as the particular point in the business cycle when the recording was run. After the recording process is finished, the testing team can understand the level of coverage they have with the recording based upon the usage information of what the customer actually used over the past M months (where M is typically 3 months). If key transactions are missing (e.g. month end processes) then the coverage analysis within Testimony can provide this information. In this case, you can either test these processes outside of Testimony or look to include the periods when these processes run in your next Testimony recording.

There are a number of tabs in this functionality that perform the following functions:

#### 1. Usage Retrieval

This is where the process begins and Usage Retrieval forms the basis of all other functions in the coverage analysis functionality of Testimony. Usage Retrieval is performed for all of the source systems in order to understand what the customer actually uses (and how often) over a configurable period. The SAP-standard period for retention of this information in the source system is three months. A **“usage retrieval run”** is generated for a given source system in the current test plan. This usage retrieval is performed at any time prior to the customer running the playback process of Testimony. It forms the basis for the following two functions – auto object prioritization and the coverage analysis itself.

#### 2. Prioritization

Prioritization is a method by which all objects in the system (e.g. RFC's, dialog transactions). There are 3 aspects to prioritization which should be performed in the following order:

- (1) Library based object prioritization
- (2) Customer defined object prioritization
- (3) Automatic object prioritization based up usage data

##### 2.1 Library based object prioritization

These are classified by type of system (ECC, CRM, BW etc) and then by application component. The majority of these are typically critical period end processes. These are core objects that run infrequently but are important from a regression testing environment.

##### 2.2 Customer defined object prioritization

The determination of an object's priority is according to the following order:

- Automatic object priority
- Library defined object priority
- Customer defined object priority

This means that if a customer has defined the priority for a particular object (e.g. a month end report), then this will have the highest precedence over an object that is defined in the Testimony delivered library which then has priority over the automatically determined priority (based upon usage data).

Hence, in this part of Testimony, the customer can define objects that have higher priority than what may have been automatically determined.

### **2.3 Automatic object prioritization**

In order to determine the “criticality” of objects for the business, the core principal in this functionality is to look at how often it is used. The automatic object prioritization function in Testimony is run for a particular source system of the current test plan and for a previous “usage retrieval run” (as per the previous section 1). It is also possible to specify what percentage of frequently used objects are classified as “critical”, “high”, “medium” and “low”.

After the automated prioritization has been executed, all used objects will be automatically classified with a priority. This priority can be navigated and seen in the tree control in the lower half of the screen after selecting a particular source system. These priorities are broken down by the application component. It is possible to see both the automatically assigned priority plus whether this has been over-ridden by either the standard library or it has been customer defined.

### **3. Coverage Analysis**

The final stage of the process is to execute the coverage run analysis itself. This is run for a particular source system, a selected usage retrieval run and based upon the contents of a selected execution queue. You can trigger this by selecting a particular system and then running the coverage analysis program.

The results of this run will provide you with a full coverage analysis of how closely the recorded transactions match what the usage data indicates the customer uses. It is possible to see the exact coverage percentage. For the missing objects (that are not covered) it is immediately visible what the missing % is by Critical, High, Medium and Low priority objects/processes.

## 3.6. Performing a Playback

---

### Overview

The playback process can be run in approximately the same time as the recording phase. However, this time can be reduced dependent upon the amount of bots you have available as well as the size of the target system(s) you are playing back into. The transaction volume from the recording also has an impact upon the playback time.

### Process Steps

- [Preparing Playback](#)
- [Start Playback](#)
- [Monitor Playback](#)
- [Stop Playback](#)

## 3.6.1. Preparing Playback

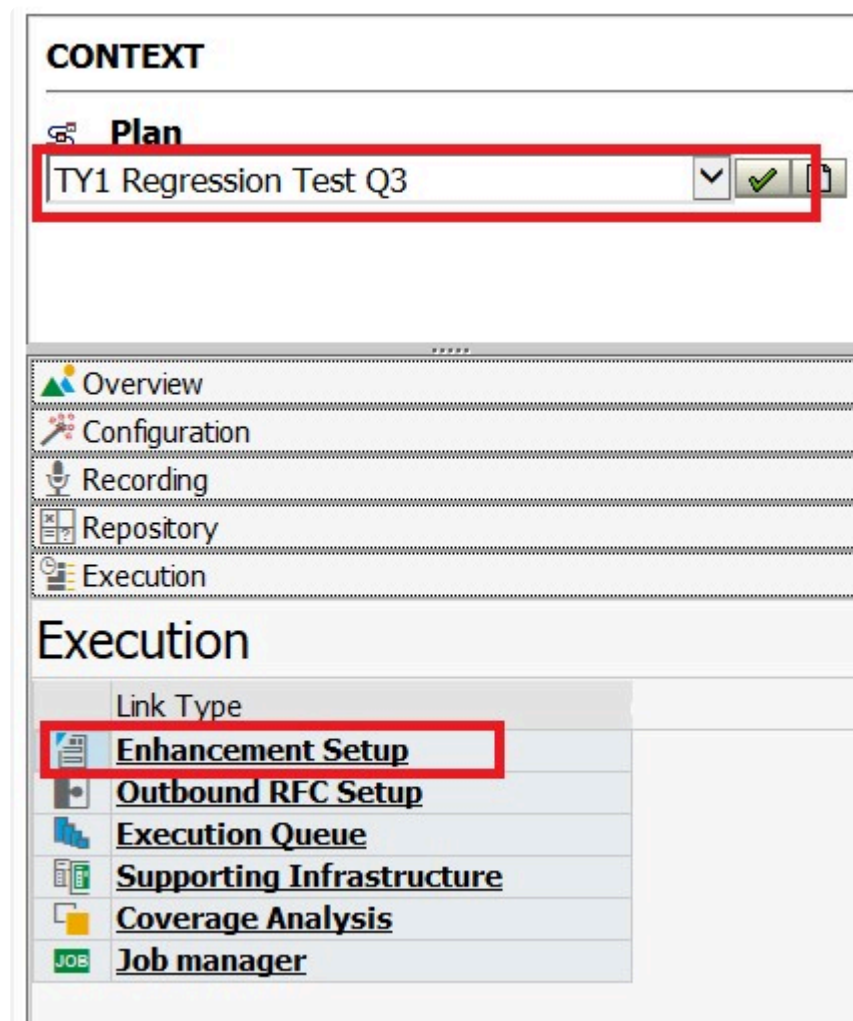
### Overview

When you are ready to run a test phase leveraging the Playback capability in Testimony, you need to first prepare the Target system.

### Process Steps

1. Select Test Plan to use
2. Activate enhancements – Prepares the system for playback of all interactions.
3. Execute Check Steps – Validation that the Target system is ready for playback
4. Reset Date and Time of Target system
5. Start the Bots

1. Select Test Plan from the drop down and click on the Tick. From there, you'll need to click on the Enhancement Setup option within the Execution Section



## 2. Click on the “Activate” button and select “All Enhancement Points”

Enhancement Setup

**Target Systems**

Type	SID	System description
GUI	TY1	TY1 Playback

Enhancement points

Selected Enhancement Point  
All Enhancement points

Type	Type	Enhancement description	Type	Reason	Type	Status	Lck	Locked?	Rel	Rel. Status	Mnd	Mandat
GUI dialog step	Change document write	/BTI/AUT_ENH_CDWP	▶	Playback	⚙️	Inactive	🔒	Unlocked	■	Released	◆	Mandat
GUI dialog step	Playback code for clipboard import	/BTI/AUT_ENH_CIMP	▶	Playback	⚙️	Inactive	🔒	Unlocked	■	Released	◆	Mandat
GUI dialog step	Frontend: DIRECTORY_BROWSE	/BTI/AUT_ENH_DRBP	▶	Playback	⚙️	Inactive	🔒	Unlocked	■	Released	◆	Mandat
GUI dialog step	Frontend: DIRECTORY_CREATE	/BTI/AUT_ENH_DRCP	▶	Playback	⚙️	Inactive	🔒	Unlocked	■	Released	◆	Mandat
GUI dialog step	Frontend: DIRECTORY_EXIST	/BTI/AUT_ENH_DRXP	▶	Playback	⚙️	Inactive	🔒	Unlocked	■	Released	◆	Mandat















3. Execute Check Steps – Similar to the recording, the playback has a set of check steps that can be run against it in order to validate that the system and test plan are ready for playback. Run all check steps and evaluate the results to determine readiness for playback.

4. Reset system date and time – For each target system, set the system date and time on each application server back to the time that the system copy was taken. This ensures that the playback is done into the system as it was when the recording was taken. This may require that the SAP system is taken down first and then restarted in order to achieve this. This can be done either by setting the operating system clock on the server(s) or by using TimeShiftX.

Once the above steps are performed, the system(s) are now ready to be played back into.

5. Start the Bots – The playback is executed via the Testimony Bots that run on Windows machines. The size of the recording will drive the number of Bots required.

Navigate to the relevant folder on your Bot machines (local or VM) and double-click on the AutExternalAgent executable file.

	output_20181220075756	20/12/2018 07:57	Text Document	1 KB
	output_20181214222833	17/12/2018 17:49	Text Document	252 KB
	output_20181214010424	14/12/2018 22:28	Text Document	322 KB
	output_20181212170307	12/12/2018 21:21	Text Document	427 KB
	sapnco_utils.dll	12/12/2018 07:44	Application extens...	5,535 KB
	libicudcnumber.dll	12/12/2018 07:44	Application extens...	51 KB
	sapnco.dll	12/12/2018 07:44	Application extens...	500 KB
	rscp4n.dll	12/12/2018 07:44	Application extens...	3,295 KB
	AutExternalAgent	12/12/2018 01:24	Application	111 KB
	output_20181211190016	11/12/2018 23:46	Text Document	100 KB
	output_20181211010042	11/12/2018 02:25	Text Document	235 KB
	dev_nco_rfc	11/12/2018 02:23	Text Document	22 KB
	output_20181211001954	11/12/2018 00:59	Text Document	11 KB
	output_20181204012057	06/12/2018 01:49	Text Document	3,377 KB

The Bot will start in a command prompt window.

```

C:\Users\tstwt306\Desktop\Testimony Bot\AutExternalAgent.exe
Basis Technologies Testimony
External Agent (v2.5.13)
[07:57:56.6142] [success] Configuration file read: config.xml
[07:57:56.6142] [success] SAP GUI path added: "C:\Program Files (x86)\SAP\FrontEnd\SAPGui"
[07:57:58.6611] [info] Retrieving the program ID from the central system
[07:58:01.4893] [success] Program ID received: AUT_DRONE_0002
[07:58:01.4893] [debug] Screenshots enabled
[07:58:01.4893] [debug] Registration count: 3
[07:58:01.5049] [debug] Starting RFC server...
[07:58:02.6301] [debug] RFC server startup complete

```

Startup is complete once you see the "RFC server startup complete" message.

Repeat for all Bots that you want to start for this playback.

Validate the BOTs are running with their screens unlocked. This step is essential for recording screenshots. The screenshots require an active graphics context, which is disabled when the Windows desktop screen is locked.

You can verify that the Bots have successfully registered with Testimony by navigating to Execution -> Supporting Infrastructure in the central system.

CONTEXT

Plan

TY1 Regression Test Q3

Overview

Configuration

Recording

Repository

Execution

Execution

Link Type

Enhancement Setup

Outbound RFC Setup






















Execution Queue

Supporting Infrastructure

Coverage Analysis

Job manager

In the right-hand pane, you should see that the Bots you started have a status of Ready.

Additional Supporting Systems										
Typ	Sys Type	Sts	Agent Status	System ID	Terminal ID	Host User	ID	IP Address	Registered Name	OS Op. System
	Playback Bot		Inactive	KMC laptop	DESKTOP-S599L7R		1			 Windows 8.1
	Playback Bot		Inactive	DC Laptop	XPS13-DCAPO		5			 Windows 10
	Playback Bot		Inactive	BP Connect	BT11102		6			 Windows Server 2008
	Playback Bot		Ready	VM1	SKLRWX7BVDPF2-L		2		AUT_DRONE_0002	 Windows 10
	Playback Bot		Inactive	VM2	USUNWX745FPF2-L		3			 Windows 10
	Playback Bot		Inactive	VM3	SKLRW787ZVMX1-L		4			 Windows 7
	Playback Bot		Inactive	VM4	USUNWX1F6DPF2-L					 Windows 10

## 3.6.2. Start Playback

### Overview

Once the execution queue is built from the repository, the target system is prepared and the Bots are started, the execution queue can be started

### Process Steps

1. Select Test Plan to use
2. Navigate to the Execution Queue
3. Select Standard Scripts or Filtered Scripts
4. Click on “Start Execution Queue” button

The screenshot displays the Testimony software interface. On the left, the 'CONTEXT' panel shows the 'Plan' dropdown set to 'TY1 Regression Test Q1'. Below this, a sidebar lists various modules, with 'Execution Queue' highlighted by a red rectangle. The main area on the right is titled 'Execution queues' and contains a table with the following data:

Type	Queue type	Sts	Status	Tot	Run	Pass	Fail	Suppr.	No result
	Standard queue	◆	Ready	Z	0	0	0	0	

Below the table, there is a navigation bar with tabs for 'Monitoring', 'Business scenarios', 'Script view' (which is active), 'Item view', and 'Component view'.

When the “Start Execution Queue” button is selected, the check steps will be “checked” to ensure that all have passed ok. If not, you will be prompted as to whether you want to proceed. The first step of the job is to run the “preparation steps”. You do not need to run these manually as the execution queue will automatically do this. If any issues arise as a result of this, you will need to investigate the preparation step logs in order to determine if you would still like to proceed or not.

Once the status of the execution changes to “In Process”, this means that the queue is running. At this point, you should begin to monitor the playback.

## 3.6.3. Monitor Playback

From within the Execution Queues window, click on the Monitoring tab to see status information for the playback.

The screenshot displays the SAP Testimony Monitoring interface. The left sidebar contains a 'CONTEXT' section with 'Plan' selected, showing 'RTQ Testimony 2.20 Test'. Below this is an 'Execution' section with various links like 'Link Type', 'Enhancement Setup', and 'Outbound RFC Setup'. The main area is divided into several panels:

- Execution queues:** A table showing the status of the 'Standard queue'. It is currently 'Processing' with 17792 total steps, 2147 run, 360 pass, 1666 fail, and 0 suppressed. The error count is 127, and the completion percentage is 12.13%.
- Monitoring:** The active tab, showing 'Execution Queue Blocks' and 'Recently Executed Steps (Updated: 11:57:21)'.
 

Type	Block Type	Bk ID	Sts	Status	Steps	Comp %	Rec. Dur	PB. Dur	Bot	Worker Job
Good	Re	1269	Running	1	0.00%	0.100 s	0.000 s			
Good	Re	2204	Running	1	0.00%	0.001 s	0.229 s			
Good	Re	2205	Running	1	0.00%	0.001 s	0.000 s			
Good	Re	2206	Running	1	0.00%	0.001 s	0.000 s			
Good	Re	2207	Running	1	0.00%	0.001 s	0.000 s			
Good	Re	2208	Running	1	0.00%	0.001 s	0.000 s			
Good	Re	2209	Running	1	0.00%	0.000 s	0.000 s			
Good	Re	2210	Queued	1	0.00%	0.000 s	0.000 s			

Res	Result	Typ	Step Type	EQ Step ID	Time Ago	Rec. Dur	PB. Dur	Object	Step name	Seq	Bot	Server Job
Failed	Web service	0000292252	0s ago	0.000 s	0.206 s	DOLCAS	2372	075H0046W	051MkZdh7jcyv6P			
Failed	Web service	0000292210	0s ago	0.001 s	0.229 s	DOLCAS	2369	032H0040H	051MkZdh7jcyv6P			
Failed	Web service	0000292236	0s ago	0.001 s	0.224 s	DOLCAS	2368	00TH0041S	051MkZdh7jcyv6P			
Failed	Web service	0000292225	0s ago	0.001 s	0.226 s	PRIG	2365	075H0046W	051MkZdh7jcyv6P			
Failed	Web service	0000292219	0s ago	0.001 s	0.229 s	PRIG	2364	011H0060U	051MkZdh7jcyv6P			
Passed	Web service	0000292215	0s ago	0.001 s	0.233 s	JCR_G	2363	032H0040H	051MkZdh7jcyv6P			
Failed	Web service	0000292207	0s ago	0.001 s	0.211 s	PRIG	2361	075H0046W	051MkZdh7jcyv6P			
- Active Bots:** A table listing active bots with columns for OS, Bot Name, Machine, RFC Dest., Sts, and Status. Active bots include CO1TH0040T, 032H0040H, 011H0060U, and 075H0046W.
- Server Jobs:** A table listing server jobs with columns for Job name, Typ, Job Type, Cur Block, Sts, Job Status, and Sts. Jobs include /BTI/AUT\_EXEC\_QUEUE\_P, 051MkZdh7jcyv6P, and 051MkZdh7jcyv6P.

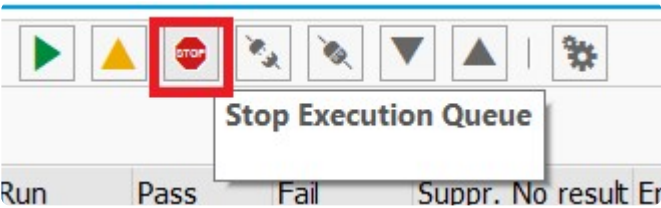
This shows information on (reading clockwise from top-left) the currently-running execution queue blocks; the active Bot(s); the jobs that are running in the central system to manage the playback; and the most recently executed steps.

You can refresh the top-level to update all the individual results windows, or you can refresh each window independently. You can also log into the Target system to view currently running activities.

If you have visibility of the bot machines, you should start to see the bots performing the playback steps. This might be via the SAP GUI, but equally the console will show you if it is running other steps such as RFC's and batch jobs.



## 3.6.4. Stop Playback

In normal circumstances, you would allow a playback to complete running all of its scripts, at which point it will stop automatically. However, if you need to stop a playback early for any reason, then you can do so by pressing the Stop Execution Queue button.



The playback will enter status Stopping, followed by Post-Processing and then Stopped.

Execution Queues

Type	Queue type	Sts	Status	Tot	Run	Pass	Fail	Suppr.	No result	Error	Canc	Not Run
	Standard queue		Stopped	3056	19	18	0	0	0	1	0	3028

## 3.7. Review Playback Results

---

### Overview

When Testimony records the live production system(s), it captures “inputs”, “outputs” and certain “linkages” that occur in-between. When the playback is repeated into the test system(s), Testimony will automatically check that the actual output matches the expected output that occurred in the live system. If there are linkages that were recorded, it will compare these as well. Once the playback process has completed (either partially or fully), you are then able to start reviewing the results of the output. However, you are able to review the results whilst the playback is still on-going.

### Process Steps

The task at this stage is to review the results and decide whether there are any fundamental regression issues. If there are, then defects should be raised against these for resolution. Once enough critical defects are resolved, it is possible to re-run the playback against a restored version of the test system. This restored system should also then have the defect resolutions (typically transport requests) applied to them prior to re-running the playback process.

To begin, navigate to the “Results” drawer in Testimony then select the “Result Overview”. Double click the execution queue that you want to review. Then navigate to the tab “Failure Overview”.

The Failure Overview breaks down the results of the playback by the following:

**(1) Application component** – This is the functional area. The lowest level is displayed first and then the top level application component next. This is determined by the application component that the object that has failed belongs to. For example, VA01 belongs to Sales and Distribution.

**(2) Criticality** – The criticality of the failure depends upon the “Coverage Analysis” functionality in Testimony. To get the criticality, you must have executed the automated criticality determination first. This decides criticality based upon how often a given interaction is used, but this can then be over-ridden by a library which can dictate that less often used transactions can have their criticality increased.

**(3) Reason for Failure** – The reason for failure will be determined by the type of interaction. So dialog transactions have one set of failure reasons and RFC's have a different set. More information about a failure reason is available within the “Failure Overview” transaction by selecting the “Information” icon.

You should start by focusing in on your functional area that is relevant to you. You can then expand a particular area out and review the failures in that area by expanding the area and reviewing the reasons for failure. Start with the Critical failures and then work your way to the right by High, Medium and Low. When you click on a count (of failures), the screen will popup with the list of failures in that area.

You should then review these failures by checking the reason for failure and the comparing what was expected with what actually happened. This is available by clicking the hot-spot icon with column “Act”

(Actual results). A popup window will appear with what was expected on the left and the actual results on the right. Depending upon the type of interaction (dialog transaction, RFC, batch job) you'll see different expected versus actual results here.

## 4. Glossary

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### Bot

The bot is an executable program that resides on a windows machine (normally a virtual machine). During playback the bot machines log on as the recorded users and execute the recorded transactions. The requirements for bot setup can be found [here](#).

### Central System

This is the primary SAP system in which Testimony is installed and is operated. Testimony users log on to the Central system to configure Testimony, create test plans, start recordings and playbacks and analyse the results.

### Check Steps

These are run manually before a recording or playback to validate the environment is ready to perform those functions. The Testimony Administrator should run the check steps and review the results prior to performing a recording or playback.

### Coverage Analysis:

Allows the comparison of recorded data from the execution queue with the usage data. It provides high-level statistics (e.g., what percentage of critical priority dialog transactions you recorded) as well as detailed information on each dialog transaction, batch job, etc.

### Double Playback

A double playback is where two playbacks are used to reduce the potential for false positives. The first playback occurs with no changes deployed to the target system and is termed the baseline playback. The second playback called the release or upgrade playback is competed on the target system with the release or the upgrade applied. Defects are then only raised on differences detected in the second playback, this helps to screen out environmental issues from the baseline.

### Dynamic IDs

These are used to link scripts which use the same data, for example a purchase order number. If the creation of a purchase order fails during the playback then Testimony recognises that there is no point running a subsequent script that approves this purchase order. Testimony will therefore cancel the execution of the order approval script. Testimony will also recognize if a different order number is generated during playback and will adjust subsequent scripts to use this new number rather than the recorded number.

### Enhancements

To record and playback Testimony has enhancements on the source or target system to enable the recording or playback to operate correctly. These are switched on before recording or playback and are automatically deactivated at the end of the recording or playback in the "Post-Processing Steps". Should a recording or playback be stopped unexpectedly or due to a technical error, the Testimony Administrator should manually deactivate the enhancements.

### Execution Queue

The execution queue is built when scripts are added from the repository and contains the scripts to be played back. Logic is built into the “Add to Execution Queue” process that identifies and establishes linkages between related scripts as the execution queue is being built.

### **Filtered Recording**

A filtered recording is used when you want to record a subset of users, transactions, objects, or transaction types rather than all activity on the source system. It is typically used for testing purposes to ensure that the setup from central to source system has been completed correctly.

### **Filter Sets**

Filter sets have two main uses: to exclude certain objects (transactions, batch jobs, etc.) from a recording; and to provide special handling of error cases during a playback. For example, if you want Testimony to ignore all occurrences of transaction SM21 from the recording, then adding this transaction to the recording filter set will achieve this. If you want to ignore occurrences of message E123 from a particular screen, you can set this message as an exclusion in the comparison filter set. Filter sets can also be defined for the transfer to repository (most commonly for setting up transaction sampling) and for the transfer to the execution queue, although this is less frequently used. This topic should be further studied via the Filter Sets section here.

### **Linkages**

Testimony records activity deeper than just the UI so that objects such as change documents and number ranges are also observed and recorded. These objects are used to create relationships, or linkages, between scripts so that dependencies can be enforced and validated. These can then be checked at playback and during results analysis to ensure that these match, providing a deeper level of testing.

### **Notifications**

Testimony can be configured to send out notifications when certain actions are executed or to provide regular updates on ongoing actions. Notifications are managed through the notification setup in the configuration tray.

### **Playback**

The playback is the execution of the scripts in the execution queue, via the bots, on the target system. The playback executes the scripted activity and generates the test results for comparison and analysis.

### **Post-Processing Steps**

These are run automatically after a recording or playback is completed. Any errors in post-processing will cause a hard stop preventing the status from moving to complete. If errors are found the operator should investigate these errors to determine if they need to be manually resolved.

### **Preparation Steps**

These are run automatically before a recording or playback starts. Any errors will cause a hard stop preventing the recording or playback from starting. Errors should be resolved before attempting to restart the recording or playback.

### **Recording**

A recording (either Filtered or Standard) is the process by which actions on the source system are captured by Testimony.

### **Repository**

The repository is a staging post for recorded transactions. Once all recorded transactions have been stored in the Central System, they are transferred to the repository (potentially with some filtering) before being transferred to the execution queue for playback. The repository is where any manipulation or deletion of sessions should take place, since if a mistake is made the sessions can be restored by transferring them again from the recorded data.

### **Sampling**

Sampling is part of Filter Set functionality and is only set at the “Transfer to Repository” stage. Sampling allows the operator to decrease the volume of a set of activities without negatively impacting the validity of the test results. Since scripts will often modify data that will be used by later scripts, sampling is designed to be used for display or read-only activities that do not manipulate data. The idea behind it is as follows: If you recorded a read-only process that runs every 5 minutes for the duration of the recording, you can play back a small percentage of those processes to help reduce playback times while still testing that process. Sampling can be used for Dialog, Batch and RFC processes.

### **Shared Memory**

Testimony utilises the shared memory of the source system to save the recorded data temporarily before writing it to the database. This is so that the source system does not see a significant increase in I/O activity during a recording. To prevent any negative impact on source system performance Testimony will stop the recording if it runs too low on available shared memory. The recommended settings for the shared memory parameters are [here](#).

### **Source System**

This is the system that is recorded and therefore acts as the source for the recording. In BAU operation of Testimony, this is usually the production system.

### **Standard Recording**

A standard recording records all activities, excluding any defined exceptions in the “Filter Sets”.

### **Target System**

This is the regression test system into which recorded scripts are played back via the Bots. It is recommended that the Target system is dedicated for use with Testimony and is refreshed with a point-in-time backup of the Source system taken as of the start of the recording.

### **Test Plan**

A test plan is the logical container for the recording, playback, and results of a test scenario. When setting up a test plan the operator will define a Source system, Target system, system mapping and authorizations for users. To simplify the test plan creation process, test plans can be copied for scenarios using the same Source and Target systems.