

# R&S® OSP 220/230/320

## Release Notes

**Firmware Version 2.60 (January 2024)**

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1528.5295.00 | Version 12 | R&S®OSP 220/230/320 |

The software makes use of several valuable open source software packages. For information, see the "Open Source Acknowledgment" provided with the product.

The following abbreviations are used throughout this document: R&S®OSP 220/230/320 is abbreviated as R&SOSP 220/230/320.

PAD-TM: 3574.3288.02/02\_30.xxx/CI/1/EN

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# 1 Information on the current version and history

## 1.1 Version 2.60 (January 2024)

### Firmware package contents

Version	Contents
2.60	Firmware <b>v02.60.019</b>
7.1	FPGA Application (no changes)

### Improvements

Version	Improvements
2.60	OSP-BS524: enhanced automatic path generation to prevent power-up issues in database.

### Known issues

Version	Known Issues
2.60	none

## 1.2 Version 2.60 (December 2023)

### Firmware package contents

Version	Contents
2.60	Firmware <b>v02.60.018</b>
7.1	FPGA Application (no changes)

### New functionality

Version	Functions
2.60	GUI: new context menu function to convert all saved path definitions to SCPI remote commands (see dialog "SCPI Remote Commands").
2.60	GUI: new dialog "SCPI Remote Commands" to test remote commands directly on the OSP without the need of any additional external tools.
2.60	GUI: showing CPU information in device information dialog and self-test report.
2.60	LAN: possibility to force OSP to default IP address in static network without using GUI.
2.60	OSP-BS524: default path definitions are generated automatically when this module is detected on device startup.

### Modified functionality

Version	Functions
2.60	The Lock Mode has been extended to lock additionally any GUI configuration changes.

## Improvements

Version	Improvements
2.60	New parameter for remote command to get summarized switching state information: ROUte:CLoSe? <EXPRESSION> , <b>SUMMa</b> ry
2.60	New parameter for remote command to get switching value information: ROUte:CLoSe? <EXPRESSION> , <b>VALue</b>
2.60	GUI: enlarged name fields to show longer path names without shortening.
2.60	OSP-B261: fixed detection issues on device startup.
2.60	Update of device operating system.

## Known issues

Version	Known Issues
2.60	none

## 1.3 Version 2.50 (May 2023)

### Firmware package contents

Version	Contents
2.50	Firmware <b>v02.50.019</b>
7.1	FPGA Application (no changes)

### New functionality

Version	Functions
2.50	Support of PWC200 system hardware (option OSP-K200 required).
2.50	Support of new module OSP-B155G.06
2.50	Support of new modules TS-PRE2.32 and TS-LINK.03 (based on OSP-B103 hardware).
2.50	Module rescan functionality if OSP-B200S2 was not connected on device power-up.

### Modified functionality

Version	Functions
2.50	No changes.

### Improvements

Version	Improvements
2.50	Extended self-test functionality.
2.50	Increased internal I <sup>2</sup> C communication speed.
2.50	Added functionality to re-configure OSP-B103 to handle new module types based on this module hardware.

### Known issues

Version	Known Issues
2.50	none

## 1.4 Version 2.40 (March 2023)

### Firmware package contents

Version	Contents
2.40	Firmware v02.40.011
7.1	FPGA Application (no changes)

### New functionality

Version	Functions
2.40	Support of new variant 03 of modules OSP-B122, OSP-B123, OSP-B124, OSP-B125.

### Modified functionality

Version	Functions
2.40	No changes.

### Improvements

Version	Improvements
2.40	No changes.

### Known issues

Version	Known Issues
2.40	none

## 1.5 Version 2.40 (November 2022)

### Firmware package contents

Version	Contents
2.40	Firmware <b>v02.40.010</b>
7.1	FPGA Application (no changes)

### New functionality

Version	Functions
2.40	Support of new module OSP-B122VL.
2.40	Documentation download functionality ("Getting Started", user manual and "Open Source Acknowledgment") directly from device via remote GUI.

### Modified functionality

Version	Functions
2.40	OSP-B104: implemented sequential switching of external mechanical relays to prevent the module from exceeded current consumption.
2.40	OSP-B108: functionality of module has been extended to multi-output switching.

### Improvements

Version	Improvements
2.40	Extended compatibility mode to support up to 9 module connectors.
2.40	Update of device operating system.
2.40	Improved module connection information in self-test.

### Known issues

Version	Known Issues
2.40	none



## 1.6 Version 2.30 (April 2022)

### Firmware package contents

Version	Contents
2.30	Firmware <b>v02.30.016</b>
7.1	FPGA Application (no changes)

### New functionality

Version	Functions
2.30	Support of new modules OSP-B112V.61 and OSP-B112V.62.
2.30	Support of new hardware box TS-PRE1850 for OSP-B153B.
2.30	Self-test with textual test report via GUI and SCPI remote commands.
2.30	Adjustment of internal touchscreen brightness via GUI.
2.30	SCPI remote command to read OSP device uptime.
2.30	SCPI remote commands to reboot or shutdown OSP device.

### Modified functionality

Version	Functions
2.30	Excluding secondary devices from automatic fallback to static default IP.
2.30	The syntax of SCPI remote command error messages have been revised to give more precise information.

### Improvements

Version	Improvements
2.30	Extended diagnostic checks when starting device.
2.30	Fixed issues with broken network connection and missing DNS server.
2.30	Dynamic GUI font size in path information dialog to prevent long path names from being cut off.
2.30	OLED mini-display shows better understandable error message, when trying to update to identical firmware version.
2.30	Fixed missing browser refreshment after leaving the virtual mode with interconnection settings.
2.30	Fixed previously known issues of 'Device Cleanup' functionality.

2.30	Fixed timeout issues with SCPI remote command 'ROUTE:MODule:CATalog' in compatibility mode.
2.30	Relay cycle counter management has been optimized, including a decreased storage interval.
2.30	In case of a power loss during operation, the restauration management of the internal configuration database has been optimized.

**Known issues**

Version	Known Issues
2.30	none

## 1.7 Version 2.20 (November 2021)

### Firmware package contents

Version	Contents
2.20	Firmware <b>v02.20.006</b>
7.1	FPGA Application (no changes)

### New functionality

Version	Functions
2.20	Support of new module OSP-B164K
2.20	Support of new module OSP-B164E
2.20	Without DHCP Server the OSP will switch automatically to a default static IP Address after a one minute timeout (Fallback IP)
2.20	OSP-B153B: new variant of TC-RSE140 including active switching

### Modified functionality

Version	Functions
2.20	OSP-BS016: extend GUI to support path selection
2.20	OSP-BS524: extend GUI to support path selection
2.20	GUI and mini-display show MAC address of device
2.20	Trigger: Modify trigger interval calculation to return separate values for modules with satellite connection

### Improvements

Version	Improvements
2.20	GUI: module operation view of secondary devices shows wrong frame number in header
2.20	All SP6T modules: read:relay:oper? returns wrong system error when querying for position 0
2.20	OSP-B115: rout:clon shows weird reactions when combining relays K1 to K6

**Known issues**

Version	Known Issues
2.10	Device Cleanup: virtual modules of secondary devices remain in database after device cleanup
2.20	Virtual Mode: GUI will not be refreshed after leaving the virtual mode with interconnection settings. Workaround: Please press Refresh button manually.
2.20	Network settings: Broken network connection / missing DNS servers can interrupt the communication between GUI and backend. Workaround: Avoid weak network / using IP address instead of hostnames

## 1.8 Version 2.10 (June 2021)

### Firmware package contents

Version	Contents
2.10	Firmware <b>v02.10.017</b>
7.1	FPGA Application (no changes)

### New functionality

Version	Functions
2.10	Support of new module OSP-B111H
2.10	Support of new module OSP-B112H
2.10	Support of new module OSP-BM61..6 /E/H/V
2.10	Support of new module OSP-BM111V
2.10	Support of new module OSP-B121U
2.10	Support of new module OSP-B121VL
2.10	Support of new module OSP-B171H.4x

### Modified functionality

Version	Functions
2.10	Trigger: Export and import trigger configuration to / from files
2.10	New SCPI command for device information: DIAGnostic:SERVice:USER:ERRor? DIAGnostic:SERVice:USER:WARNing?
2.10	GUI: Selection Mode: switching to selection mode by holding the keyboard button "S"
2.10	New Wording: Modification of Master-Slave to Interconnection Primary-Secondary
2.10	Status Display: Inform about AUTO DHCP or STATIC IP in connected mode
2.10	GUI: Re-organize context menu concerning device management functions

## Improvements

Version	Improvements
2.10	Trigger Mode: removal of possible, unnecessary relay control after deactivation of the trigger mode
2.10	Trigger Mode: corrected update of displayed relay positions of all SP8T relays when deactivating the trigger mode
2.10	Trigger Mode: corrected calculation of minimal trigger interval for relays K4 K5 K6 of module OSP-B106
2.10	Module OSP-B128.1: correction of faulty relay switching

## Known issues

Version	Known Issues
2.10	Device Cleanup: virtual modules of secondary devices remain in database after device cleanup

## 1.9 Version 2.00 (July 2020)

### Firmware package contents

Version	Contents
2.00	Firmware <b>v02.00.033</b>
7.1	FPGA Application (no changes)

### New functionality

Version	Functions
2.00	OSP-K100 : Software option for hardware trigger functionality
2.00	Support of new modules OSP-B153B with support of submodules: TC-AZAMP67 TC-ELAMP67 TC-FC75T TC-IFON TC_RSEPOS TC-RSE60/90/140/200 TC-MX60/90/140/200 ATS-FC75TR/90TR TS-PRE2 TS-PRE1840
2.00	Support of new module OSP-BS016
2.00	Support of new module OSP B122U
2.00	New SCPI command for module information: DIAGnostic:SERvice:MODule:HWINfo?
2.00	New SCPI command for query and disable virtual mode

### Modified functionality

Version	Functions
2.00	Modification GUI of OSP-B158
2.00	Modification GUI of OSP-BS524

## Improvements

Version	Improvements
2.00	OSP shows error of missing device and option keys
2.00	Virtual Mode / Master Slave Configuration: Sometimes new modules could not add to a slave frame
2.00	Remove difference in path definition between GUI and SCPI generation
2.00	Input dialog accepts ENTER of real keyboard even if entry is not valid
2.00	Support OSP-B151 S/M: Control of the amplifier unit does not work
2.00	OSP GUI: Path Switching - After resorting the paths order all path names changes to path definition

## Known issues

Version	Known Issues
2.00	Virtual Mode / Master Slave Configuration: Device cleanup does no remove the configuration completely.



## 1.10 Version 1.40 (February 2020)

### Firmware package contents

Version	Contents
1.40	Firmware <b>v01.40.008</b>
7.1	FPGA Application (no changes)

### New functionality

Version	Functions
1.40	Support of new modules OSP-B111E,OSP-B111U
1.40	Support of new modules OSP-B112U (RTC 516519, 546518)
1.40	Support of new modules OSP-B116E,OSP-B116U
1.40	Support of new modules OSP-B119E
1.40	Support of new modules OSP-B121E
1.40	Support of new modules OSP-B122E
1.40	Support of new modules OSP-B157WN - Option for TS8997
1.40	Support of new modules OSP-BS524
1.40	Support of new modules OSP-B155G
1.40	Path Import: Allow importing path definitions without deleting existing path definitions
1.40	GUI: Information about satellite connection in module list
1.40	Mini Display shows additional information like errors, warnings, modes and connections
1.40	Mini Display: Configurable switch-on period of the screensaver

**Modified functionality**

Version	Functions
1.40	Modified READ:IO:IN and READ:MOD:INT to access multiple modules in one call
1.40	Satellite Connection: Additional check for presence of B200R, no modules found or no connection to B200S2.
1.40	GUI: Button Module Operation will add by an arrow for RETURN functionalities
1.40	Modified ROUTE:CLOSE, ROUTE:ATT and ROUTE:PHAS to control also step attenuators and phase shifters by standard modules
1.40	Extended READ:IO:IN and READ:MODULE:INTERLOCK to allow expressions
1.40	GUI: OSP-B104 additional settings for relay delays (RTC475011)

**Improvements**

Version	Improvements
1.40	Fix of confusing error message, when temporary options are disabled due to presumed time manipulation
1.40	Fix of B104 output channels switching
1.40	Fix of the input field for path names allows to enter special characters
1.40	Fix of ROUT:MOD:CAT? returns wrong answer in compatibility mode
1.40	Improve Firmware-Update: corrupted update files are not detected and may cause a non-rebooting or not properly operating OSP
1.40	GUI: Fix of misplaced opened list if parent dialog is scrolled by mouse or wheel
1.40	Fix of Unable to control or read output ports of OSP-B151 / OSP-B157WN
1.40	<ul style="list-style-type: none"> <li>- OSP-B108</li> <li>- OSP-B112E.11 / OSP-B112U.51</li> <li>- OSP-B122</li> <li>- OSP-B122E / OSP-B122H</li> <li>- OSP-B133</li> </ul> Fix of no reset for the SP6T relays.
1.40	GUI: Fix of misplaced opened list if parent dialog is scrolled by mouse or wheel

**Known issues**

Version	Known Issues
1.40	Virtual Mode / Master Slave Configuration: Sometimes new modules could not add to a slave frame
1.40	Fix displaying the path name after resorting of paths
1.40	Fix of controlling of B151 S/M

## 1.11 Version 1.25 (June 2019)

### Firmware package contents

Version	Contents
1.25	Firmware <b>v01.25.0</b>
7.1	FPGA Application (no changes)

### New functionality

Version	Functions
1.25	GUI dialog to configure OSP-B104 relay delay times

### Modified functionality

Version	Functions
1.25	Limitation of refresh rate of module states to prevent GUI from freeze (especially during intensive SCPI operations)

### Improvements

Version	Improvements
1.25	Fix of missing B149 relay state updating in GUI
1.25	Fix of missing module handlers that follow after a B151PA
1.25	Fix of module information in GUI of modules with two connectors
1.25	Fix of DIAGnostic:SERVice:HWInfo? query returning wrong HW code
1.25	Fix of OSP-B115 and -B155 not switching last relay on each connector.
1.25	Fix of backend crash when switching OSP-B111UL.13 or -B111VL.13 in GUI
1.25	Fix of OSP-B153 non-latched relay resetting when switching latched relays.
1.25	Fix wrong module controlling in GUI when operating in slave mode

### Known issues

Version	Known Issues
1.25	In compatibility mode DIAGnostic:SERVice:HWInfo? will return slot numbers higher than 'A13' when modules are connected to slots between M04 and M16

## 1.12 Version 1.22 (January 2019)

### Firmware package contents

Version	Contents
1.22	Firmware v01.22.0
7.1	FPGA Application (no changes)

### New functionality

Version	Functions
1.22	Support of new modules OSP-B153, -B129E and -B112E (RTC 508248,508224,508222)
1.22	Support of firmware update by USB stick

### Modified functionality

Version	Functions
	none

### Improvements

Version	Improvements
1.22	Hardware detection of satellite (RTC 525383)
1.22	Backup / Restore of Master/Slave Configuration
1.22	OSP-B115 and OSP-B155: switching of wrong relays via SCPI and GUI
1.22	OSP-B157WX: switching of via SCPI and GUI

### Known issues

Version	Known Issues
1.22	Slave Mode: Menu Module Operation - No update for dig. I/O input channels (OSP-B103, OSP-B104, OSP-B114) <b>Workaround:</b> Please use the Web GUI of the master device in Module Operation mode to display the correct status of all input channels connected in the slave device.
1.15	Network: Switching between Static and DHCP IP address sometimes fails

## 1.13 Version 1.15 (November 2018)

### Firmware package contents

Version	Contents
1.15	Firmware v01.15.0
7.1	FPGA Application

### New functionality

Version	Functions
1.15	Terminate slave mode from slave GUI
1.15	OSP Firmware Update include FPGA update

### Modified functionality

Version	Functions
1.15	OLED mini display shows hostname

### Improvements

Version	Improvements
7.1	FPGA: Temperature-sensitive fan control

### Known issues

Version	Known Issues
1.15	Backup / Restore of Master/Slave Configuration sometimes fails

## 1.14 Version 1.10 (September 2018)

### Firmware package contents

Version	Contents
1.15	Firmware v01.10.0
7.0	FPGA Application

### New functionality

Version	Functions
1.10	First release of OSP firmware
7.0	First version of FPGA Application

## 2 Modifications to the documentation

The current documentation is up-to-date.



## 3 Firmware update

### Further information

- R&S®OSP Open Switch and Control Platform User Manual 1178.7100.02

### 3.1 Validity information

If necessary list here the material and model numbers the firmware is referring to

Device	Order Number
R&S®OSP220 Base Unit 2HU without Touchscreen	1528.3105.02
R&S®OSP230 Base Unit 2HU with Touchscreen	1528.3105.03
R&S®OSP320 Base Unit 3HU without Touchscreen	1528.3111.02

### 3.2 Update information

For information about of the latest firmware, please visit:

<https://www.rohde-schwarz.com/firmware/osp-n/>

### 3.3 Updating the firmware

For best performance, keep the firmware of your switch units up-to-date. Especially, to ensure flawless communication between switch units in a master-slave setup, install the same firmware version on all your switch units.

You have two options for installing an update:

- [Update by USB Flash Drive](#)
- [Update by R&S Software Distributor](#)

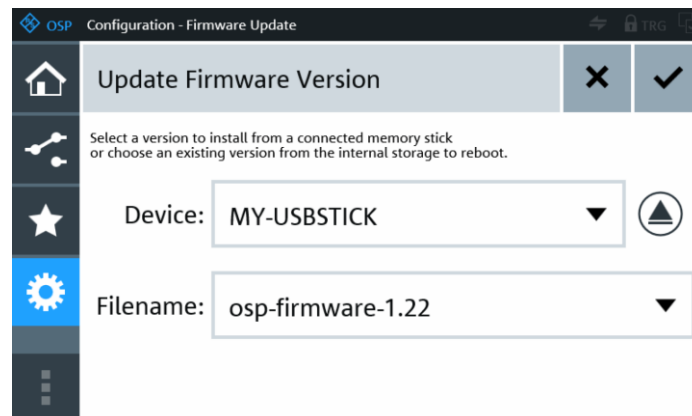
### 3.3.1 Update via USB Flash Drive

For installing new firmware on a single R&S OSP via an USB flash drive, perform the following steps:

1. Download the setup file of the latest firmware ("`osp-firmware-x.xx.rsu`", where `x.xx` is the version) from [www.rohde-schwarz.com/firmware/osp-n](http://www.rohde-schwarz.com/firmware/osp-n) to your PC.
2. Copy the `osp-firmware-x.xx.rsu` file to a USB flash drive connected to your computer.
3. Remove the USB flash drive from your computer.
4. Connect the USB flash drive to the rear-panel USB connector of the R&S OSP.
5. In the GUI, select "Configuration" > "General" > "Context Menu" > "Update Firmware Version".



The following dialog opens:



In this example, the USB flash drive with name `MY-USBSTICK` contains the firmware update file `osp-firmware-1.22.rsu`.

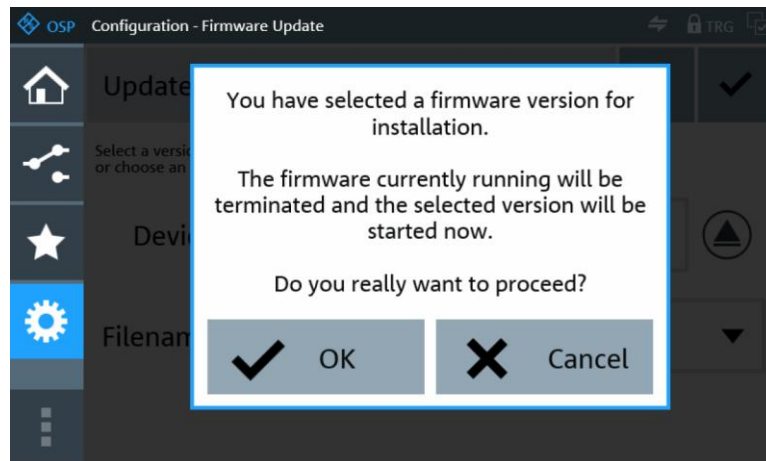
**Note:** If the firmware update dialog does not open in the "WebGUI" on your remote PC, hit the function key [F5] to refresh the page.

6. If the flash drive contains several firmware `.rsu` files, select the firmware version that you want to install.

**Note:** If you select the "Device" = "Internal Storage" and then select a firmware version that is available there, the switch unit reboots with this firmware version, instead of updating the firmware.

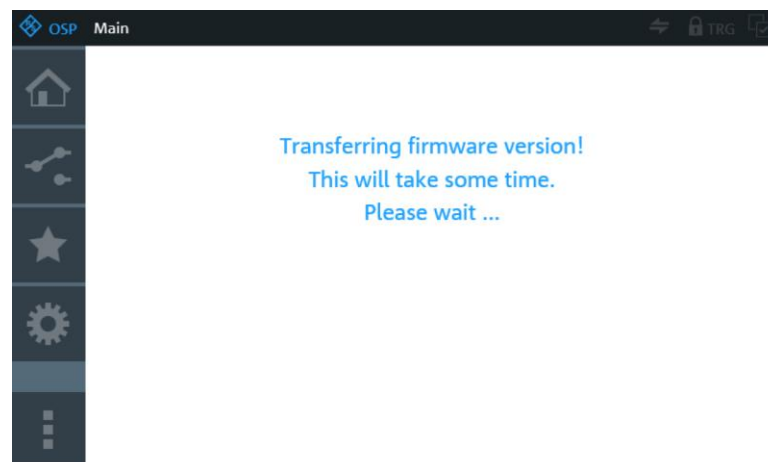
**Note:** If you select the same firmware version that is currently running, updating the firmware is aborted automatically. A [device message](#) informs you that this firmware version cannot be installed.

7. If you do not want to install any firmware, you can click the "Cancel" button **X** to return to the "Configuration" dialog.
8. Otherwise, to install the selected firmware from the USB flash drive, click the "OK" button **✓** in the top right corner of the dialog.  
The following message comes up: "You have selected a firmware version for installation. The firmware currently running will be terminated and the selected version will be started now. Do you really want to proceed?"

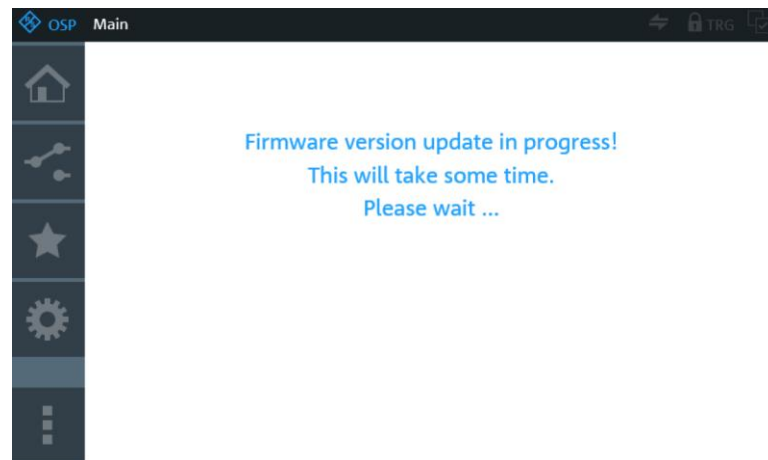


9. Confirm with "OK" or "Cancel" the updating procedure.
10. Wait during the updating procedure is running.  
If you observe this procedure in the "WebGUI" on your remote PC, ignore the following screens:

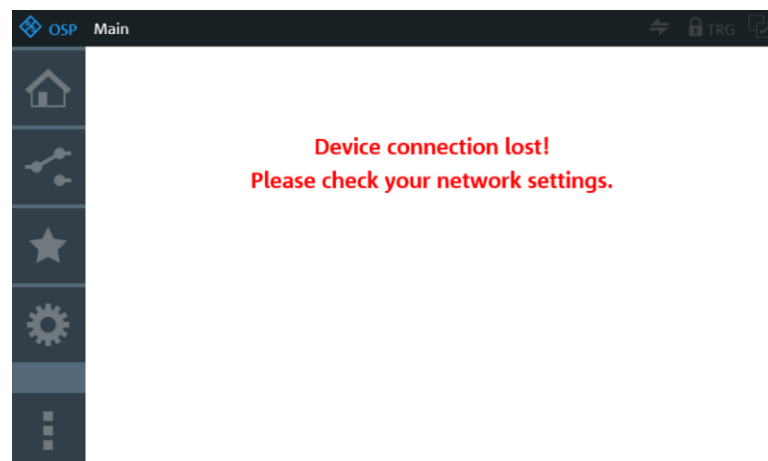
a)



b)




c)



When the installation is completed, the device connection recovers automatically.

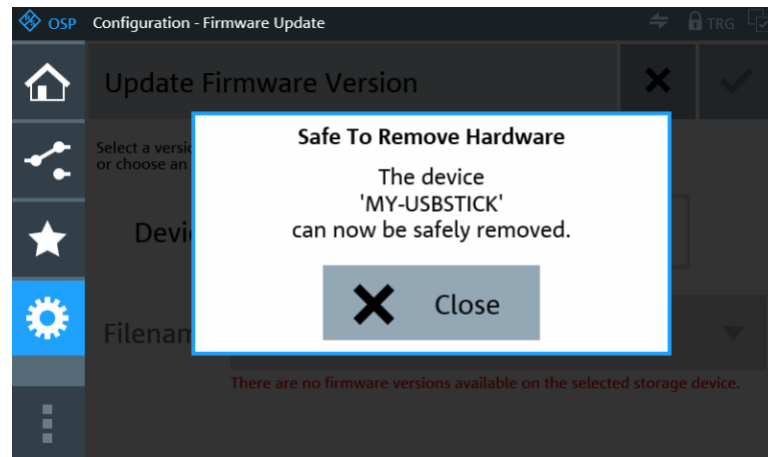
**Note:** The touchscreen shows different displays during the installation procedure.

11. After a successful installation, the [Main](#) dialog is displayed.
12. The newly installed firmware version is active.
13. Optionally click the [Device Information](#) button  to check the currently installed firmware version.
14. Before removing the USB storage device, return to the "Update Firmware Version" dialog.

- Click the eject button on the right-hand side of the "Device" selection field:



The following message comes up: **"Safe To Remove Hardware"**. "The device '<devicename>' can now be safely removed."



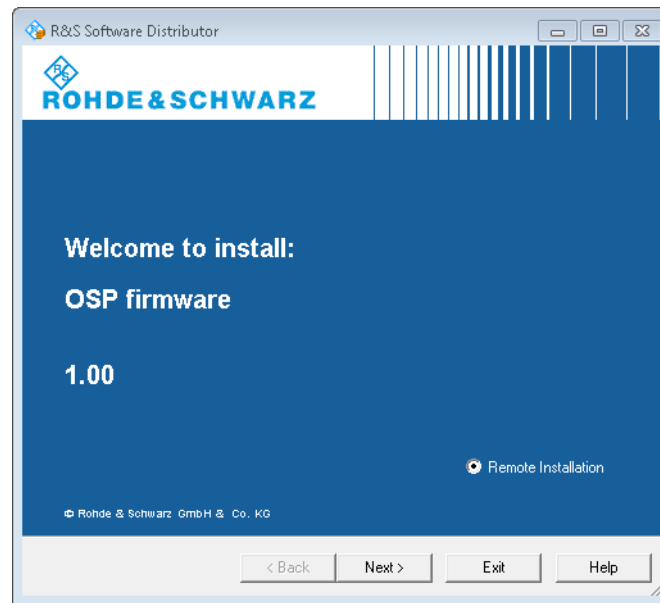
- Remove the USB flash drive from the rear USB port.
- Click "Close" to confirm this message.

### 3.3.2 Update by R&S Software Distributor

To install new firmware on **several** R&S OSP switch units simultaneously, you can use the **"R&S Software Distributor"**.

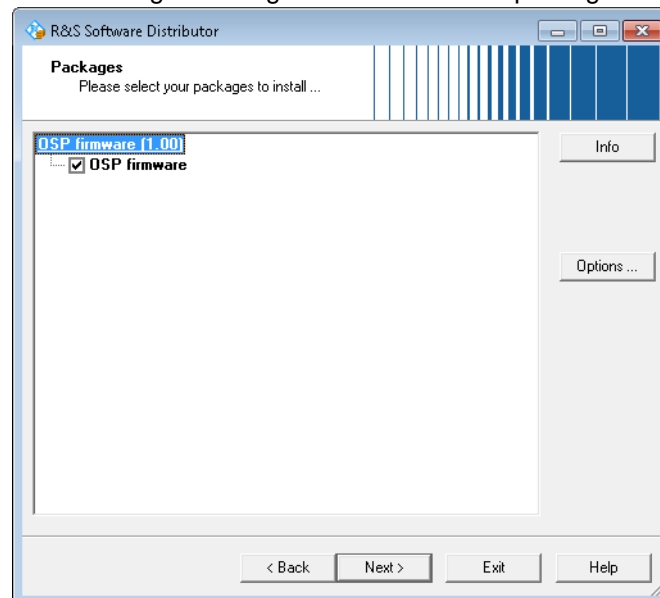
For installation, proceed as follows:

- Download the setup file of the latest firmware ("osp\_firmware\_update\_x.xx.exe", where x.xx is the version) from <http://www.rohde-schwarz.com/firmware/osp-n> to your PC.
- Connect both the PC and your switch units to the LAN.
- Open the "Windows Explorer".
- Go to the folder with the download of "osp\_image\_update\_x.xx.exe".
- Start the setup file  
.The "R&S Software Distributor" opens up.



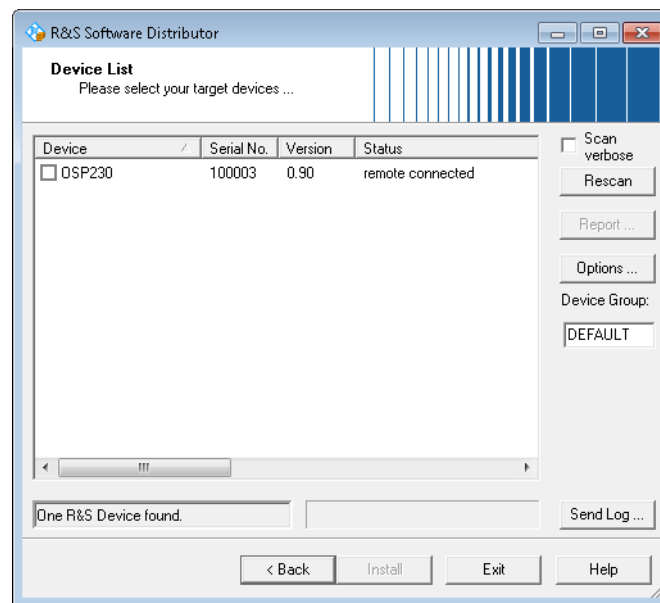
In this example, the firmware version is "1.00".  
Note that you cannot deselect "Remote Installation".

6. Click "Next >".  
The "Packages" dialog shows all firmware packages available for setup.



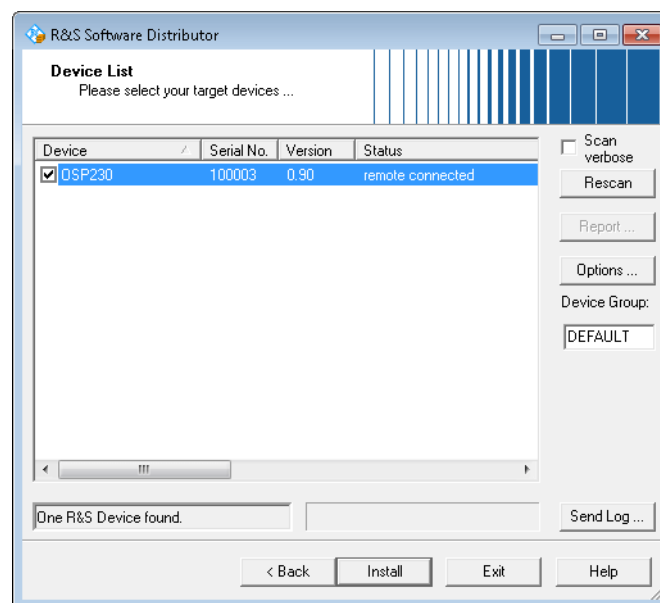
The osp-image-x.xx.exe files only contain "OSP firmware".

7. Click "Next >" to confirm without changes.
8. Wait for an update of the "Device List" dialog.  
The dialog shows all R&S OSP devices available in the network:

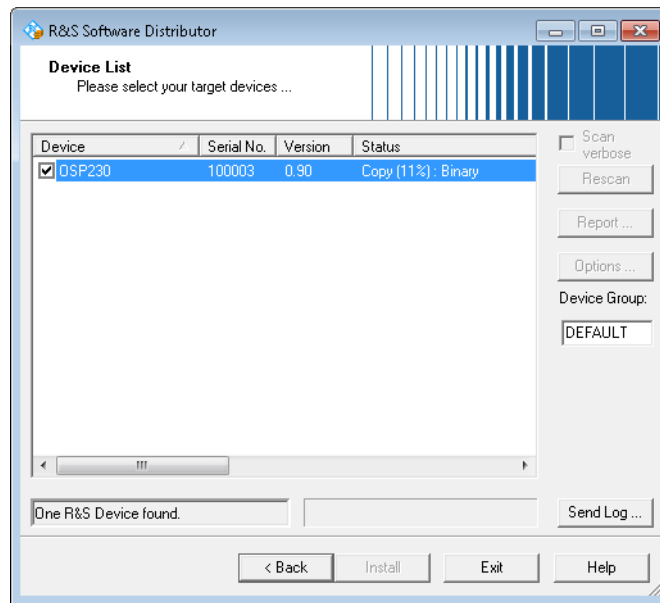


In the example in Figure 8-5, only one R&S OSP230 is remotely connected and available for firmware update. The device has the serial number 100003, and the currently installed firmware version is "0.90".

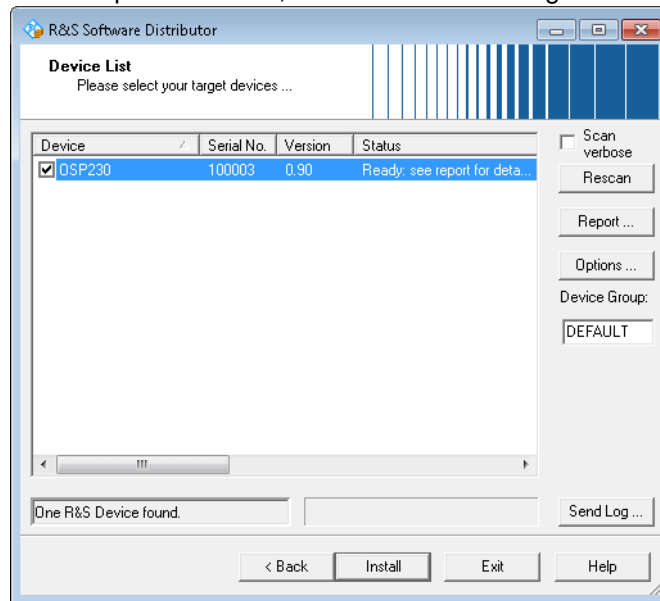
9. In the list, tick the checkboxes of all devices that you want to update.



10. Click "Install>"  
The "R&S Software Distributor" starts the setup.  
You can monitor the progress (percentage of installation) in the dialog's "Status" column.

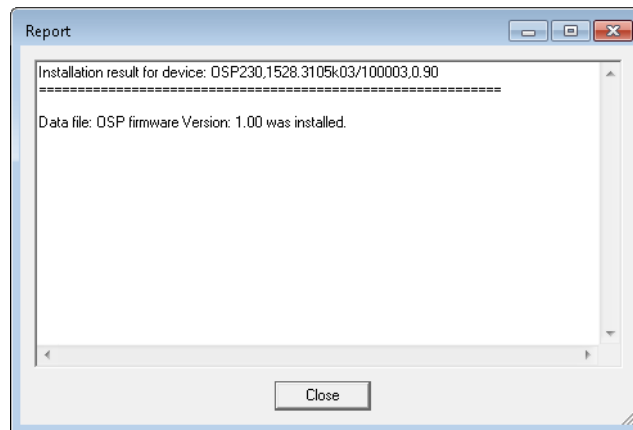


The setup has finished, when the status changes to "Ready: ..."





11. Optionally, click "Report ..." to see installation details:



12. Close the "Report" dialog.
13. Click "Exit" to close the "R&S Software Distributor" on your PC.  
Normally each updated device reboots automatically (typically without interrupting the fan).  
Do not power off the R&S OSP before having restarted.
14. If the firmware update includes an FPGA update (which is not necessarily obvious), the device does not restart automatically. Instead of rebooting, the device shuts down to standby mode.  
In this case, push the **[Pwr]** button to restart the device manually

The updated devices now operate with the new firmware version

## 4 Customer support

### Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz product, contact our customer support center. A team of highly qualified engineers provides support and works with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz products.

### Contact information

Contact our customer support center at [www.rohde-schwarz.com/support](http://www.rohde-schwarz.com/support) or follow this QR code:



Figure 4-1: QR code to the Rohde & Schwarz support page