Tektronix®

Clarius Compliance DisplayPort Transmitter Testing

Application Help

Version 2.0.1

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Contents

Welcome

DisplayPort is a digital display interface standard that supports higher resolutions and refresh rates, providing up to 80 Gbps of bandwidth for seamless video and audio transmission. It is designed to support 8K displays and beyond, offering features like dynamic HDR and improved compression methods.

The Clarius compliance DisplayPort Tx solution uses optimized computing and parallel execution methods which reduces the execution time of measurements. It also provides test data management and test data analytics.

One of the biggest challenges for DisplayPort compliance testing has been long test times. Clarius Compliance DisplayPort TX solution solves this challenge with a fast test execution application by taking care of all needs of multilane, multi data rate testing with DUT toggle automation.

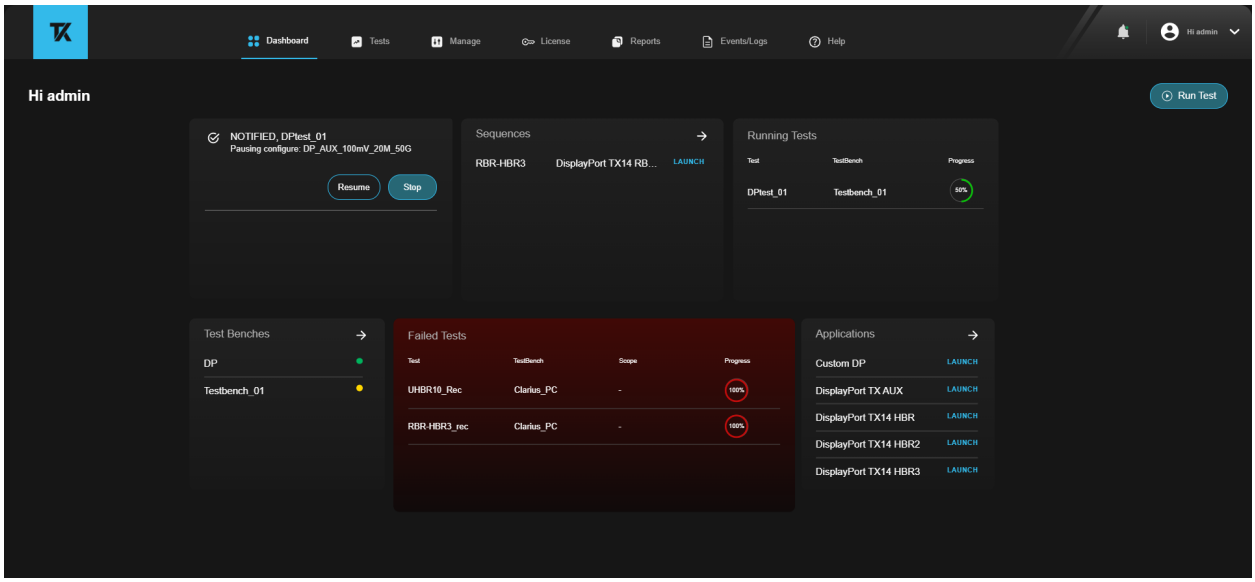


Figure 1: Clarius compliance DisplayPort Tx

Key Features

- Fast test completion using state-of-the art software architecture.
- Automated source device compliance testing of all DisplayPort 2.1 data rates (RBR, HBR, HBR2, HBR3, UHBR10, UHBR13.5, and UHBR20).
- Support for AUX channel continuous burst mode tests.
- Supports Custom DisplayPort Non-compliance Application that has flexibility to configure measurements based on user defined settings useful for debug purpose
- Supports normative and informative measurements as per the latest DisplayPort 2.1 CTS.
- Supports all data rate testing in one go.
- Supports all 4 - lane testing in one go.
- Supports P0 to P15 presets for the UHBR data rate signal test.
- Supports preset optimization feature to find out separate optimal presets for TP2 and TP3_EQ Test points for each lane for individual UHBR data rates.
- Supports both TP2 and TP3 EQ test point testing.
- Supports CTLE optimization.
- Supports Tx preset equalization tests for all UHBR data rates.
- Automatic insertion of modeled channel losses, CTLE equalization, and DFE as per the CTS.

- Fixture De-embedding in differential and single-ended mode by creating a custom filter file using SDLA software to leverage the channel modeling and receiver equalization functionality.
- Support for P7625 and P7633 Tri-Mode probes.
- Supports Unigraf DPR-100 and UCD-323 for automated DUT control, saving hours of manual DUT settings.
- Supports the signal validation option to detect anomalies in the signal before analysis.
- Supports offline analysis of the saved waveforms in pre-recorded mode.
- Supports quick test setup using saved test sequences.
- Supports waveforms and plot displays in the UI.
- Modify the test setup according to the DUT configurations like SSC, patterns, and many more.
- Detailed PDF test reports.
    - Provides a pass or fail summary table.
    - Provides test information.
    - Provides margin details on each test.
    - Provides a consolidated report for all tests.
- Supports CSV test data export.
- Complete Solution: A complete compliance solution with an elaborate test fixture and support for SMA probing provides a cost-effective way to perform compliance testing.

Getting help and support

Product documents

Use the product documents for more information about getting started with the Clarius, the application functions, and how to remotely use the application.

Table 1: Clarius automation framework and application documents

To learn about	Use this document
How to install the Clarius	Clarius Automation Framework Getting Started Guide
How to use the application	Clarius Compliance DisplayPort Tx Application Help
How to automate using the API and SDK commands	Clarius Automation Framework (API and SDK) Programming Guide

Conventions

This application help uses the following conventions:

- The terms "Application" and "Software" refer to the Clarius compliance DisplayPort Tx application.
- The term "target system" refers to the Computer/Laptop where the Clarius automation framework and application is installed.
- The acronym “DUT” is an abbreviation for Device Under Test.
- The term “select” refers choosing a screen item (button control or list item) using a mouse.
- A **Note** identifies important information.
- The acronym "Tx" is an abbreviation for Transmitter.

Technical support

Tektronix values your feedback on our products. To help us serve you better, please send us your suggestions, ideas, or comments on your application or oscilloscope. Contact Tektronix through mail, telephone, or website. See *Contacting Tektronix* for more information.

When you contact Tektronix Technical Support, please include the following information (be as specific as possible):

General information

- All instrument model numbers
- Hardware options, if any
- Modules used
- Your name, company, mailing address, phone number, FAX number
- Please indicate if you would like to be contacted by Tektronix about your suggestions or comments.

Application specific information

- Software version number
- Description of the problem
- If possible, save the log file(s) and share it with the Tektronix support person to understand the problem and get it resolved.

System requirements

This section explains the recommended system requirements to install the Clarius automation framework and the application(s).

Requirement	Recommended requirements
Operating system	Windows 10 Enterprise and Pro (version 21H1 and above) or Windows 11 Enterprise and Pro (version 21H1 and above) **Language:** English (United States) only
CPU cores	16
RAM	64 GB
Disk space	300 GB HDD/SSD of free disk space
Network speed	1 Gbps
Browser	Microsoft Edge (default) or Google Chrome
Additional software	• Python 3.12.x[1] • Matlab MCR 9.11(2021b) • Unigraf DPR-100 for DisplayPort 1.4 datarate testing. • Unigraf UCD-323 for all DisplayPort datarate testing
Supported Oscilloscope	MSO70000DX,and DPO70000DX/SX series oscilloscopes with at least 8 GHz for compliance mode for RBR and HBR, 12.5 GHz for compliance mode for HBR2 and 16 GHz for compliance mode for HBR3. DPO70000DX/SX series oscilloscopes with bandwidth ≥ 21 GHz for UHBR data rates in compliance mode. • DPO/MSO72304DX/72504DX/73304DX Series Digital Oscilloscopes • DPO71304SX, DPO71604SX, DPO72304SX, DPO73304SX, DPO75002SX, DPS75004SX, DPO75902SX, DPS75904SX, DPO77002SX, and DPS77004SX.
Supported Probes	TDP7708 Series Tri-mode probe with P77STFLXA solder−in tip with TekFlex connector technology (required four numbers). P7700 Series Tri-mode probe with P77STFLXA solder−in tip with TekFlex connector technology (required four numbers). TCA-SMA single-ended OR P76xx Tri-Mode probe with Probe tip: P76CA-292, P76CA-292C, P76CASMP, and P76TA

[1] Python installation is required for Clarius SDK and DUT control automator.

Recommended deployment models

This section lists the supported deployment models for setting up Clarius automation framework and run the tests.

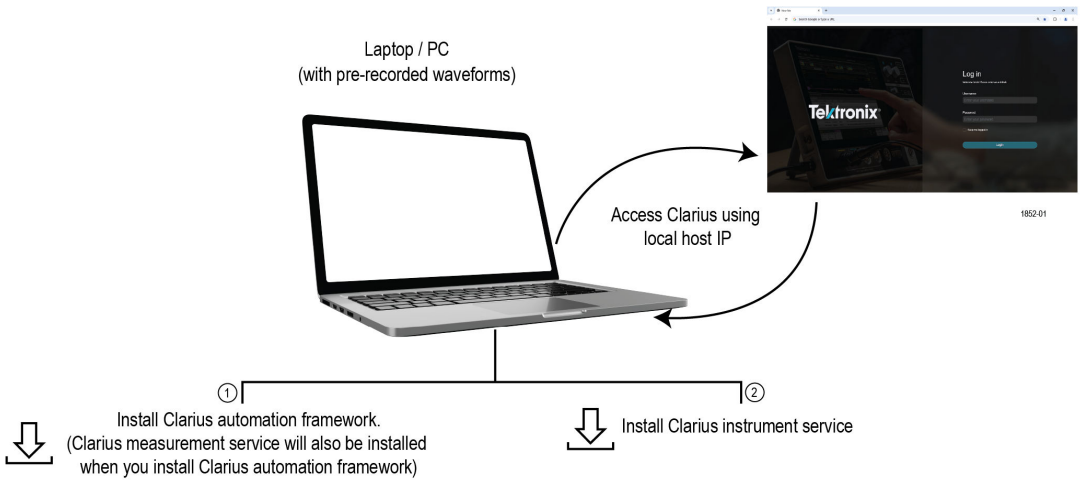


Figure 2: Deployment model 1: Single system deployment

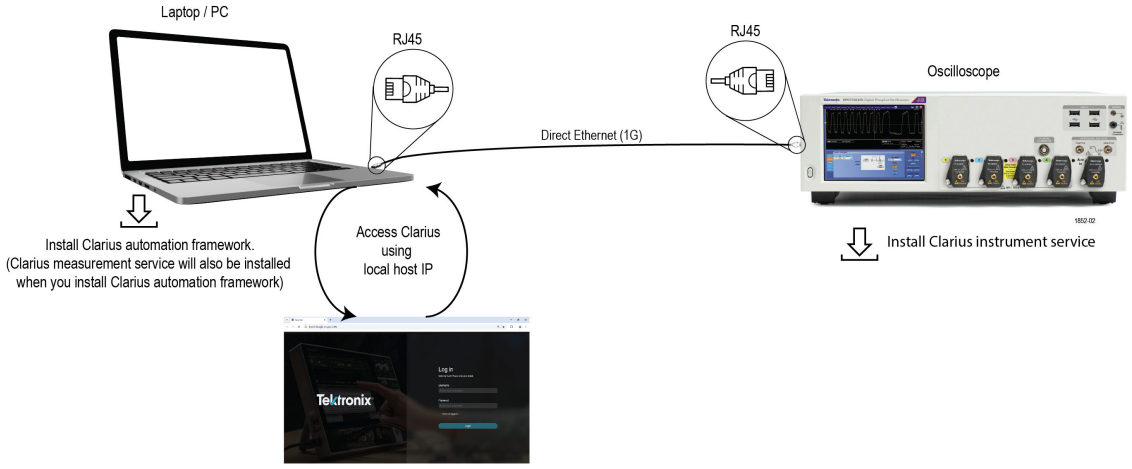


Figure 3: Deployment model 2: Peer to peer connection

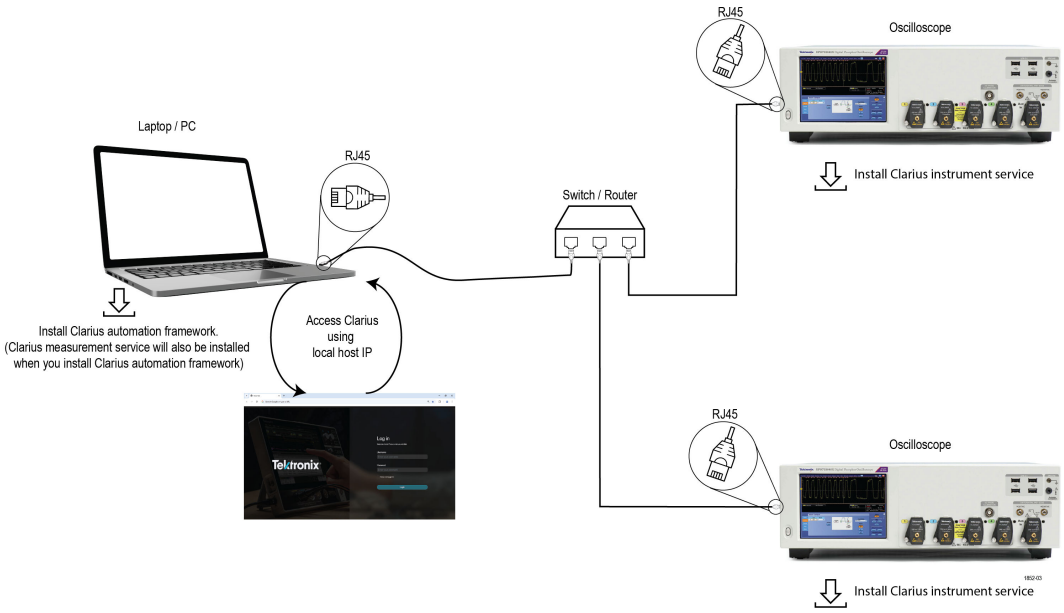


Figure 4: Deployment model 3: Private network setup via standard switch / router / hub

Enable ports to install Clarius automation framework

The installer checks for the first available port within the range incrementally and allocates the port of the services. If no ports are available within the range, installation will prompt user to enter their custom ports.

The following table lists the services and the port ranges.

Port name	Port range
Clarius user interface	4200:4209
Event communication with instruments	5672:5679
Programming interface	8443:8449
SSL certificates download interface	8080:8089
Large objects transfer interface	9001:9009

Dynamic memory and diskspace allocation for the Clarius automation framework virtual machine

Dynamic memory allocation

The minimum RAM required to install the Clarius automation framework is 8 GB.

By default, the installer allocates 12 GB, if the 50% of available RAM is greater than 12 GB. You can also manually allocate RAM from 8 GB up to 50% of total available RAM.

Example

Total RAM available in the target system	64 GB
Minimum RAM required	8 GB
RAM allocated	12 GB (50% of 64 GB = 32 GB, you can choose from 8 GB to 32 GB)

Note: If the 50% of the total available RAM is less than 8 GB, then the installation will fail.

Diskspace allocation

The maximum allocated diskspace for Clarius automation framework installation is 90% of the available diskspace.

Example

Total diskspace available in the target system	300 GB
Minimum diskspace required	20 GB
Maximum diskspace required	90% of available storage

Installing Clarius automation framework

This section describes the instructions for installing the Clarius automation framework in a target system. Follow the steps to complete the installation.

1. *Enable Virtualization technology in BIOS*[2]
2. *Enable ports to install Clarius automation framework*
3. *Dynamic memory and diskspace allocation for the Clarius automation framework virtual machine* on page 12
4. *Enable Hyper-V in the target system*
5. *Install Clarius automation framework in the target system*
6. *Install Clarius instrument service*

Enable Hyper-V on the target system

Hyper-V is a hardware virtualization tool that allows you to create and run a virtual machine on your system without affecting the host operating system. To enable Hyper-V on your computer, follow these steps:

1. Log in to the system with an administrator account.
2. Type **Control Panel** in the search box and press **Enter**.

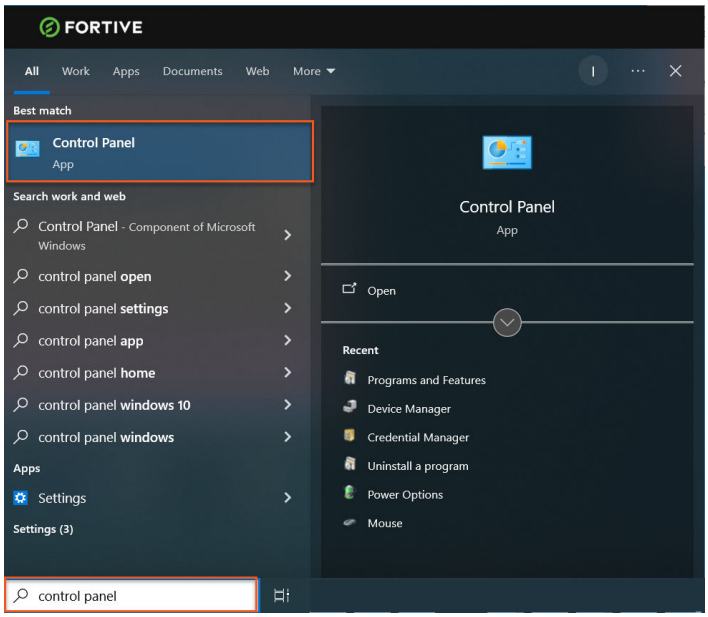


Figure 5: Control Panel

3. Select **Control Panel** > **Programs and Features**.

[2] Contact the IT team of your organization to enable the virtualization technology in your system.

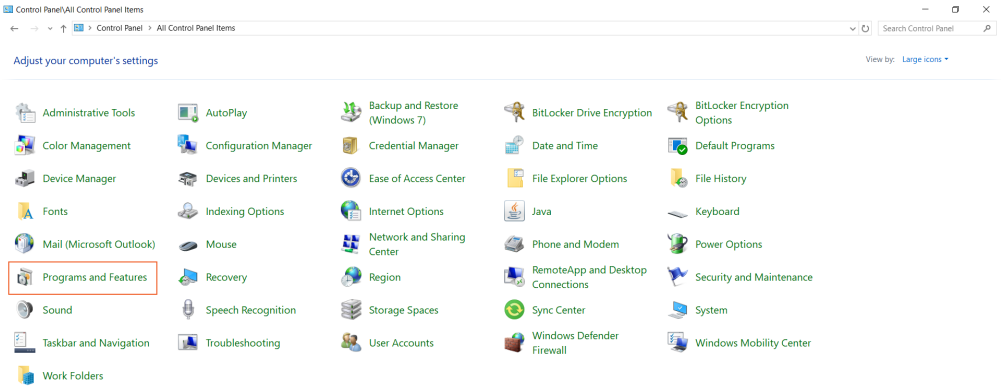


Figure 6: Programs and Features dialog

4. Select **Turn Windows features on or off.**

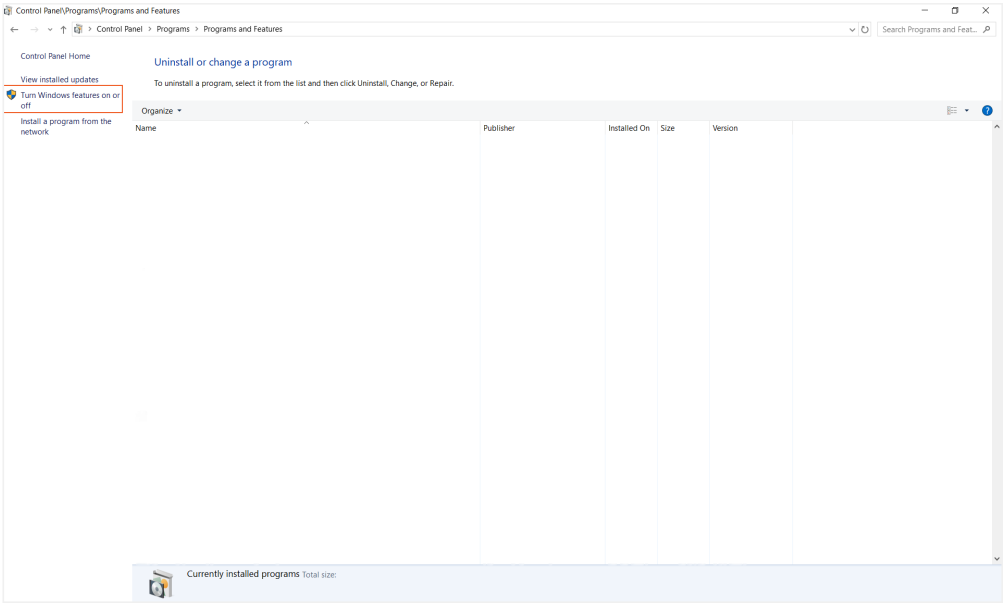


Figure 7: Turn Windows features on or off dialog

5. Select **Hyper-V** and its sub features.

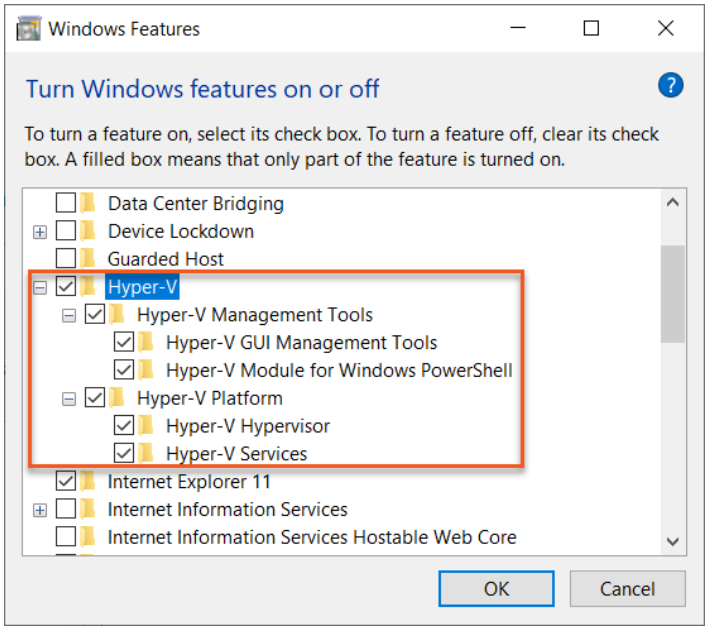


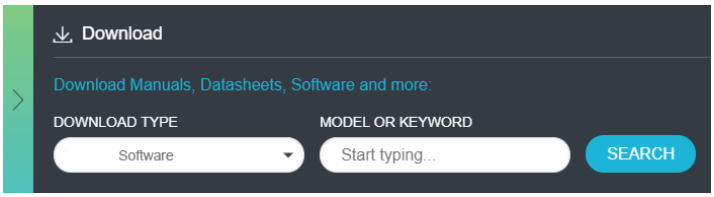
Figure 8: Enabling Hyper-V in the Windows Features dialog box

6. Select **OK** to install. You must restart the system when prompted.

Install Clarius automation framework

To install the Clarius automation framework in the target system, follow these detailed steps.

1. Go to *www.tek.com*.
2. Click **Download**. In the Downloads menu, select DOWNLOAD TYPE as Software and enter the application name in the MODEL OR KEYWORD field and click **SEARCH**.



3. Select the compatible version of Clarius automation framework and follow the instructions to download the software. Copy the installer package (.zip) to the target system[3] and extract the file.

Note:

- Check the Release Notes for the version compatibility details of Clarius automation framework and application.
- To unzip the package, right-click, select **Extract All** and select **Extract**.

4. Double-click the Clarius installer (**clarius-automation-framework-<<version>>.exe**) from the extracted folder and select **Yes** on the User Account Control.

[3] A PC/Laptop/Computer where the Clarius automation framework and application will be installed.

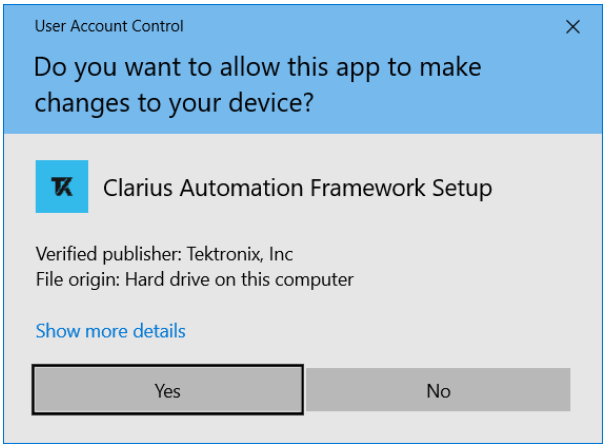


Figure 9: Clarius user account control dialog

5. Read the welcome instructions and select **Next**.

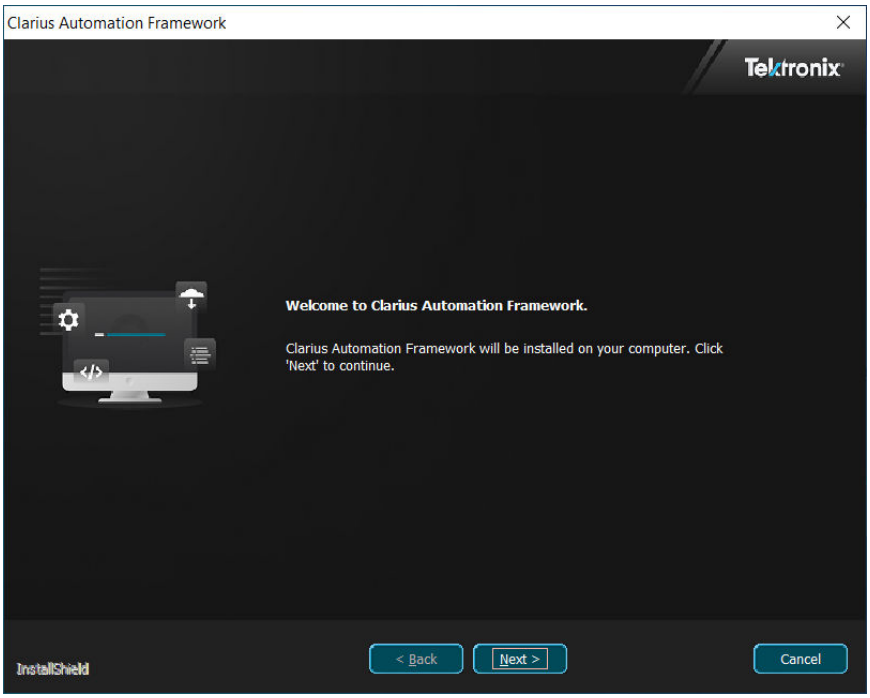


Figure 10: Clarius installer setup

6. Read the license agreement; accept the terms of the license agreement and select **Next**. Please wait until the prerequisites progress check is complete.

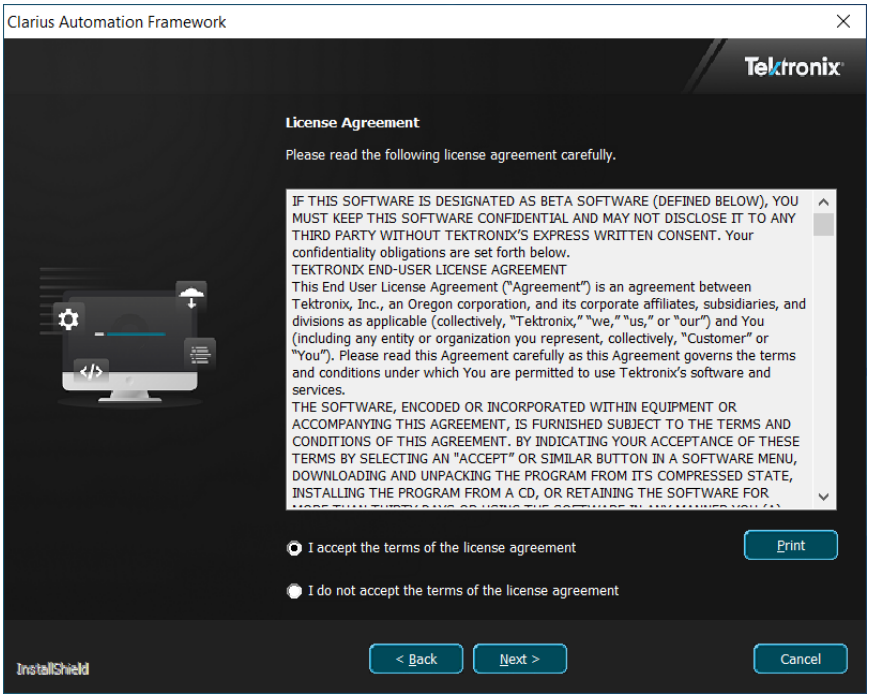


Figure 11: Clarius license agreement

7. Browse to select the install path and select **Next**. The default path is `C:\Program Files\Tektronix\Clarius\`.

   You can select any local disk drive other than a network drive path for installation.

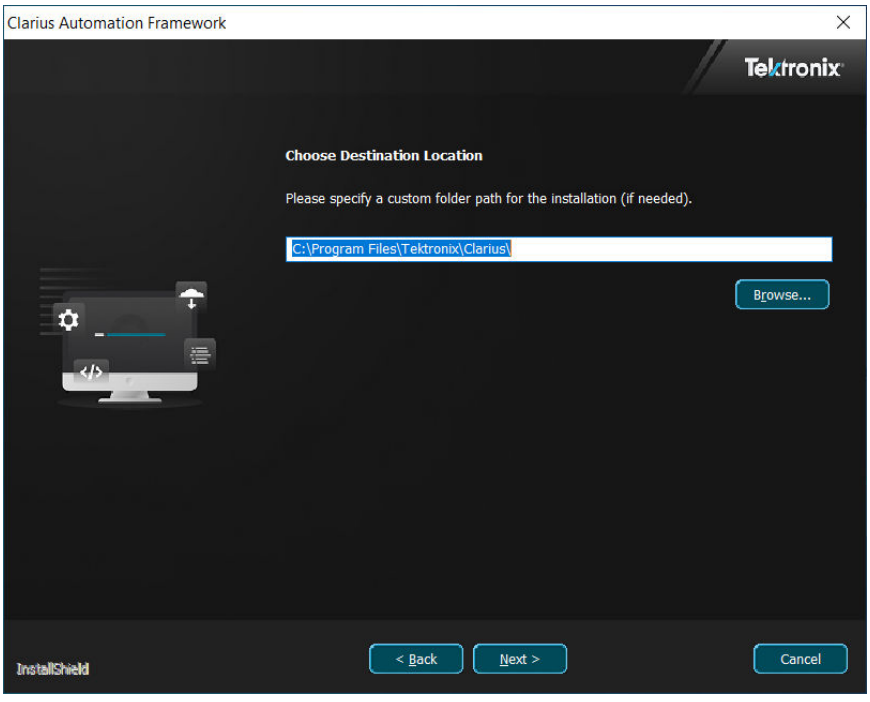


Figure 12: Clarius install path

8. Set the password for the Clarius automation framework matching the criteria and select **Next**.

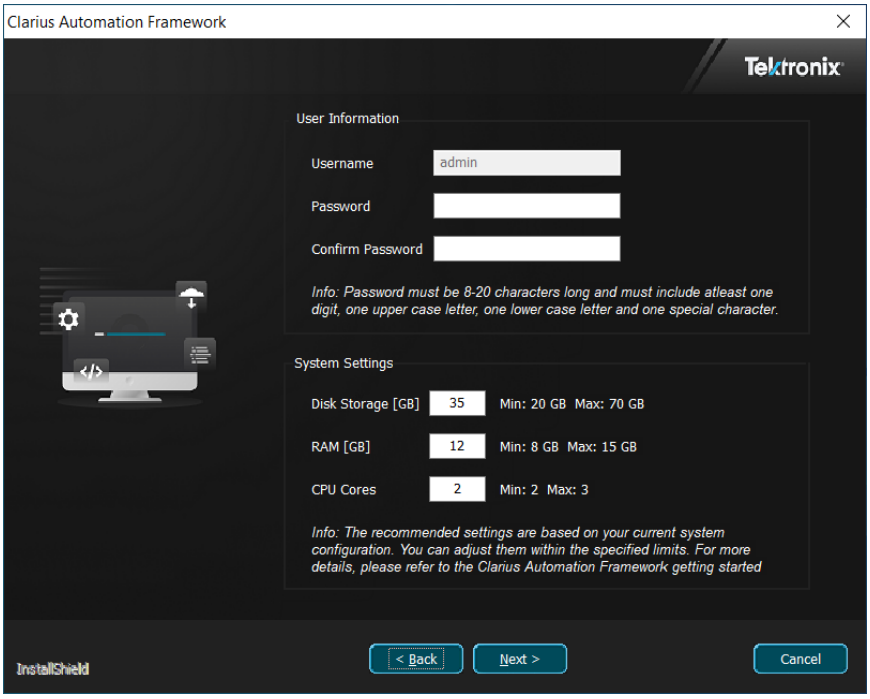


Figure 13: Clarius user information

Note:

- For details on Disk Storage allocation, *click here*.
- For details on RAM allocation, *click here*.
- **CPU cores allocation example:** The minimum logical CPU cores required is 2 and the maximum core is calculated as 75% of total logical CPU cores. By default, a midpoint value between the minimum and maximum cores will be added in the installation wizard field. If the allocated logical CPU cores is in decimal value, then the number after the decimal point will be discarded. For example, value 3.5 will be added as 3.

  For details on recommended CPU cores to install, refer *System requirements* section.

9. Displayed only if the ports required for installation are not available. Refer *Enable ports to install Clarius automation framework* for more information.

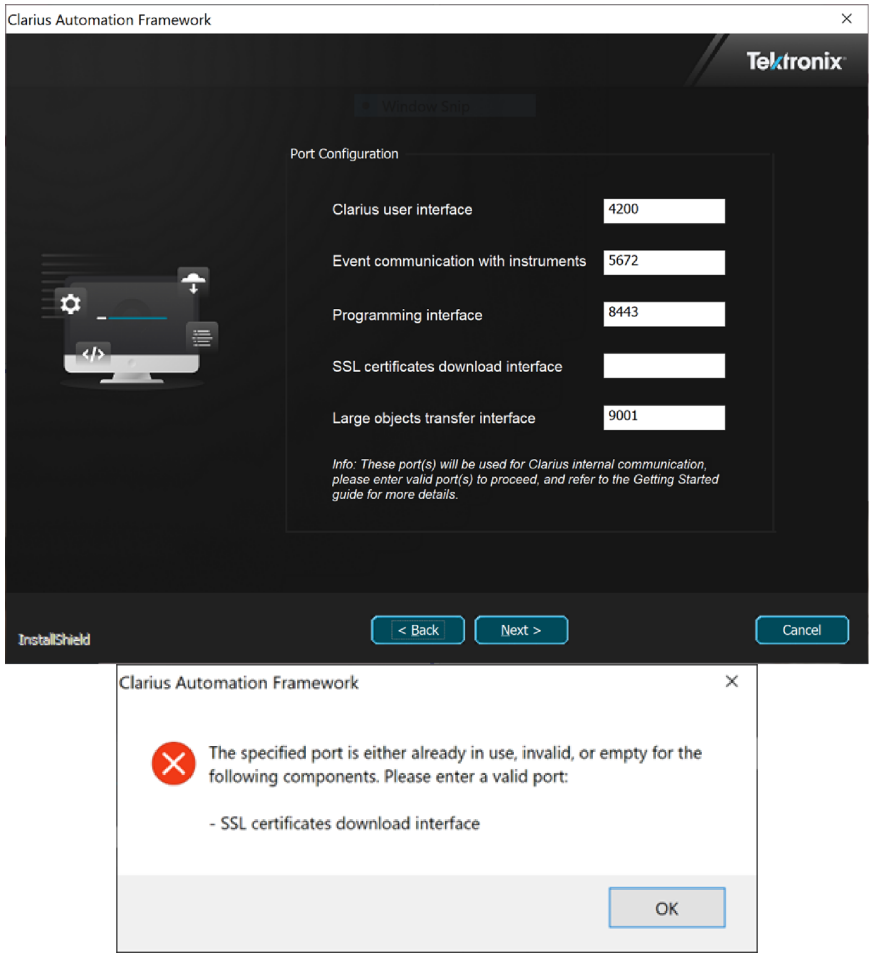


Figure 14: Port configuration

10. Select **Yes** to install the Instrument Service. This will create a local test bench(Clarius_PC) in the target system for pre-recorded waveform analysis.

    Installing instrument service will also install Clarius SDK in an isolated Python environment.

    Tip: If you skip the instrument service installation, you can refer *Install Clarius instrument service* section for the installation steps.

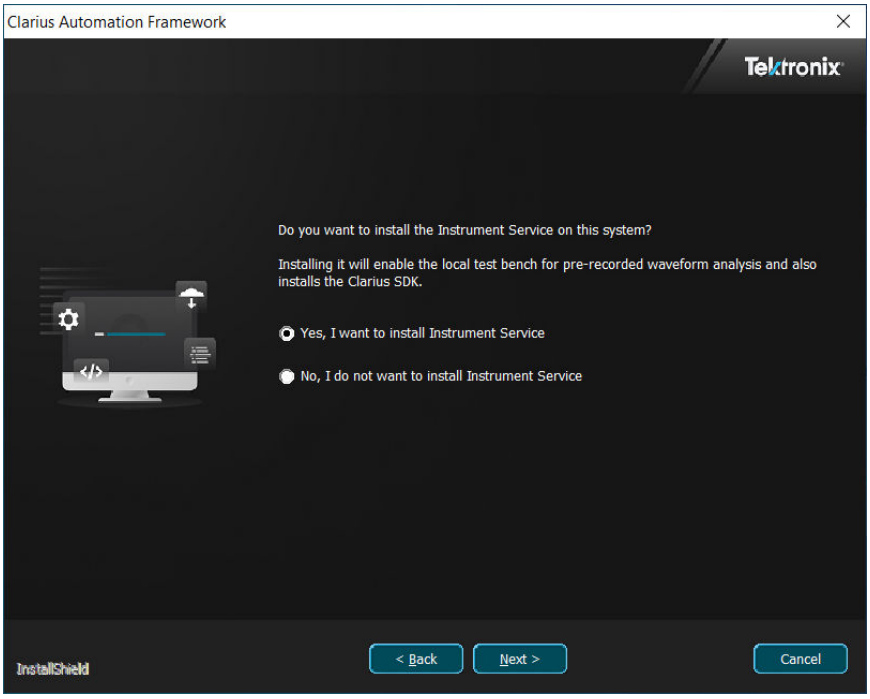


Figure 15: Install instrument service

11. Displayed only if step *10* on page 19 is selected **No**.

Select the Clarius SDK installation option from the installer wizard and select **Next**.

You can install Clarius SDK in the following ways:

- Install Python in a global environment and then install SDK in that environment. If a supported Python version is detected, then select to install the SDK in that environment.
- Install Python in an isolated Python environment and install SDK in that environment.[4]

[4] An isolated Python environment will have its own independent set of Python packages installed in its site directories.

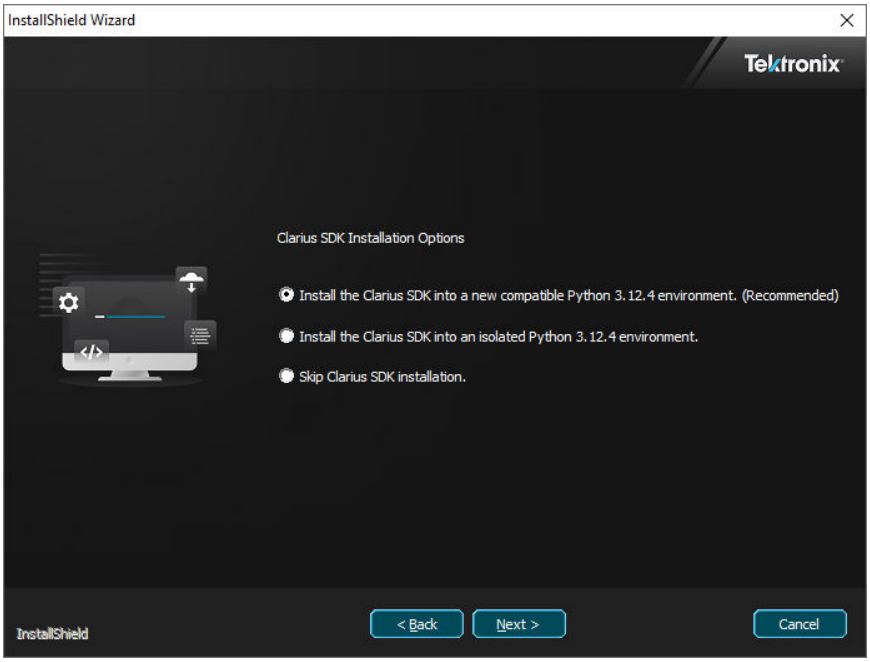


Figure 16: Clarius SDK installation options

Note:

- Clarius SDK requires Python version 3.12.x.
- If you skipped the SDK installation, refer to the *Install Clarius SDK* section to install.

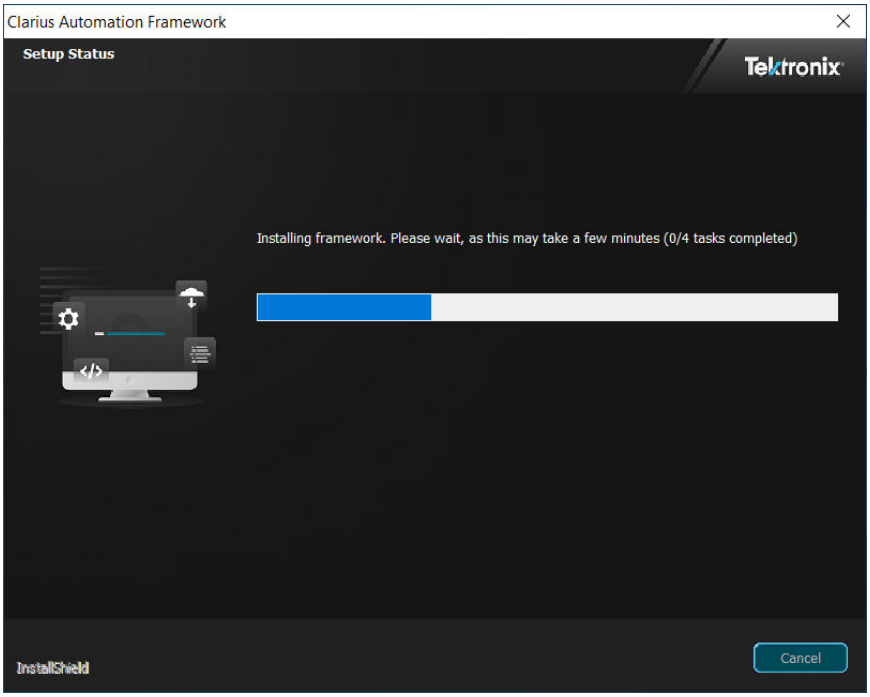


Figure 17: Installing Clarius automation framework

12. Select the Launch Clarius automation framework checkbox once the installation is complete and select **Finish** to exit setup. By default, the Clarius automation framework will be launched in the Microsoft Edge browser.

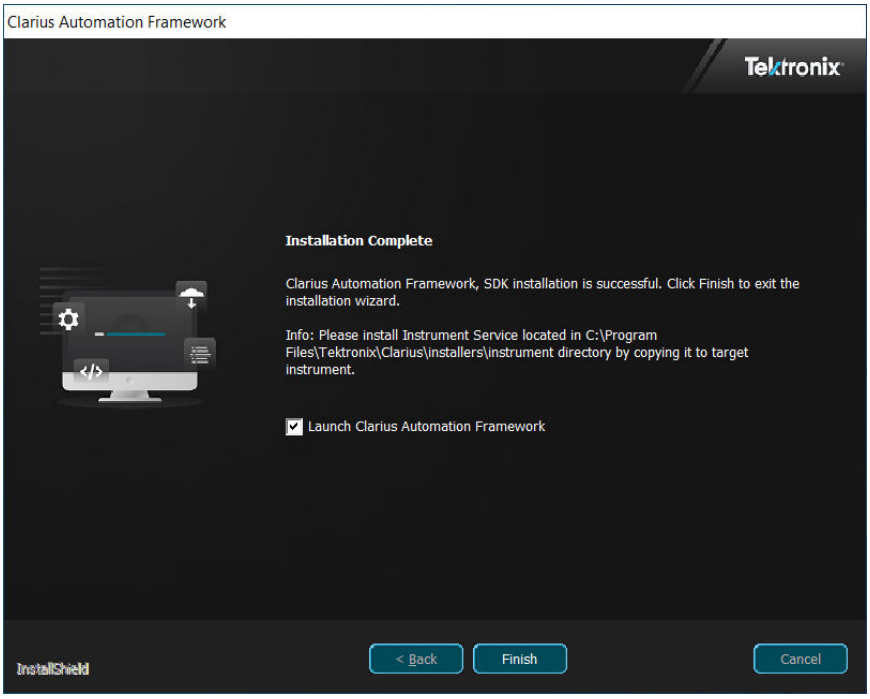


Figure 18: Launch Clarius automation framework

Note: If the installation fails, check the installation logs at `(C:\ProgramData\Tektronix\Clarius\logs)` for more details about the failure or contact a Tektronix field engineer for support.

The ProgramData folder is hidden by default. Enable **Show hidden files, folders, and drives** to view the folder path.

13. (Optional) Launch the Clarius automation framework from the desktop.

Note: You can access the Clarius automation framework from the target system using the local host URL `https://127.0.0.1:4200`[5]. To remotely access the Clarius automation framework, use the host name or IP address of the Clarius automation framework installed system.

Log in to the Clarius automation framework with the following credentials

- **Username:** admin
- **Password:** Enter the user configured password set during installation.

.

[5] The default port allocated is 4200. If this port was not available during the installation, then the first available port within the range of 4200 to 4209 will be checked incrementally and allocated.

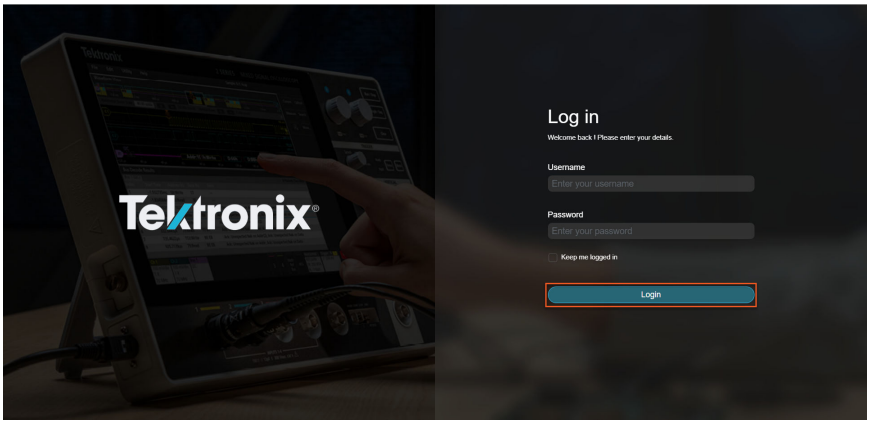


Figure 19: Clarius login page

Note: During installation, if port 4200 was already used, then the first available port within the range of 4200 to 4209 will be checked incrementally and allocated.

By default, no application(s) will be installed and the home screen displays no data. To install the application, refer to *Install DisplayPort Tx application* on page 30.

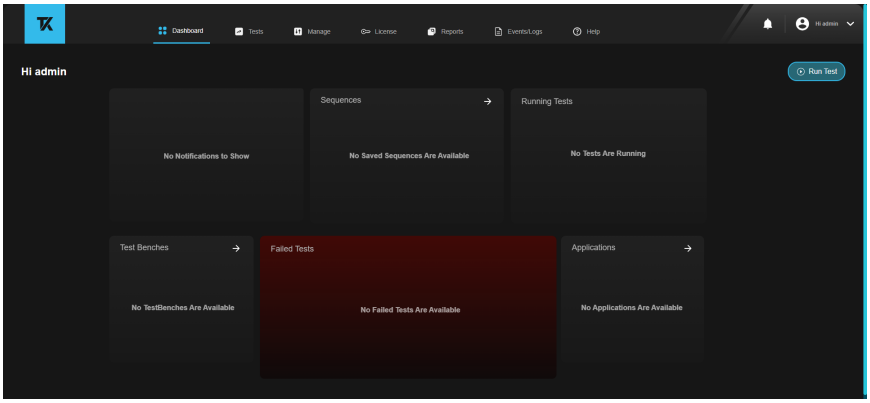


Figure 20: Clarius homepage

Install Clarius instrument service

Clarius instrument service sends the waveforms to the Clarius measurement service[6] for analysis. Refer to *Network topology* diagram for more information on instrument service.

The instrument service can be installed by the following ways:

- Install instrument service in the target system or remote PC where pre-recorded waveforms are located.
- Install instrument service in the oscilloscope to use pre-recorded waveforms or live acquisitions.

Follow these steps to install the Clarius instrument service:

1. Navigate to the Clarius automation framework installation path. The default path is `C:\Program Files\Tektronix\Clarius\installers`.
2. (Optional) Select and copy the Instrument folder and paste in the oscilloscope or computer.
3. Open Instrument folder, double-click **clarius-instrument-service-<<version>>.exe** and follow the steps to complete the installation.

6 Measurement service will be installed in the target system where Clarius automation framework is installed.

Clarius instrument service installation path:

- If Clarius instrument service is installed in a computer or oscilloscope, then the installation path is `C:\Program Files\Tektronix\Clarius\installers\instrument`.
- If Clarius instrument service is installed in the target system, then the installation path will be the same as that of the Clarius automation framework.

Note: Installing instrument service will also install Clarius SDK. If a supported Python version is detected, Clarius SDK will be installed in that environment. Otherwise, Python 3.12.x will be installed in an isolated environment and Clarius SDK will be installed in that environment.

Upgrade Clarius automation framework

This section describes the instructions for upgrading Clarius automation framework.

Table 2: Clarius automation framework version upgrade table

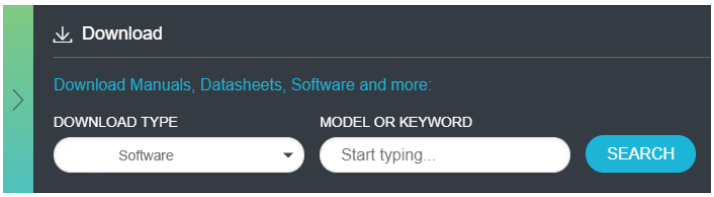
Version	Upgrade Support	Upgradable version(s)
2.0.0	Yes	1.1.0

Prerequisite:

- You must have at least 30 GB of free disk storage available in Clarius virtual machine to upgrade the Clarius automation framework. You can check the available free disk storage from the admin console. Refer to *Admin Console and Monitoring* on page 107 section.

To upgrade the Clarius automation framework in the target system, follow these detailed steps.

1. Go to *www.tek.com*.
2. Click **Download**. In the Downloads menu, select DOWNLOAD TYPE as Software and enter the application name in the MODEL OR KEYWORD field and click **SEARCH**.



3. Select the compatible version of Clarius automation framework and follow the instructions to download the software. Copy the install package (.zip) to the target install system and extract the zip file.
4. Double-click the installer and select **Yes** on the User Account Control.

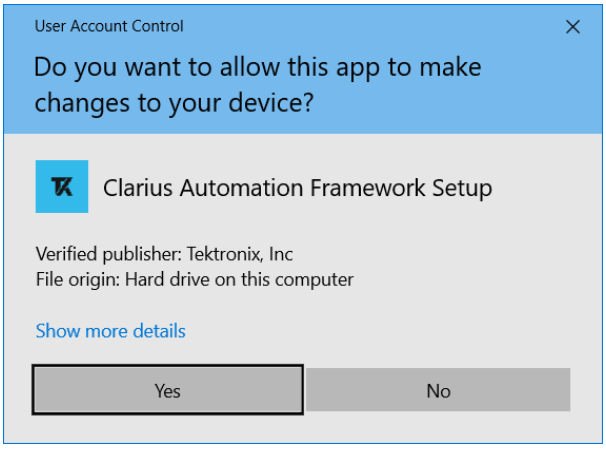


Figure 21: Clarius user account control

5. Displayed only if Clarius automation framework is already installed in the target system.

   Select **Yes** to proceed with upgrade version of the Clarius.

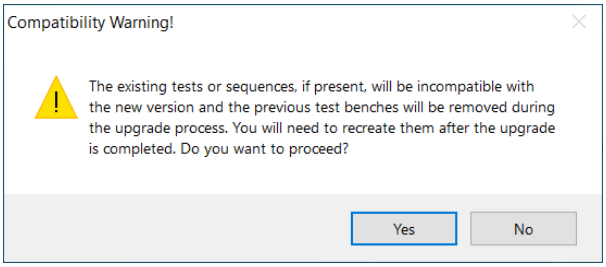


Figure 22: Upgrade pop-up

6. Read the welcome instructions and click **Update**.

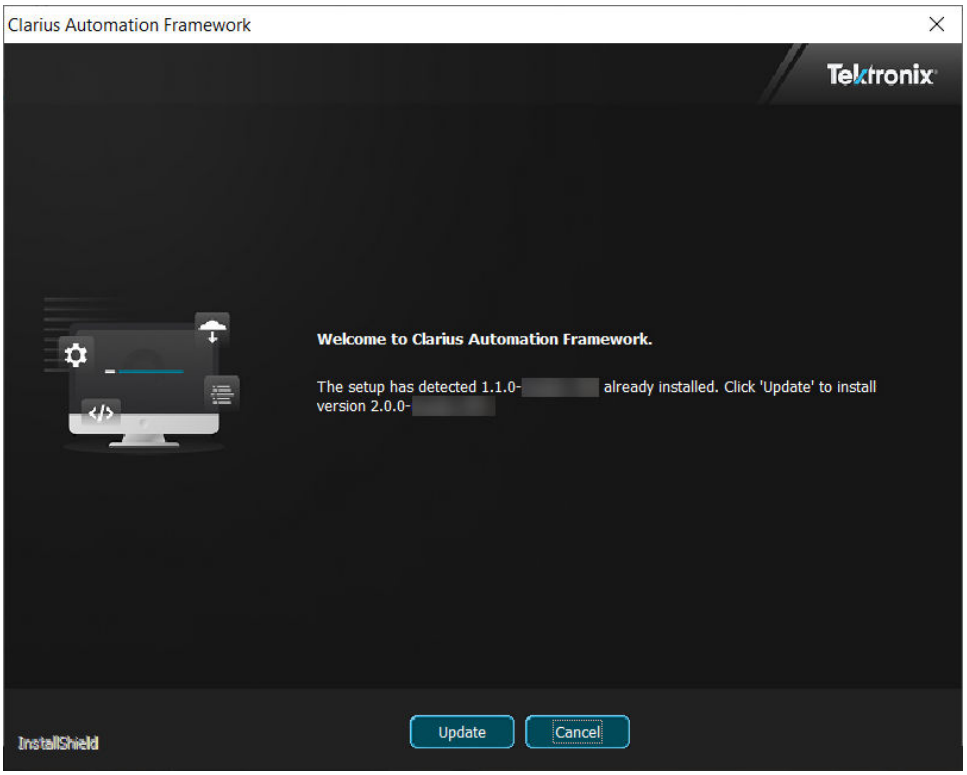


Figure 23: Upgrade Clarius installer setup

7. Accept the terms of the license agreement and click **Next**. Please wait until the upgrade process is complete.

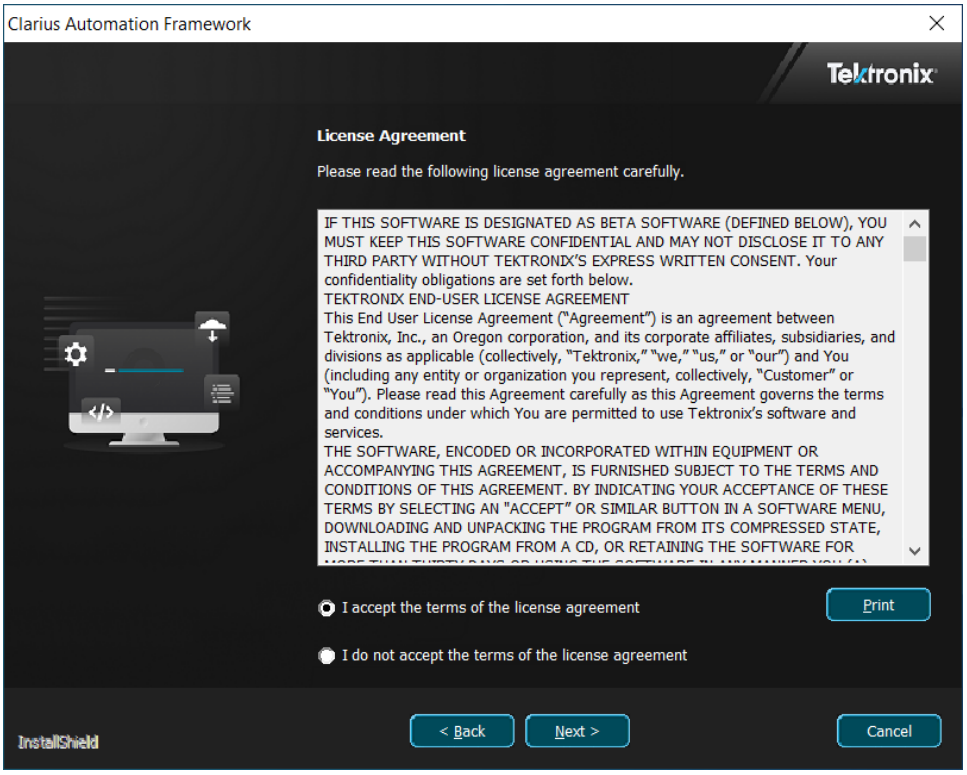


Figure 24: Clarius license agreement

8. Displayed only if Instrument Service is not installed in the previous version.

Select **Yes** to install the Instrument Service. This will create a local test bench in the target system for pre-recorded waveform analysis.

Installing instrument service will also install Clarius SDK in an isolated Python environment.

Tip: If you skip the instrument service installation, you can refer *Install Clarius instrument service* section for the installation steps.

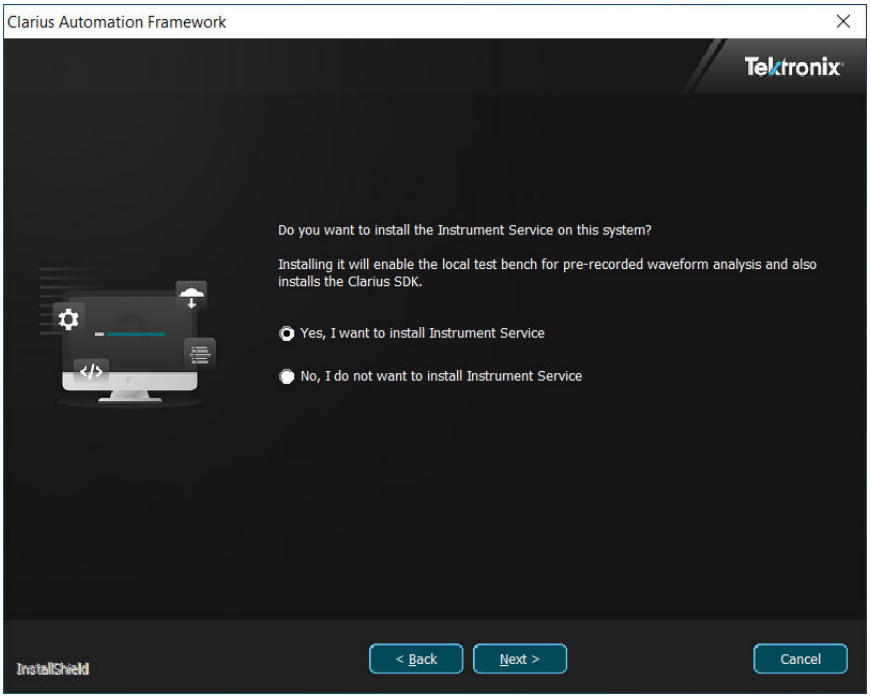


Figure 25: Install instrument service

9. The Clarius upgrade starts, please wait until the tasks and configuration process are complete.

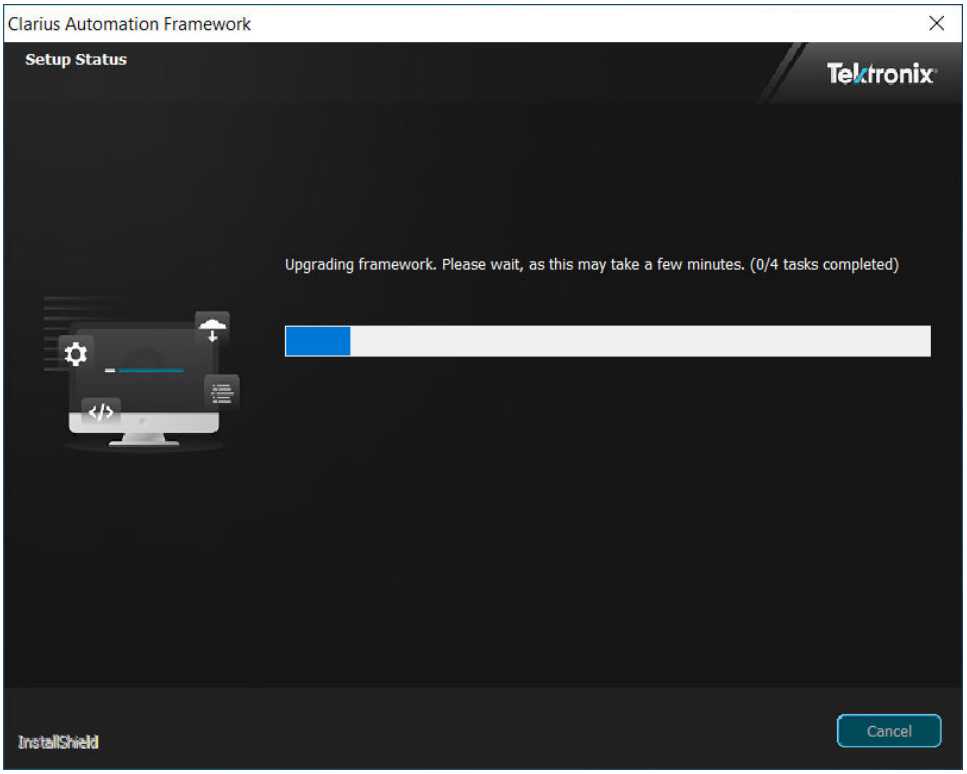


Figure 26: Upgrade

10. The Clarius upgrade is successful. Select the **Launch Clarius** checkbox to launch the Clarius compliance and click **Finish**. By default, the application will be launched in the Microsoft Edge browser.

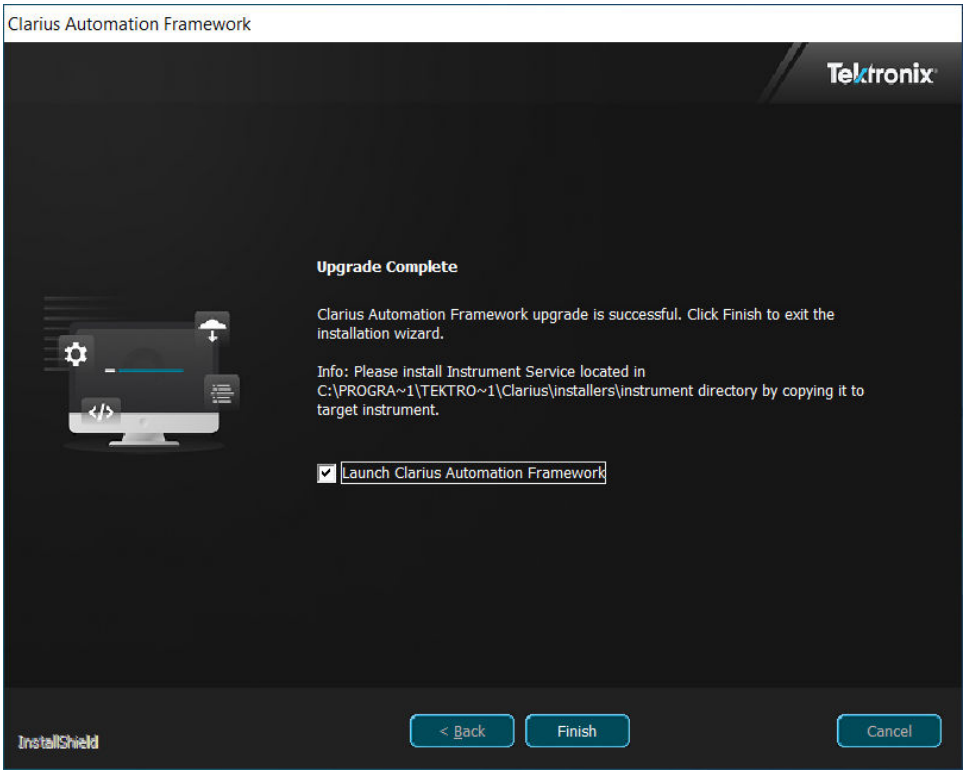


Figure 27: Launch Clarius

11. Log in to the Clarius automation framework with the following credentials.

- **Username:** admin
- **Password:** Enter the user configured password set during installation.

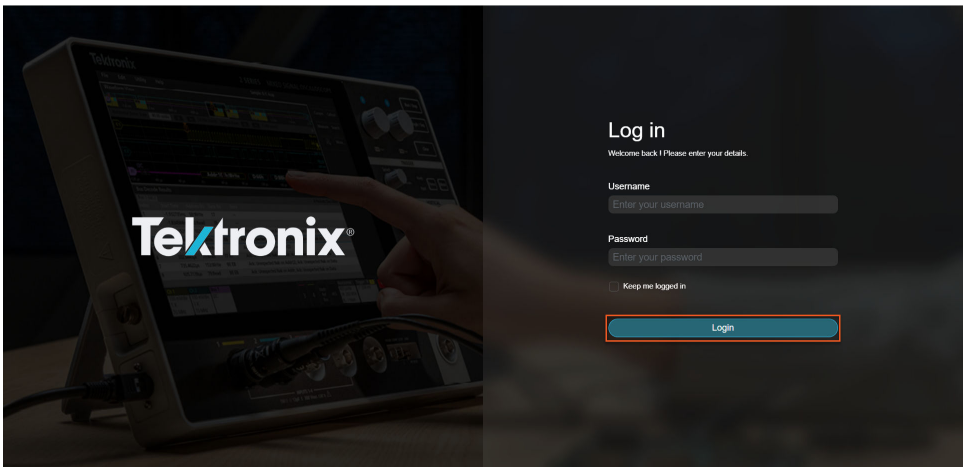


Figure 28: Clarius login page

Note: If the installation fails, please check the installation logs at `(C:\ProgramData\Tektronix\Clarius\logs)` for more details about the failure or contact Tektronix field engineer for support.

Installing application in Clarius automation framework

This section describes the instructions for installing a DisplayPort Tx application in a target system. Follow the steps to complete the installation.

1. *Install Clarius DisplayPort Tx application*
2. *Install instrument service plug-in of DisplayPort Tx*

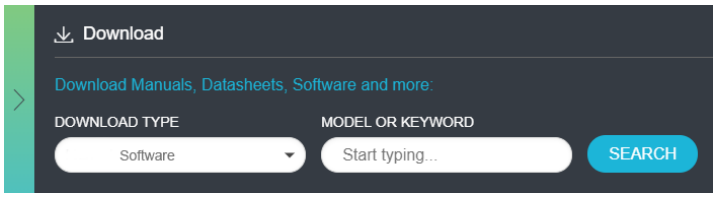
Install DisplayPort Tx application

Prerequisite:

Compatible version of Clarius automation framework must be installed. Check *Install Clarius automation framework* section for installation steps.

To install the DisplayPort Tx application in the target system, follow the steps:

1. Go to *www.tek.com*.
2. Click **Download**. In the Downloads menu, select DOWNLOAD TYPE as Software and enter the application name in the MODEL OR KEYWORD field and click **SEARCH**.



3. Select the latest version of software and follow the instructions to download. Copy the installer package to the target system[7].
4. Double-click the DisplayPort Tx installer and follow the instructions in the installation wizard to complete the installation process.

   By default, the application license will not be activated in Clarius compliance and the home screen displays no data. Refer *Activate application license* on page 33 to activate the license.

Note: If the installation fails, check the installation logs (`C:\ProgramData\Tektronix\Clarius\logs`) for details about the failure or contact a Tektronix field engineer for support.

Install instrument service plug-in of the DisplayPort Tx application

Install the instrument service plug-in of the application in the oscilloscope or the computer, where you have installed the Clarius instrument service. To install the Clarius instrument service, *click here*.

Follow the steps to install the DisplayPort Tx instrument service plug-in:

1. In the target system where the Clarius automation framework is installed, navigate to the installed path. The default path is `C:\Program Files\Tektronix\Clarius\installers`.
2. Select and copy the Instrument folder and paste in the oscilloscope or computer, where you have installed the Clarius instrument service.
3. Open the folder, double-click the **clarius-compliance-DisplayPort-Tx-instrument-service-<<version>>.exe** and install the plug-in.

[7] A PC/Laptop/Computer where the Clarius automation framework is installed.

Clarius SDK

Install Clarius SDK (Software Development Kit) in the target system (where Clarius automation framework is installed) or in the oscilloscope or computer where the Clarius instrument service is installed.

Clarius SDK can be installed in the following ways:

- Install Python in the global environment and then install Clarius SDK in that environment. If a supported Python version is detected, you can select to install the Clarius SDK in that environment.
- Install Python in an isolated Python environment[8] and install Clarius SDK in that environment.

Install Clarius SDK

If you have skipped Clarius SDK installation during the installation of Clarius automation framework, follow the steps to install.

1. In the target system, where the Clarius automation framework is installed, navigate to the installed path. The default path is `C:\Program Files\Tektronix\Clarius\installers\sdk`.
2. Select and copy the **sdk** folder and paste it to the oscilloscope or computer.
3. Open sdk folder, double-click **clarius-sdk-<<version>>.exe** and follow the steps to complete the installation.

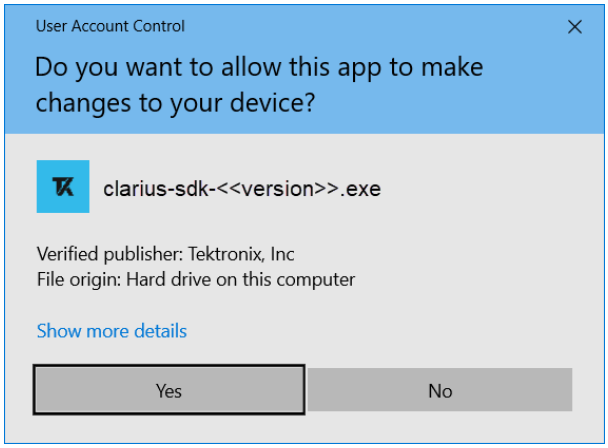


Figure 29: User account control dialog

[8] An isolated Python environment will have its own independent set of Python packages installed in its site directories.

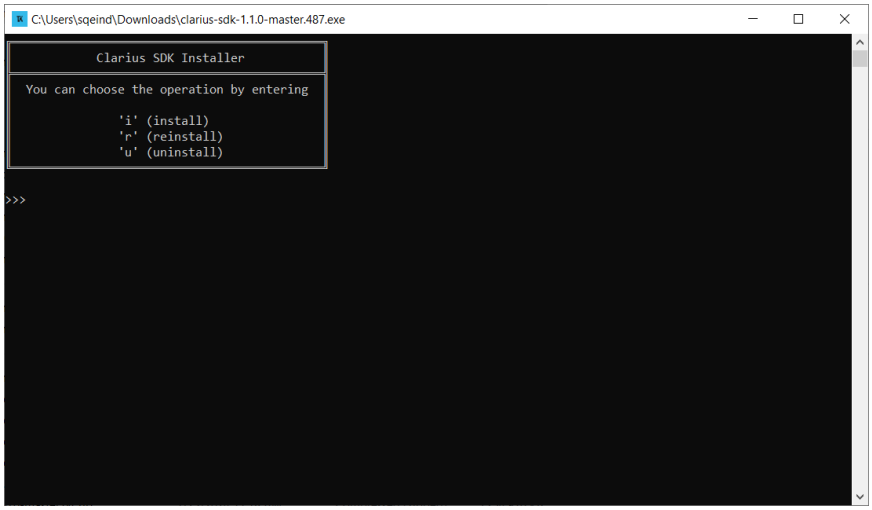


Figure 30: SDK installer setup

Activate application license

1. Double-click the **Clarius** icon from the desktop to launch the Clarius automation framework.
2. Log in using the **Username** as **admin** and the user configured password that was set during the installation.
3. Select the **License** tab and click  to copy the **Host ID**.

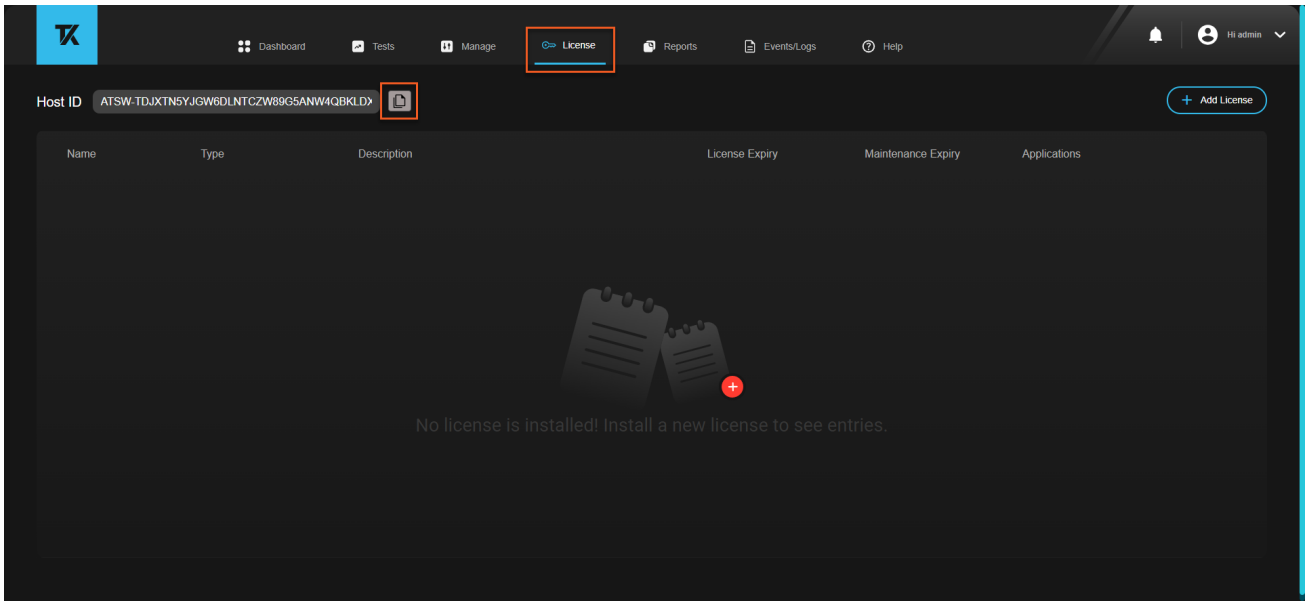


Figure 31: Copy Host ID for license request

4. Send the copied **Host ID** to the Tektronix application engineer and request for license file.
5. In the **License** tab, click **Add License**; browse and select the license file and click **Activate**.

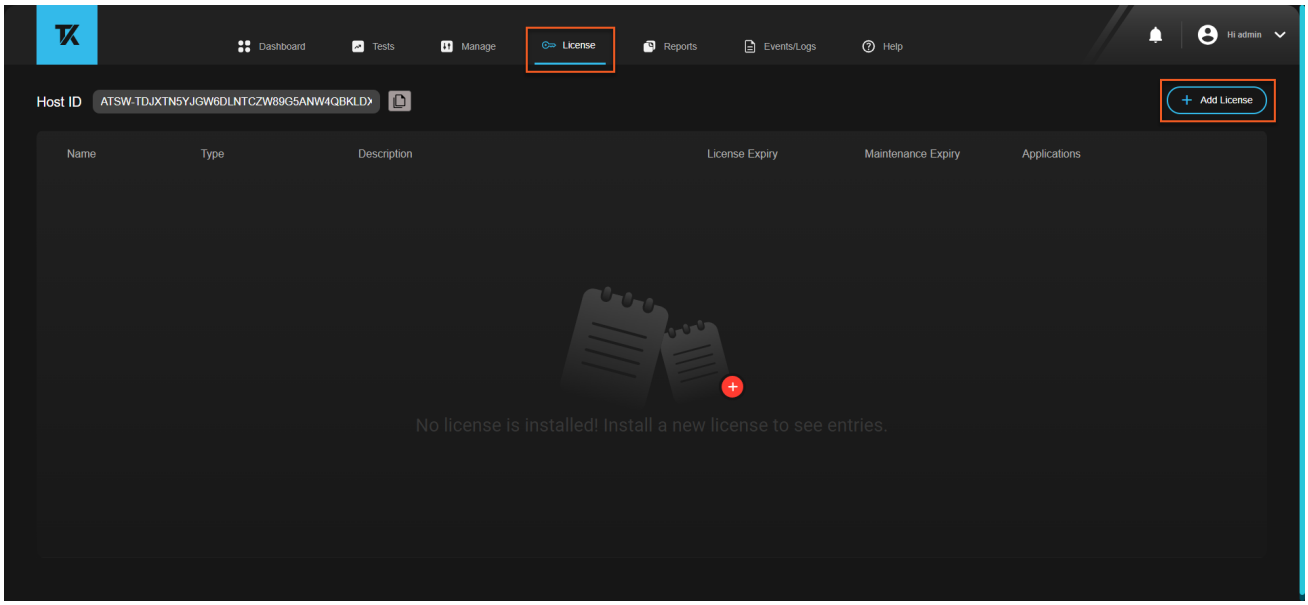


Figure 32: Add License

6. After successful activation, the application license details will be displayed in the license tab.

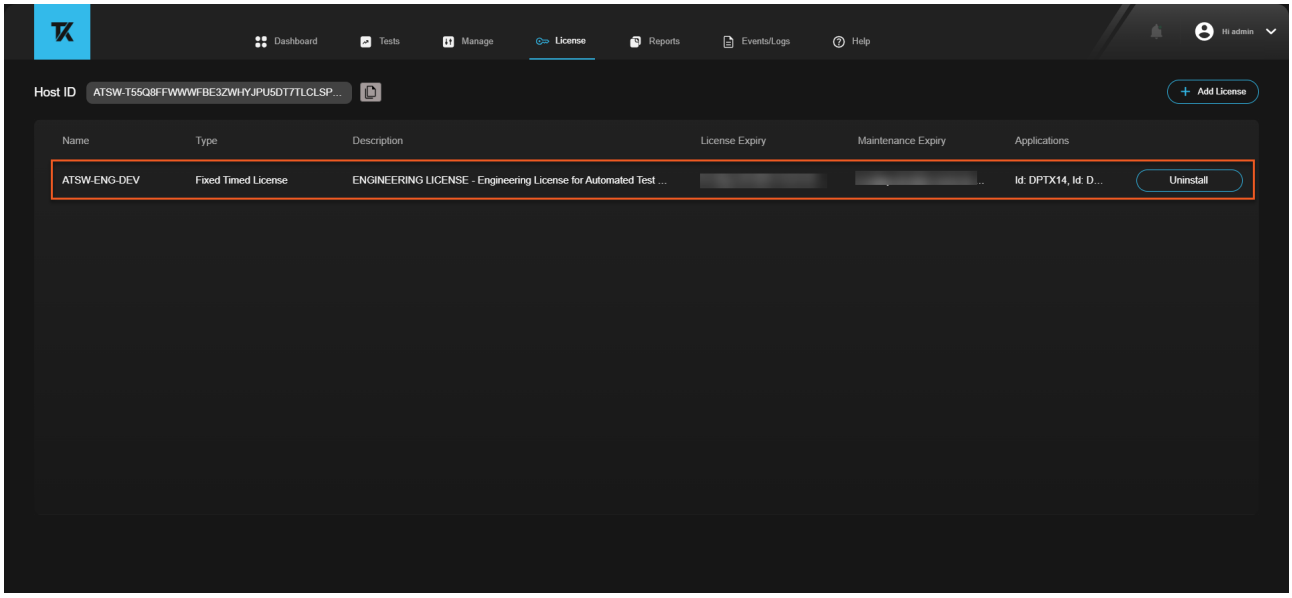


Figure 33: Installed application license in Clarius automation framework

Run the services

This section lists the services to run before performing tests in the Clarius automation framework. To perform testing within the Clarius automation framework, make sure all the installations are complete and all supporting services are running for the following scenarios.

- The *Clarius measurement service* must be up and running in the target system.
- The *Clarius instrument service* must be up and running in the system or oscilloscope from where the analysis of the waveform will be done.

Run Clarius measurement service

If the Clarius measurement service is running in the target system where Clarius automation framework is installed, you must see the Measurement service window. If it is not running then double-click the **MeasurementServiceStart.bat** icon from the desktop to run the Clarius measurement service.

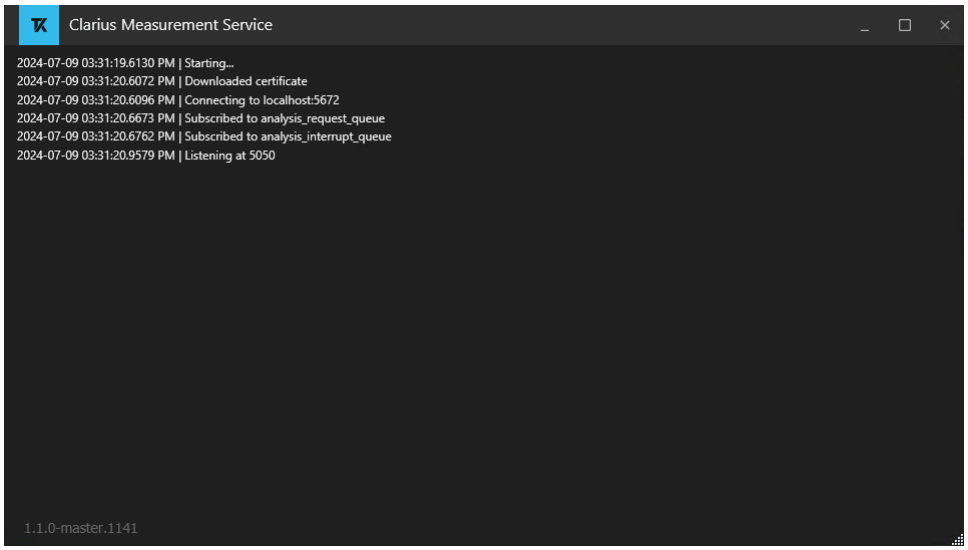


Figure 34: Clarius measurement service window

You can also run the measurement service by navigating to the installation path and double-click the **MeasurementServiceStart.bat**. The default installation path is `C:\Program Files\Tektronix\Clarius\lib\analysis\service`.

Run Clarius instrument service

Clarius instrument service sends the waveform to the measurement service[9] for analysis. To check if the instrument service is running, click the **Show hidden icons** arrow in the task bar of Windows and check for Instrument Service.

If the instrument service is not running, double-click the **InstrumentServiceStart.bat** icon from the desktop and run the instrument service. This will run the instrument service and the automator.

9 Measurement service will be installed in the target system where Clarius automation framework is installed.

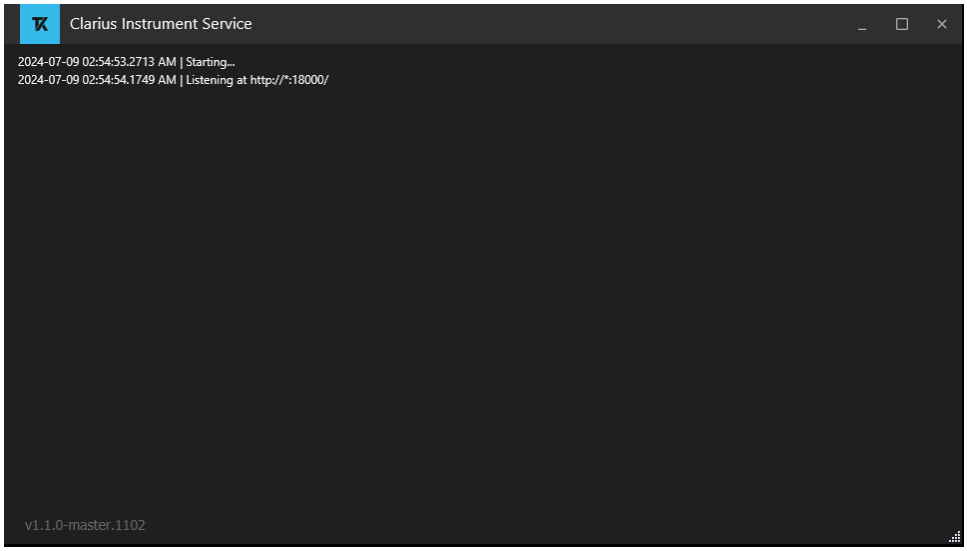


Figure 35: Clarius instrument service window

You can also run the instrument service by navigating to the installation path and double-click the **InstrumentServiceStart.bat**. The default installation path is `C:\Program Files\Tektronix\Clarius\lib\instrument\service`.

Application overview

This section describes the steps to log in to the Clarius automation framework, lists of the application controls, and the list of tabs that are in the navigation panel.

Start and log in to the application

1. Double-click the **Clarius** icon from desktop to launch Clarius automation framework.

   Note: You can access the Clarius automation framework from the target system using the local host URL `https://127.0.0.1:4200`. To remotely access the Clarius automation framework, use the host name or IP address of Clarius automation framework installed system.

2. Log in to the application using the credentials.

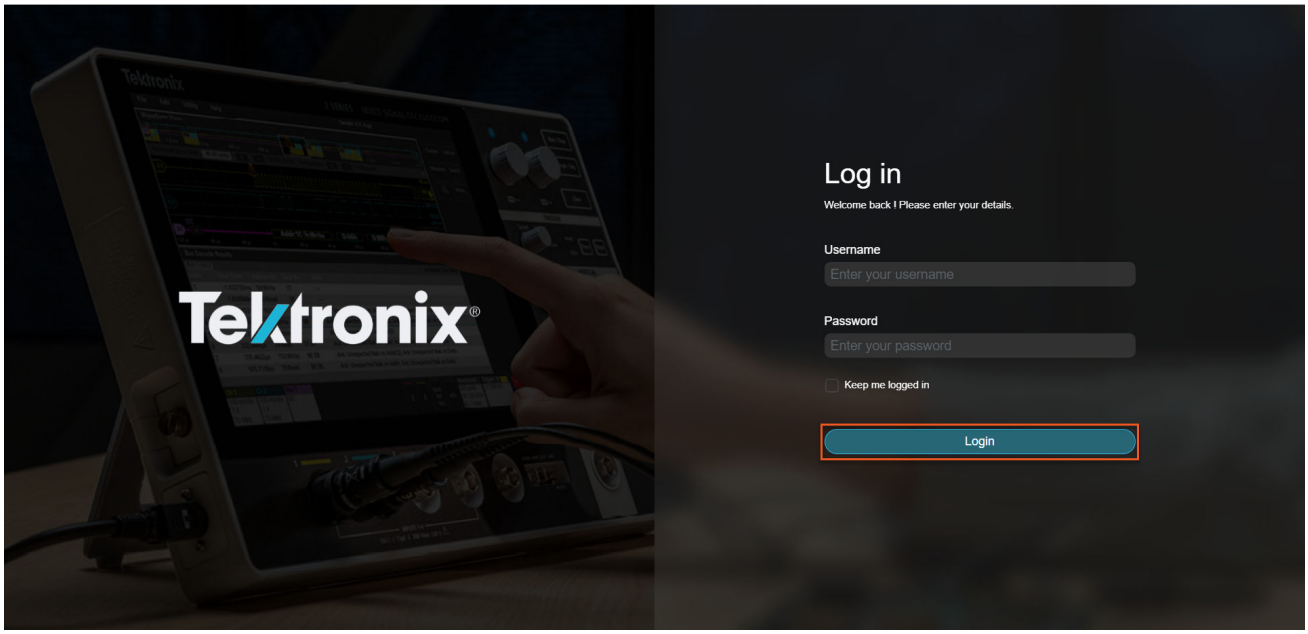


Figure 36: Clarius automation framework login page

After successful log in, you will be navigated to the home page. It displays the activated application(s), saved sequences of the application, test benches status, running tests, failed tests list, and notifications.

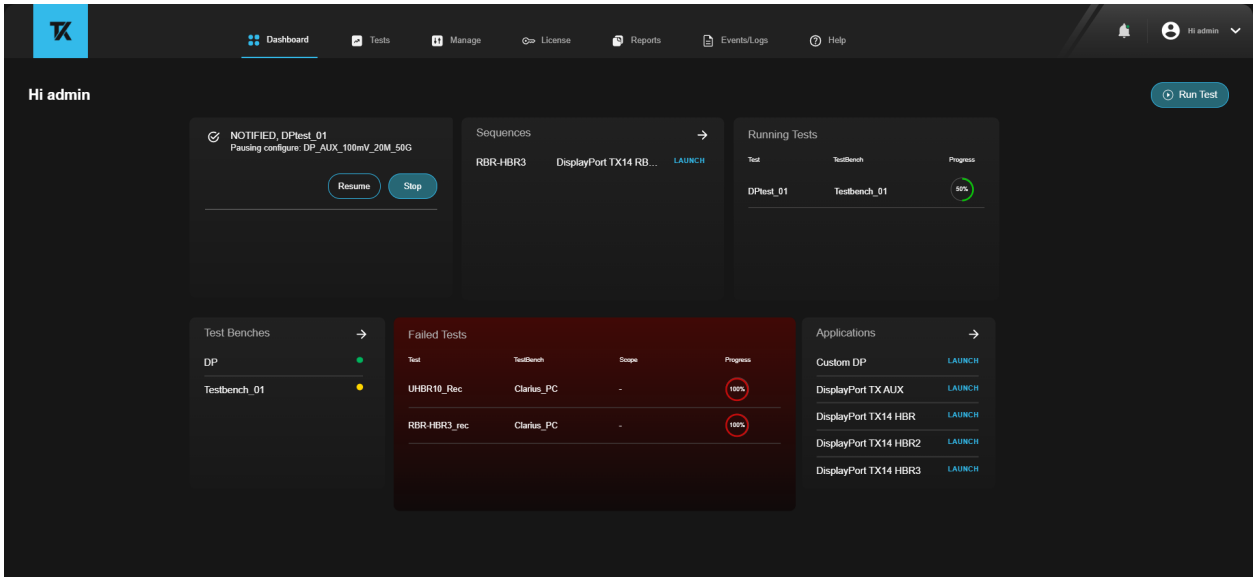


Figure 37: Clarius automation framework home page

Application controls

The Clarius automation framework uses the menus to group the related configurations, test, result, logs, and report settings. Click the respective menu to open the associated details.

A menu may have one or more tabs and frames that lists the selections available in that panel. Controls in a menu can change based on the settings made in that menu or another menu.

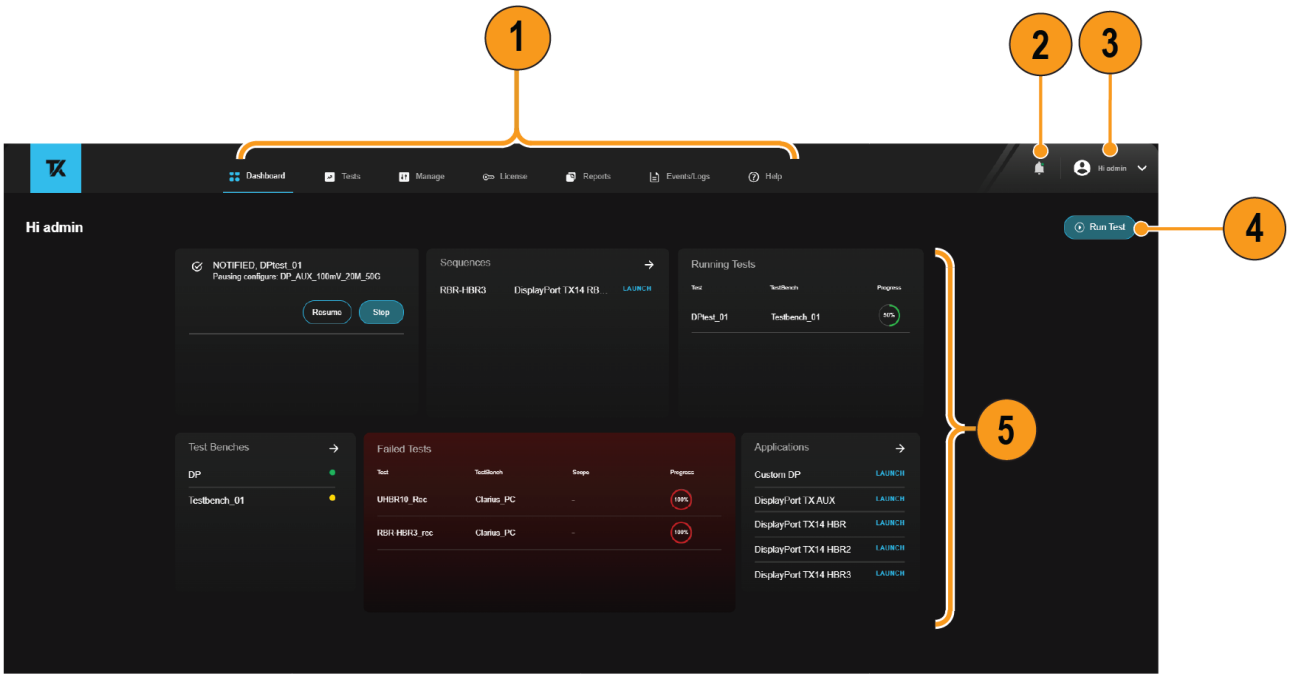


Figure 38: Application controls interface

Table 3: Application controls description

Identifier	Element	Description
1	Navigation panel	The navigation panel contains list of tabs that allows you to select the application, create and configure tests, create and configure test bench, and generate the test report.
2	Notifications	Displays alerts when an event or action occurs in the application.
3	User profile	Displays the profile information and settings details of the account. You can view the version and user license agreement details in **About** menu.
4	Run Test	Click to perform a test by entering the required test information.
5	Widgets	An element of a graphical user interface that displays information or provides a specific details to the user to interact with the application.

Navigation panel

The navigation panel contains a list of tabs that allows you to select the application, create and configure tests, test bench, generate the test report, view the logs of the executed test, and the license information. Click the respective tab to open the associated panel.

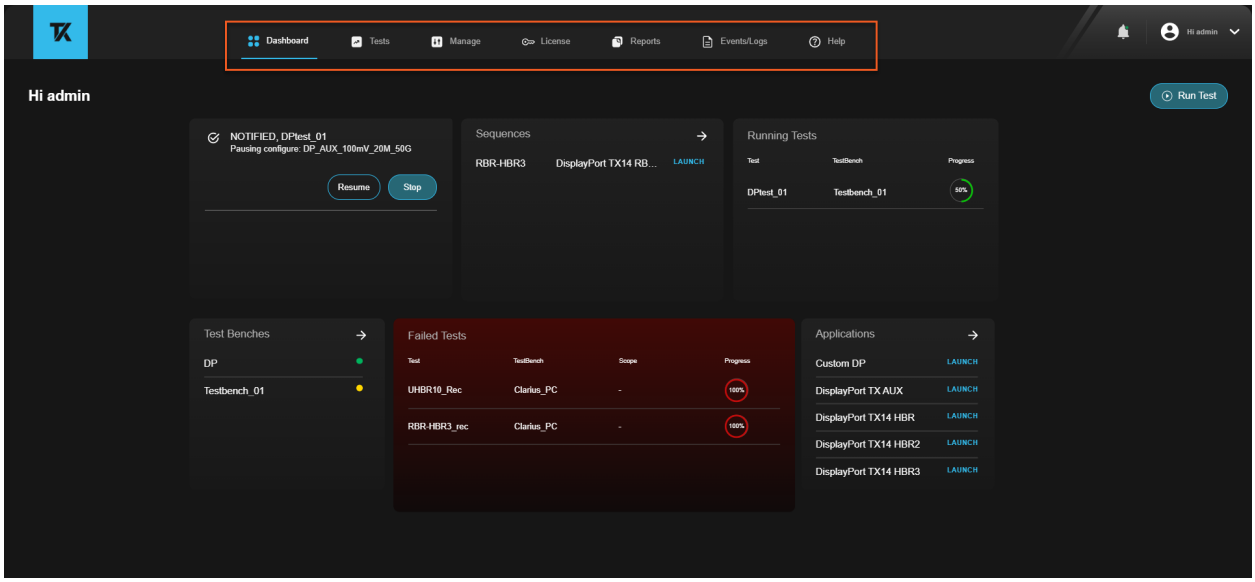


Figure 39: Clarius compliance navigation panel

Table 4: Navigation panel and tabs description

Tabs	Description
Dashboard	Displays the test data and test execution summary. It includes test progress, test notifications to view the status of each test, list of active applications, sequences, and test benches.
Tests	Allows you to create, configure, and run a new test. It also analyzes and displays the details of all executed tests.
Manage	Allows you to manage the application, test bench, and sequences that are created for the test execution.
License	Allows you to add license to the application and also view the licenses that are enabled.
Reports	Allows you to generate a test report and/or export a detailed test report for an executed test(s).
Events and logs	Displays the logs and events for a test.
Help	Allows you to open Help window to browse topics and read Help files.

Dashboard: View the test execution details, progress, and results

The dashboard allows you to get quick insight about the test execution summary. The widgets in the dashboard displays the test related information such as applications used, available test benches, test notifications, sequences, and more.

The test execution results displayed here depends on the configurations in the other panels.

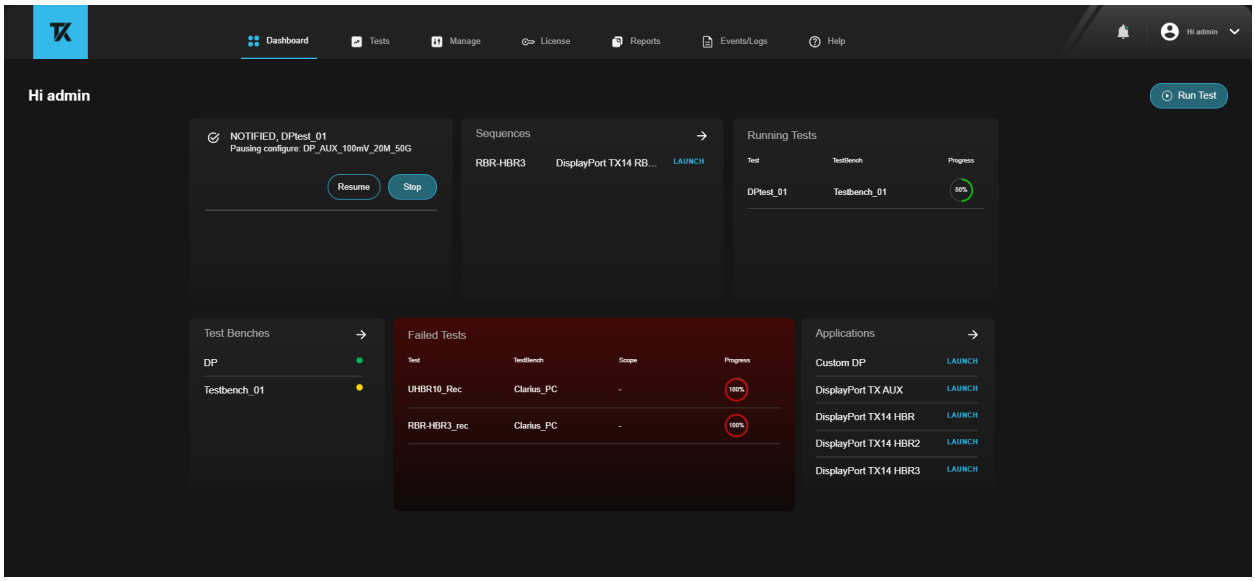


Figure 40: Clarius compliance dashboard view

Perform a test

The **Run Test** allows you to perform a test by entering the fields such as the test name, tags, test description, acquisition mode, test bench, and test sequences.

Widgets

A widget is a part of an interface that allows you to perform a task or access a service on the platform.

Running tests

This widget displays the current test execution status with details such as Test Name, Testbench, and Progress. The progress status displays the test status as Running, Failed, or Complete.

If tests are not performed, then the widget displays **No Tests Are Running** message.

Click the particular test from the **Running Test** widget to view the test details and progress of the currently running test from the **Test** tab.

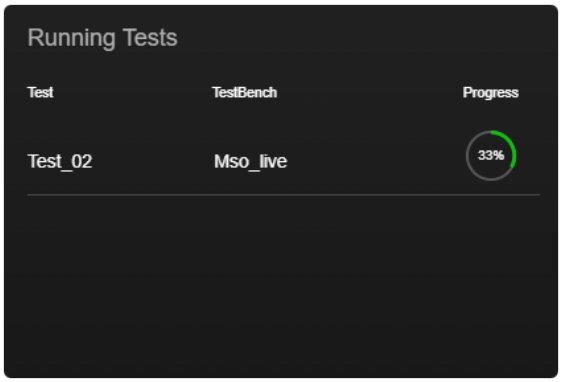


Figure 41: Clarius compliance running tests widget

Test benches

Displays the list of available test benches along with its status. Click → to navigate to the **Test benches** tab.

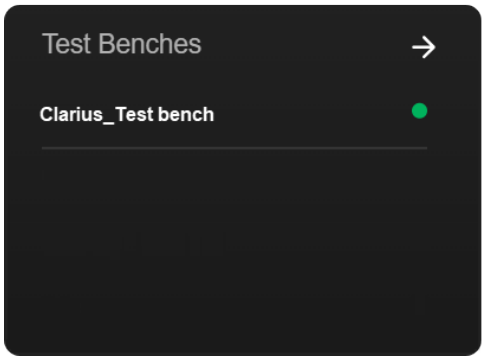


Figure 42: Clarius compliance test benches widget

Applications

Displays the list of activated application(s). Click **LAUNCH** to start the application.

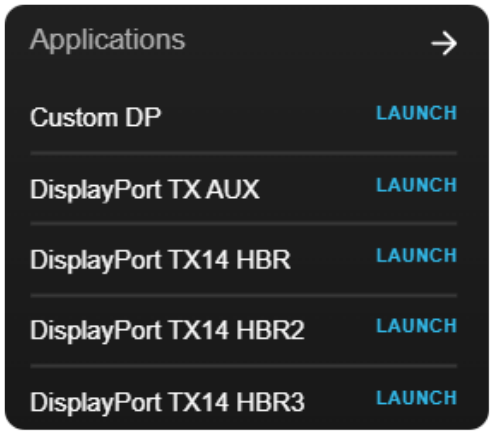


Figure 43: Clarius compliance applications widget

Failed tests

Displays the list of failed tests with details of Test Name, Test bench, Scope, and Progress. Click the particular failed test to navigate to the test details and view the test results from the **Tests** tab.

Figure 44: Clarius compliance failed tests widget

Sequences

Displays the list of available sequence(s). Click **LAUNCH** to run the sequence.

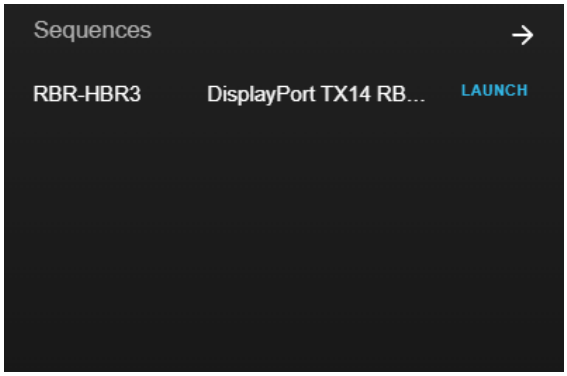


Figure 45: Clarius compliance sequences widget

Notifications

Displays the list of notifications for the active running test. If no tests are performed, the widget displays **No Notification to Show** message.

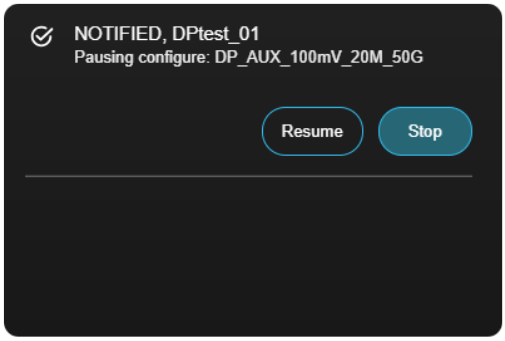


Figure 46: Clarius compliance notifications widget

Tests: Create and run a test, view run statistics and results

The **Tests** tab allows you to create, configure, and run a test. It also displays the name of the test, test mode, application name, execution time stamp, execution duration, and the test execution status. You can delete and view results of the executed test from **Tests** tab.

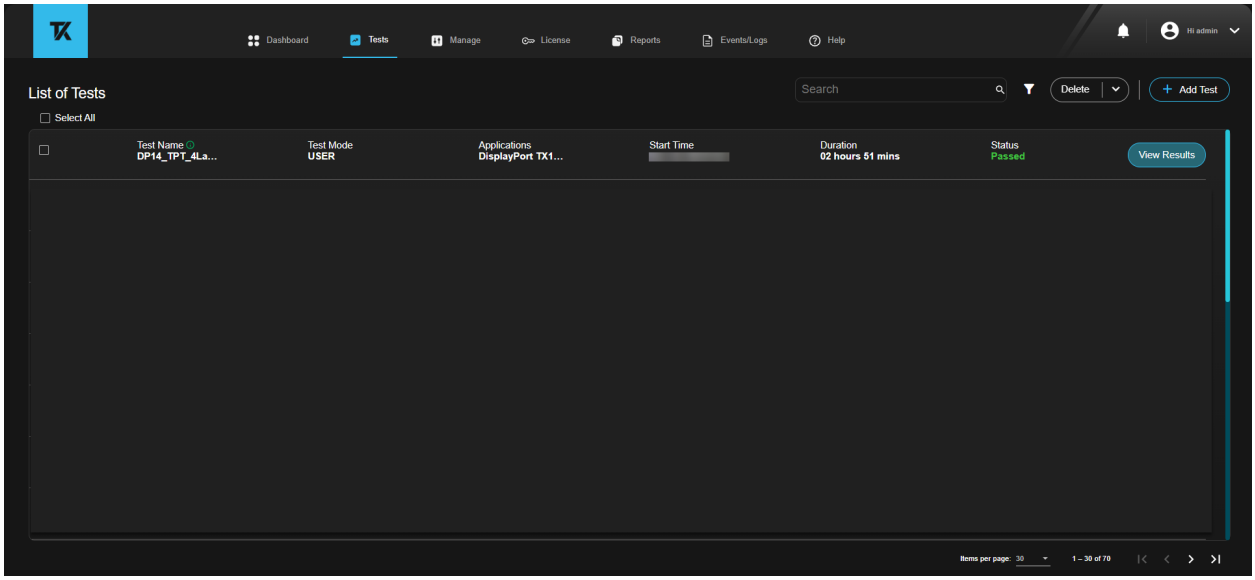


Figure 47: Tests tab in Clarius compliance

Select a test or tests and click **Delete** to delete the test or waveforms from the **Test** tab.

Create and run a test

The **Add Test** button allows you to create and configure a test.

Follow the steps to create a test:

1. In the **Tests** tab, click **Add Test**.

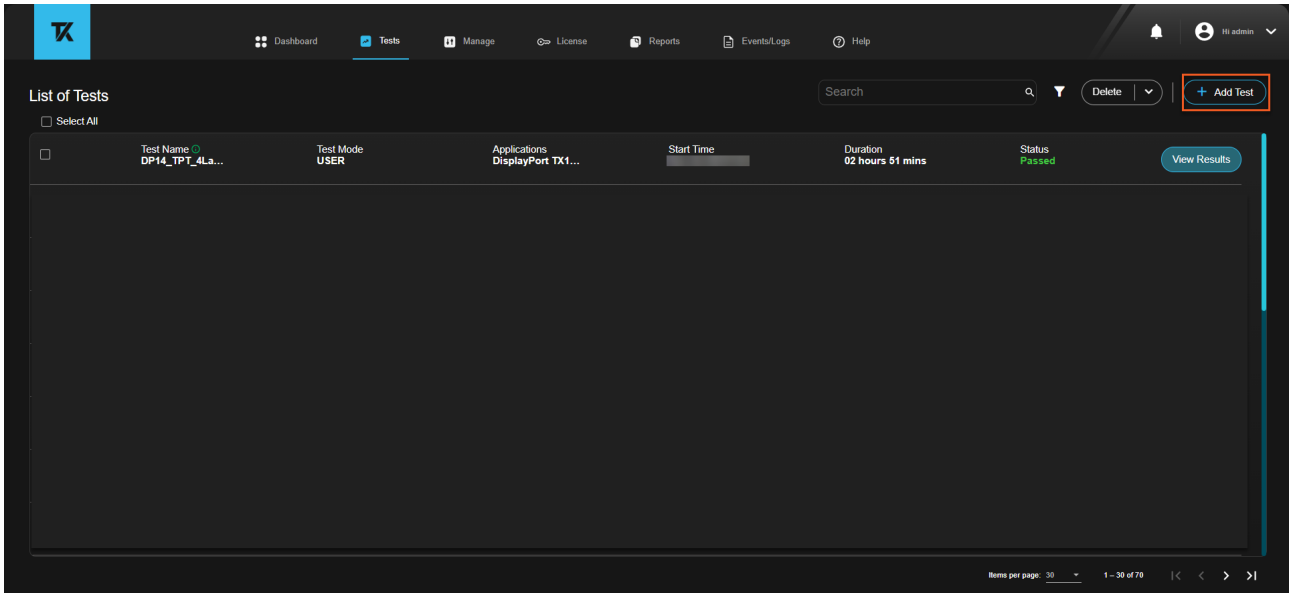


Figure 48: Add Test

2. Enter the test details in the respective fields.

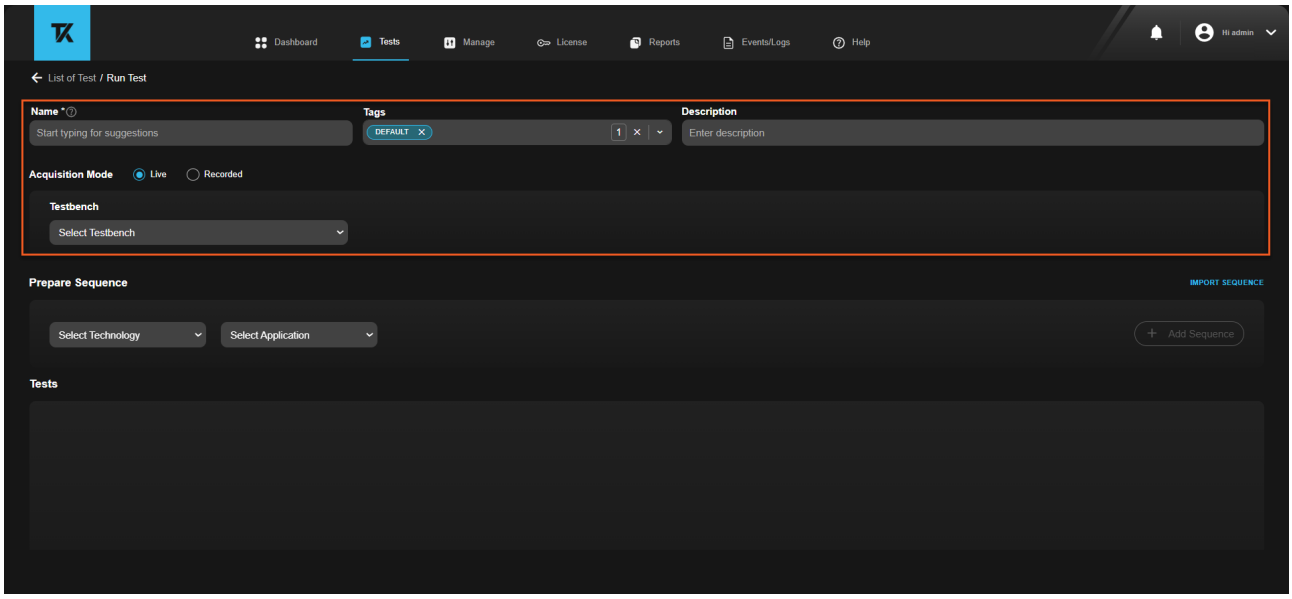


Figure 49: Test Parameters

Menu	Description
Name	Enter a unique test name.

Table continued…

Menu		Description
Tags		Tags are used to group the tests. There is a default tag added. You can add the required tag to the tests and can filter the tests based on the tag value.
Description		Enter the test description.
Acquisition Mode		Select the acquisition mode (Live or Recorded).
	Live	Select **Live** to run a test measurements on live signal. • Select the *testbench* from the drop-down list.
	Recorded	Select **Recorded** to run a test measurements on prerecorded waveforms. • Select the oscilloscope or Clarius installed PC from the drop-down to use recorded waveform files. • Select the *testbench* from the drop-down on the **Recorded** mode. (Enables only when **Remote PC/Oscilloscope** is selected). • Enter waveform folder path from **Remote PC/Oscilloscope** or **Clarius PC**.

3. *Create and prepare a sequence.*
4. *Configure the sources and signals.*
5. *Configure the global settings.*
6. *Instrument connection diagram setup.*
7. *Configure the test scenario.*
8. Click **Run** to run the measurements with the configured settings.

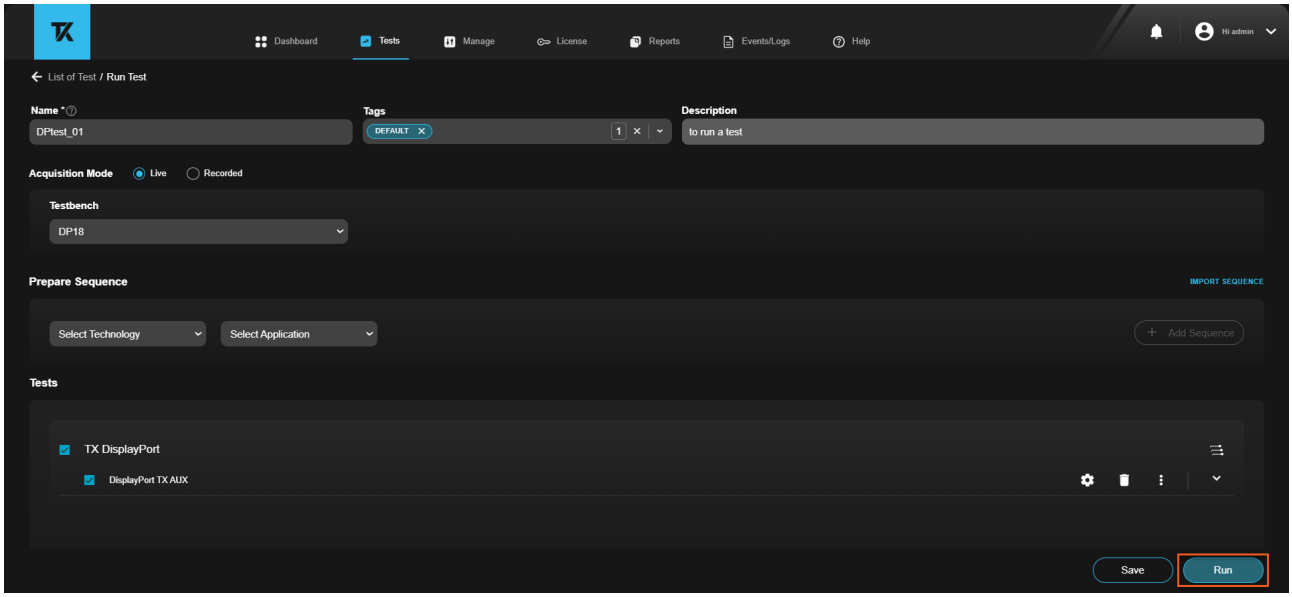


Figure 50: Run a test

Create and prepare a sequence

The create and prepare a sequence settings allows you to add a sequence by setting up the required details.

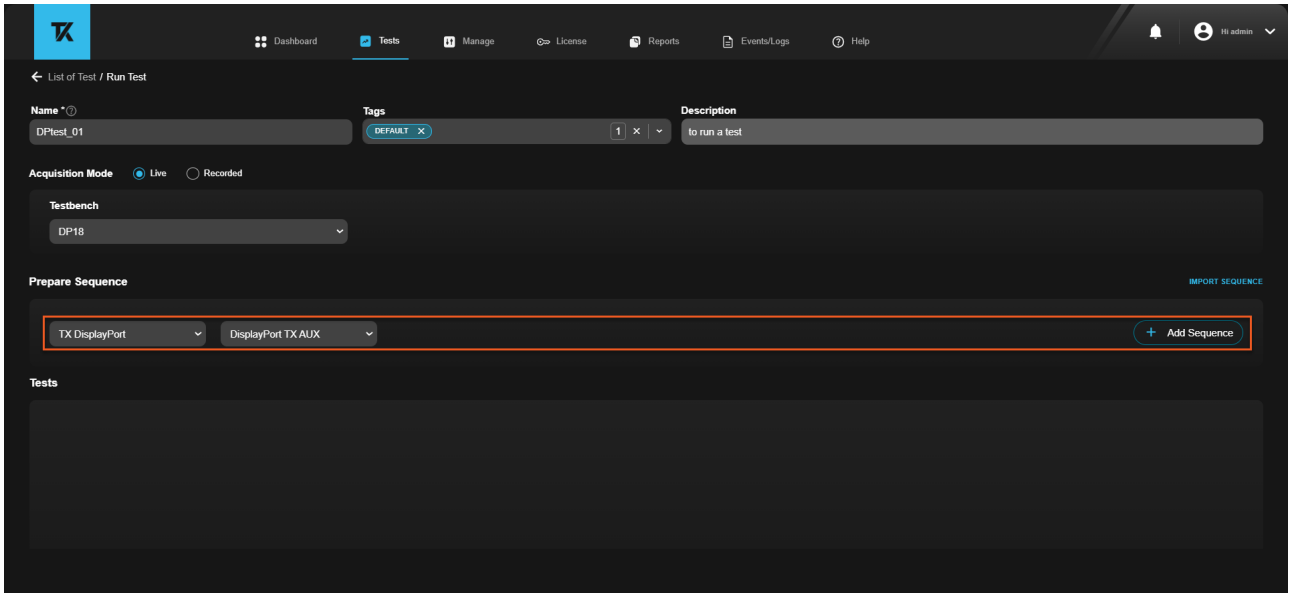


Figure 51: Tests tab: Create and prepare a sequence

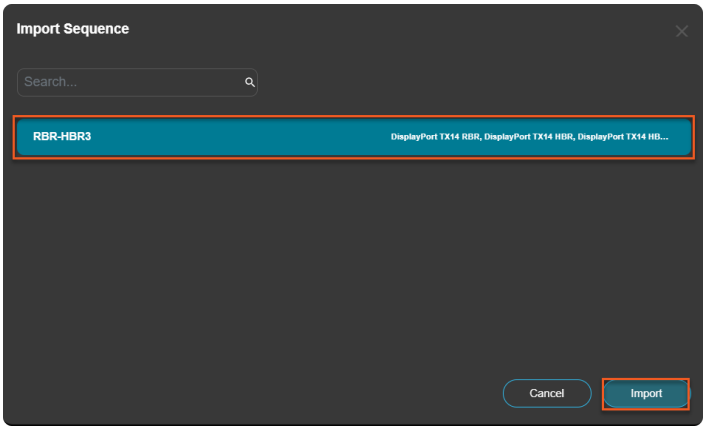
Menu	Description
Import Sequence	It allows to import the sequence that is created as a template. • Click the **IMPORT SEQUENCE** button and select the desired sequence. • Click **Import**. 
Select Technology	Select the technology from the drop-down to prepare a sequence.
Select Application	Select the active application from the drop-down to prepare a sequence.
Add Sequence	It allows to add a new sequence in the current test.
Sources and Signals	Select the required sources and signals to run the test.
Global Settings	Select the required global settings to run the test.
Delete sequence	Deletes the created sequence.
Connection Diagram	Shows the connection between the instruments to make the test setup.
Scenarios	It displays the list of scenarios with their **Names** and **Local Settings** related to the sequence. You can select and unselect a scenario.

Table continued…

Menu	Description
Save	Saves all the sequence settings that are added.
Run	Run the test when all the settings are added.

Configure the sources and signals

The Sources and Signals allows you to select source and assign signals to the channels.

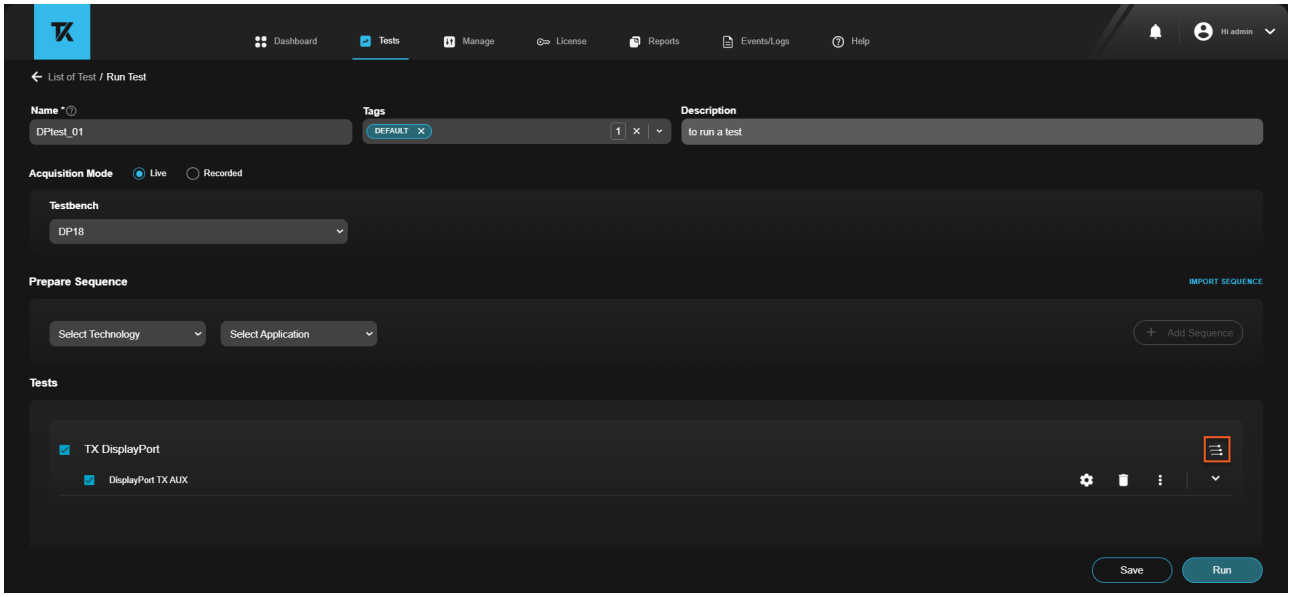


Figure 52: Tests tab: Configure the sources and signals for a test

To add the sources and signals, do the following:

1. Click  to assign the sources and signals for the test setup.
2. By default, signals will be added as per the selected technology and application.
3. To add additional signal, click **+ Add Signal**.

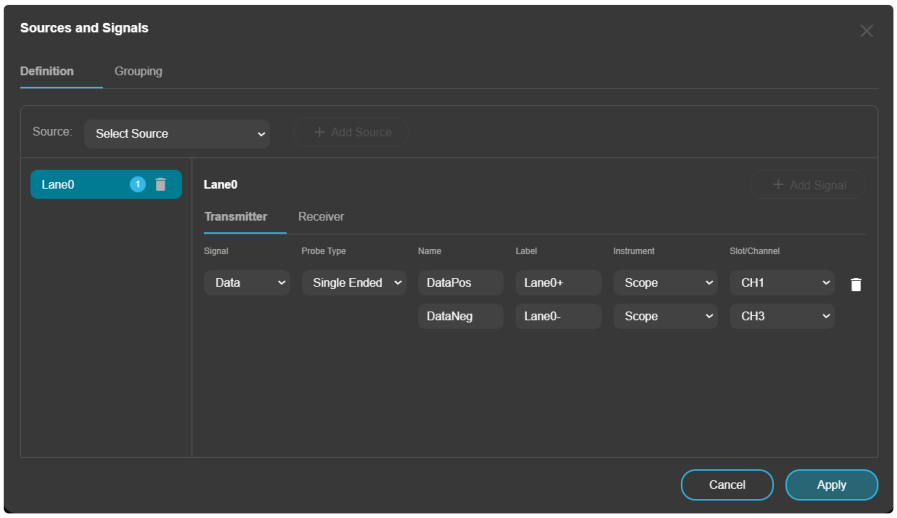


Figure 53: Add Signal for selected source

4. Select or unselect the required sources from the drop-down.
5. Navigate to the **Grouping** tab and click **+ Add Group** to add group of sources.
6. Click **Apply**.

Table 5: Configuring Sources and Signals for DisplayPort Tx

Sources	Description	Options
Source	Configures to select the DUT Lane under test. Select the required source selection from drop-down.	• Lane0 (**Default**) • Lane1 • Lane2 • Lane3
Signal	It displays signal selections.	Data (**Default**)
Probe Type	Select the required probe type from the drop-down.	• Single_Ended (**Default**) • Differential
Name	It displays name of the source based on the **Probe Type**.	• DataPostive and DataNegative for Single_Ended (**Default**) • DataDifferential for Differential
Label	Enter the label of the source in the text field. **Note:** The label value is in both positive and negative.	• Lane0+ and Lane0- for Single_Ended(**Default**) • Lane0 for Differential
Instrument	Select the required instrument from the drop-down.	Scope (**Default**)
Slot/Channel	Select the required channel from the drop-down.	• CH1 (**Default** for DataPostive) • CH2 • CH3(**Default** for DataNegative) • CH4
Delete	Removes the added signal source.	

Configure the global settings

Global settings configured for the application will be applied for all the measurements within the application. These settings are applicable for all the scenarios present in the sequence.

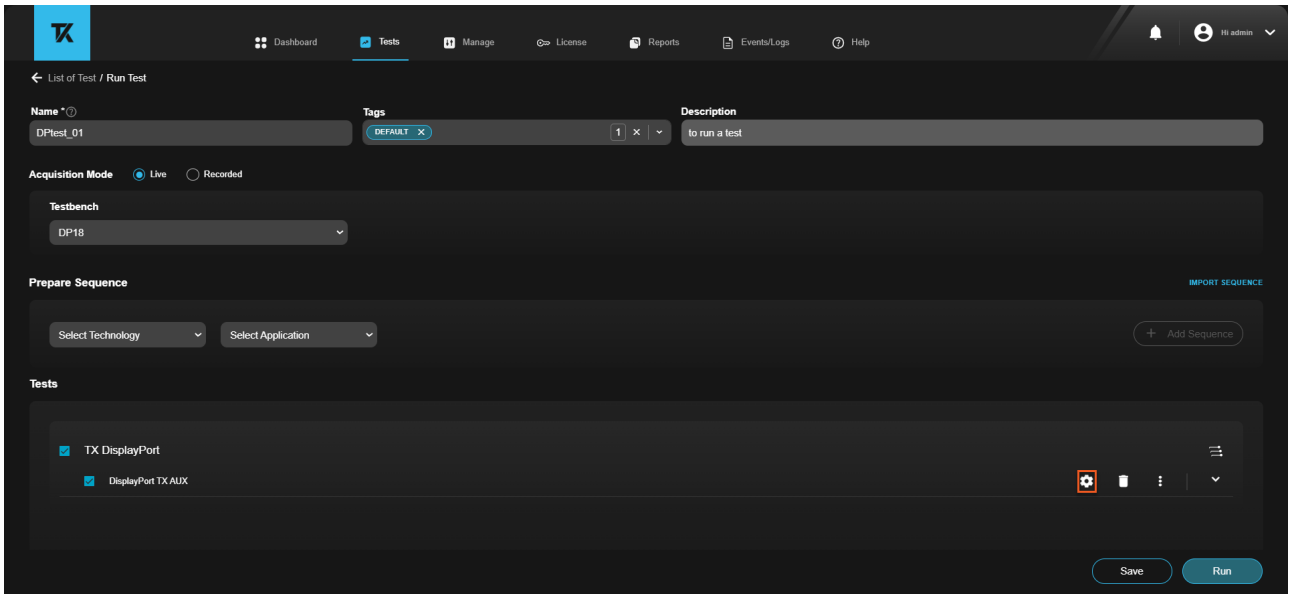


Figure 54: Tests tab: Configure global settings

Follow the steps to add or update the global settings:

1. Click ⚙ from the **Tests** pane.
2. Select or update the respective global settings and click **Apply**.

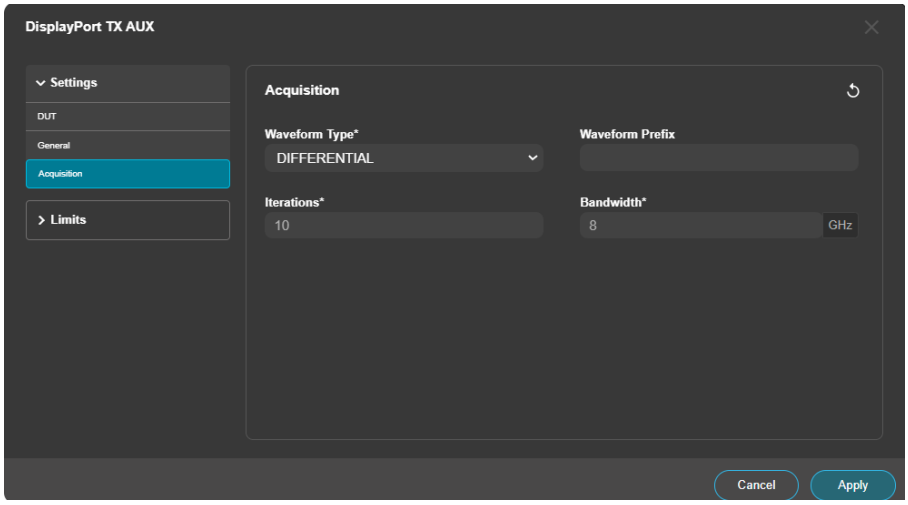


Figure 55: Test tab: Global settings

Table 6: Global Settings for DisplayPort Tx

Settings	Description	Options
↺	Reset all settings to default.	

Table continued…

Settings	Description	Options
Settings > Acquisition		
Use Global Settings	When **Use Global Settings** is enabled, all the measurements will run using the global settings instead of the measurement level settings. Applicable for: CustomDP	• Enable(**Default**) • Disable
Dual Stack	In dual stack mode, acquisition can happen on 4 channels simultaneously and capture 100Gsps in each channel. In 4 channel scope models, this setting must be disabled to acquire waveforms by turning off adjacent channels to capture 100Gsps signal. Applicable for: UHBR10, UHBR13.5, UHBR20	• Enable • Disable(**Default**)
Acquire Only	When **Acquire Only** is enabled, it will acquire the live acquisition waveforms. This setting is enabled only when acquisition mode is in **Live**. Applicable for: HBR, HBR2, HBR3, RBR, UHBR10, UHBR13.5, UHBR20	• Enable • Disable(**Default**)
Data Rates	Defines the data rate of the application for analysis. Applicable for: RBR, HBR, HBR2, HBR3, UHBR10, UHBR13.5, UHBR20 and Custom DP	For RBR, HBR, HBR2, HBR3 • RBR • HBR • HBR2 • HBR3 For UHBR10, UHBR13.5, UHBR20 • UHBR10 • UHBR13.5 • UHBR20 For Custom DP • D0
Voltage Swing	Select the required voltage swing levels from the drop-down. Applicable for: RBR, HBR, HBR2, HBR3, UHBR10 UHBR13.5, UHBR20 and Custom DP	For RBR, HBR, HBR2, HBR3 • 400 • 600 • 800 • 1200 For UHBR10, UHBR13.5, UHBR20 • 800 For Custom DP • V0 - V3
Pattern Type	Select the required pattern types from the drop-down for the analysis.	• PT0 - PT19

Table continued…

Settings	Description	Options
	Applicable for: Custom DP	
Pre-Emphasis Levels	Select the required pre-emphasis levels from the drop-down. Applicable for: RBR, HBR, HBR2, HBR3	• 0 • 3.5 • 6 • 9.5
Presets TP2 (Lane0, Lane1, Lane2, Lane3)	Select the required Presets for TP2 test point tests for each individual lane from the drop-down check box. Applicable for: UHBR10, UHBR13.5, UHBR20	P0 - P15 **Default:** all preset are selected
Presets TP3 (Lane0, Lane1, Lane2, Lane3)	Select the required Presets for TP3 test point tests for each individual lane from the drop-down check box. Applicable for: UHBR10, UHBR13.5, UHBR20	P0 - P15 **Default:** all preset are selected
Presets TX EQ (Lane0, Lane1, Lane2, Lane3)	Select the required Presets for TX Equalization test point tests for each individual lane from the drop-down check box Applicable for: UHBR10, UHBR13.5, UHBR20	P0 - P15 **Default:** all preset are selected
TX Equalization type	Transmitter Equalization tests to calculate Preshoot, De-emphasis and Swing on SQ128 pattern, where preshoot, de-emphasis and swing are the ratio of voltages for different DUT configuration. Applicable for: UHBR10, UHBR13.5, UHBR20	• Method 1 - Shared type FFE • Method 2 - Independent type FFE (**Default**)
SSC	Select the required SSC mode from the drop-down check box for the analysis. Applicable for: HBR2, UHBR10, UHBR13.5, UHBR20	• SSC • NoSSC **Default:** Both SSC and NoSSC are enabled
Signal Validation	Sets the application to validate acquisition signals and perform the specified action to take when acquired signals do not meet the requirements. Select the DUT signal validation type from the drop-down. Applicable for: RBR, HBR, HBR2, HBR3, UHBR10, UHBR13.5, UHBR20	• OFF • CONTINUE_ON_FAIL (**Default**) • RETRY_ON_FAIL • ABORT_ON_FAIL
Acquisition Limit	Select the acquisition limit for capturing the waveform to run the test session from the drop-down. Select Population option for capturing waveform accumulation to run the test. Applicable for: Custom DP	• POPULATION • ITERATIONS (**Default**)
Waveform type	Displays the waveform type that is acquired during acquisition. Applicable for: RBR, HBR, HBR2, HBR3, UHBR10, UHBR13.5, UHBR20	• DIFFERENTIAL (**Default**) • SINGLE_ENDED

Table continued…

Settings	Description	Options
Waveform Prefix	Enter the string that is to be added in the beginning of the waveform name.	<string>
Iterations	Select the number of each waveform acquisition and analysis.	**Range:** 1 - 10 For RBR, HBR, HBR2, HBR3, UHBR10, UHBR13.5, UHBR20 and Custom DP • **Default:** 1 For AUX • **Default:**10
Retry Count on Acquisition Fail	Enter the number of times to retry the signal when the signal acquisition fails. Applicable for: RBR, HBR, HBR2, HBR3, UHBR10, UHBR13.5, UHBR20 and Custom DP	**Range:** 1 - 10 **Default:** 3
Bandwidth	Enter the bandwidth value of the oscilloscope.	• RBR - 4 GHz • HBR - 8 GHz • HBR2 - 12.5 GHz • HBR3 - 16 GHz • UHBR10 - 16 GHz • UHBR13.5 - 21 GHz • UHBR20 - 21 GHz • Custom DP - 16 GHz • AUX - 8 GHz
Settings > DUT		
DUT ID	Enter the DUT ID in the text field.	DUT001
Version	Displays CTS version.	For RBR, HBR, HBR2, HBR3 and AUX • CTS_1.4 For UHBR10, UHBR13.5, UHBR20 • CTS_2.1 For Custom DP • Custom
Fixture	Select the required fixture from the drop-down. Applicable for: UHBR10, UHBR13.5, UHBR20 and Custom DP	• Enhanced DP (**Default**) • Type C • mDP
Connector	Select the required connector type from the drop-down. Applicable for: RBR, HBR, HBR2, HBR3 and AUX	• Standard (**Default**) • Type C
Embed	Enable to apply the Embed filter.	• Enable

Table continued…

Settings	Description		Options
	Applicable for: RBR, HBR, HBR2, HBR3, AUX and Custom		• Disable (**Default**)
	Embed Filter File	Once enabled, enter the **Embed** filter file path for acquisition on the channels.	<string>
De-Embed	Enable to apply the De-embed filter. Applicable for: RBR, HBR, HBR2, HBR3, UHBR10, UHBR13.5, UHBR20 and Custom DP		**Default** • Enable (For UHBR10, UHBR13.5, UHBR20) • Disable (For RBR, HBR, HBR2, HBR3, Custom DP)
	De-Embed Filter File Pos	Once enabled, enter the **De-Embed** filters for acquisition file on positive channels.	For RBR, HBR, HBR2, HBR3 `C:\Program Files\Tektronix\Clarius\lib\instrument\plugins\applications\displayport\DP\filters\StdDeEmbWilder.flt` For AUX `C:\Program Files\Tektronix\Clarius\lib\instrument\plugins\applications\displayport\DP\filters\StdDeEmbWilder.flt` For Custom DP `C:\Program Files\Tektronix\Clarius\lib\instrument\plugins\applications\displayport\CustomDP\filters\WT_Enhanced_mDP_Plug_wo_conn_Pos.flt`
	De-Embed Filter File Neg	Once enabled, enter the **De-Embed** filters for acquisition file on negative channels.	For RBR, HBR, HBR2, HBR3 `C:\Program Files\Tektronix\Clarius\lib\instrument\plugins\applications\displayport\DP\filters\StdDeEmbWilder.flt` For AUX `C:\Program Files\Tektronix\Clarius\lib\instrument\plugins\applications\displayport\DP\filters\StdDeEmbWilder.flt` For Custom DP `C:\Program Files\Tektronix\Clarius\lib\instrument\plugins\applications\displayport\CustomDP\filters\WT_Enhanced_mDP_Plug_wo_conn_Neg.flt`
	De-Embed Filter File	Once enabled, enter the **De-Embed** filters for acquisition file on the channels.	For RBR, HBR, HBR2, HBR3 `C:\Program Files\Tektronix\Clarius\lib\`

Table continued…

Settings	Description		Options
			instrument\plugins\applications\displayport\DP\filters\StdDeEmbWilder.flt For UHBR10, UHBR13.5 UHBR20 C:\Program Files\Tektronix\Clarius\lib\instrument\plugins\applications\displayport\DP2.0\filters\WT_Enhanced_mDP_Plug_wo_conn_Diff.flt For AUX C:\Program Files\Tektronix\Clarius\lib\instrument\plugins\applications\displayport\DP\filters\StdDeEmbWilder.flt For Custom DP C:\Program Files\Tektronix\Clarius\lib\instrument\plugins\applications\displayport\CustomDP\filters\WT_Enhanced_mDP_Plug_wo_conn_Diff.flt
Settings > General			
Test Mode	Select the required test mode from the drop-down for testing the DUT.		• COMPLIANCE (**Default**) • ADVANCED
Record Length	Specifies the number of data points captured for the analysis. Applicable for: AUX		20 M
Sample rate	Select the sample rate. Applicable for: AUX		50 GS/s
Measurement Interpolation Mode	Select the required measurement interpolation mode from the drop-down. Applicable for: Custom DP		• Sinx (**Default**) • Linear
Measurements	Select the list of measurements for analysis. Refer to the *DisplayPort Tx measurements*.		
Settings > Eye/Jitter Acquisition			
Eye/Jitter Voltage Swing (mV)	Select the required voltage swing levels from the drop-down check box. Applicable for: HBR2, HBR3		For HBR2, HBR3 • 400 • 600 • 800 • 1200

Table continued…

Settings	Description	Options
Eye/Jitter Pre-Emphasis Level (dB)	Select the required pre-emphasis levels from the drop-down. Applicable for: HBR2, HBR3	For HBR2, HBR3 • 0 • 3.5 • 6 • 9
Eye/Jitter SSC	Select the required SSC mode from the drop-down check box for the analysis. Applicable for: HBR2, HBR3	• SSC • NoSSC **Default:** Both SSC and NoSSC are enabled

Limits editor

Displays the lower limit, ideal value, and upper limit for the applicable measurement using different types of comparisons.

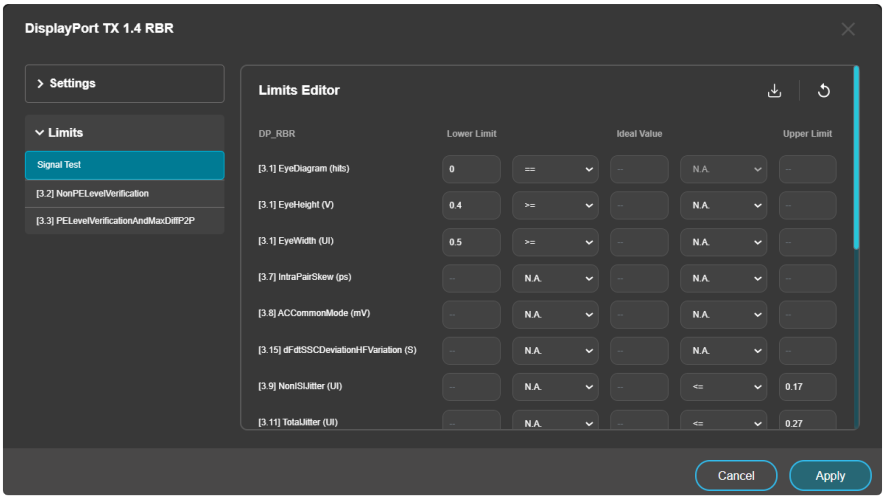


Figure 56: Limits editor

Table 7: Limits Editor for DisplayPort Tx

Limits	Description
Measurements	Shows the list of measurements for the selected group.
Lower limit	Lower limit as defined in the specification.
Ideal Value	Ideal value as defined in the specification.
Upper Limit	Upper limit as defined in the specification.

Instrument connection diagram setup

The instrument connection diagram setup shows how to connect the DUT to the oscilloscope for the tests.

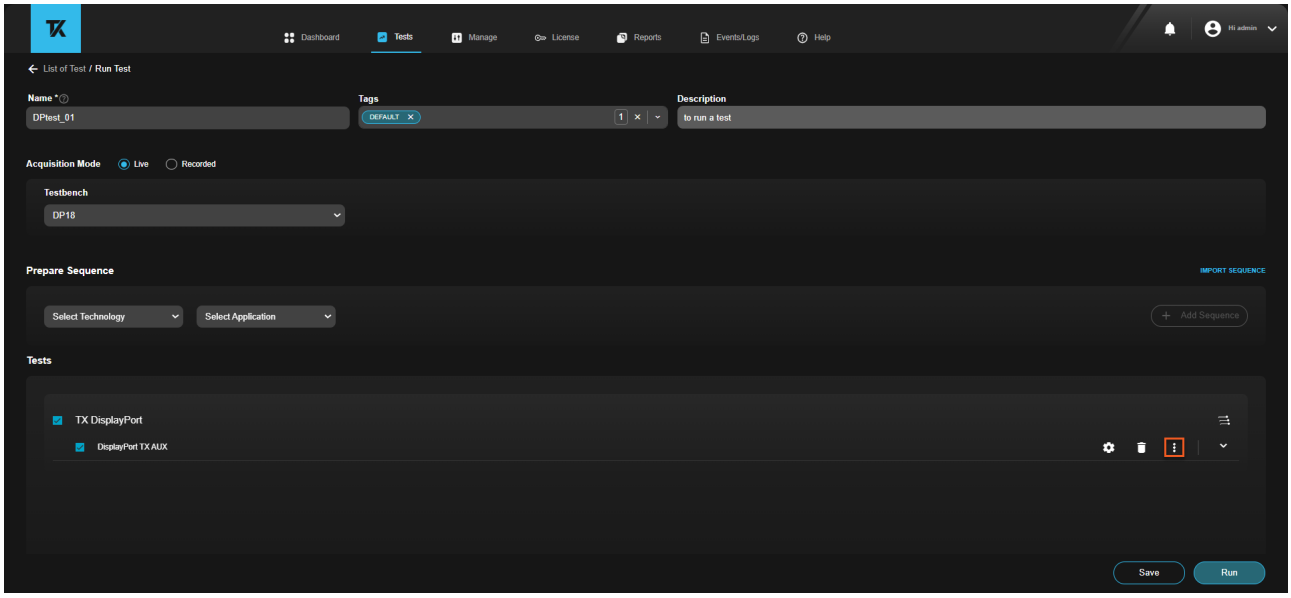
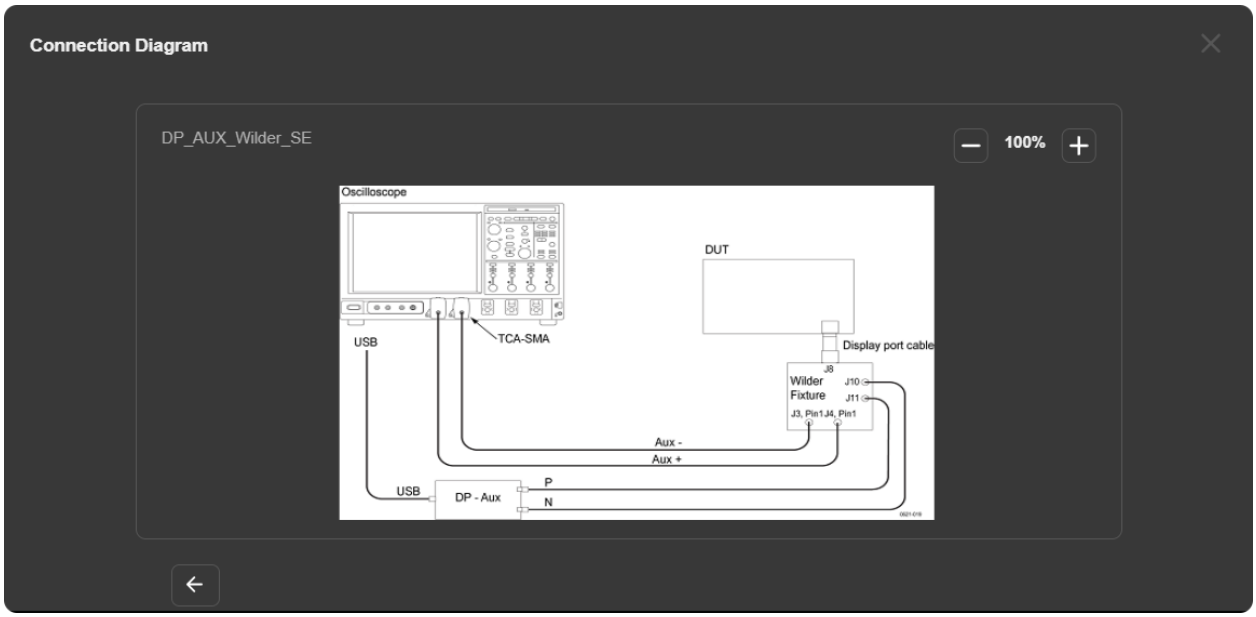


Figure 57: Tests tab: Connection diagram setup

Follow the steps to view the test setup connections between the instruments.

1. Click ⋮ and then click **Connection Diagram.**
2. Click ← → to view the different connection diagrams that are associated to the test setup.



Configure the test scenarios

The scenarios and their measurements can be configured using the parameters in the scenario frame. Initially the scenarios and measurements are configured to the default values.

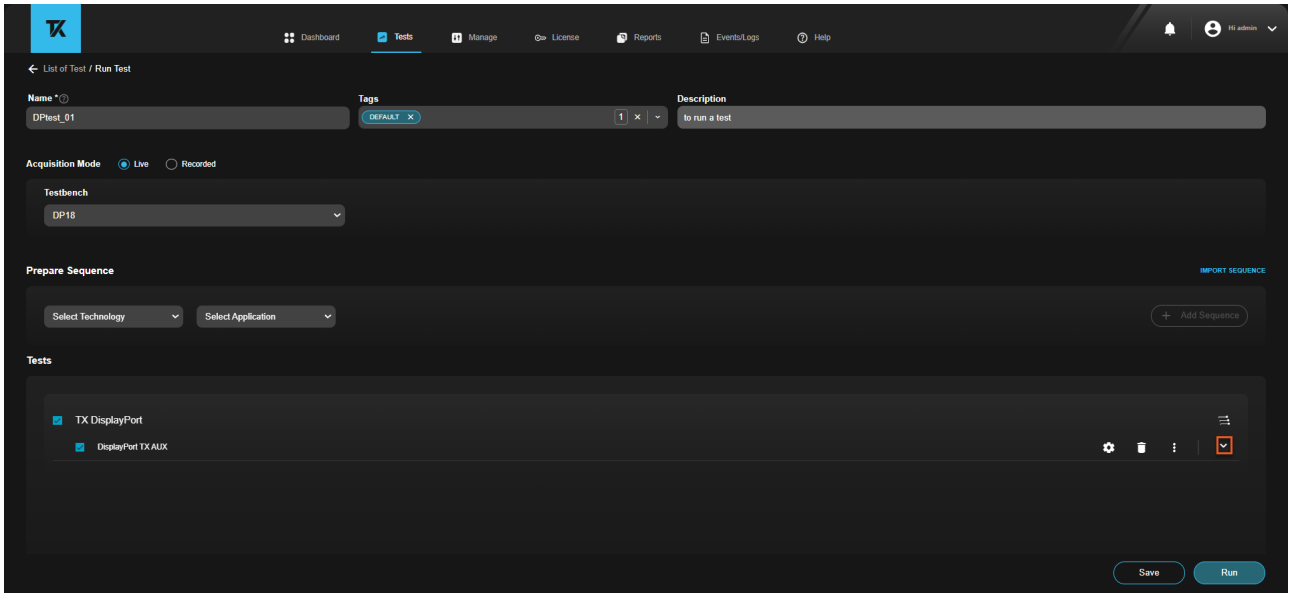


Figure 58: Tests tab: Configure test scenarios

Follow the steps to configure the scenarios:

1. Click ⌄ in the **Tests** frame to view and configure the scenarios settings.

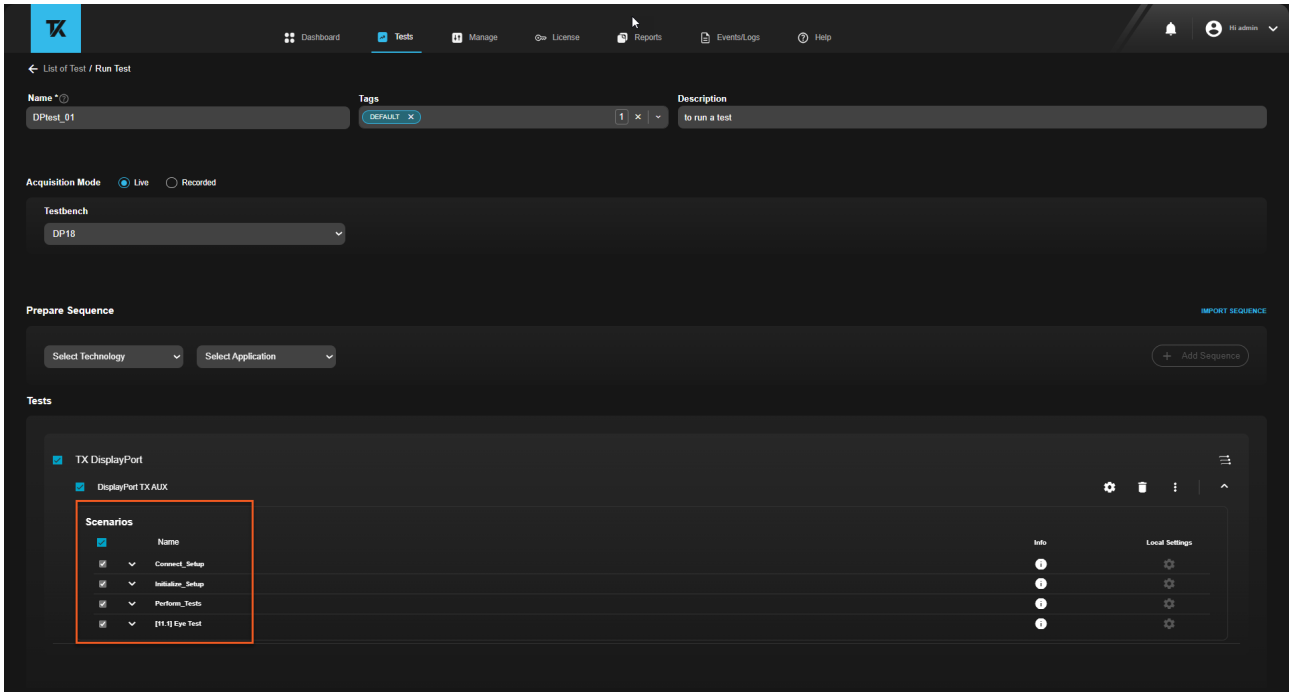


Figure 59: Configure the measurements

2. Click ⚙ from **Local Settings** to configure the respective scenario setting.

Table 8: Configuring Scenarios for DisplayPort Tx

Items	Description	Options
	Click to reset the mentioned values to default value.	
General		
Skip Interrupt	It will skip the interrupt during execution. Applicable for: RBR, HBR, HBR2, HBR3, UHBR10, UHBR13.5, UHBR20 and Custom DP	• Enable (**Default**) • Disable
Skip	It will skip the execution. Applicable for: Custom DP	• Enable (**Default**) • Disable
Action name	It displays the name of the action occurred.	• configure_dut_controller
Mode	It sets default mode for AUX testing. Applicable for: AUX	• AUX
Amplitude	It sets default amplitude value for AUX setting Applicable for: AUX	100
Mask File	Specifies default mask file for AUX testing. Applicable for: AUX	• DP_AUX_Mask
Export Only Math	When enabled it only upload math waveforms Applicable for: RBR, HBR, HBR2, HBR3, UHBR10, UHBR13.5, UHBR20 and AUX	• Enable (**Default**) • Disable
Save single ended waveforms	When enabled, it saves both single ended and differential waveforms. It is applicable only when single ended cables are used.	• Enable • Disable (**Default**)
Clock Recovery Method	It specifies the algorithm to use to recover the clock Select the Clock Recovery Method from the drop-down. Applicable for: Custom DP	• PLL Custom
PLL Model	Select the PLL model from drop-down. Applicable for: Custom DP	• Type I • Type II (**Default**)
Damping	Enter the clock damping value in the text filed. This setting is enabled when **PLL Model** is selected Type II. Applicable for: Custom DP **Note:** The default value changes according to the measurement selected.	For Custom DP • 0.94
PLL Bandwidth Type	It defines the type of PLL bandwidth. Select the PLL Bandwidth from the drop-down	• LoopBW (**Default**) • JtfBW

Table continued…

Items	Description		Options
	Applicable for: Custom DP		
	LoopBW	This settings is enabled when **PLL Bandwidth Type** is selected as LoopBW. Applicable for: Custom DP	5 MHz
	JTFBW	This settings is enabled when **PLL Bandwidth Type** is selected as JTFBW. Applicable for: Custom DP	5 MHz
Target BER	Enter the Target Ber value in the text filed. Applicable for: Custom DP		12
Automatic Transition Density Compensation	Enable or disable the automatic transition density. Applicable for: Custom DP		• Enable (**Default**) • Disable
Preset Optimization	Select the option for which test points preset optimization must happen. Applicable for: RBR, HBR, HBR2, HBR3 and UHBR10, UHBR13.5, UHBR20		• Preset_Optimization_TP2 • Preset_Optimization_TP3
Iterations	Select the number of each waveform acquisition and analysis. Applicable for: RBR, HBR, HBR2, HBR3, UHBR10, UHBR13.5, UHBR20 and AUX		1
ClockBitRate	It specifies the clock bit rate for all tests. Applicable for: Custom DP		10000000000
Record Length	Enter the Record Length value in the text filed. Applicable for: RBR, HBR, HBR2, HBR3, UHBR10, UHBR13.5, UHBR20 and Custom DP **Note:** The default value changes according to the measurement selected.		
Sample Rate	Enter the Sample Rate value in the text filed. Applicable for: RBR, HBR, HBR2, HBR3, UHBR10, UHBR13.5, UHBR20 and Custom DP		For RBR, HBR, HBR2, HBR3, Custom DP • 50 GS/s For UHBR10, UHBR13.5, UHBR20 • 100 GS/s
Cable Filter	It displays the Cable Filter value. Applicable for: UHBR10, UHBR13.5, UHBR20		For UHBR10 • DP40.flt UHBR13.5, UHBR20 • DP80.flt
Record Length Lane0	It displays the Record Length value for Lane0.		50 M

Table continued…

Items	Description	Options
	This setting is applicable for Preset Optimization measurement. Applicable for: UHBR10, UHBR13.5, UHBR20	
Record Length Lane1	It displays the Record Length value for Lane1. This setting is applicable for Preset Optimization measurement. Applicable for: UHBR10, UHBR13.5, UHBR20	50 M
Record Length Lane2	It displays the Record Length value for Lane2. This setting is applicable for Preset Optimization measurement. Applicable for: UHBR10, UHBR13.5, UHBR20	50 M
Record Length Lane3	It displays the Record Length value for Lane3. This setting is applicable for Preset Optimization measurement. Applicable for: UHBR10, UHBR13.5, UHBR20	50 M
Sample Rate Lane0	It displays the Sample Rate value for Lane0. This setting is applicable for Preset Optimization measurement. Applicable for: UHBR10, UHBR13.5, UHBR20	100 GS/s
Sample Rate Lane1	It displays the Sample Rate value for Lane1. This setting is applicable for Preset Optimization measurement. Applicable for: UHBR10, UHBR13.5, UHBR20	100 GS/s
Sample Rate Lane2	It displays the Sample Rate value for Lane2. This setting is applicable for Preset Optimization measurement. Applicable for: UHBR10, UHBR13.5, UHBR20	100 GS/s
Sample Rate Lane3	It displays the Sample Rate value for Lane3. This setting is applicable for Preset Optimization measurement. Applicable for: UHBR10, UHBR13.5, UHBR20	100 GS/s
CTLE Settings	Sets the required option from the drop-down. Applicable for: UHBR10, UHBR13.5, UHBR20	• AUTO CTLE+DFE (**Default**) • AUTO CTLE • MANUAL CTLE

Table continued…

Items	Description		Options
	CTLE Filter	When CTLE Settings is selected to **Manual**, the CTLE Filter value is displayed.	For UHBR10 • UHBR10-0db.flt For UHBR13.5 • UHBR135-0db.flt For UHBR20 • UHBR20-0db.flt
Acquire Mode	Select the **Acquire Mode** from the drop-down. Applicable for: HBR2, HBR3		• SAMPLE (**Default:**) • AVERAGE
	Acquire Average Number	When Acquire Mode selected as **AVERAGE**, Acquire Average Number is enabled.	16 Wfm
Reference Levels			
Set Levels In	Select whether reference levels to be set in Relative or Absolute. Applicable for: Custom DP		• RELATIVE (**Default**) • ABSOLUTE
Rise Edge High	Set the **Rise Edge High** value for reference level. Applicable for: Custom DP		**Default:** • When Set Levels In selected as **ABSOLUTE**, the value is 1. • When Set Levels In selected as **RELATIVE**, the value is 90%.
Rise Edge Mid	Set the **Rise Edge Mid** value for reference level. Applicable for: Custom DP		**Default:** • When Set Levels In selected as **ABSOLUTE**, the value is 0. • When Set Levels In selected as **RELATIVE**,the value is 50%
Rise Edge Low	Set the **Rise Edge low** value for reference level. Applicable for: Custom DP		**Default:** • When Set Levels In selected as **ABSOLUTE**,the value is -1. • When Set Levels In selected as **RELATIVE**,the value is 90%.
Falling Edge High	Set the **Falling Edge High** value for reference level. Applicable for: Custom DP		**Default:** • When Set Levels In selected as **ABSOLUTE**,the value is 1 • When Set Levels In selected as **RELATIVE**,the value is 90%
Falling Edge Mid	Set the **Falling Edge Mid** value for reference level. Applicable for: Custom DP		• When Set Levels In selected as **ABSOLUTE**,the value is 0

Table continued…

Items	Description		Options
			• When Set Levels In selected as **RELATIVE**,the value is 50%
Falling Edge Low	Set the **Falling Edge Low** value for reference level. Applicable for: Custom DP		• When Set Levels In selected as **ABSOLUTE**,the value is -1 • When Set Levels In selected as **RELATIVE**,the value is 10%
Hysteresis	Sets the threshold margin to the reference level which the voltage must cross to be recognized as changing; the margin is the relative reference level plus or minus half the hysteresis. Applicable for: Custom DP		• When Set Levels In selected as **ABSOLUTE**,the value is 0.03 • When Set Levels In selected as **RELATIVE**,the value is 5% **Default:** 5%
Levels	Select the reference level in the **Relative** Set Levels In mode. Applicable for: Custom DP		• 10-90% (**Default**) • 20-80% • CUSTOM
Base Top Method	Select Base Top Method Applicable for: Custom DP		• AUTOMATIC (**Default**) • MINMAX • MEAN • MODE • EYE
Analysis			
Jitter Separation Model	Select jitter separation model settings from the drop-down. Applicable for: Custom DP		• Spectral (**Default**) • Spectral+BUJ
	Minimum Number of UI	When **Jitter Separation Model** is selected to **Spectral+BUJ**, the Minimum Number of UI is enabled.	200 kUI (**Default**)
Horizontal Meas Units	Select unit for horizontal setting from drop-down. Applicable for: Custom DP		• UI (**Default**) • Seconds
Pattern Detection	Select the **Pattern Detection** setting from drop-down. Applicable for: Custom DP		• AUTO (**Default**) • MANUAL
	Pattern Type	When **Pattern Detection** is selected to **MANUAL**, the **Pattern Type** setting is enabled	• Repeating (**Default**) • Arbitrary
	Pattern length	When **Pattern Detection** is selected to **MANUAL**, the **Pattern Length** setting is enabled	2 UI (**Default**)

Table continued…

Items	Description	Options
Low Pass Filter	When any option other than **No Filter** is selected, it enables another setting called **LowPassFilter Frequency** with default value as 1.98 MHz. Applicable for: Custom DP	• No Filter (**Default**) • 1st Order • 2nd Order • 3rd Order
Acquisition		
Pattern Type	Select the required pattern type from the drop-down check box for the analysis. Applicable for: Custom DP	**Value:** PT0 - PT19 **Default** PT0
Data Rate	Defines the data rate of the application for analysis. Applicable for: Custom DP	D0
Voltage Swing	Select the required voltage swing levels from the drop-down check box. Applicable for: Custom DP	**Value:**V0 - V3 **Default:** V0
Preset	Select the required Presets TP2 from the drop-down check box for the analysis. Applicable for: Custom DP	**Value:**P0 - P15 **Default:** P0
SSC	Select the required SSC mode from the drop-down check box for the analysis. Applicable for: Custom DP	• SSC • NoSSC **Default:** Both SSC and NoSSC are enabled

3. Select the required measurements from the drop-down list.
4. Update the parameters with the required values.
5. Click **Apply**.

Run the measurements

Click **Run** to run the measurements with the configured settings.

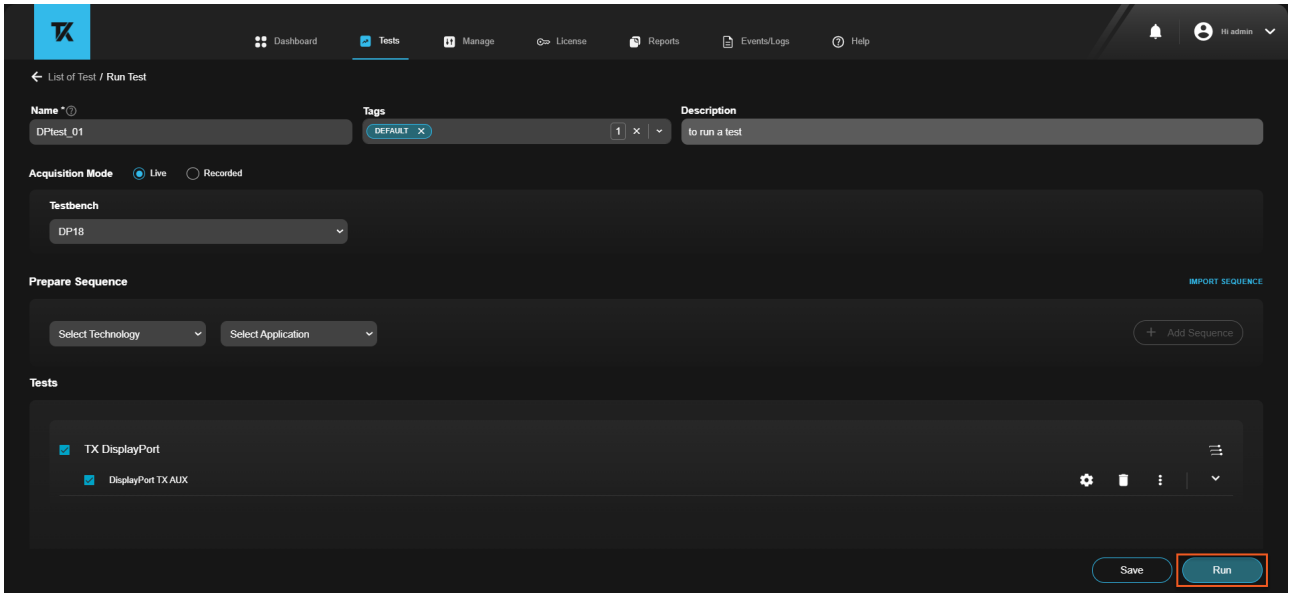


Figure 60: Run a test

View test execution status and results

The status and results of each executed test in the **Tests** tab displays the test status and the result details.

1. Go to **Tests** tab and click **View Results** of an executed test.

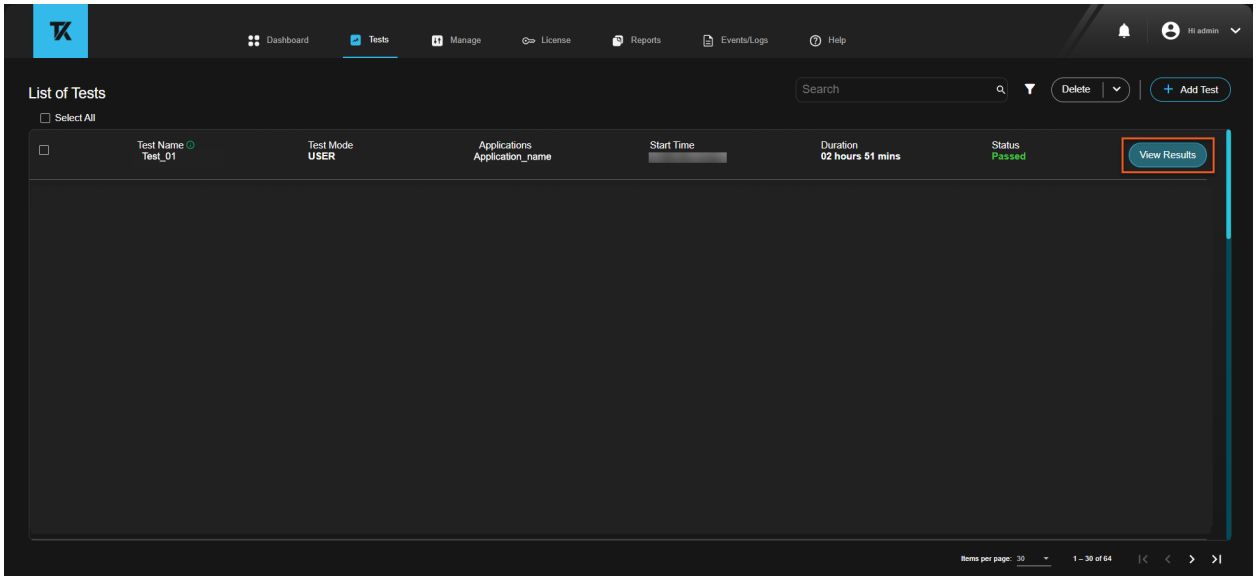


Figure 61: Tests: View results

2. The test execution details with results, plots, and waveforms are summarized as follows.

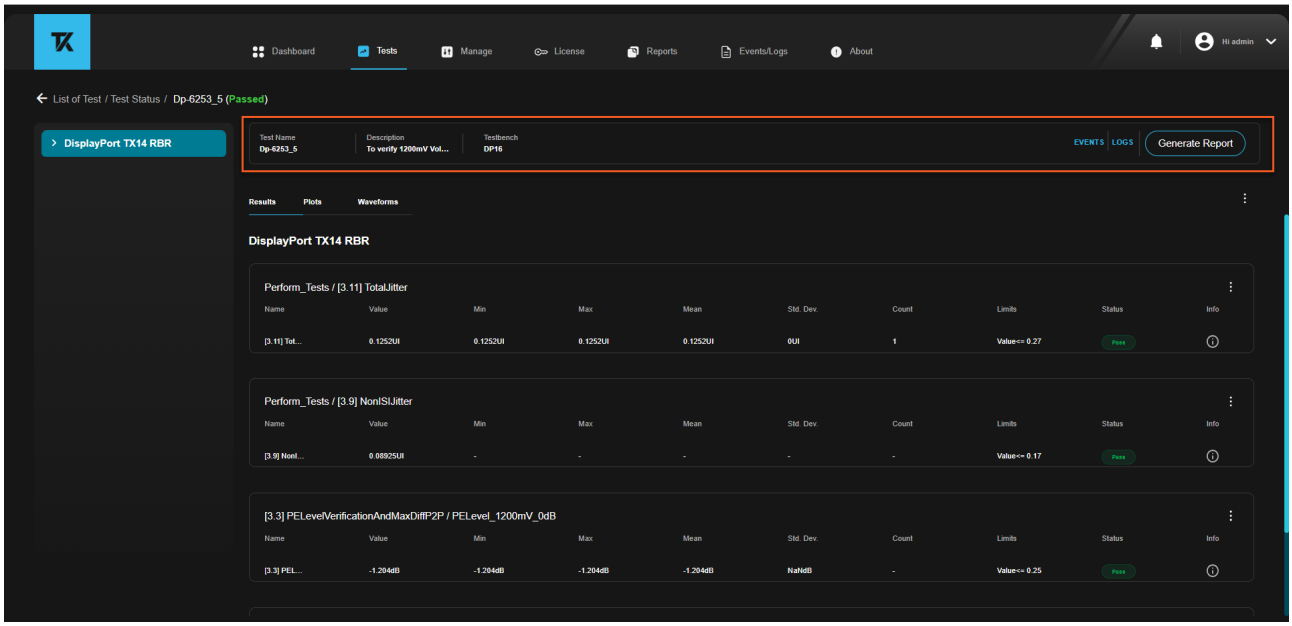


Figure 62: View test execution details

Control	Description
Test Name	Displays the test name that is set.
Description	Displays the test description.
Testbench	Displays the testbench that is used.
Events	View the events of an executed test. Refer *Events* for more information.
Logs	View the logs of an executed test. Refer *Logs* for more information.
Generate Report	Generates the report of an executed test. Refer *Add and Generate New Report* for more information.

Test results

The **Results** tab displays the results of an executed test measurement.

Follow the steps to view the test results:

1. Select the required measurement from the left side bar to view the results. The top level selections displays all the results whereas, the lower level displays results for only that particular parameter.
2. Click the **Results** tab to view the acquisition results.

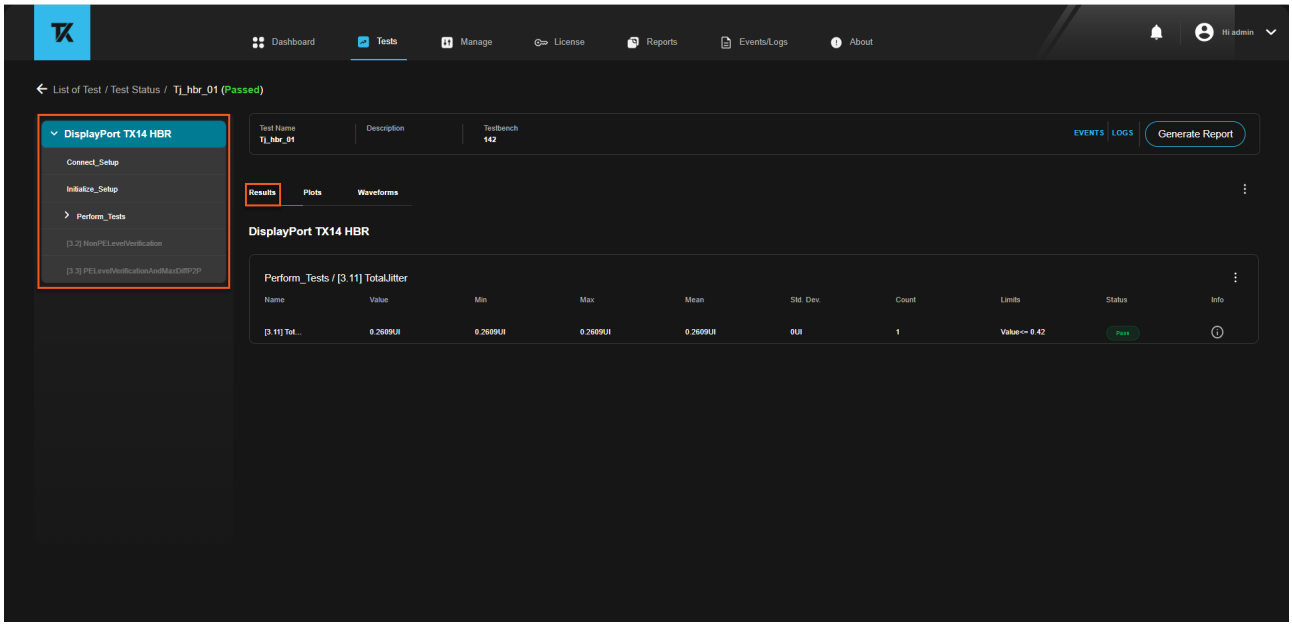


Figure 63: Test results

Menu	Description
Name	Displays the name of the measurement that is executed.
Value	Displays the measured value.
Min	Displays the minimum measured value.
Max	Displays the maximum measured value.
Mean	Displays the mean measured value.
Std.Dev	Displays the standard deviation of the measured value.
Count	Displays the count value for the measurement.
Lower Margin	Displays the lower margin of the measured value. **Note:** This menu will be displayed only when the required measurement is selected from the left side bar.
Upper Margin	Displays the upper margin of the measured value. **Note:** This menu will be displayed only when the required measurement is selected from the left side bar.
Limits	Displays the measurement limits.
Status	Displays the measurement status.
Info	Displays the additional information of the measurement.

3. Click ⋮ and select the sub-menu to customize the columns to display the respective test results data, and click **Apply**.

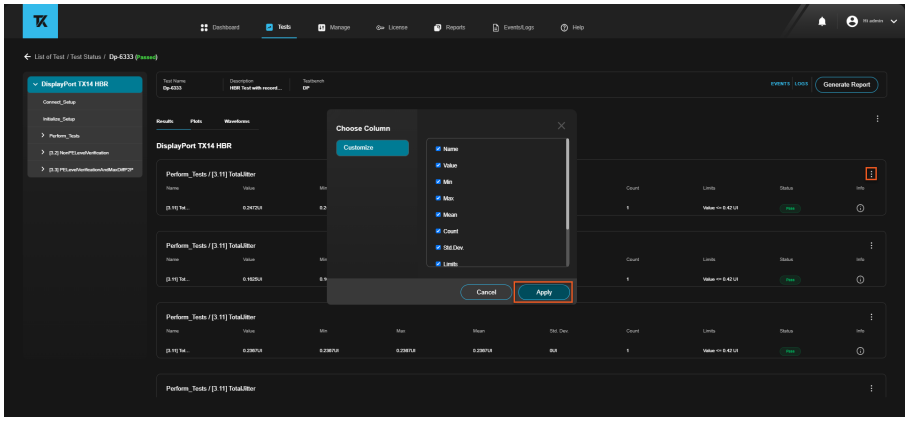


Figure 64: Customize test results columns

4. Click ⋮ and select **Download CSV Result** or **Download waveforms** to download the test results.

Test plots

The **Plots** tab displays the plots of an executed test measurement.

Follow the steps to view the test plots:

1. Select the required measurement from the left side bar to view the plots. The top level selections displays all the plots whereas, the lower level displays results for only that particular parameter.
2. Click the **Plots** tab to view the acquisition plots.

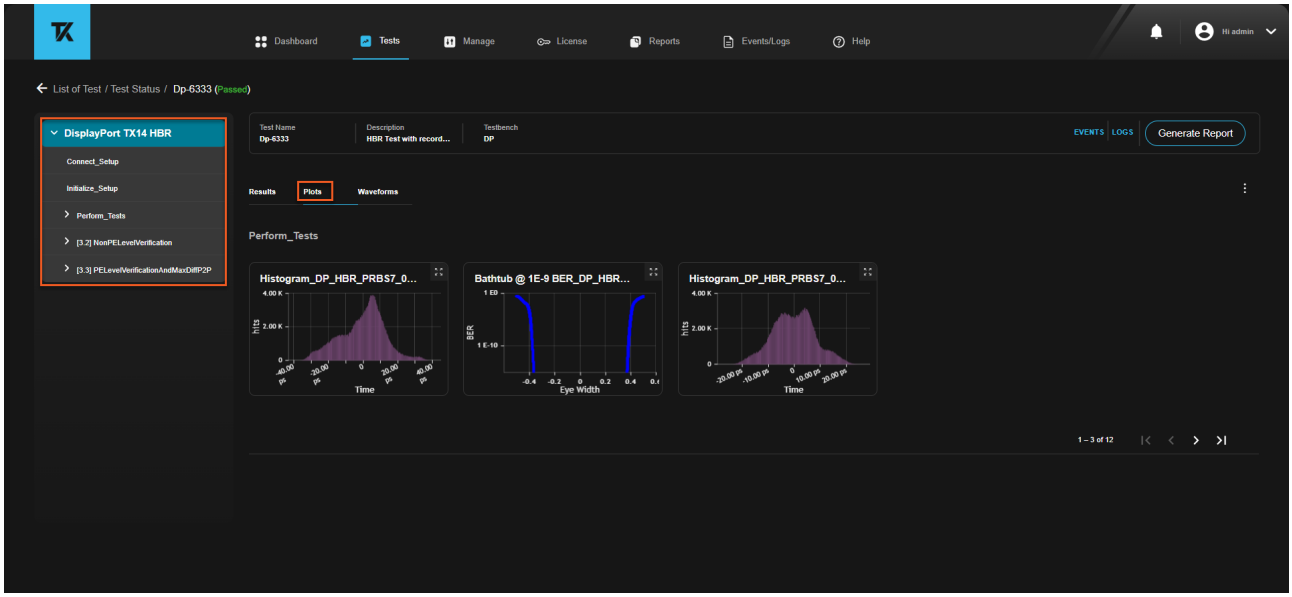


Figure 65: Test plots

3. Click ⋮ and select **Download CSV Result** or **Download waveforms** to download the test plots.

Test waveforms

The **Waveforms** tab displays the waveforms of an executed measurement.

Follow the steps to view the test waveforms:

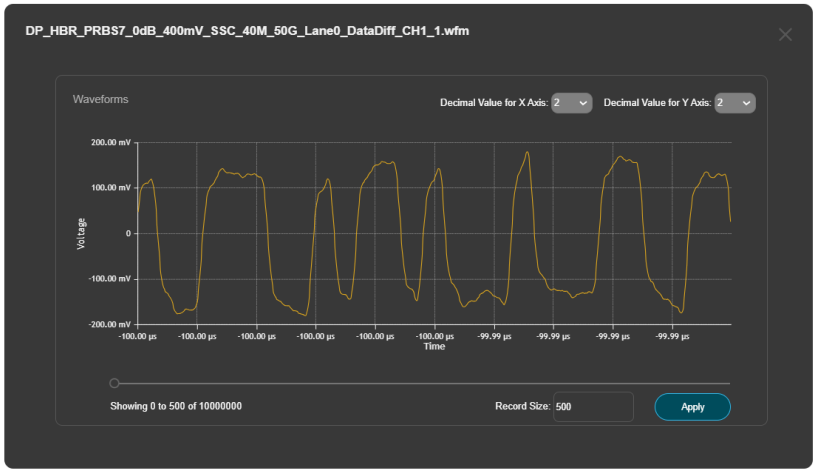
1. Select the required measurement from the left side bar for which the waveforms to be viewed.

2. Click the **Waveforms** tab.
3. Select the number of iteration and the required waveform name from the drop-down to display the waveform.

Figure 66: Test waveforms

4. (Optional) Click the icon to set the view properties for the waveform and click **Apply**
   - **Decimal value for Axis**: Set the decimal value for units of X Axis and Y Axis.
   - **Record Size**: Enter the total record length to view in a single screen.
   - Waveform scroll bar: Scroll to view the portion of the waveform.

.



5. To download individual test waveforms, click of the respective measurement and select **Download waveforms**.
6. Click and select **Download CSV Result** or **Download Waveforms** to download all test waveforms.

Filter tests

The filter by option under **Tests** tab allows the user to filter the test based on the criteria, such as: Status, Date Executed, and Applications.

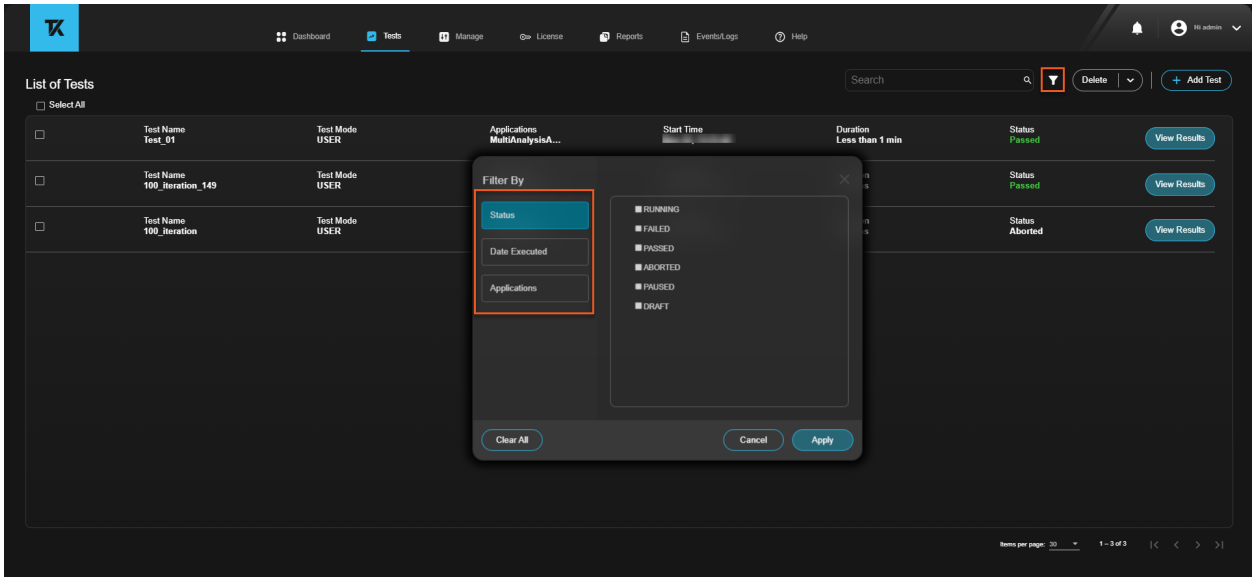


Figure 67: Filter test

Filter By	Description
Status	Displays the test status. • RUNNING • FAILED • PASSED • ABORTED • PAUSED • DRAFT
Date Executed	Select the **From** and **To** date to filter required tests.
Applications	Select the required applications to filter the test.
Clear All	Clear all the filters.
Apply	Applies the filter to a particular test.
Cancel	Click to cancel all the changes.

Manage: Test benches, sequence, and applications

The manage tab allows you to view the list of activated applications, create and configure test benches, and sequences. It also allows you to save the settings for further analysis.

Test Bench: Create and configure the test bench

A test bench is an environment that is used to verify the correctness of a test setup. The **Test Benches** tab allows you to create a test bench or edit an existing test bench for an application. You can also modify and delete the available test bench.

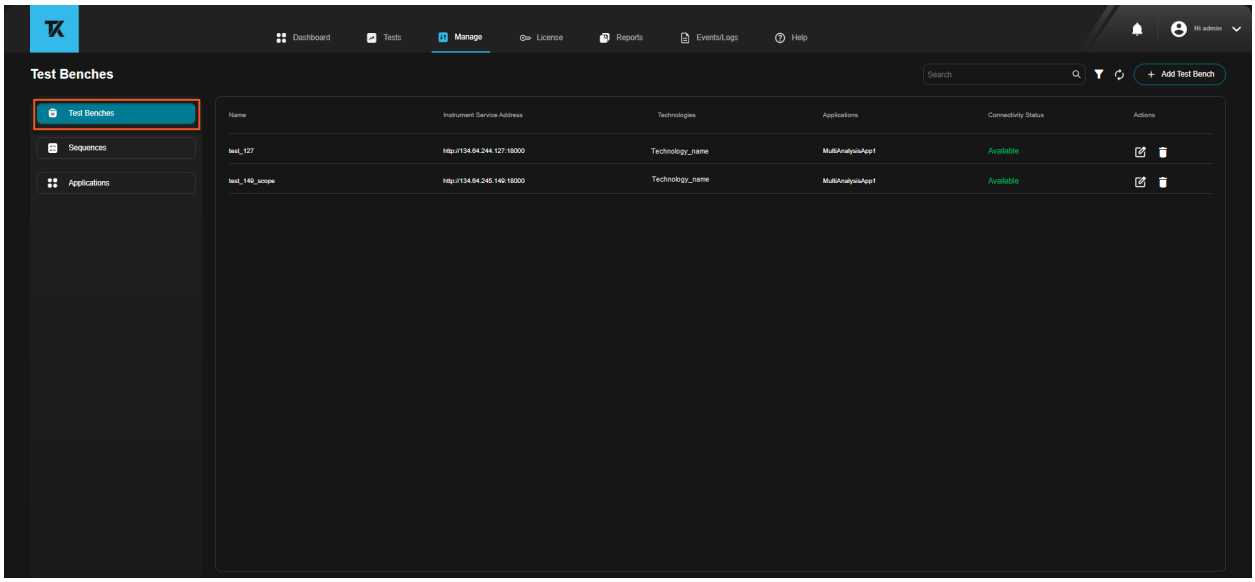


Figure 68: Manage test benches tab

Element	Description
Name	The test bench name.
Instrument Service Address	The instrument service URL. • `http://<<IP address of instrument service>>:18000`
Technologies	Active technology.
Applications	Active application.
Connectivity Status	Shows the testbench availability status. • Available • Unavailable • In Use
Actions	
Modify	Change or modify the existing test bench.
Delete	Delete the test bench.

Table continued…

Element	Description	
Filter By	Technologies	Filter by active technology.
	Applications	Filter by active application.
	Connectivity Status	Filter by active connectivity status. • Available • Unavailable • In use
	Acquisition Mode	Filter by active acquisition mode. • Live • Recorded
Refresh All	Click the **Refresh All** to refresh the testbench details.	

Create a test bench

Follow the steps to create a test bench:

1. Go to **Manage > Test Benches** and click **+ Add Test Bench**.

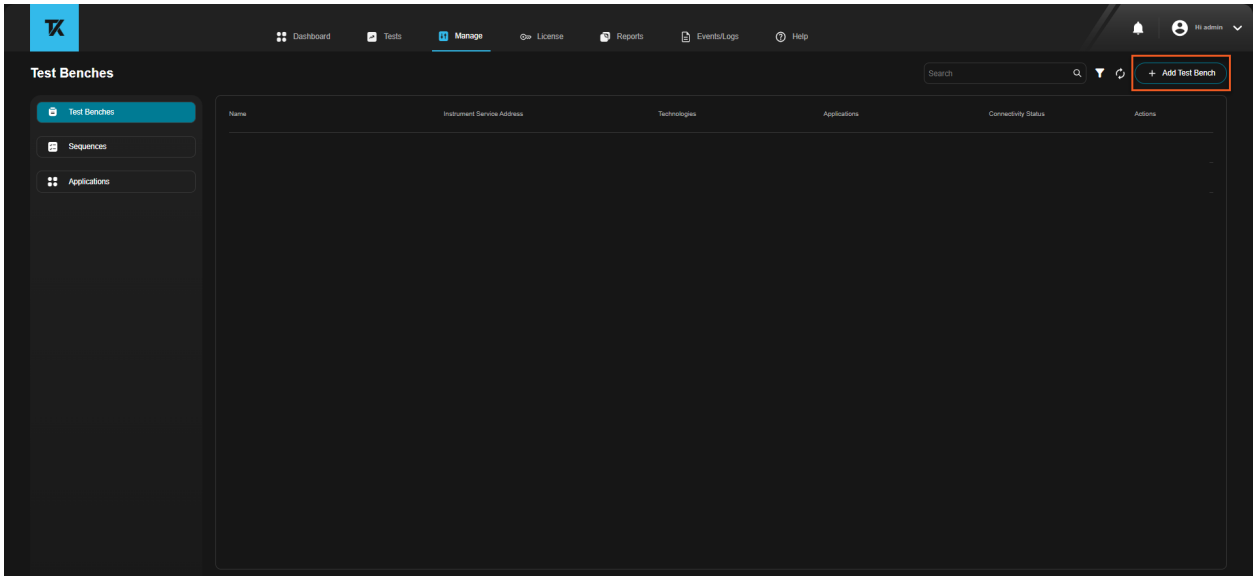


Figure 69: Create a test bench

2. Enter the test bench details in the respective fields.

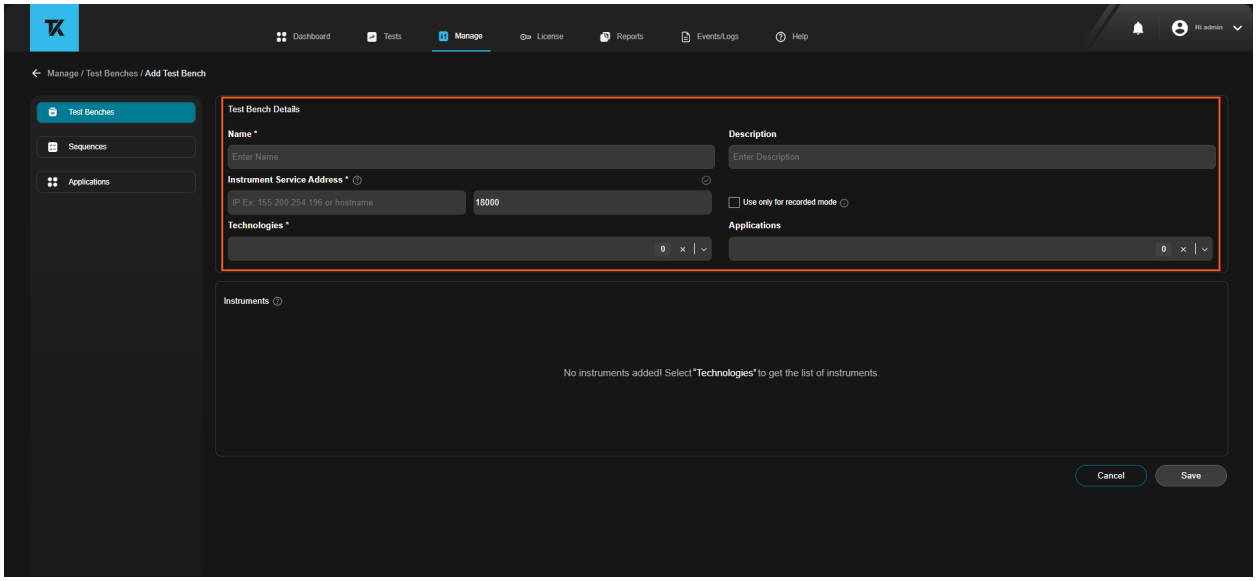


Figure 70: Test bench details

Menu	Description	
Test Bench Details		
Name	Enter the test bench name.	
Description	Enter the test bench description (Optional).	
Instrument Service Address	Enter the instrument service address (IP address/Host id) of the oscilloscope or target system. `http://<<IP address of oscilloscope>>:18000`	
	Check Connection	Enter the instrument address or host name. You can select the to check the status of the instrument. This will be green if the instrument is available and connected.
Use only for recorded mode	When this setting is selected, the system will automatically upload the recorded waveforms from the oscilloscope.	
Technologies	Select the technology. The test bench will be created for the selected technologies.	
Applications	Select the application. The test bench will be created for the selected applications. (Optional)	

3. Select the instruments detail.

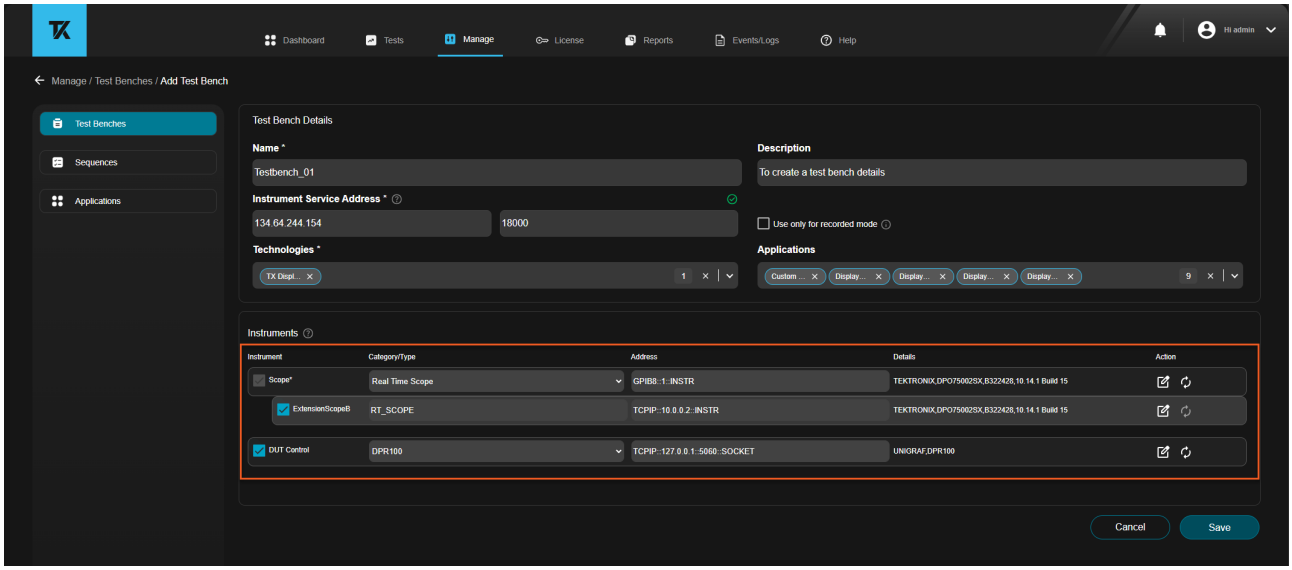


Figure 71: Instrument details

Menu	Description
Instrument	Select the required **Instrument** to create a new test bench. • Scope • DUT Control
Category/Type	Select the required instrument category or type with respective to the instrument selected. When instrument is selected as **Scope** • Real Time Scope When instrument is selected as **DUT Control** • DPR100 • UCD323
Address	Enter the VISA resource address from the instrument service manager of the oscilloscope. For Scope: GPIB8::1::INSTR For DUT Control: TCPIP::127.0.0.1::5060::SOCKET
Details	Click the  after entering **Address**. It will displays the scope and properties details retrieving from the oscilloscope.
Action	Allows you to **Edit** and **Refresh** the instrument properties that are added. **Note:** To edit the instrument properties, first you need to add address and select refresh icon.
Scope/DUT Control Details	

Table continued…

Menu	Description	
Category/Type	Select the required instrument type from the drop-down. Available options are: • Real Time Scope • UCD323 • DPR100 • Custom	
Address	Enter the IP address of the instrument in the field. Example: • For MSO Scope: GPIB8::1::INSTR • For DPO Scope: TCPIP::127.0.0.1::INSTR • For DUT Control: TCPIP::127.0.0.1::5060::SOCKET **Note:** • The scope addresses must be captured from TekVisa Instrument manager. • IP address in DUT Control must be of the machine where instrument service is running.	
Properties	Click icon to display the properties details.	
Manufacturer	Displays the instrument manufacturer details in the field. By default, the manufacturer will be added as **TEKTRONIX** when instrument is selected as **Scope**.	
Model	Displays the model in the field.	
Serial Number	Displays the serial number of the instrument in the field.	
Firmware Version	Displays the firmware version of the instrument in the field.	
Bandwidth	Displays the bandwidth of the instrument in the field.	
Script Name	For custom type DUT Controller, the script name is fixed as "custom.py". You must create a DUT automation script with this name. Available only when instrument is selected as **DUT Control**.	
Multi Scope Config	Displays the multi scope configuration of the oscilloscope. Available only when instrument is selected as **Scope**.	
Probe Details	Displays probes details. Available only when instrument is selected as **Scope**.	
	Channel	Displays the channel name.
	Serial No.	Displays serial number of the probe.
	Probe Type	Displays probe type.
	Calibration Status	Displays the status of the calibration.

Table continued…

Menu	Description	
Additional Properties	The default properties under **Additional properties** must be filled with values before saving the instrument. Available only when Instrument is selected as **DUT Control**.	
	COM_Port	The com port number where the DPR100 device is connected must be set to integer value.
	license_key	The license key for the DPR100 device.
	serial_number	The serial number for the UCD323 device.
	Value	Enter the value. For **UCD323**, the Serial Number field must be populated with a valid string. For **DPR100**, the COM Port must be set to an integer value between 0 and 255, and the License field must be filled with the corresponding alphanumeric DPR100 license string.
	Action	Allows you to delete the additional properties that are added.

4. Click **Save** to save the test bench.

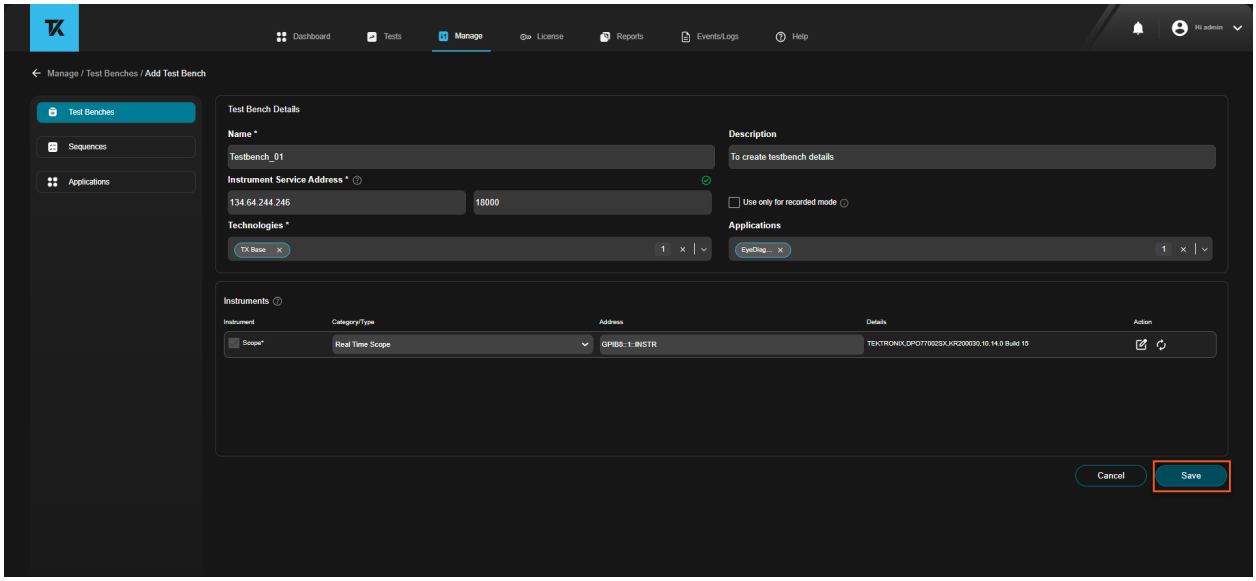


Figure 72: Save test bench details

5. You can view the saved test bench in the **Test Benches** tab. You can also edit or delete the existing test bench.

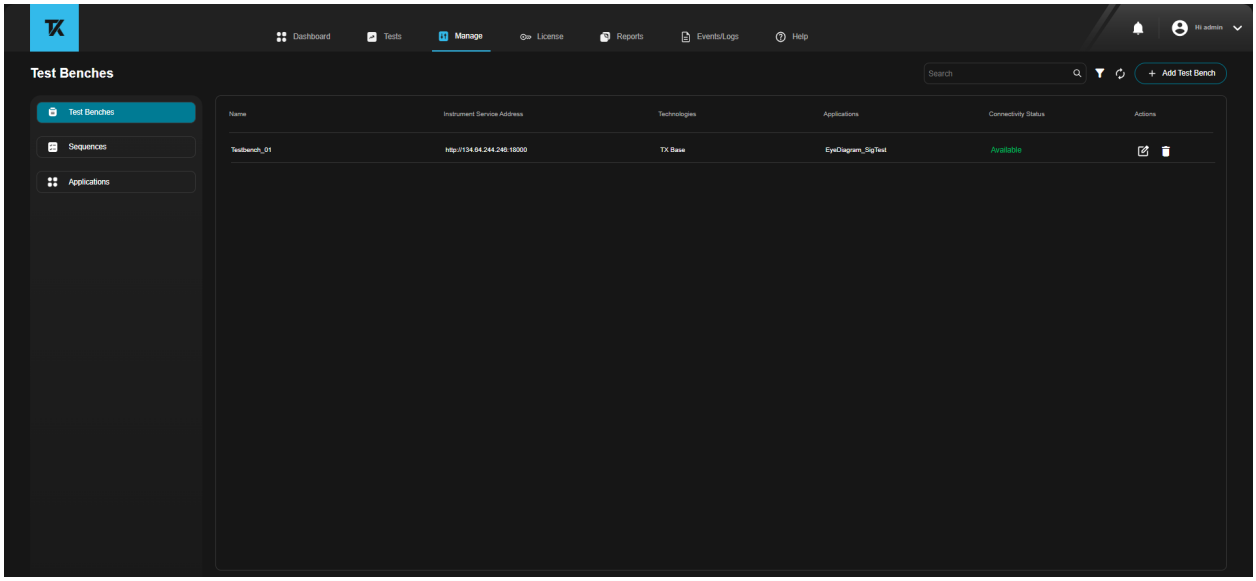


Figure 73: View test bench details

Example test bench for DisplayPort Tx

For DisplayPort Tx, following instruments are required.

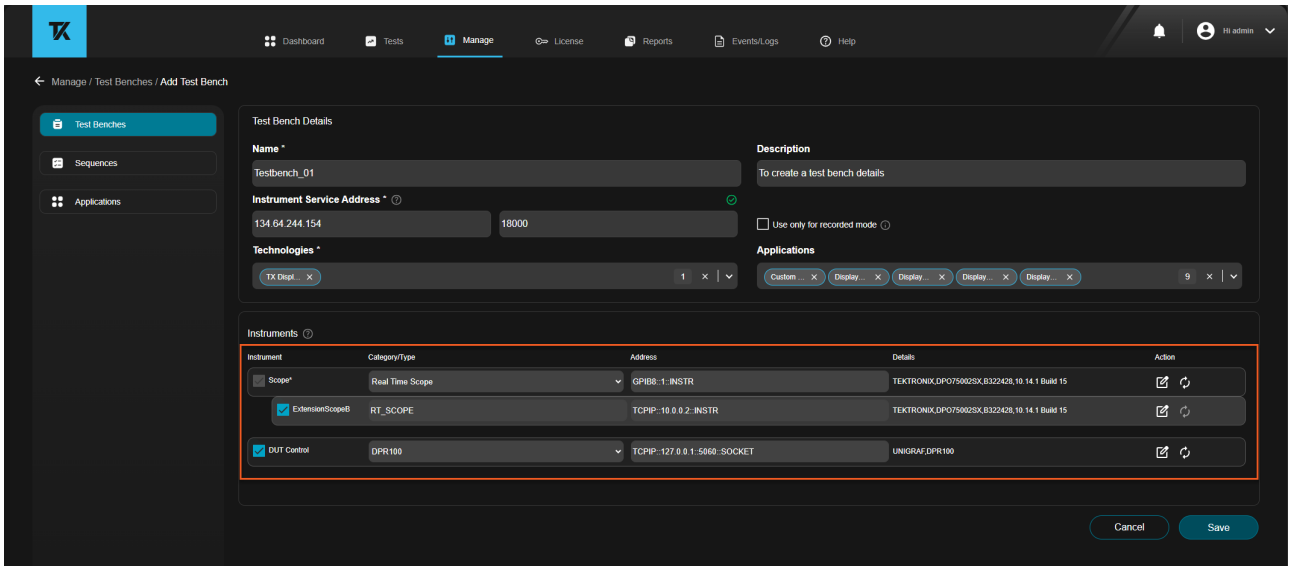


Figure 74: Instrument Detail

1. **Scope Instrument**

   This is real time oscilloscope required for acquisition.

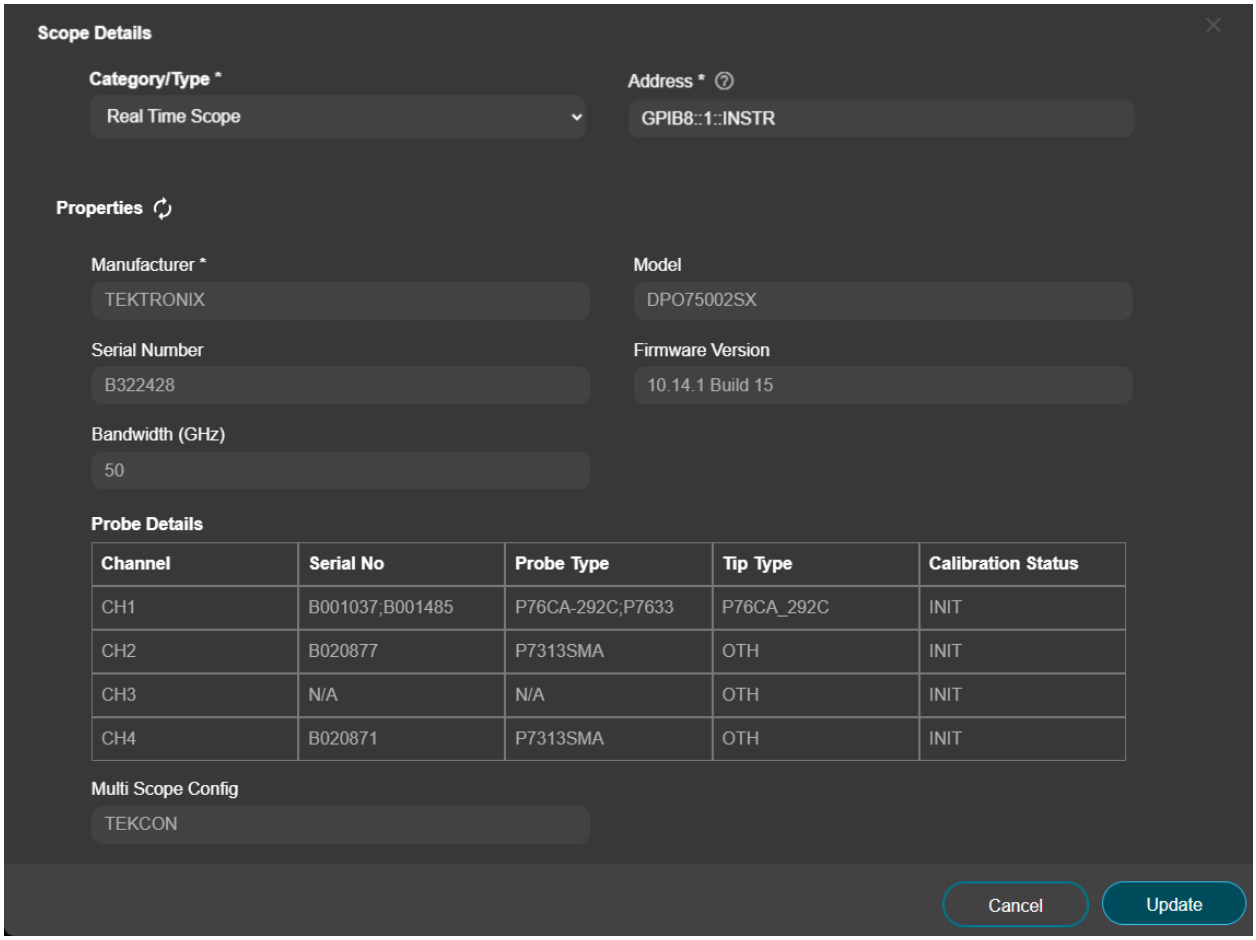


Figure 75: Real Time Scope

2. **DUT Control:**

   If the user wants to opt for DUT Automation, the DUT Control instrument must be selected. This instrument should not be selected if manual DUT toggling is intended. User can use the same test bench by changing the DUT Control selection to run it in either automated or manual toggling mode.

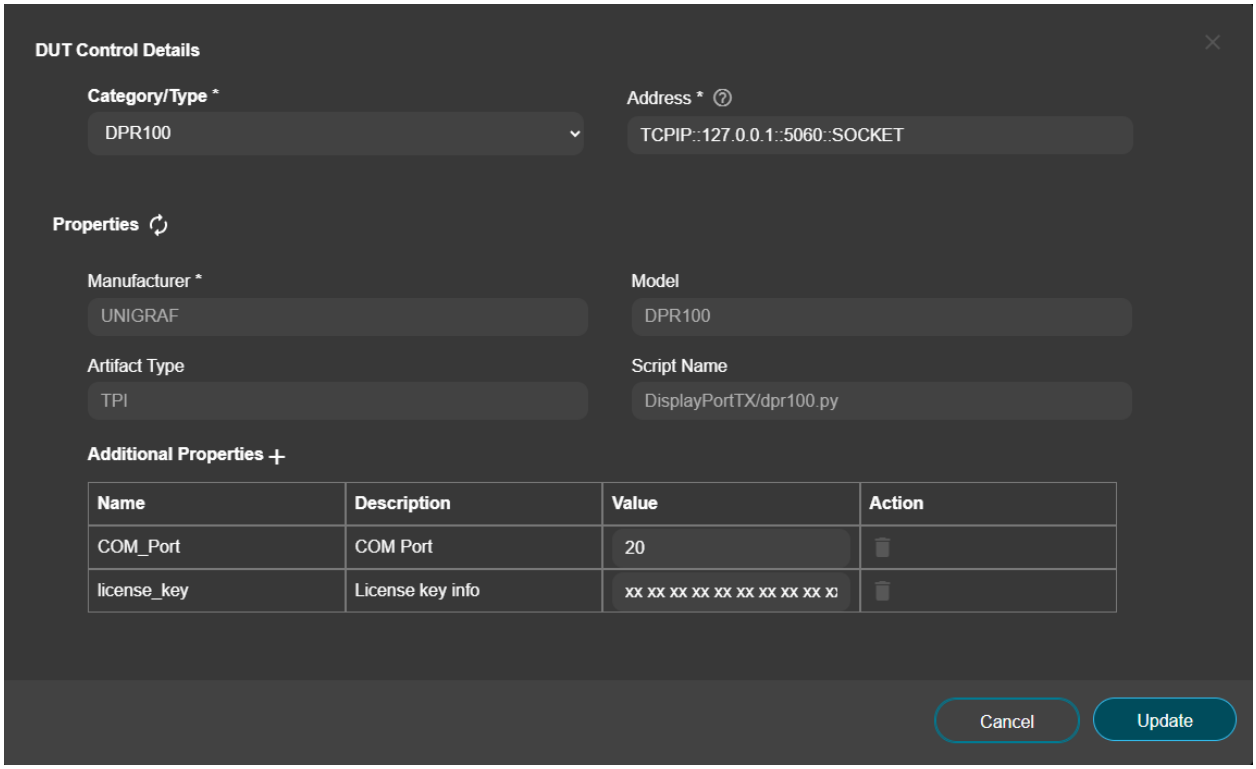


Figure 76: DUT Control - DPR100

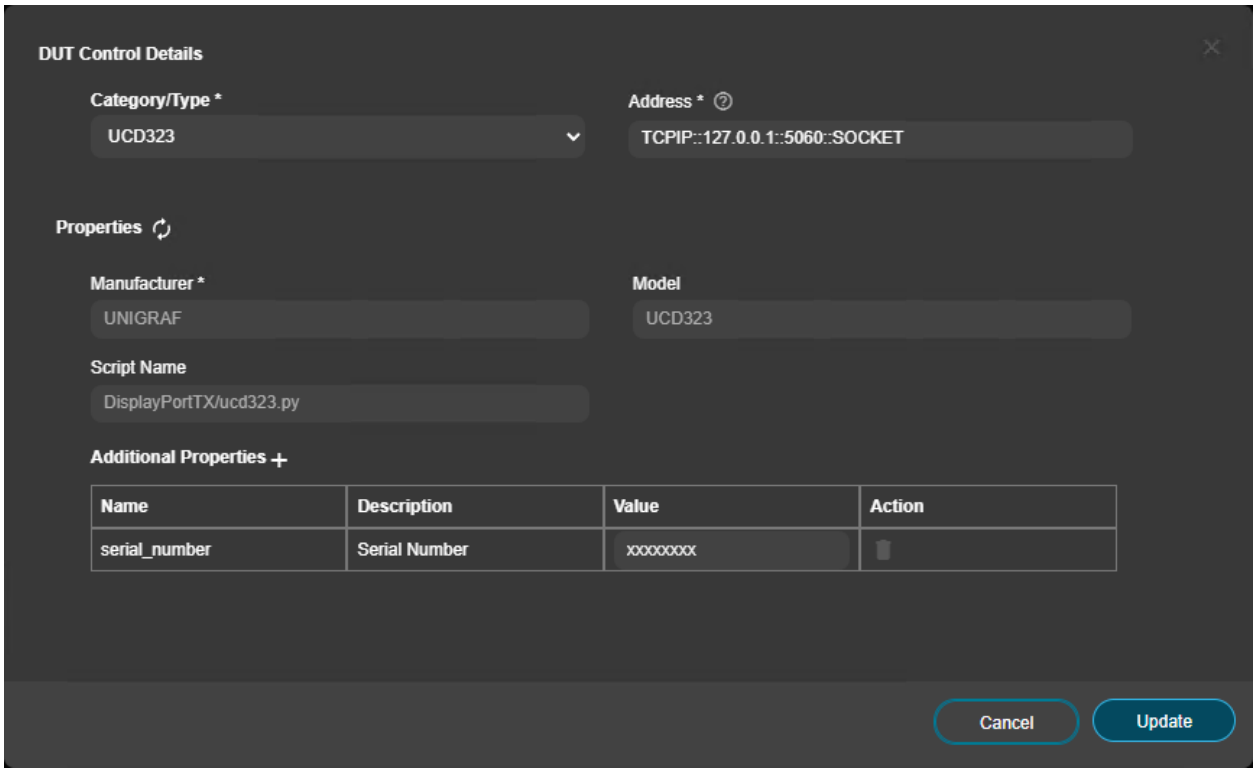


Figure 77: DUT Control - UCD 323

Sequences

The **Sequences** tab displays the list of created sequences along with the application names. This acts as a test template and can be imported while creating a test. You can also modify or delete the existing sequences.

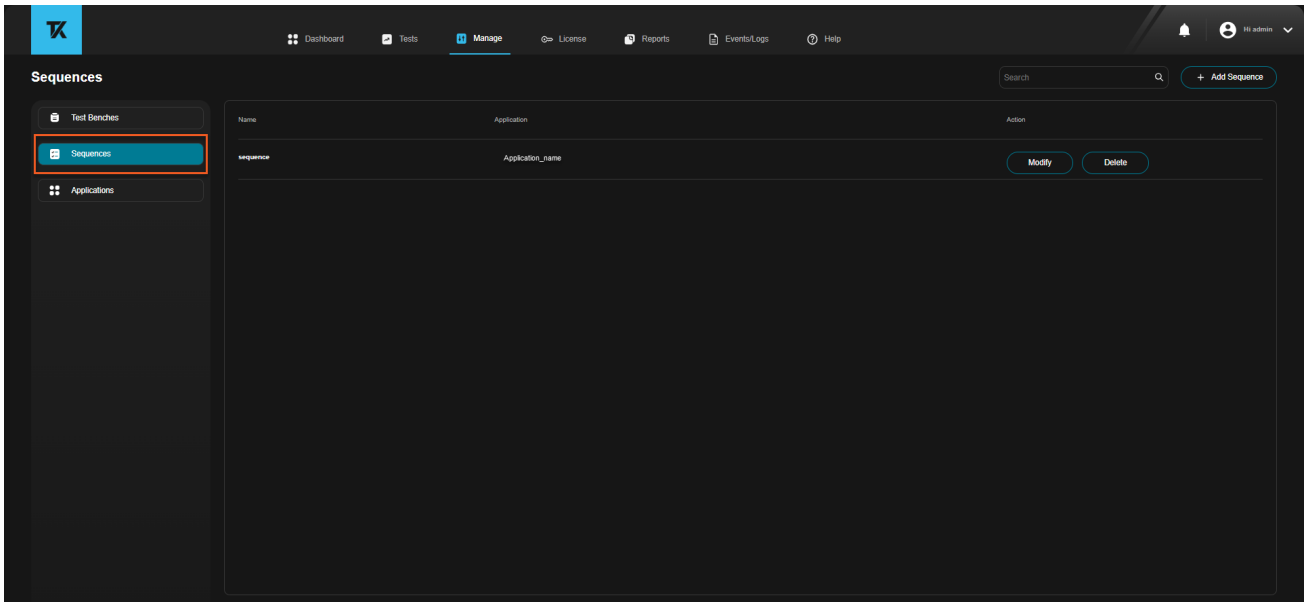


Figure 78: Sequences tab

Add new sequence

Follow the steps to create a sequence:

1. Go to **Manage > Sequences** and click **New Sequence**.

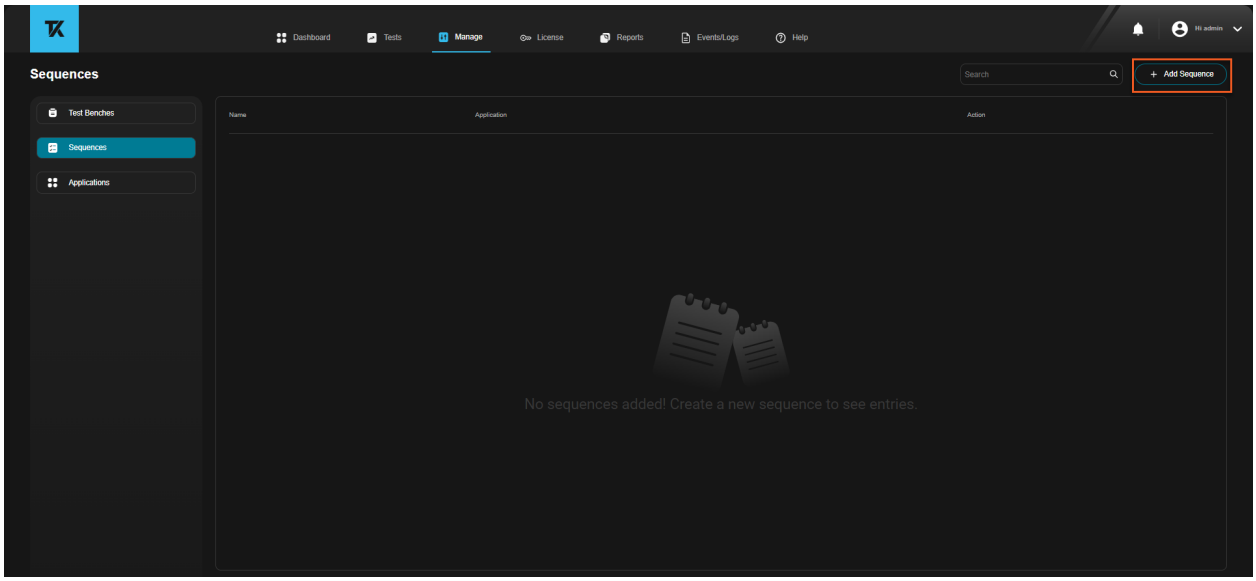


Figure 79: Add new sequence details

2. Enter **Sequence Details** in the respective fields; select the **Technology** and **Application** from prepare sequence pane and click **Add Sequence**.

Sequence Details	Description
Name	Enter the name of the sequence.
Description	Enter the description of the sequence.
Prepare Sequence	Click **+ Add Sequence** to add a test sequence. Refer *Create and Prepare a Sequence* for more information.

3. Check and update the global settings for the respective fields and click **Apply**.
4. Configure the scenarios and measurements, and click **Apply**.
5. You can view the saved sequence in the **Sequences** tab. You can also modify or delete the existing sequence.
6. Click **Save**.

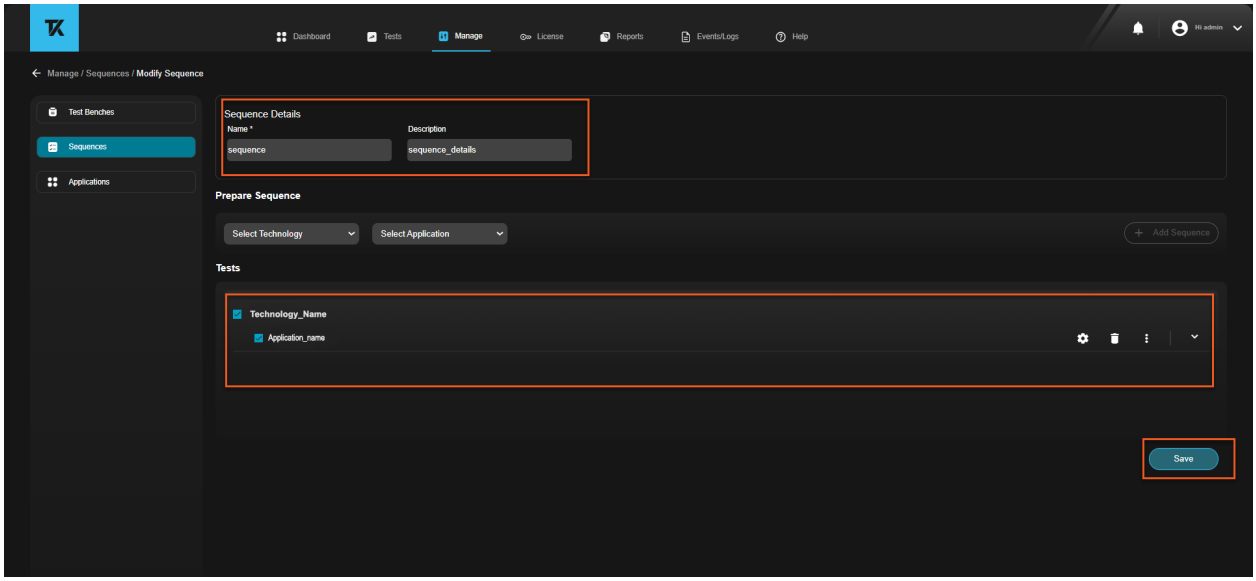


Figure 80: Save sequence details

7. You can view the saved sequence details. You can modify or delete the existing sequence.

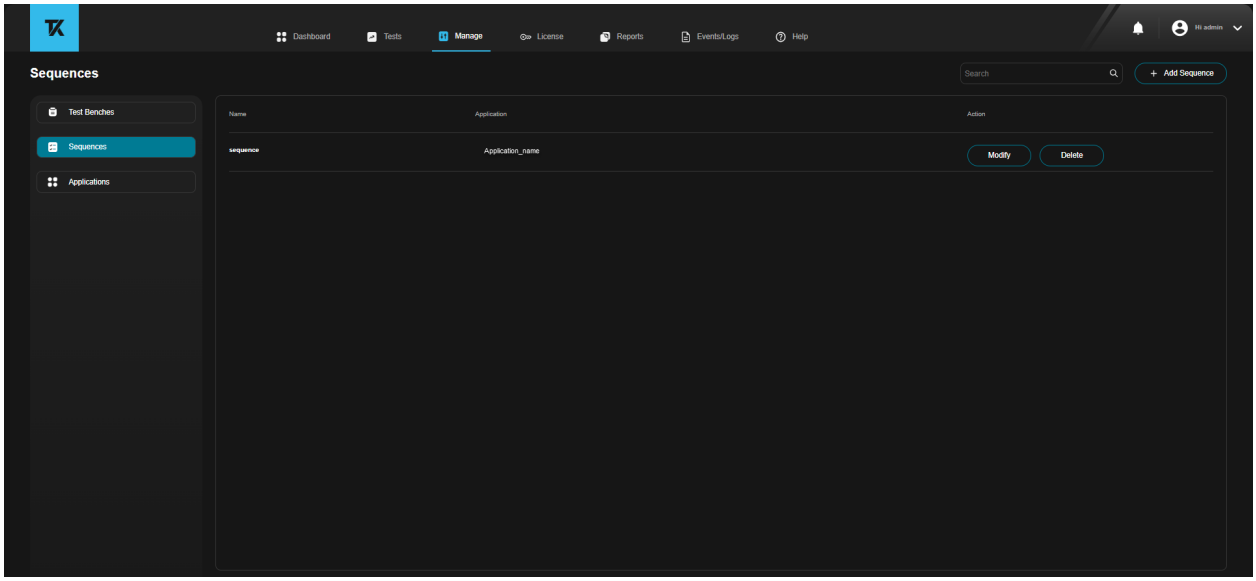


Figure 81: Sequence details

Applications

The **Applications** tab displays the list of activated applications with its name, type, sub-type, and version. You can also filter the applications by selecting the filter options.

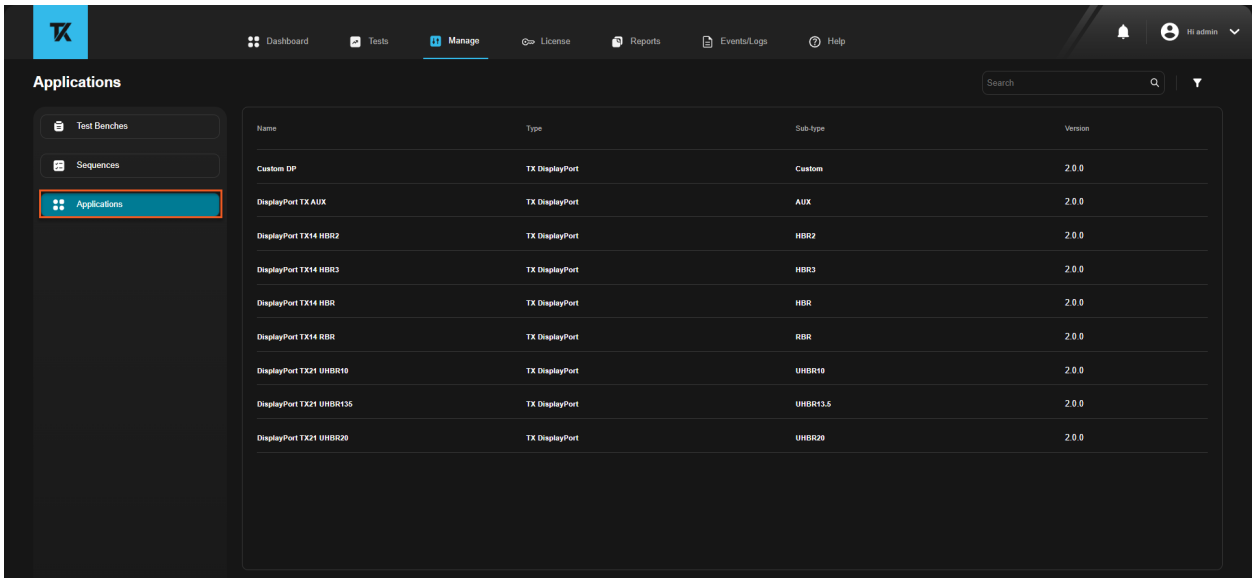


Figure 82: Manage application tab

Reports: View, generate, and export report of a test

The **Reports** tab allows you to generate a report, view the report, and export a detailed test report for all the executed tests. It also allows you to search for a specific report using the search bar.

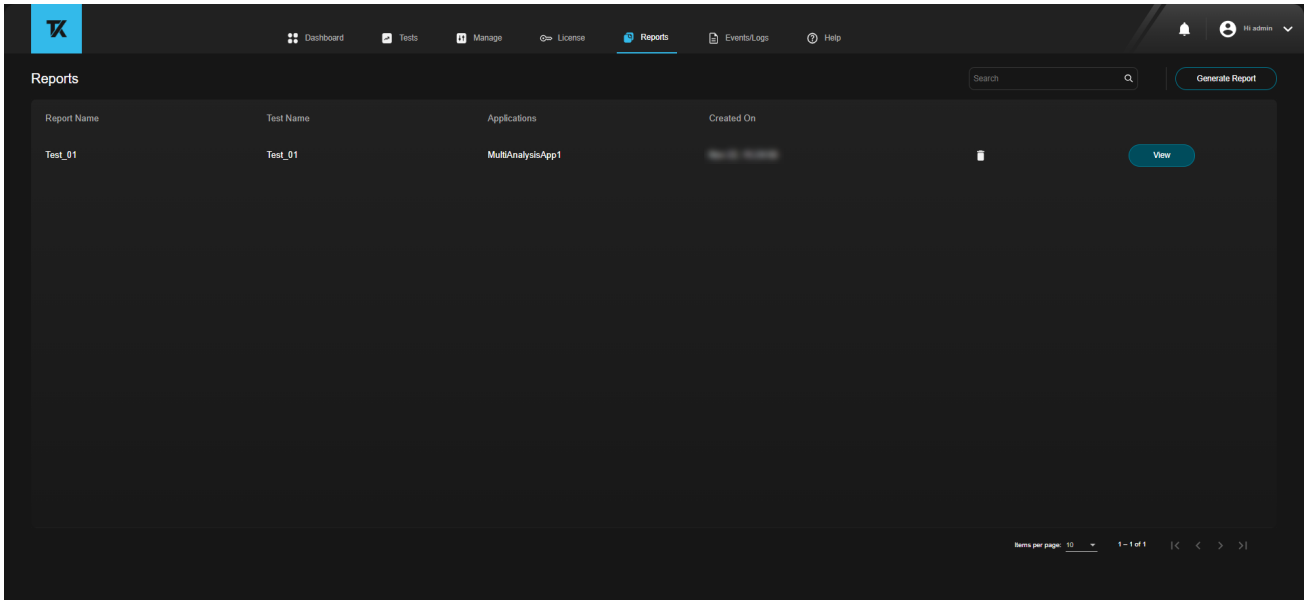


Figure 83: Reports tab

Element	Description
Report Name	Displays the report name.
Test Name	Displays the test name.
Applications	Displays the application name.
Created On	Displays the date and time by when the report is created.
Delete	Click the icon to delete the report.
View	Click to view the report.
Generate Report	You can generate the report of an executed test. Refer *Generate Report* for more information.

Generate report

The **Generate Report** allows you to generate a report of an executed test.

Generate report of a particular test

Follow the steps to generate a report of a particular test:

1. Go to **Tests** tab and click **View Results** of a particular test.

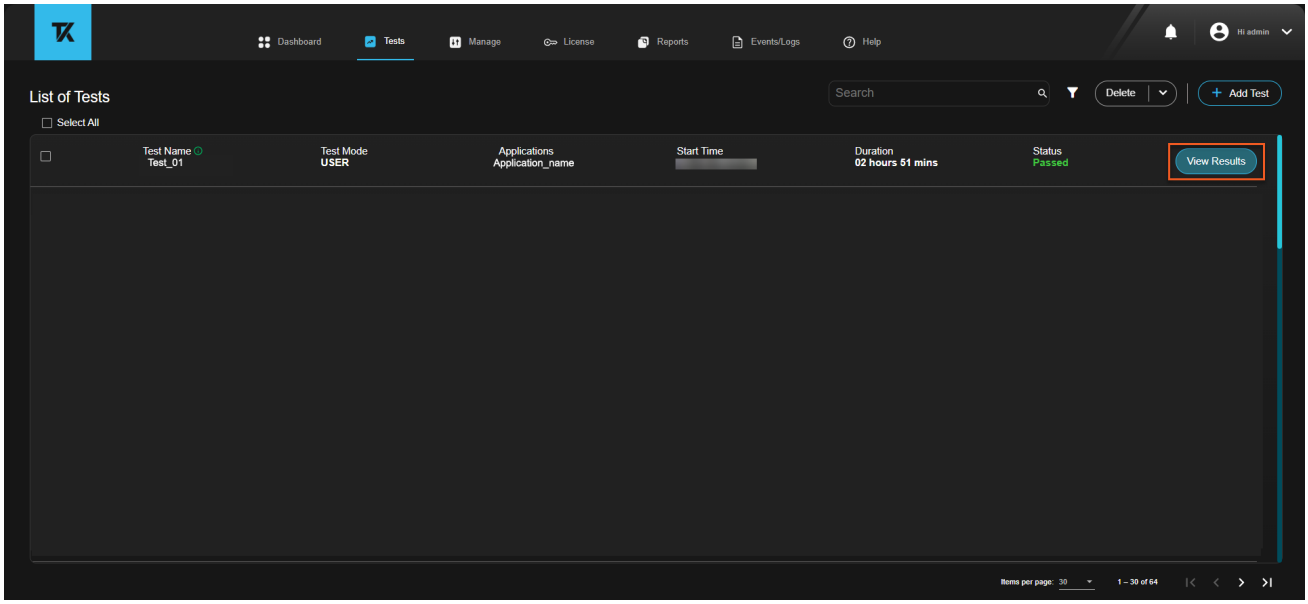


Figure 84: Tests tab: View results

2. Click **Generate Report**.

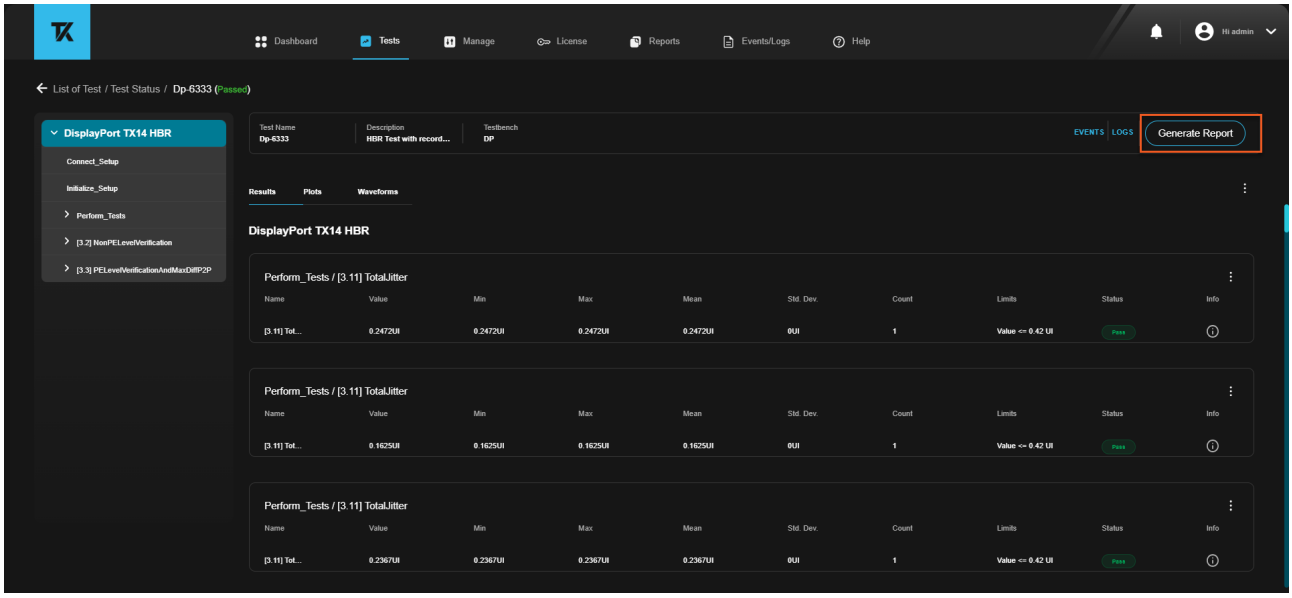


Figure 85: Generate report of a particular test

3. Select the report template from the drop-down.

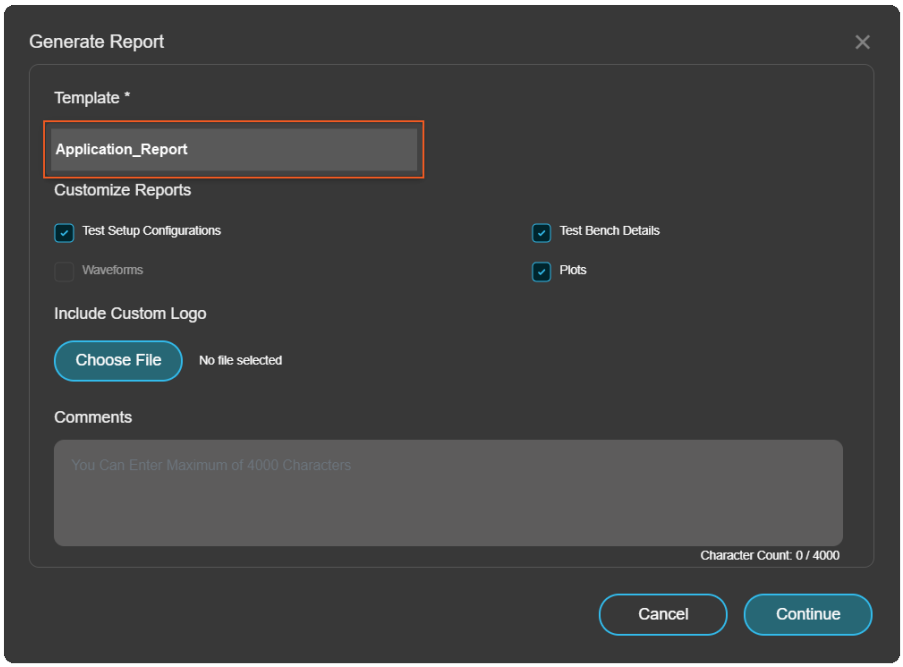


Figure 86: Generate report: Select template

4. Check the options to customize the reports.

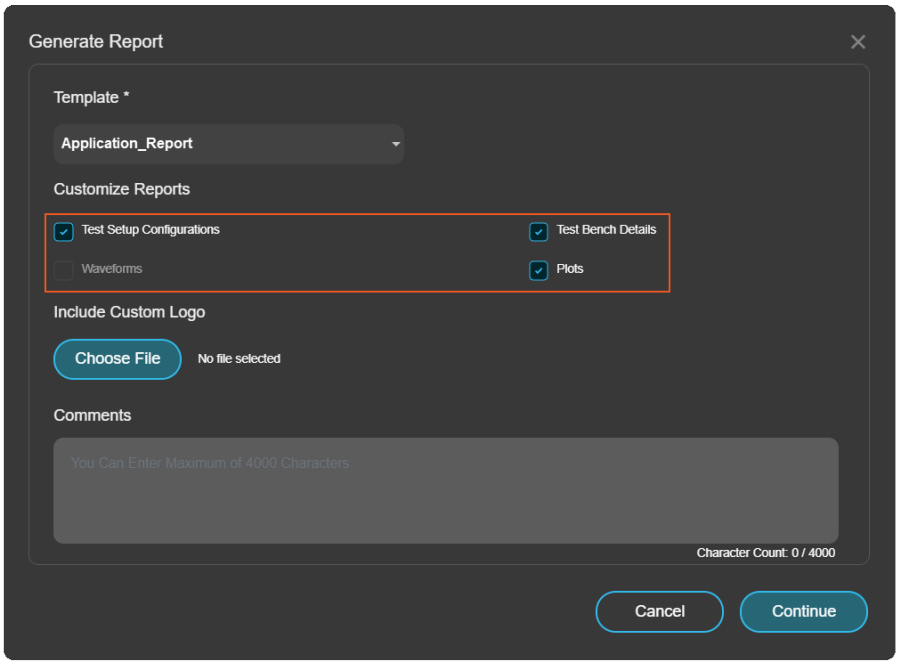


Figure 87: Generate report: Customize report

5. Click **Choose File** and browse to add a custom logo to get printed in the test report.

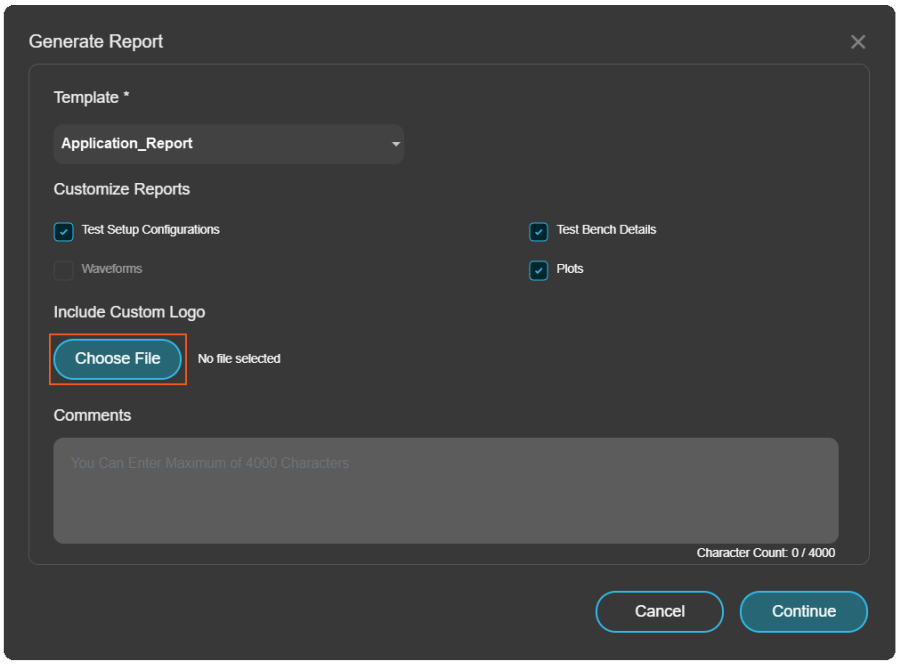


Figure 88: Generate report: Include custom logo

6. Enter additional comments in the field if required and click **Continue**.

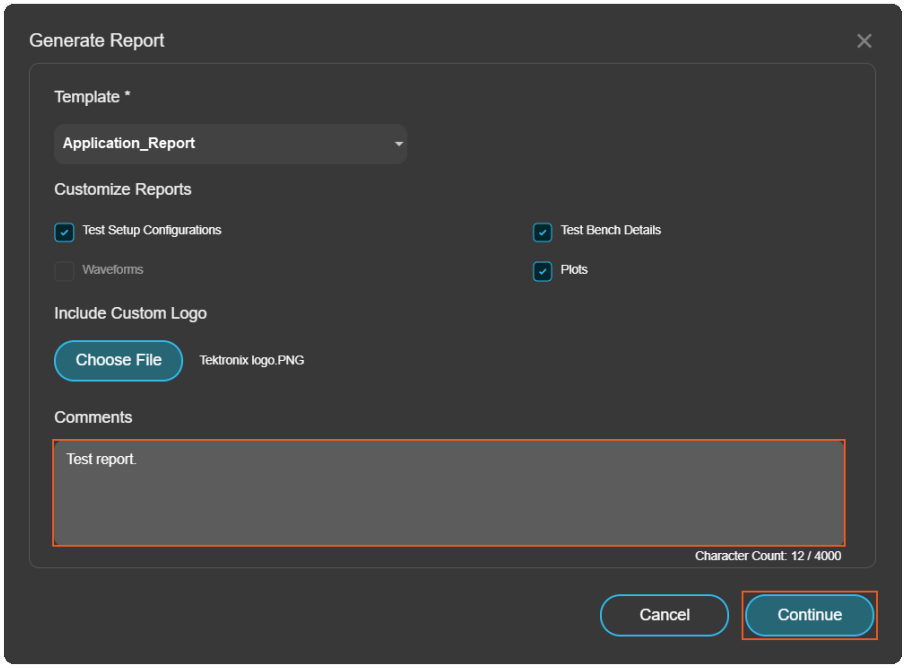


Figure 89: Generate report: Add additional comments in the field

Generate report for a group of test

Follow the steps to generate a report for a group of test:

1. Go to **Reports** tab and click **Generate Report**.

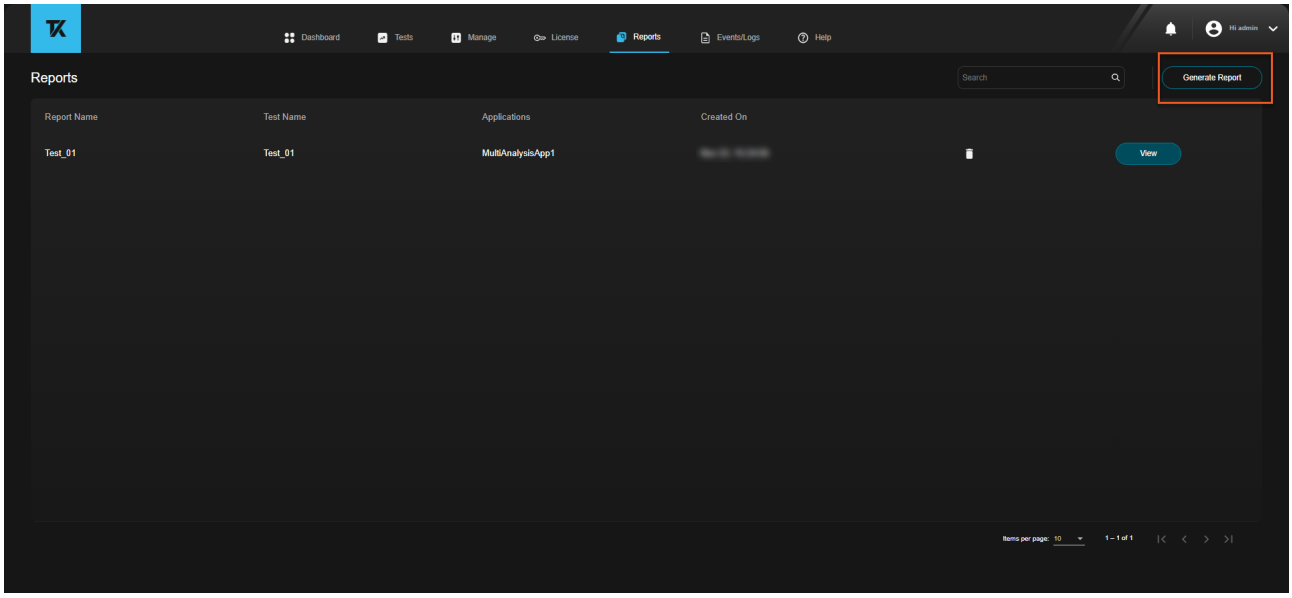


Figure 90: Generate report for a group of test

2. Enter the **Report Name** and click **Select Tests**.

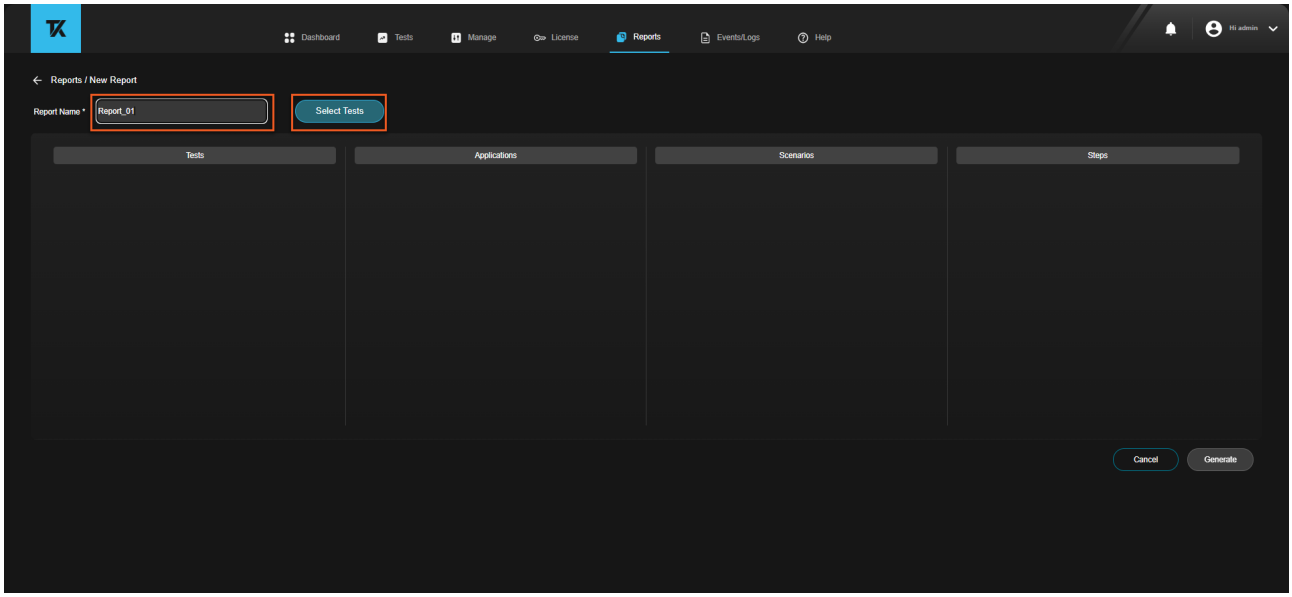


Figure 91: Reports tab: Select tests

3. Select the list of tests that needs to be generated and click **Continue**.

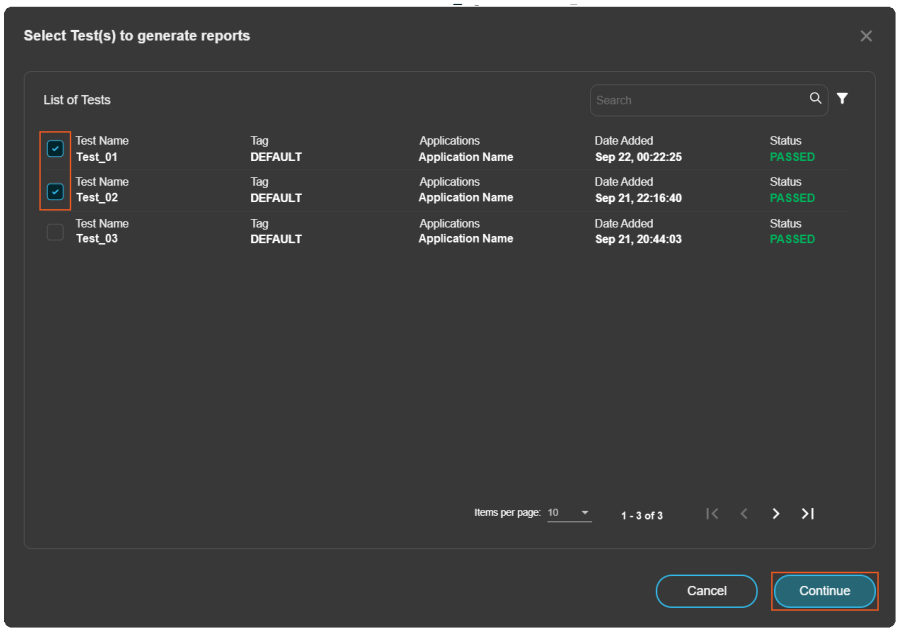


Figure 92: Select list of tests

4. Select the **Tests** and **Applications** from the sub menu.

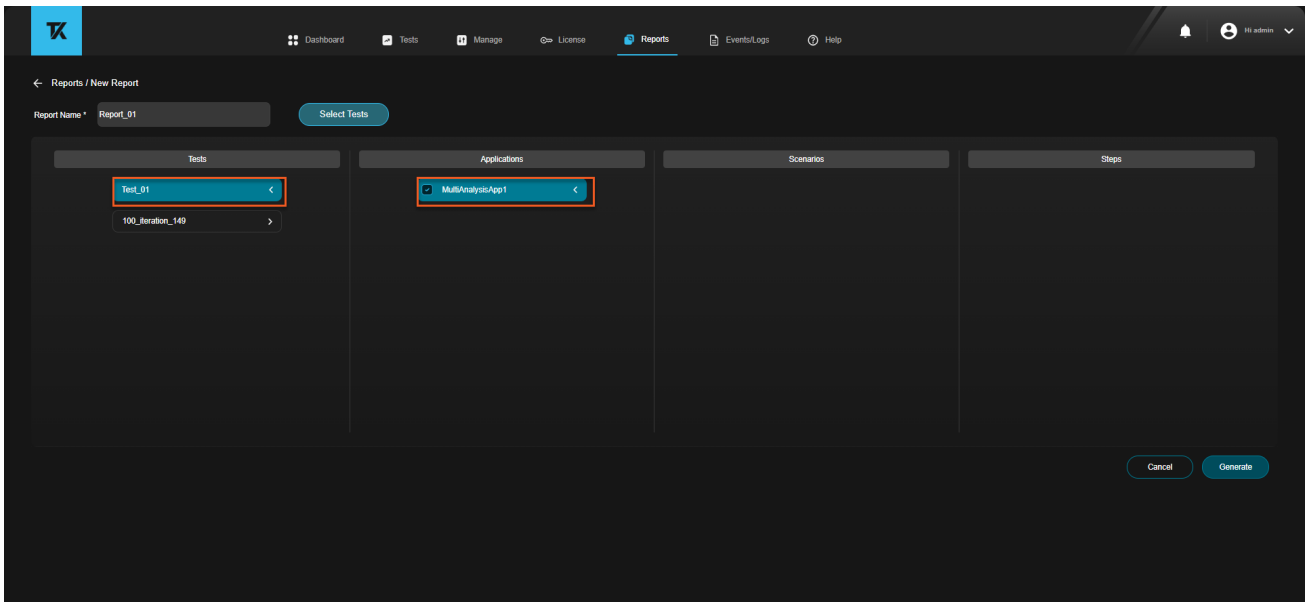


Figure 93: Reports: Select tests and applications

5. Click **Generate**. A dialog window appears to customize the report.

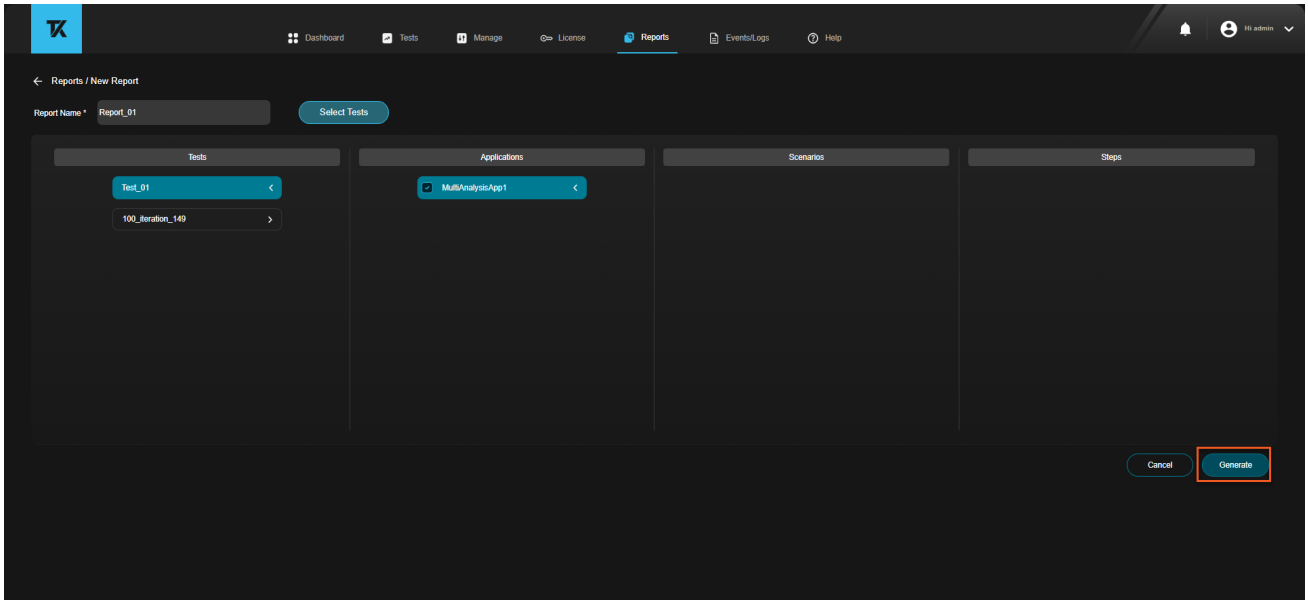


Figure 94: Reports: Generate the report

6. Select the report template from the drop-down.

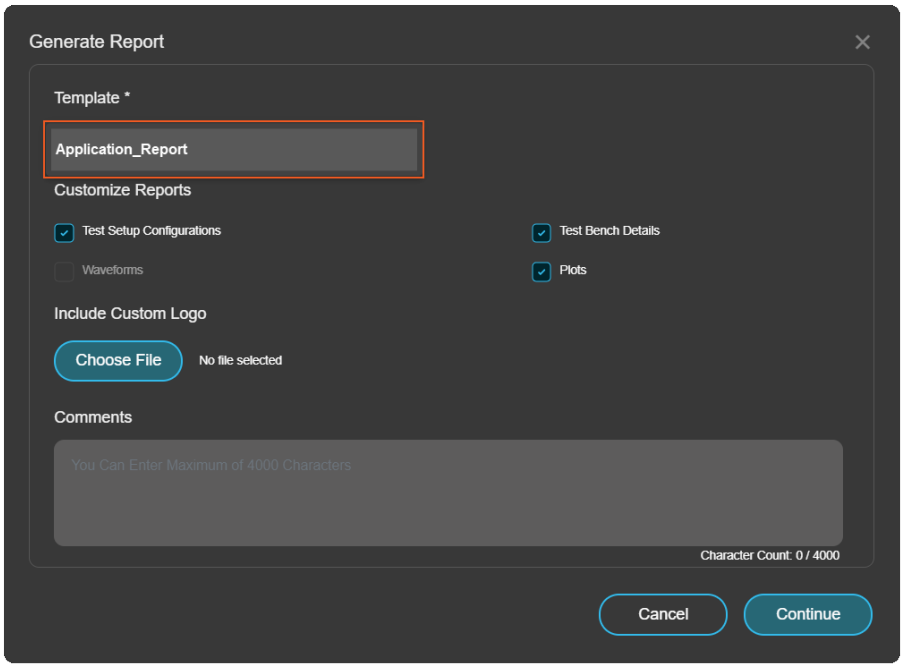


Figure 95: Generate report: Select template

7. Check the options to customize the reports.

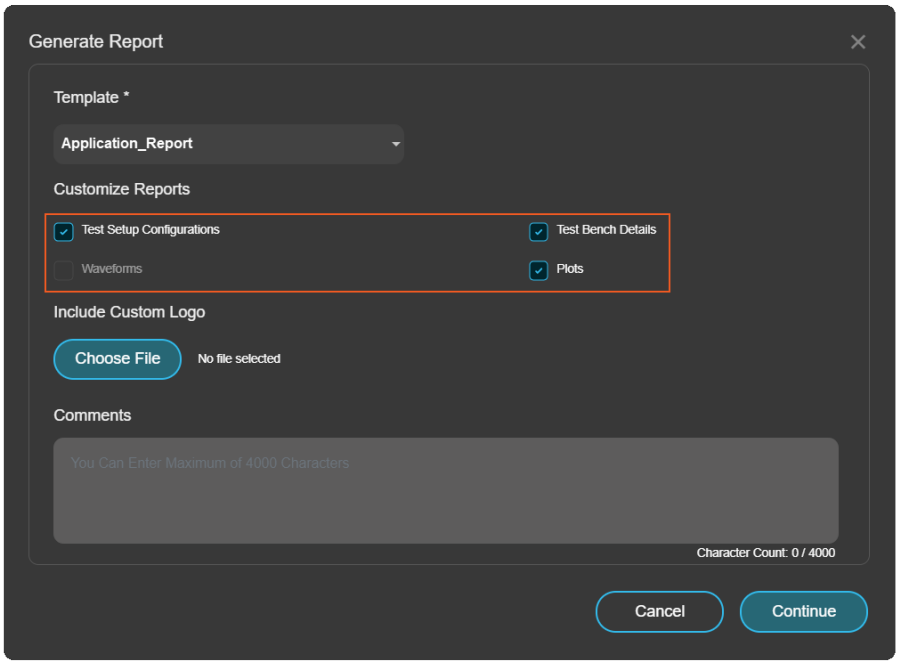


Figure 96: Generate report: Customize report

8. Click **Choose File** and browse to add a custom logo to get printed in the report.

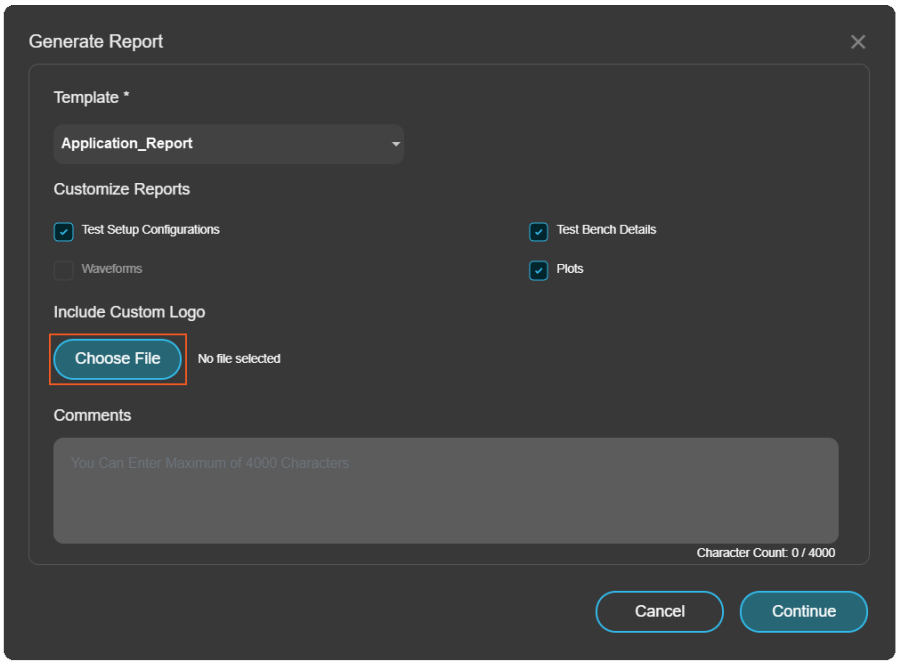


Figure 97: Generate report: Include custom logo

9. Enter additional comments in the field if required and click **Continue**.

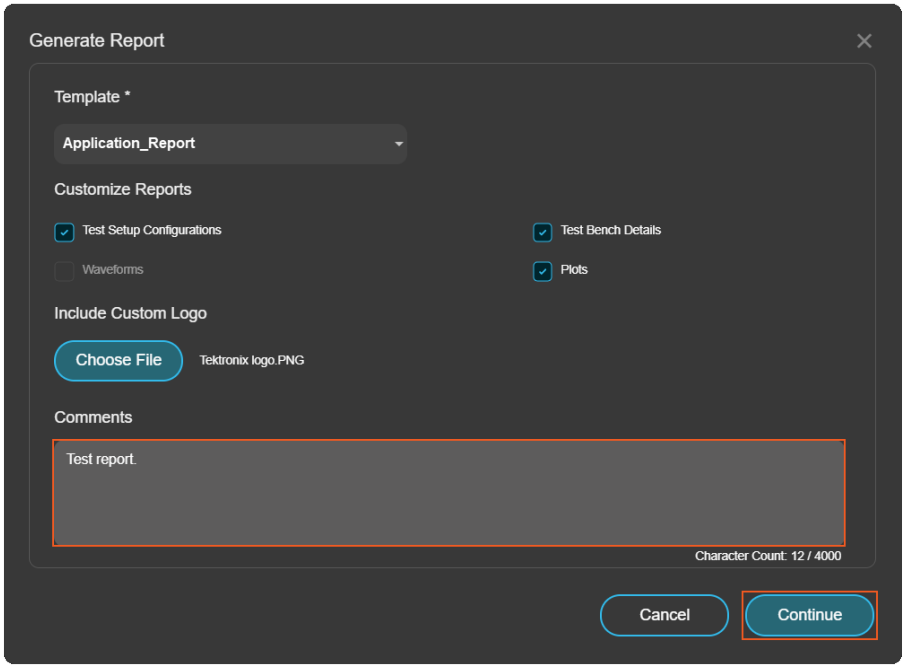


Figure 98: Generate report: Add additional comments in the field

View and export a report

Pre-requisites: Make sure the report is generated after successful execution of a test.

Follow the steps to view and export the generated report:

1. Go to **Reports** tab and click **View** of a particular report.

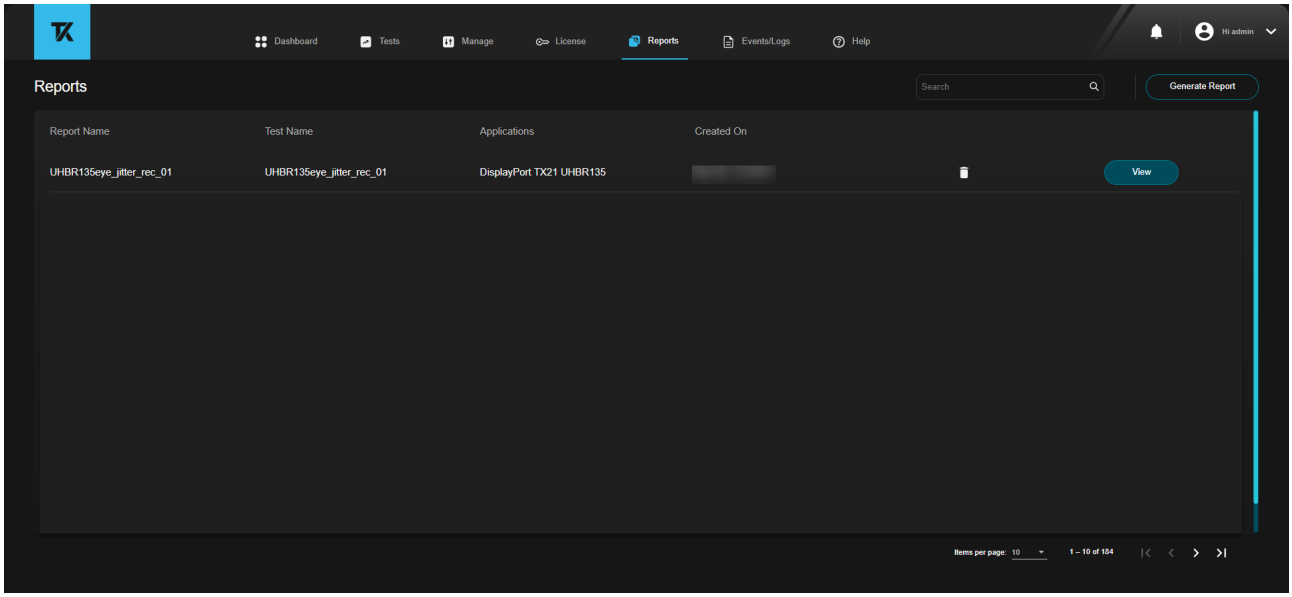


Figure 100: Reports tab: View

2. Enter the title and select the format (PDF) of the report. By default the title will be displayed as the test name.

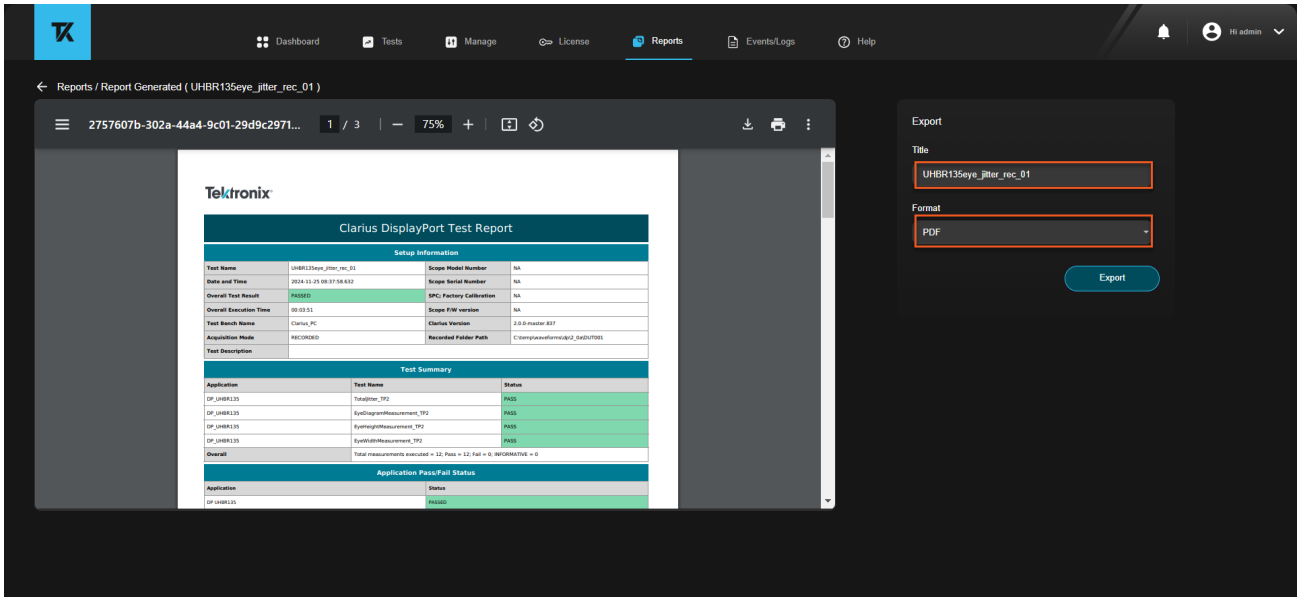


Figure 101: Reports tab: Enter title and format

3. Click **Export**.

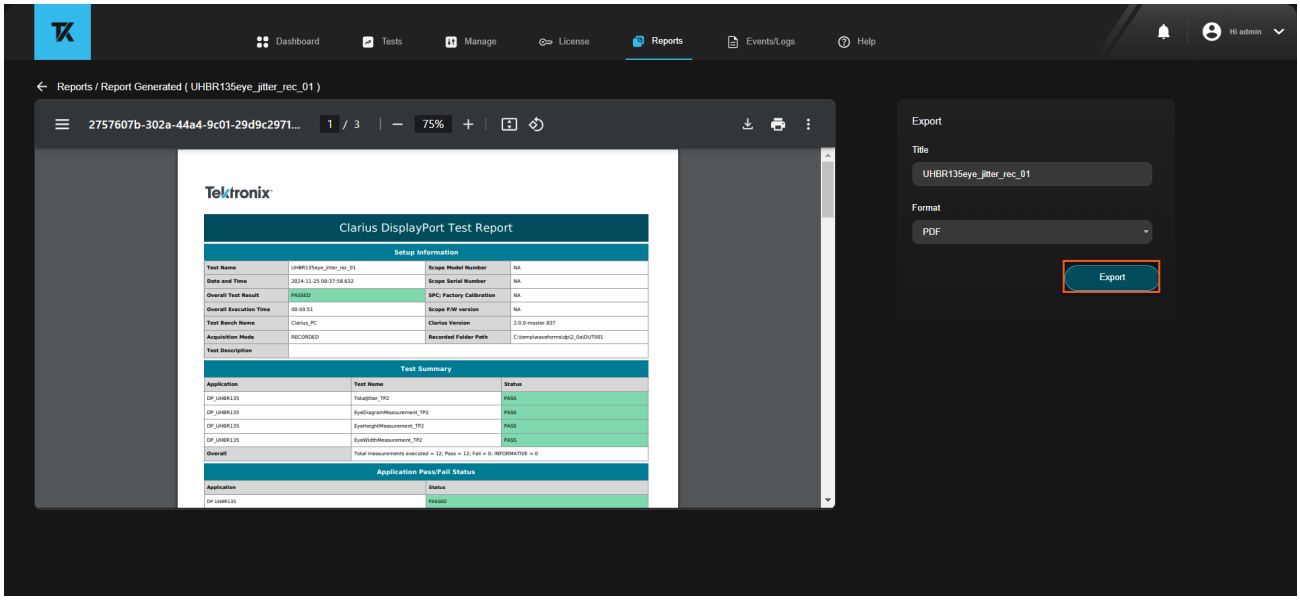


Figure 102: Reports tab: Export the report

Events and logs

The **Events and logs** tab displays the overall record of events and logs captured during a test acquisition and analysis.

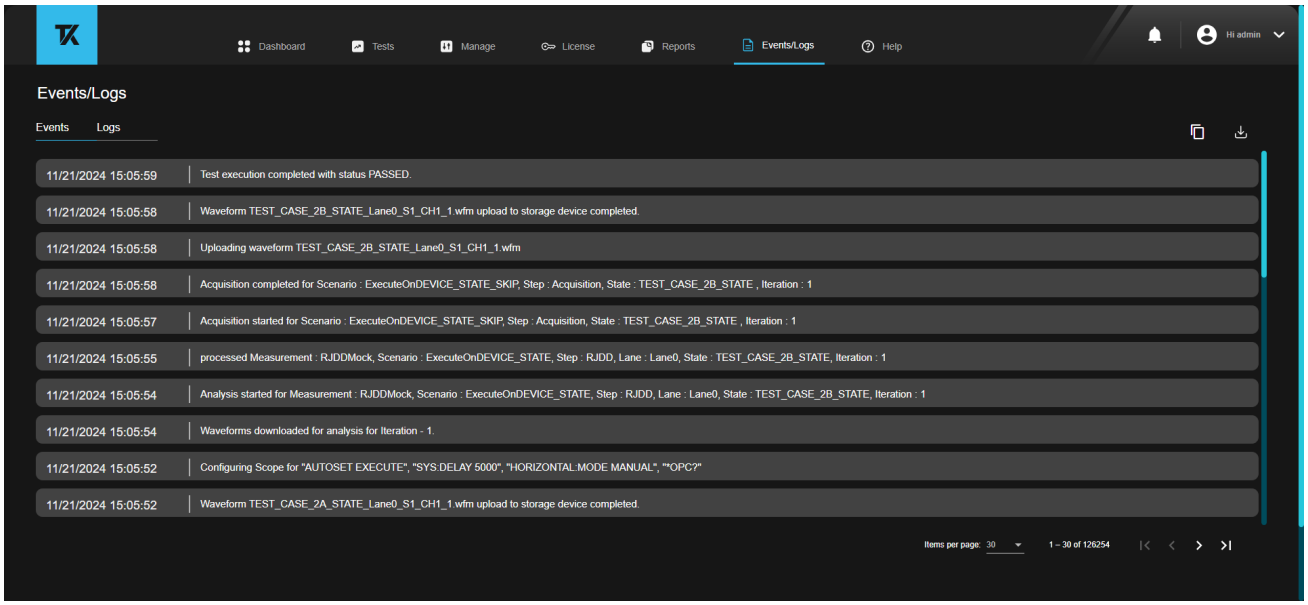


Figure 103: Events tab

Option	Element	Description
	Copy Events	Click to copy the events and paste it in the clipboard for further analysis.
	Download Events	Click to download the events in the target system.

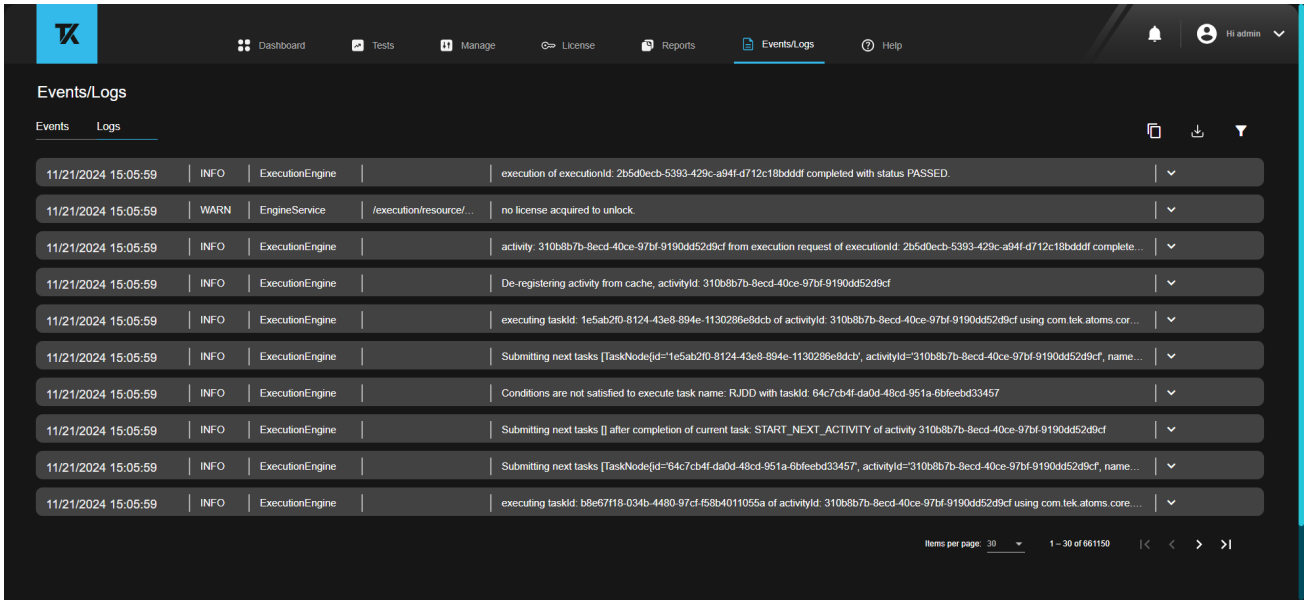


Figure 104: Logs tab

Option	Element	Description
	Copy Logs	Click to copy logs and paste it in the clipboard for further analysis.
	Download Logs	Click to download the logs in the target system.
	Filter	Click to filter the logs.

Filter logs

The **Filter By** option under logs tab allows you to filter the logs based on the criteria such as Component, Data Added, Level, Service, and Transaction Type.

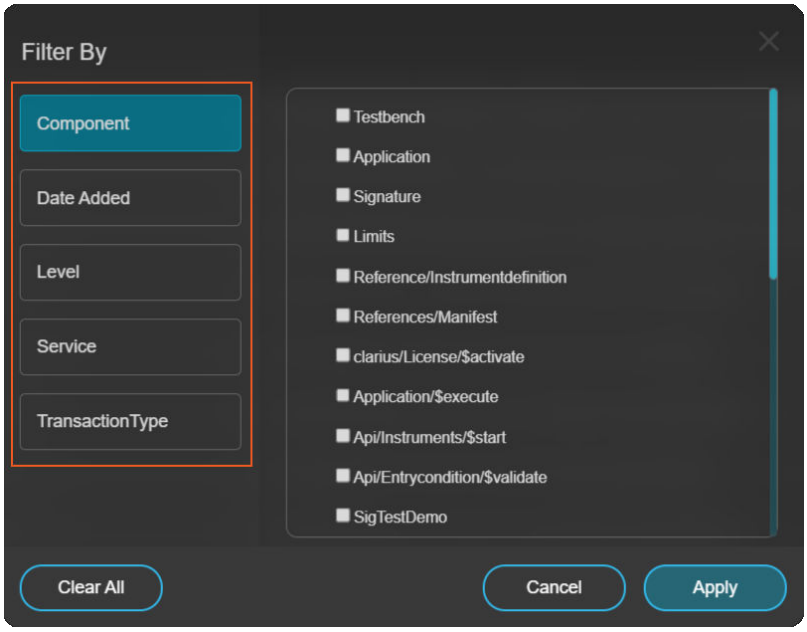


Figure 105: Filter logs

Filter type	Description
Component	Select the required component(s) to filter the logs. • Testbench • Application • Signature • Limits • Reference/Instrumentdefinition • References/Manifest • Clarius/License/$activate • Application/$execute • Api/Instruments/$start • Api/Entrycondition/$validate • SigTestDemo • Build_Catalog • Application/SourceNames • Application/Source • Api/Rules/$validate • Limits/RJ_Mean_Limits • Config/Instrument • RiseTime • Ui • Application/$execute/Status • Sequence • Histogram • SSCFreqDevPlot • TimeTrendPlot • EyePlot • EyeMaskPlot
Date Added	Select the date and time range to filter the logs.
Level	Displays the level of logs. • WARN • ERROR • INFO

Table continued…

Filter type	Description
Service	Select the required service(s) to filter the logs. • Measurement_Service • Instrument_Service • Reporting-Service • License_Service • Gateway-Service • EngineService • Pre-Processor-Service • Constraints_Service • CatalogService • CalibrationService • Infra_Service/Infra-Service • Monitor_Service/Monitor-Service • Plots_Service/Plot-Service • ui_service/ui-service • UserManagement_Service/UserManagement-Service • RequestTransformer • Waveform_Service/Waveform-Service • ExecutiveEngine • Blob_Service
Transaction Type	Select the required transaction type(s) to filter the logs. • TEST • RESOURCE
Clear All	Clear all the filters.
Apply	Applies the filter based on the log criteria selected.
Cancel	Click to cancel all the changes.

Display Port Tx measurements

The list of technologies with its measurements for Display Port application are detailed in the following tables.

Measurements list for Display Port Tx 1.4

The list of measurements for Display Port Tx 1.4 technology are detailed in the following table.

Measurements	RBR	HBR	HBR2	HBR3
[3.1] EyeDiagram	✓	✓		
[3.1] EyeHeight	✓	✓		
[3.1] EyeWidth	✓	✓		
[3.1] EyeDiagramZeroCable_TP3EQ			✓	
[3.1] EyeDiagramWorstCable_TP3EQ			✓	
[3.1] EyeDiagramZeroCable_TP3CTLE				✓
[3.1] EyeDiagramWorstCable_TP3CTLE				✓
[3.2] NonPELevelVerification	✓	✓		
[3.3]PELevelVerificationAndMaxDiffP2P	✓	✓		
[3.4] PELevelAndEquilizationVerification			✓	✓
[3.5] VTXDiffP2PMax			✓	✓
[3.7] IntraPairSkew	✓	✓	✓	✓
[3.8] ACCommonMode	✓	✓	✓	✓
[3.9] NonISIJitter	✓	✓		✓
[3.9] NonISIJitter_TP3CTLE				✓
[3.11] TotalJitter	✓	✓		
[3.11] DJZeroCable_TP3EQ			✓	
[3.11] TJZeroCable_TP3EQ			✓	
[3.11] TJWorstCable_TP3EQ			✓	
[3.11] TJZeroCable_TP3CTLE				
[3.11] TJWorstCable_TP3CTLE				✓
[3.11.3] DJZeroCableD10.2_TP3EQ			✓	✓
[3.11.3] DJWorstCableD10.2_TP3EQ			✓	
[3.11.3] TJZeroCableD10.2_TP3EQ			✓	
[3.11.3] TJWorstCableD10.2_TP3EQ			✓	
[3.11.3] RJZeroCableD10.2_TP3EQ			✓	
[3.11.3] RJWorstCableD10.2_TP3Q			✓	
[3.12] MainLinkFrequency	✓	✓	✓	✓
[3.13] SSCModRate	✓	✓	✓	✓
[3.14] SSCFrequencyDeviation	✓	✓	✓	✓
[3.15] dFdtSSCDeviation HFVariation	✓	✓	✓	✓

Measurements list for Display Port Tx 2.1

The list of measurements for Display Port Tx 2.1 technology are detailed in the following table.

Table 9:

UHBR10, UHBR13.5 and UHBR20
SSCPhaseDeviation_TP2
SSCDownSpreadRate_TP2
SSCDownSpreadRange_TP2
SSCSlewRate_TP2
UIMeasurement TP2
BitRateMeasurement_TP2
ACCommonModeMeasurement_TP2
EyeDiagramMEasurement_TP2
EyeHeightMeasurement_TP2
EyeWidthMeasurement_TP2
TotalJitter_TP2
UJMeasurement_TP2
DDJMeasurement_TP2
UDJMeasurement_TP2
UDJ_LFMeasurement_TP2
RJMeasurement_TP2
EyeDiagramMeasurement_TP3EQ
EyeHeightMeasurement_TP3EQ
EyeWidthMeasurement_TP3EQ
TotalJitter_TP3CTLE
UJMeasurement_TP3CTLE
DDJMeasurement_TP3CTLE
UDJMeasurement_TP3CTLE
UDJ_LFMeasurement_TP3CTLE
RJMeasurement_TP3CTLE

Measurements list for DisplayPort Tx AUX

The list of measurements for DisplayPort Tx AUX technology are detailed in the following table.

Table 10:

AUX
[11.1] EyeTest
[11.5] SlewRate
PeakToPeak
UnitInterval

Measurements list for Display Port Tx Custom

The list of measurements for Display Port Tx Custom technology are detailed in the following table.

Custom
TotatlJitter_TP2
RJMeasurement_TP2
RJDDMeasurement_TP2
UJMeasurement_TP2
DJMeasurement_TP2
DJDDMeasurement_TP2
DDJMeasurement_TP2
UDJMeasurement_TP2
UDJ_LFMeasurement_TP2
EyeDiagram_TP2
EyeHeightAtCenterMeasurement_TP2
EyeHeightMaxMeasurement_TP2
EyeWidthCIOMeasurement_TP2
EyeWidthMeasurement_TP2
UIMeasurement_TP2
BitRateMeasurement_TP2
VTXDiffPP_TP2
VTXDCCM_TP2
VTXACCM_TP2
LinkRate_TP2
LinkRateTolerance_TP2
ACCommonModeMeasurement_TP2
SSCPhaseDeviation_TP2
SSCDownSpreadRate_TP2
SSCDownSpreadRange_TP2
SSCSlewRate_TP2
EyeHeightAtCenterMeasurement_TP2
EyeHeightMaxCenterMeasurement_TP2
EyeWidthMeasurement_TP2
EyeWidthCIOMeasurement_TP2
RiseTime_TP2
FallTime_TP2
IntraPairSkew_TP2
VTX-DEEMP-PRE1-RATIO
VTX-DEEMP-POST1-RATIO

Table continued…

Custom
EyeMedianToMaxJitter_TP2
DCDMeasurement_TP2
FBY2Measurement_TP2
EyeHeightAtCenterMeasurement_TP3EQ
EyeHeightMaxMeasurement_TP3EQ
EyeWidthMeasurement_TP3EQ
EyeWidthCIOMeasurement_TP3EQ
TotatlJitter_TP3EQ
UJMeasurement_TP3EQ
DDJMeasurement_TP3EQ
UDJMeasurement_TP3EQ
RJDDMeasurement_TP3EQ
TLFPS
TLFPS_CYCLE
TSILENCE
VTX-DIFF-SLEEP
VTX-CM-SLEEP-ACTIVE-DELTA
VTX-AC-CM-LFPS
VTX-LFPS-PP
TTX-RISETIME-LFPS
TTX-FALLTIME-LFPS
LFPS_DUTY_CYCLE

User profile

The **User Profile** displays the information about your user account.

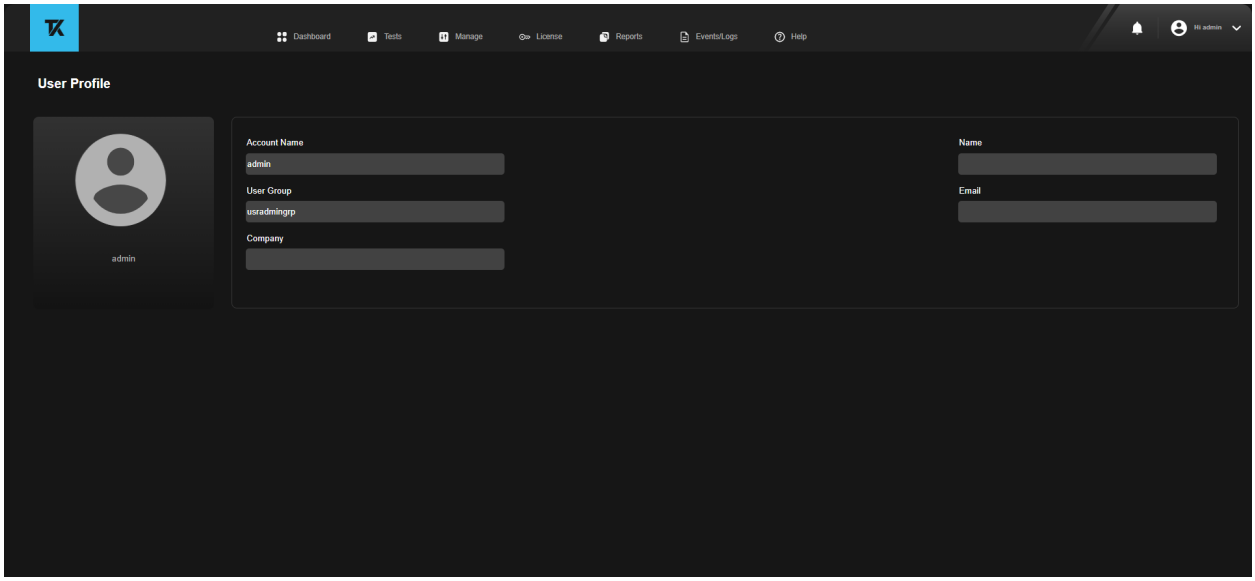


Figure 106: User profile

Manage accounts (admin only)

The **Manage Accounts** allows you to create a user account, update the existing user details, and delete an user account. Click **Manage Accounts** to access the **Manage Users** page.

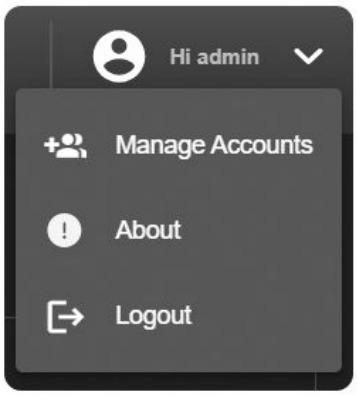


Figure 107: Manage accounts

My profile

My Profile displays information about user account.

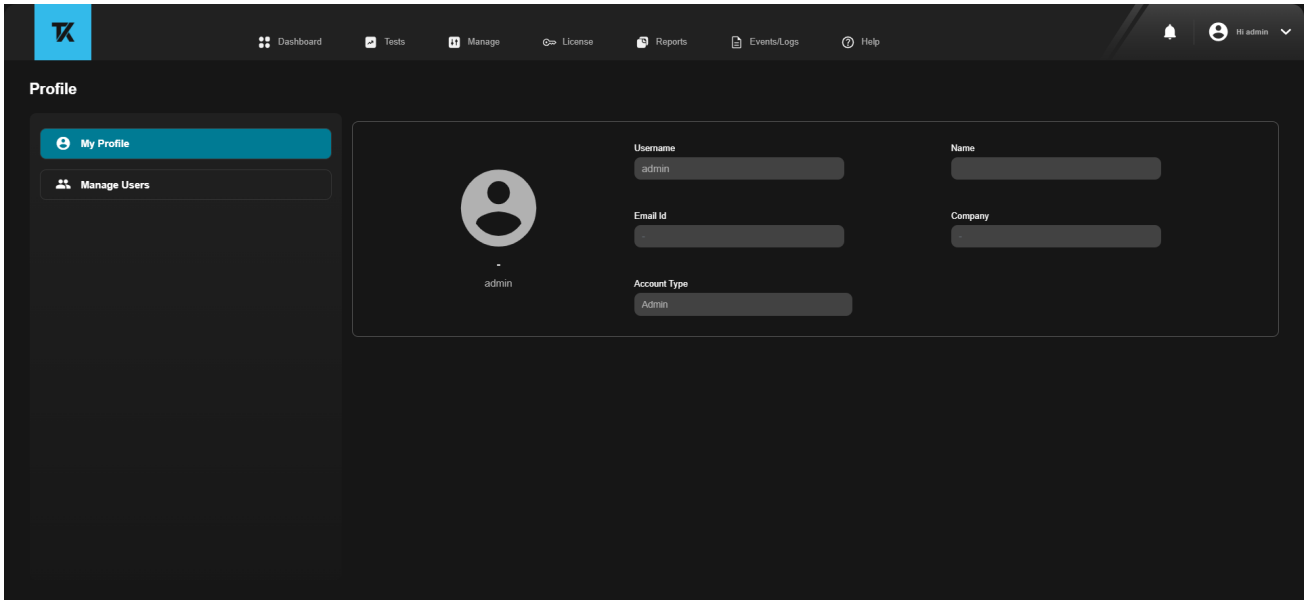


Figure 108: Profile details

Manage users

Manage Users allows you to add, modify, delete, lock, or unlock the user account.

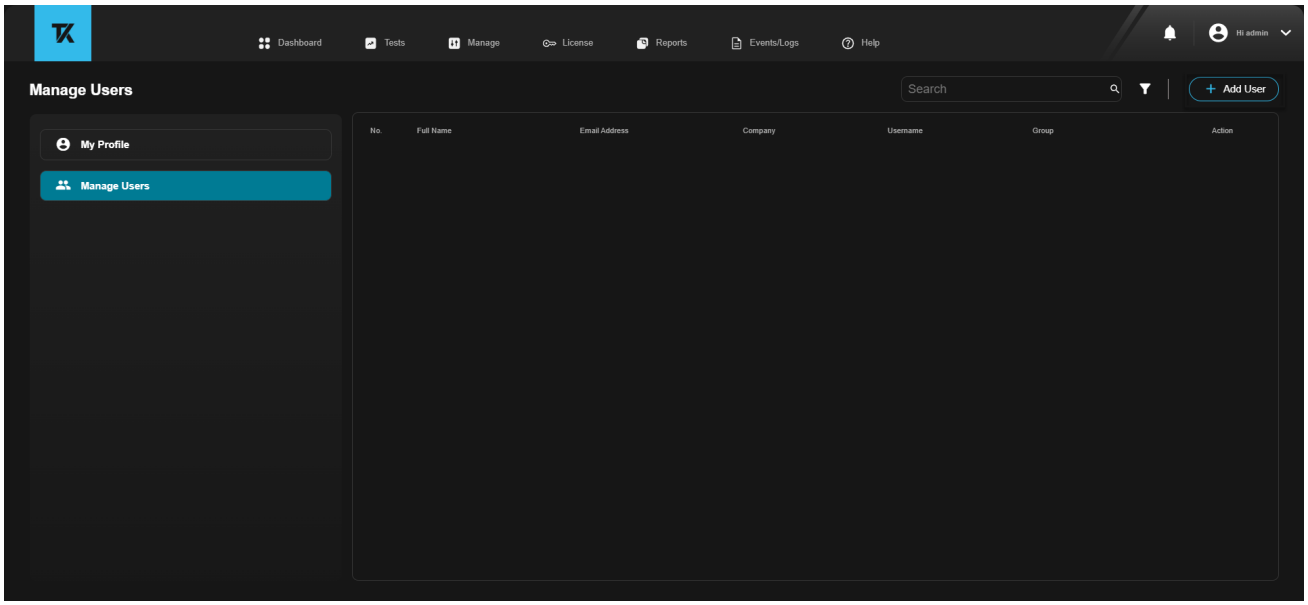


Figure 109: Manage users

Note: In Manage Users, if you reset password for admin (default user), then the password is reset only for Clarius UI login and not for Clarius Virtual machine login. It is recommended to use the *Clarius password reset utility* to reset the admin (default user account) password always.

Add user

The **Add User** allows you to create a new user account.

Follow the steps to add a user account.

- Select **Manage Accounts > Manage Users** and click **Add User**.

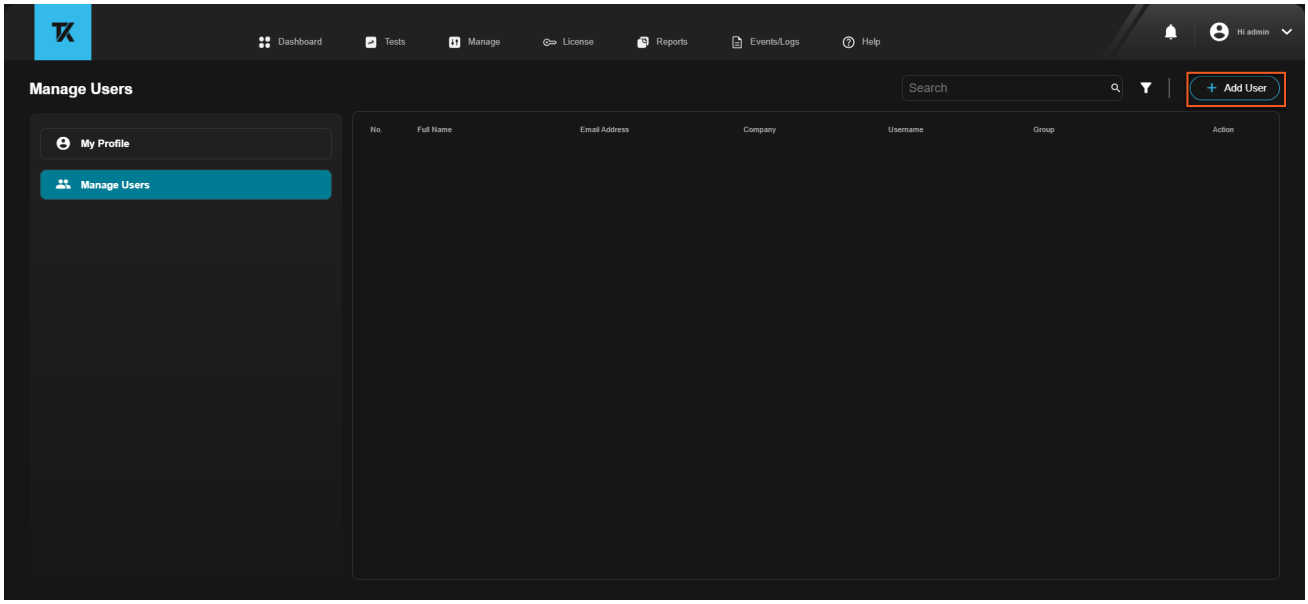


Figure 110: Add user

- Enter the details in the respective fields and click **Submit**.

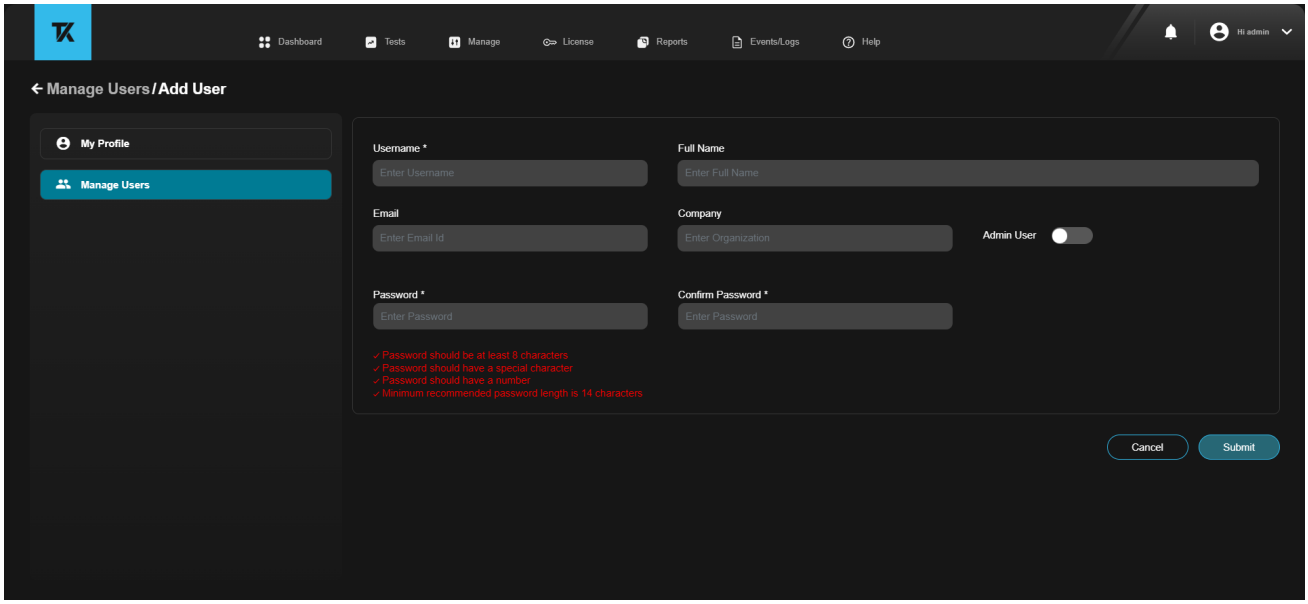


Figure 111: Add user details

Element	Description
Username	Enter the username to login the UI.

Table continued…

Element	Description
Full Name	Enter the full name of the user.
Email	Enter the valid email id of the user.
Company	Enter the organization name of the user.
Admin User	Enable or disable to set the account as admin or non admin account.
Password	Set a password matching the criteria.
Confirm Password	Re-enter the password.
Submit	Click to save the configured details.
Cancel	Click to cancel. All the entered details will be discarded.

Reset admin (default user account) password

This section describes the steps to reset the password of an admin (default user account). A default user is the user account that is created during the installation.

To reset the password, follow the steps:

1. Run the command prompt in **Administrator** mode.
2. Execute the command **clarius resetpwd -p "new password"**.

Note:

- It is recommended to use the Clarius password reset utility to reset the admin (default user account) password always.
- Clarius password reset utility will reset the admin (default user account) password. It will also reset the login password of Clarius virtual machine which can be used for debugging purposes.
- You cannot use this command to reset the password of non-admin/admin user accounts created in Clarius GUI.

Admin Console and Monitoring

The Monitoring and admin console provides a holistic view of the performance of the **Host** (Clarius installed PC) and the Clarius **Platform** (Virtual machine running critical services). This service allows users to monitor CPU load, memory usage, disk and storage status, ensuring optimal performance and facilitates troubleshooting.

Double-click Clarius **Admin Console** from the desktop to open the monitoring service.

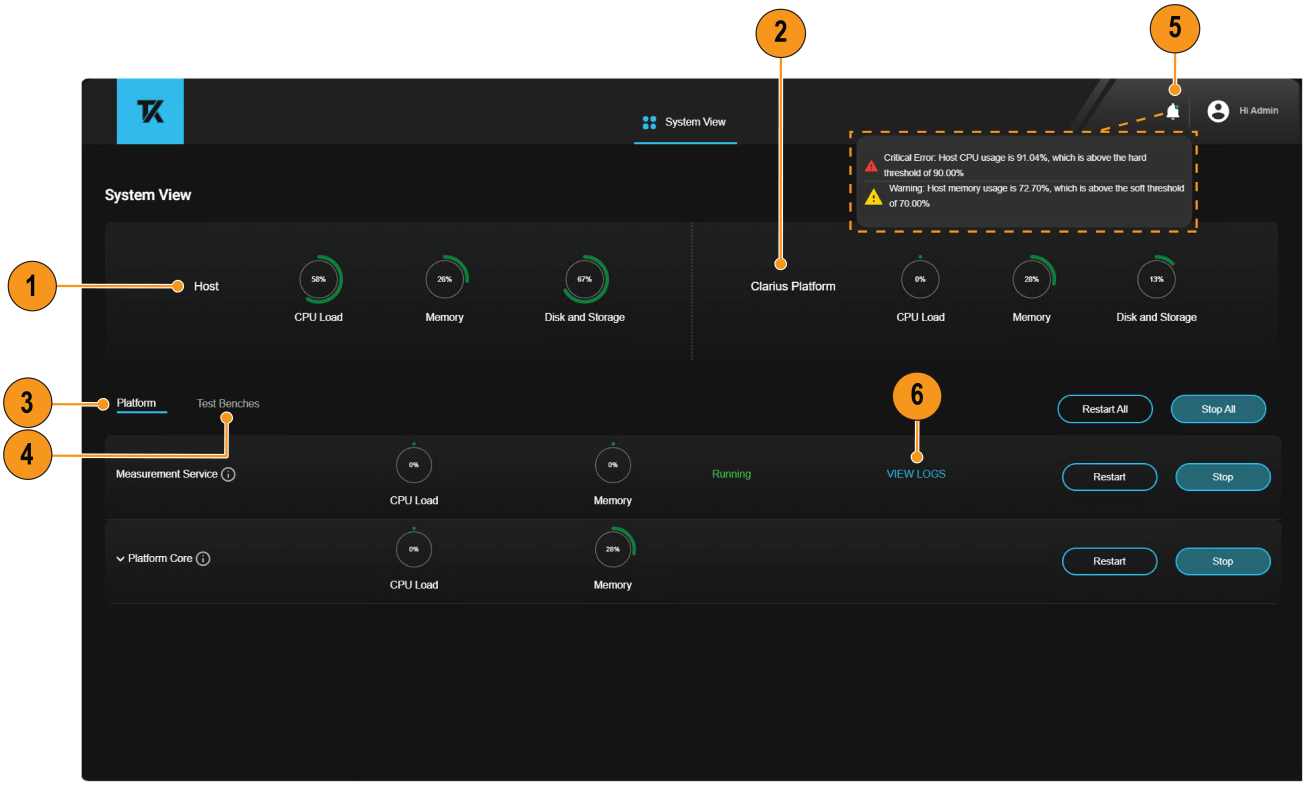


Figure 112: Clarius compliance monitoring service interface

Table 11: Components of monitoring service

Identifier	Element	Description
1	Host	The Host (Clarius installed PC) provides the hardware resources for the Clarius platform. You can view metrics related to CPU load, memory usage, disk and storage status for the host.
2	Clarius Platform	The Clarius platform is a virtual machine created on the host, running critical services essential for system operations. Metrics for the platform include CPU load, memory usage, disk and storage status.
3	Platform	You can view the real-time status of Clarius services, which include CPU load and memory usage. The available status are Running, Not Running, and Exited.
4	Test Benches	Users can view the real-time status of the test benches, which includes CPU load and memory usage. The available status are *Available*, *Occupied*, *Unavailable*, and *Not Reachable*.

Table continued…

Identifier	Element	Description
5	Notifications	Warnings and alerts are displayed in the notification icon and Windows system tray, providing real-time updates on the system status. **Warning Threshold:** An alert is triggered when the metric exceeds the set value (For example, 70%)[10]. **Critical Threshold:** A critical alert is triggered when the metric exceeds the set value (For example, 90%).
6	Logs	The logs screen displays detailed logs for each service. **Note:** If there is any issue with the service, save the log file and share it with the Tektronix support person for troubleshooting.

Test bench status scenarios

The **Test Benches** tab in the monitoring service allows you to view the status of the test bench.

The following table explains the scenarios for using the test bench to perform a test.

Test bench status	Description
Available	If both instrument service and instrument service agent (ClariusISAgent) are running, but no test is executed on the test bench.
	If instrument service is running and instrument service agent (ClariusISAgent) is down; Technical difficulties to Restart or Stop the service.
Occupied	If instrument service and instrument service agent (ClariusISAgent) are running, and a test is being executed on the test bench.
Unavailable	If instrument service is down and instrument service agent (ClariusISAgent) is running; Use Start to bring up the setup.
Not Reachable	If both instrument service and instrument service agent (ClariusISAgent) are not reachable.

Note:

- You can check the status of instrument service agent (ClariusISAgent) from the **Services** window. Click **Start** > **Run** and then type services.msc to launch the Services window.
- Clarius Monitoring and Admin console is only accessible from the target system where the Clarius automation framework is installed.
- File Store Create Buckets service operates as an internal start-up service and will cease its operations post-initialization. It is not essential for the ongoing test procedures, and its absence will not affect the test runs or their outcomes.

[10] If the alert is from hard disk, delete old test data from **Tests** > **List of Tests** to free up the hard disk space.

Tutorial

Steps to execute a test

This section describes the steps to run a test in the Clarius automation framework.

Prerequisite

1. Install Clarius automation framework
2. Install Clarius application in the Clarius automation framework
3. Activate the license for Clarius application
4. Run the services

Steps to execute a test

1. Double-click the **Clarius** icon from desktop to launch Clarius automation framework.

   Note: To remotely access Clarius use the host name or IP address of the Clarius automation framework installed device.
2. After successful login, you will be navigated to the home page. It displays the navigation panel and the widgets in the dashboard.
3. Create Test Bench. A test bench is an environment that is used to verify the correctness of a test setup. *Creating a Test bench*:
   a. Go to **Manage** > **Test Benches** and click **New Test Bench**.
   b. Enter test bench details in the respective fields.
   c. Add the required instruments into the test bench.
   d. Click **Save** and save the test bench
4. Create Test. *Creating a Test*:
   a. Go to **Tests** > **Add Test**.
   b. Enter the test details in the respective fields.
   c. Select the acquisition mode as Live or Recorded and select the Test bench or waveforms respectively.
   d. Select the technology and active application from the drop-down list and click **Add Sequence**. To import an already created sequence, click **Import Sequence**.
   e. Click and configure the **Sources and Signals** for the test setup.
   f. Click and configure the **Global Settings** for the test setup.
   g. Click and to view the **Connection Diagram**.
   h. Click to view the scenarios. Click from Local Settings to configure the settings for the respective scenario or the measurement
5. Select **Run** to run the measurements with the configured settings. You can also save the test and run later.
6. Navigate to the **Tests** tab to view the executed test *status and results*.
7. In **Tests** tab, click **View Results** to view the results of a particular test.
8. In the Reports page, click **Generate Report** to generate the report in PDF. You can view the PDF report and download.

References

File name extensions

The DisplayPort Tx application uses the following file name extensions:

Table 12: File name extension

File name extension	Description
*.py	Python files.
*.xml	Test-specific configuration information (encrypted) files. Application log files
*.csv	Test result reports Plot data
*.mht	Test result reports (default) Test reports can also be saved in HTML format
*.pdf	Test result reports Application help document
*.xslt	Style sheet used to generate reports
*.png	Captured images
*.flt	Filter files

Error messages

The following error messages may be displayed in the Clarius automation framework and description section helps you understand the error messages and the possible solution.

Table 13: Clarius error messages

Error message	Description
Invalid login credentials, Username or Password cannot be blank	Please enter username and password.
Error, Unrecognized client. Please contact Tektronix support	Configuration error. Please contact Tektronix field engineer for support.
Error, Error connecting to the system. Please contact tek support.	Configuration/Connection error. Access Admin console and check if all services are running. Start the services which are not running and check again. If the issue stills exist, please contact Tektronix field engineer for support.
Error, New user creation failed; Username already exists	Username already exists. Please enter a unique username.
Error, Please select a test bench to configure the sources and signals	Select a test bench to configure the sources and signals.

Table continued…

Error message	Description
Failed, <*scenario name*> cannot be unchecked because of the dependent scenarios	Uncheck the dependent configurations and then try again.
Error, Please select the instruments and channels for all the defined signals and then click Apply	Validation Error - Select instruments and channels for all defined signals before you select Apply.
Invalid Grouping, 'Duplicate instrument channels configured in ' <*channels*>	Channels in a group are used to signals in a single acquisition hence multiple occurrence of a channel in a single group is not allowed.
Cannot add new signal, Please select the instruments and channels for all the defined signals before adding new signal.	Please select the instruments and channels for all the defined signals before adding new signal.
Unable to find internal application for technology	Multi-lane grouping is not supported in this technology or the technology is deleted.
Locking application failed, Execution id <*execution id*>	Indicates an error occurred while locking the application, license is already used, try after the completion of the test using license.
Duplicate test name, name <*test name*>	Test name already exists. Please enter a unique test name.
Test Bench not available, <*test bench id*>	Test bench is not available or deleted. Please select an available test bench.
Error, Limits ID already exist	Limits ID already exists. Please enter a unique Limits ID.
Error, Rule catalog already exists	Rule catalog name already exists. Please enter a unique Rule catalog name.
Your account is currently locked. Please login after <*remaining*> of minute(s) or contact the system administrator.	Account is locked due to 5 incorrect login attempts. Please wait for five minutes and then try again.
Account locks after <*remaining*> login attempts	Account is locked due to 5 incorrect login attempts. Please wait for five minutes and then try again.

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