

R&S® License Server Managing Licenses User Manual



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ROHDE & SCHWARZ

User Manual

Version 12

This manual applies to version **1.17.0** and later of the R&S License Server.

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The following abbreviations are used throughout this document: R&S®License Server is abbreviated as License Server. R&S®License Server Manager is abbreviated as License Server Manager. In general: R&S® is abbreviated as R&S. Microsoft®Windows® is abbreviated as Microsoft Windows or Windows, Microsoft®Excel® is abbreviated as Microsoft Excel.

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1 Preface

This guide describes the following:

- Configuration and operation of the Rohde & Schwarz **License Server**. The License Server is an essential part of the Rohde & Schwarz licensing solution.
- Usage of the Rohde & Schwarz **License Server Manager**. This component lets you administrate the License Server and license keys for Rohde & Schwarz smart cards or products.

Related information

For information about latest product and documentation changes, see the release notes.

1.1 Conventions

This document uses the following typographic conventions to make information easier to access and understand.

Table 1-1: Typographic conventions

Convention	Description
"Reference" "GUI element" "Menu name > command"	"Quotation-marks" enclose references or graphical user interface citations to other documentation parts. The > symbol indicates a path or an order to follow for making selections on the GUI. Example: On the taskbar, click "Start > All Programs > ...".
[Key] – or – [value]	Square brackets around a word indicate a key name. Example: [Ctrl] key. – or – Square brackets enclose optional values, that is, values you can omit.
<i>Input</i>	Letters in <i>italic</i> indicate a value that you must type in as shown. Example: <i>5400</i> .
code	Letters in fixed-width font indicate file names, commands, or program code.
Link	Letters in blue font indicate links that you can follow.
emphasis	Letters in boldface indicate emphasized words.

Convention	Description
<variable>	Angle brackets enclose variable values. Example: <release>.
	Vertical bar indicates alternate selections - the bar means "or".
{x y z}	Braces indicate content that you must specify, that is, x or y or z.
...	Ellipsis indicates nonessential information omitted from the example.
Function B ← function A	Function B is a child function of function A. This notation is used in GUI reference descriptions.

Screen captures

Screen captures generally serve as examples and for illustration. Actual screens and required settings can differ from the examples.

2 Introduction

The License Server facilitates provisioning of license keys for Rohde & Schwarz applications. It runs as a system service (**R&S License Server**) on Rohde & Schwarz instruments and standard PCs. It handles all license requests from applications.

Licenses are stored on a **license provider**, that is, a smart card (full size or SIM size). The License Server supports several external license providers that are attached in parallel to a PC.

License Server components (brief)

Besides the **license server service**, the License Server program is installed with some components and related software that are visualized in following figure. A few components are intended for future use.

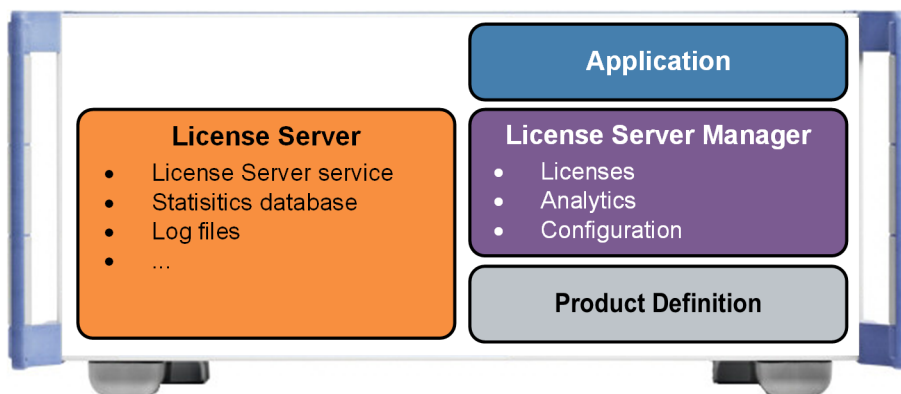


Figure 2-1: License Server, components and related software

Statistics database: For future use.

Log files: Contain detailed information for troubleshooting purposes. Default path:

```
C:\ProgramData\Rohde-Schwarz\LicenseServer\log
```

Provide the log files to Rohde & Schwarz customer support for troubleshooting purposes.

The **product definition** describes the capabilities of the instrument and resolves dependencies.

The **License Server** closely interacts with other programs of the Rohde & Schwarz licensing system, basically the **License Server Manager** that

lets you install and administer all license keys on accessible license provider or products. Also, the **License Server Manager** facilitates the interaction with the "R&S License Server" service. The following figure shows the web-based user interface.

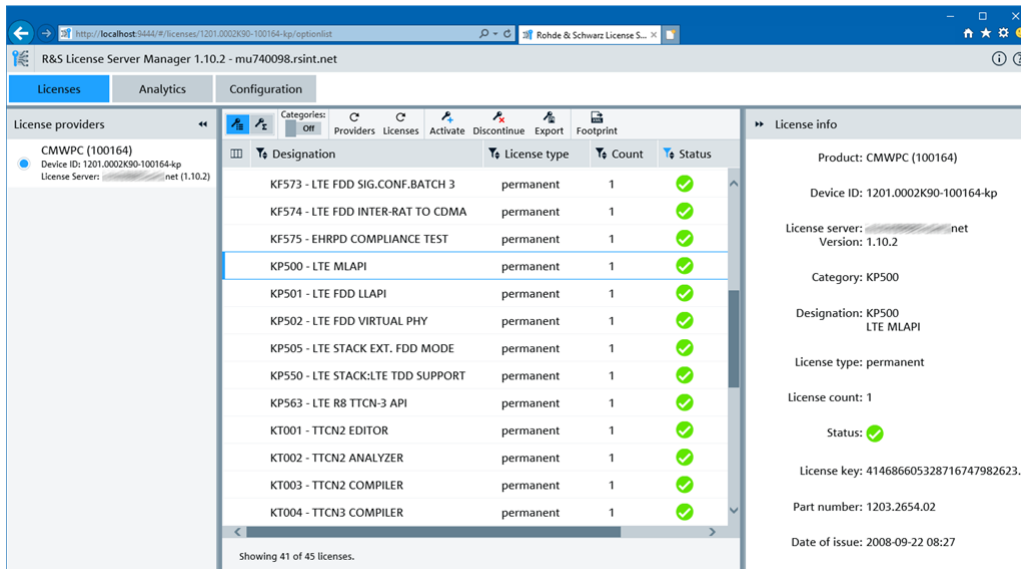


Figure 2-2: License Server Manager user interface

- "Licenses" view = For installing, administering and deactivating license keys on the associated license providers
- "Analytics" view = For future use
- "Configuration" view = For future use









3 Managing License Installations

The License Server Manager lets you administrate the License Server and license keys for Rohde & Schwarz smart cards or products. It allows for easy activation and deactivation of license keys and offers a clearly arranged overview of all stored license keys.

Key features of the License Server Manager

- Activate and deactivate licenses
- Display all license key types:
 - Active license keys
 - Portable license keys
 - Inactive license keys
 - Deactivation keys
- Port portable license keys
- Export product-self-information (footprint)
- Show the status of the local License Server
- Access to the public web interfaces of the connected License Server instances

To open the License Server Manager on Windows-based systems

- ▶ In the Windows notification area, select , and then  "Open Manager".
 - a) Optional: If the status icon (, , or ) in the Windows notification area is not shown yet, click "Start > All Programs > R&S License Server > License Server Manager".
The icon is now available in the Windows notification area.
 - b) Optional: If the status is  (stopped), select the icon, and then select
 - ▶ "Start License Server". Then, select  >  again.

Result

The License Server Manager opens in the default web browser. The program adds all available Rohde & Schwarz products (smart cards or devices) to a list and automatically shows the first product that is detected.

By default, the "Licenses" list opens with an initial filtering for showing only active licenses, see [Figure 3-1](#).

To open the License Server Manager on Linux-based systems

- Open a web browser and type in the address of the License Server:
`http://localhost:9444`
where 9444 is the default port. If you have configured a different port, adapt it accordingly.

Result

The License Server Manager opens. The program adds all available Rohde & Schwarz products (smart cards or devices) to a list and automatically shows the first product that is detected. By default, the "Licenses" list opens with an initial filtering for showing only active licenses, see the following figure.

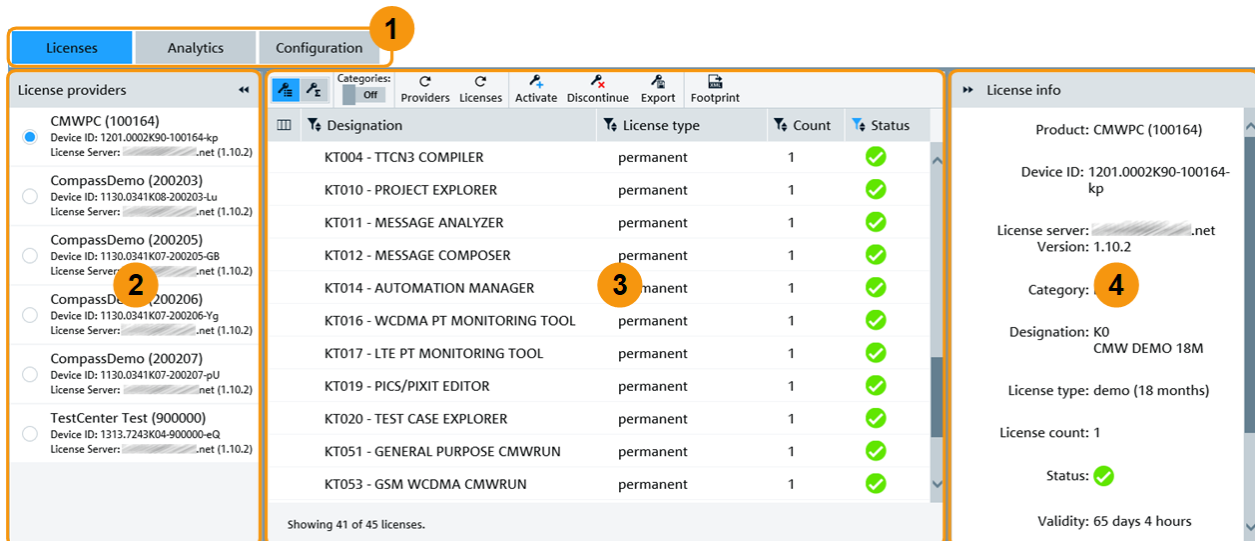


Figure 3-1: Main window, active licenses on a local license provider

- 1 = Tab for managing licenses. Other tabs are for future use
- 2 = Lists all detected "products", for example, smart cards. Shows the name, device ID, license server address and version
- 3 = Lists all licenses of the selected product. By default, only active licenses are shown. A toolbar lets you configure the content of the view
- 4 = Shows details on the selected license

Searching, filtering and sorting in tables

The following figure shows how you can apply different criteria for displaying values in the tables.

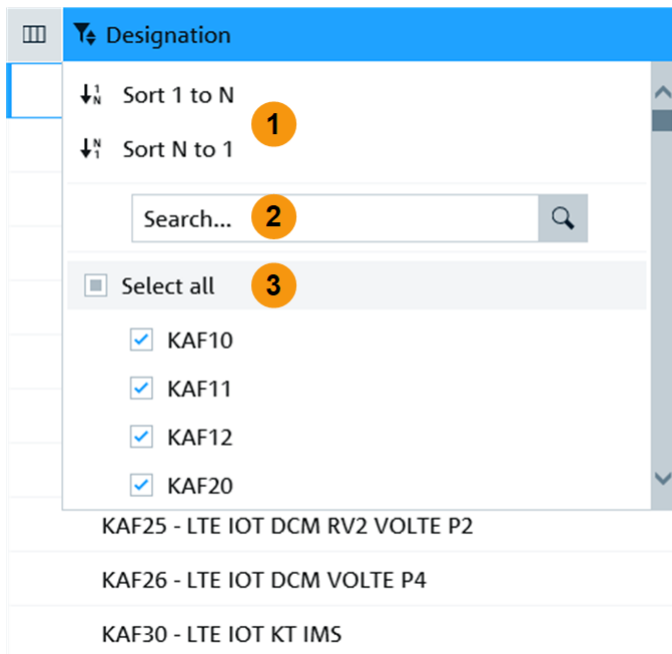


Figure 3-2: Licenses > Designation column

1 = Select an option for ascending "Sort 1 to N" or descending "Sort N to 1" sorting

2 = Start typing in the search box to apply a suitable filter

3 = Select or clear the check boxes to show only values of interest

3.1 Installing and Activating Licenses

You can use the License Server Manager for installing and activating local licenses on locally attached license providers.

To install and activate a license key

Starting situation: The License Server Manager is already started.

The "Licenses" view shows all active licenses on directly attached license providers.

See also: ["To open the License Server Manager on Windows-based systems"](#) on page 9

1. Under "Licenses", select the license provider, see (1) in the following figure.

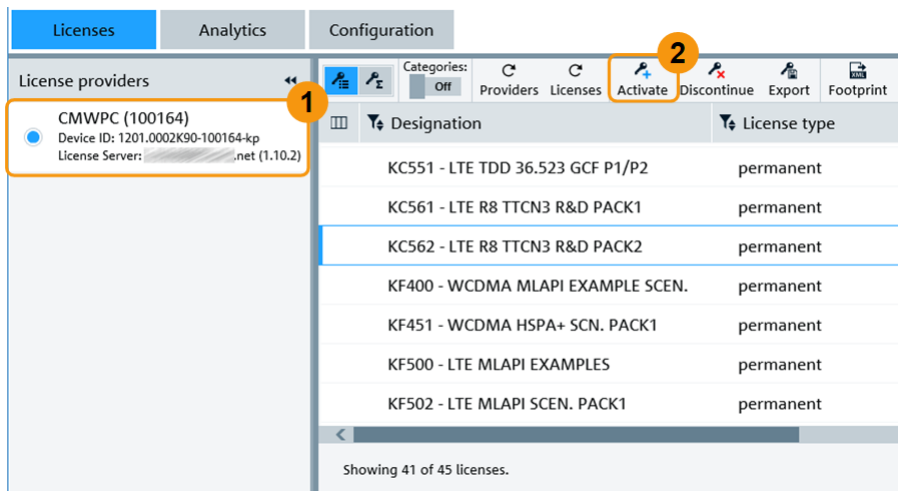


Figure 3-3: License Server Manager - Licenses view

1 = Selected license provider
2 = "Activate"

- On the toolbar, select "Activate", see (2) in previous figure. The "Activate license" wizard opens.

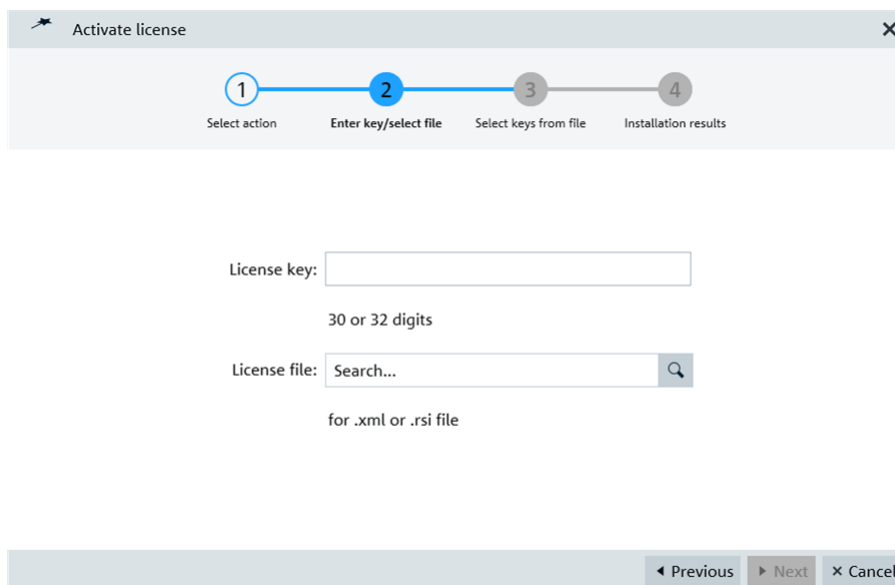


Figure 3-4: Activate license wizard

- Follow the instructions on the screen.
If a license file of type `.rsi` contains more than one key, the License Server Manager shows all its licenses.

Result

The licenses are accepted or refused and all results are displayed.

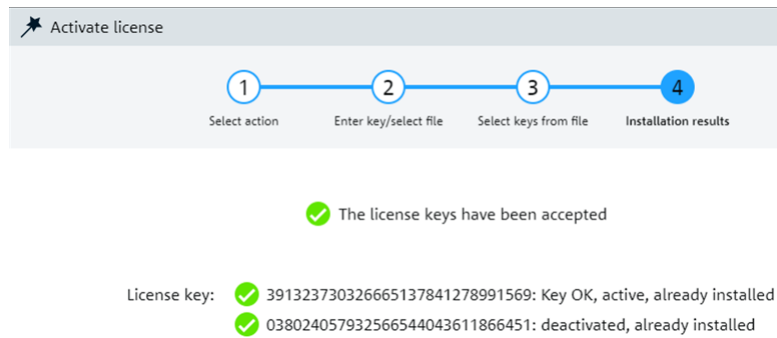


Figure 3-5: Example activation results, multiple keys

You can activate or discontinue another key by clicking "Back to step 1".

3.2 Discontinuing Licenses

To discontinue a license

The procedure is similar to [Chapter 3.1, "Installing and Activating Licenses"](#), on page 11.

1. Under "Licenses", select the product.
2. On the toolbar, select "Discontinue".



The "Discontinue license" wizard opens.

3. Follow the instructions on the screen.

The licenses are discontinued. You can display the response key at any time by entering the deactivation key again.

You can activate or discontinue another key by clicking "Back to step 1".

3.3 Saving a Response Key

You can save the response key of a discontinuation (deactivation). Send the key to Rohde & Schwarz customer support to confirm the execution of the deactivation.

To save a response key

1. Select the deactivation key in the license key list.
2. On the toolbar, select "Export".



A file browse dialog box opens.

3. Save the file.

The name of the response key file is put together from the device ID together with the name of the option. For example,

`ResponseKey_1234.5678K90-123456-aZ_CDT-K01.txt.`

3.4 Displaying Registration Information

You can display registration information for *quantified licenses*, which restrict utilization of licenses.

To display registration information

- Select a "quantified (<x>/<y>)" license in the license keys list. Where <x> is the number of available licenses and <y> is the total number of licenses.

If the license has at least one registered license, the registration information is shown in the "License info" view.

The registration information shows the number of registered licenses and lists all the registered IDs.

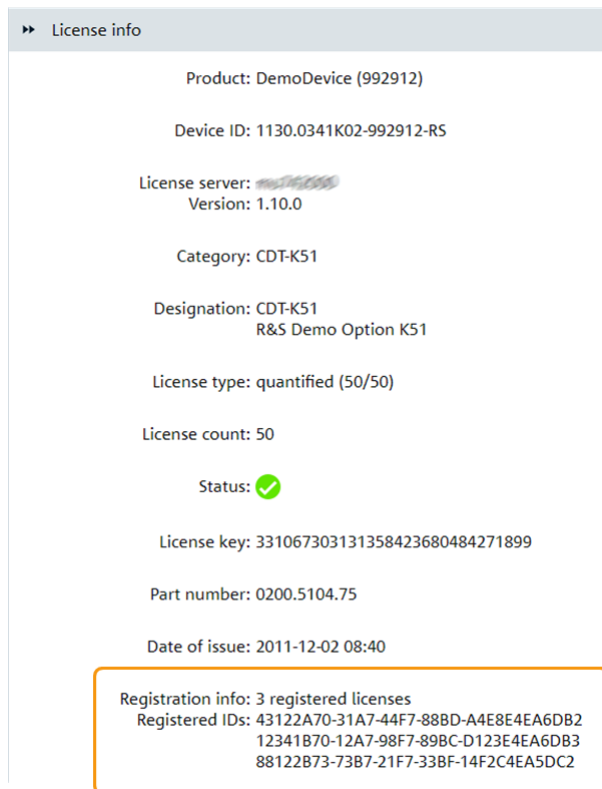


Figure 3-6: List of application registration entries

3.5 Porting Licenses

Only a registered portable license can be moved directly from one instrument to another instrument. The following procedure applies to all licenses, except deactivation keys, and explains the preparatory steps. For a deactivation key, the corresponding response key is generated instead, see [Chapter 3.3, "Saving a Response Key"](#), on page 14.

To port a license

1. Select a license in the license keys list.
2. On the toolbar, select "Export".



A file browse dialog box opens.

3. Save the file.

The name of the portable license file is put together from the device ID together with the name of the option, for example,

`LicenseKey_1234.5678K90-123456-aZ_CDT-K01.xml`.




The porting itself can then be done through the "R&S License Manager" web portal at <https://gloris.rohde-schwarz.com/service> by selecting "Move Portable License".

4 Operating the License Server

If the R&S License Server is running successfully, no user interaction is necessary.

The following table summarizes the meaning of the symbols in the Windows notification area under Windows. These symbols are not available on standard and R&S-specific Linux distributions.

Table 4-1: Symbols in the Windows notification area

Icon	Meaning
	"R&S License Server" services currently starting
	"R&S License Server" services running successfully
	"R&S License Server" services not running

Configuration

Contact your local system administrator if you encounter problems with the settings of the local license server. For example, your administrator can resolve a port conflict with the communication and HTTP/REST interface ports. These ports are used by the clients to communicate with configured server PCs.

5 Quick Reference

This chapter provides an overview of the following:

- [Licenses View](#)..... 18
- [Analytics View](#)..... 22
- [Configuration View](#)..... 22
- [Windows notification area](#)..... 23
- [Default File Locations](#).....23

5.1 Licenses View

Shows information about all license keys of the selected product. By default, the view only shows active licenses (🟢 and 🟡). Also, you can list a summary of licenses.

Select the license provider for which you want to display more information on the left. Under "License Info" on the right, you can find information on the local license at a glance. Also, you can find the response key of a deactivation, see "[Deactivation](#)" on page 20.

Column selection



Lets you configure the visibility of the columns.

Show license keys list



Shows an overview about all license keys available on the license provider. By default, the table displays only active licenses.

Designation column ← **Show license keys list**
Designation or name of the option.

License type column ← **Show license keys list**
Information about type and duration of the activation. In the following, special license types are characterized.

Timed ← **License type column** ← **Show license keys list**

These licenses are only valid for a certain amount of time. The remaining time is displayed in the "Validity" column, which is hidden by default.

Licenses that are about to expire show ⚠ in the "Status" column. Licenses that are recently expired show ❌ in the "Status" column. These licenses are no longer shown by default in the license table. You can make them visible again by selecting this status from the "Status" column header.

If you want to continue using a software option after expiry of a timed license, initiate ordering of a replacement license in time. Rohde & Schwarz delivers the replacement license in form of a license key.

Timed licenses are valid starting from their point of activation. For a seamless continuation of the license usage, activate the replacement key directly after the expiration of the old license.

How to: ["To install and activate a license key"](#) on page 11

Quantified ← **License type column** ← **Show license keys list**

These licenses only can be used for a certain number of times. The current use count is displayed in brackets. The statement "(4/5)" means, that four out of five license utilizations are still available.

If the counter has reached "0", the license is used up and the corresponding option can no longer be enabled in the corresponding Rohde & Schwarz product.

Depending on the application, a quantified license can be limited purely by the number of uses or it can allow for a limited number of utilizations that can be repeated. For the administration of repeatable utilizations, the corresponding utilization identification must be registered. If so, an already registered utilization does not use up another license.

How to: ["To display registration information"](#) on page 14

Portable ← **License type column** ← **Show license keys list**

These license keys can be transferred to other test equipment or smart cards. For that purpose, the keys can be saved as XML files. License keys of type "portable" have permanent validity.

How to: ["To port a license"](#) on page 15

Inactive ← **License type column** ← **Show license keys list**

These license keys are inactive, for example, due to deactivation or expiry. See also ["Invalidity reason column"](#) on page 20.

Deactivation ← **License type column** ← **Show license keys list**

The license key is a deactivation key.

During deactivation, the License Server Manager creates a deactivation response key that is shown under "License info". Send this key to Rohde & Schwarz customer support to confirm the execution of the deactivation.

How to: [Chapter 3.3, "Saving a Response Key"](#), on page 14

Count column ← **Show license keys list**

Number of the licenses provided by the license key (usually "1"). For example, in a multi-channel machine, the license count shows the number of simultaneously supported channels.

Status column ← **Show license keys list**

One of the following license states, indicated by icons.



License is active.



A timed license is about to expire.



A timed license is recently expired (hidden by default).



License is inactive (hidden by default).

Validity column ← **Show license keys list**

Time remaining until expiry for timed licenses (hidden by default).

Invalidity reason column ← **Show license keys list**

The reason for the invalidity: expired, deactivated, and so forth (hidden by default).

License key column ← **Show license keys list**

The actual license key (hidden by default).

Part number column ← **Show license keys list**

Part number of the license key or of the corresponding option (hidden by default).

Show license summary

Provides an overview about all license keys available on the license provider.

Designation ← **Show license summary**

Designation or name of the option.

Total licenses ← **Show license summary**

Number of license keys saved on the license provider.

Used licenses ← **Show license summary**

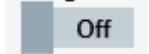
Currently used license keys.

Maintenance expiration ← **Show license summary**

Expiration date of the software maintenance license key.

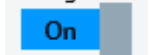
Categories Off/On

Categories:



By default, all licenses are displayed in a flat list ("Off").

Categories:



If set to "On", all licenses are grouped by their designation.

Providers/Licenses

"Providers" updates the list of license providers.

"Licenses" refreshes the license table.

Activate license/Discontinue license

Both icons open the "Manage license" wizard at step 2. You can manually enter a license key. Also, you can select a license file that contains the license key.

How to:

- [Chapter 3.1, "Installing and Activating Licenses"](#), on page 11
- [Chapter 3.2, "Discontinuing Licenses"](#), on page 13

Footprint

Creates and saves the product self information of the selected product as `.xml` file. You can open the file in the Rohde & Schwarz Equipment Configuration Viewer. If necessary, you can send this file to Rohde & Schwarz for troubleshooting purposes.

Export



Saves a response key or a portable key. If the license is of type "deactivation", automatically a response key is saved. Otherwise, the license is saved as `*.xml` file.

5.2 Analytics View

For future use.

5.3 Configuration View




For future use.

For installed product definitions, the view shows "Name", "Part number", "Version" and "Path". For the default file location, see ["Product definition file"](#) on page 24.

5.4 Windows notification area

License service status

Table 5-1: Symbols in the Windows notification area

Icon	Meaning
	"R&S License Server" services currently starting
	"R&S License Server" services running successfully
	"R&S License Server" services not running

Open Manager

Opens the License Server Manager which lets you administer the license keys and open the statistics web interface of the local License Server.

Start License Server/Stop License Server/Restart License Server

Starts, stops or restarts the local License Server.

5.5 Default File Locations

This section summarizes the default locations for important files. The Windows paths are written using environment string notation (percent signs % enclose environment strings). The Linux paths apply to the standard distributions. The paths for R&S-specific Linux distributions can differ from these standard paths.

Executables

Windows: License Server program `RsLicenseServerApp.exe` and License Server Manager program `RsLicenseServerManager.exe` are located here:

`%ProgramFiles(x86)%\Rohde-Schwarz\LicenseServer\bin`

Linux: The License Server program `RsLicenseServerApp` is located here:

`/opt/rohde-schwarz/license-server/bin`

Active configuration files

All active configuration files are located here:

Windows: %ProgramData%\Rohde-Schwarz\LicenseServer\config

Linux: /opt/rohde-schwarz/license-server/var/rohde-schwarz/license-server/config

The configuration files are named as follows:

- RsLicenseServerApp.json
This configuration file is installed by the License Server application by default.
- RsLicenseServerApp_<UUID>.json
where <UUID> is a universally unique identifier. These configuration files are installed by specific software that sets up additional settings for the License Server.

Product definition file

The product definition <R&S_instrument>.definition.nux is instrument-specific. Several files can be installed in parallel. The following path- and naming conventions are used:

Windows:

%ProgramData%\Rohde-Schwarz\ProductDefinition\
<license_provider>\<version>

Linux: /opt/rohde-schwarz/license-server/var/rohde-schwarz/product-definition/<license_provider>/<version>

Log files

The detailed log files are intended for troubleshooting purposes. The files are written to these folders:

Windows: %ProgramData%\Rohde-Schwarz\LicenseServer\log

Linux: /opt/rohde-schwarz/license-server/log

Statistics database

The statistics database <port_no>.db collects the data about the license requests. The file is only used if the `rest` attribute group is configured on the host. It is required that the statistics database is configured on the server PC. It is optional to configure the statistics database on the clients. The file is located here:

Windows: %ProgramData%\Rohde-Schwarz\LicenseServer\db

Linux: /opt/rohde-schwarz/license-server/db

6 Troubleshooting

This section informs about problems that can occur and provides basic troubleshooting procedures.




When using ad blockers

If the License Server Manager does not show up properly in the browser, check whether you have advertisement blockers activated. If so, set an exception for the current web page, for example, for "localhost:9444/*".

Time and date calculations



If not mentioned explicitly different, all time and date calculations of the license system are based on universal time coordinated (UTC). Consequently, the date strings shown in the License Server Manager show UTC times. To settle rounding differences, the internal calculations for the validity of temporary license keys are based on hours; minutes are cut off. Nonetheless, license reservations have more exact creation and release times, i.e. calculated down to the second.



6.1 Troubleshooting the License Server

- If the "R&S License Server" services are not running, restart or start the "R&S License Server" service.
For details, see ["To restart the R&S License Server service"](#) on page 26.
- If the default port 9443 is already reserved by other programs, stop the service and edit the port for the local license server in the "Configuration" view > "Edit".
See also ["Configuration"](#) on page 17
- If the service still cannot start, the License Server Manager icon in the Windows notification area shows a red dot .
If so, we recommend renaming or deleting the current configuration file:
`%ProgramData%\Rohde-Schwarz\LicenseServer\config\RsLicenseServerApp.json`
Restart the service. The License Server creates a proper configuration file.

To restart the R&S License Server service

When restarting the service, a changed or new configuration file is read-in again.

1. In the Windows notification area, click the "License Server Manager"  icon.
2. Select  "Restart License Server"

The status icon in the Windows notification area turns yellow () during the start-up phase. Once the License Server is fully operational, the status icon turns blue again ()

Result

The "R&S License Server" service stops and starts again. All changes take effect.

6.2 Troubleshooting the License Server Manager

This section informs about problems that can occur when using the License Server Manager and provides basic troubleshooting procedures.

6.2.1 "Locked license provider" Error

The License Server ensures unambiguity when managing licenses. Therefore, you can only run one instance of the "License activation" and "License deactivation" wizard for the same license provider at a time.

If you try to run a second instance of the wizard, the License Server prevents license management in the second instance.

A second wizard instance can run by mistake:

- In another browser tab or browser instance
- In another browser
- In a browser on another computer.

Resolution

Situation: The wizard is locked and both instances run on the same computer:

- ▶ Press Esc to cancel editing. You can resume license management in the first wizard instance.
– or –

Close the first wizard instance. You can resume license management in the current wizard instance by clicking "Retry".

Situation: The wizard is locked but the first instance has run from another computer. In this case, you probably do not know who has run the wizard.





1. Wait for a while.
2. Click "Retry".

In the worst case, the lock lasts for one hour. The License Server releases a lock automatically after this period.

6.2.2 "Site can't be reached" Error

The browser shows "This site can't be reached" instead of the License Server Manager if you have stopped the license server, and if you then have reloaded the page.

Resolution

1. In the Windows notification area, select , and then select  "Start License Server".
2. In the Windows notification area, select  >  "Start Manager" again.
– or –
Reload the browser window.

6.2.3 License Designations Are Shown as "Unknown"

If the designation of a license or all licenses is "Unknown", there is a problem with the product definition for the selected Rohde & Schwarz product.

Possible reason

The product definition file cannot be loaded from the default location, see "[Product definition file](#)" on page 24. Probably, the selected Rohde & Schwarz product is not installed correctly. Or the files became corrupted.

Resolution

Install or reinstall the relevant software packages provided by Rohde & Schwarz for the selected product. Then, restart the License Server so that the product definition files are re-read by the server.

6.2.4 Key Is Invalid or Not Suitable for the Selected Product

If a key is invalid or not suitable for the selected product, the License Server Manager does not accept the key. The messages are similar for both activation and discontinuation.

Example:

- ✘ ERROR: RSI file does not contain any matching license keys
- ✘ ERROR: The license key has not been accepted



After three consecutive invalid entries, the License Server Manager locks the license management for a short period of time. During this time, it is not possible to activate or discontinue licenses. The following figure shows an example.

Example: Response to a locked license management

- ✘ ERROR: The license key has not been accepted

License key: ✘ 03881763744255357157216504603450: invalid format, not installed, Key installation temporarily disabled!

6.2.5 Newly Activated Key Is Inactive

A newly activated key can be inactive for different reasons. For example, a timed license could already be inactive because its expiry date has already passed.

The following table shows the possible states of inactive keys.

Table 6-1: States of inactive keys

State	Description
Expired	A timed license has expired
Deactivated by time monitor	A timed license is invalid due to an inconsistent system time

State	Description
Not yet in activation phase	A timed license is not yet valid. The start date is still ahead
Expended	All utilizations of a quantified license have been used up
Deactivated	The license key has already been discontinued
Not allowed	The license key is not allowed with the current settings

6.2.6 Deactivation Fails Due to Insufficient Privileges

For example, this problem can occur if the deactivation of a proper license is attempted with a beta deactivation.

✖ ERROR: The license key has not been accepted

License key: ✖ 09760025320166843003999684820874: Key OK, Deactivation, Deactivation not allowed due to wrong privilege, not saved

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