

Remote Monitoring and Control of the R&S® RTO with a Web Browser

Application Note

Products:

- | R&S® RTO1012
- | R&S® RTO1014
- | R&S® RTO1022
- | R&S® RTO1024

This application note describes remote operation or monitoring of the R&S® RTO digital oscilloscope through a standard web browser.

The common cross-platform technology Virtual Network Computing (VNC) is used as a server on the instrument.



Table of Contents

1	Introduction	3
2	VNC Installation on the Instrument	4
	Optimizing the Screen Update Rate	6
3	Changing the Instrument Screen Resolution	7
4	Starting the Soft Front Panel from the Browser	8

1 Introduction

The LAN network interface of instruments opens a whole new field of applications in the area of remote monitoring and control. In contrast to the common IEEE-488 bus (GPIB), where the cable length was rather limited, the network interface virtually makes distance between instrument and operator boundless. Windows XP based R&S instruments already provide a solution for remote access by means of Remote Desktop. This solution however, is limited to one user and the measurement graphics is shown either on the instrument or on the remote display but not on both simultaneously.

This application note describes an approach with VNC (Virtual Network Computing) that allows multiple clients to access the same instrument at the same time. The measurement graphics is still available on the instrument screen. Possible access conflicts during simultaneous control from multiple clients remains however the responsibility of the user(s).

The R&S® RTO digital oscilloscopes can be controlled remotely via the web browser interface. This browser interface displays the so-called soft front panel which consists of the front panel keys and the measurement screen. All keys (including soft keys) can be operated by a mouse click in the browser window.



To make use of these capabilities install the VNC Server software on the R&S® RTO digital oscilloscope.

On the client PC there's no need to install any software or driver - just use an Internet browser like Internet Explorer 8 (IE8) with Java script enabled. Make sure that you have the latest version of Java (V6) installed (www.java.com).

Only the IP address of the analyzer is required to access the instrument. The IP address can be found by pressing the SETUP key on the oscilloscope's front panel and then selecting the tab '**System**'. The current IP address is displayed in the section '**System configuration**'.

2 VNC Installation on the Instrument

VNC is an Open Source software, the version which is tested and highly recommended to use is called TightVNC (Version 2.0 or higher). It can be downloaded from

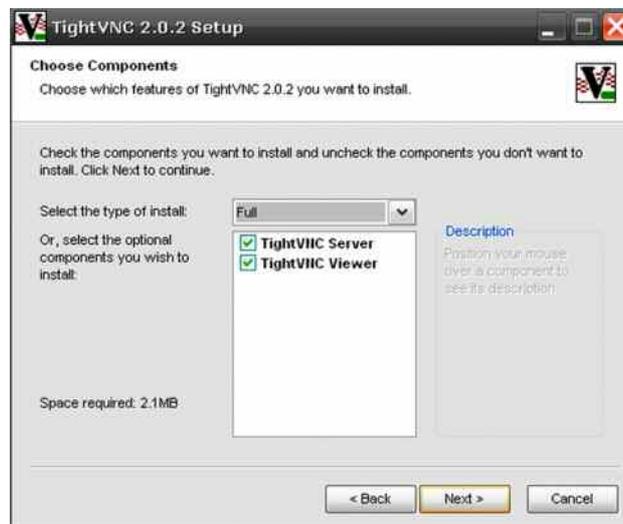
<http://www.tightvnc.com/>

for Windows platforms. Copy the file “tightvnc-2.0.2-setup.exe” on a USB stick. The installation is straight forward and does not present critical installation options. For convenience the installation steps are listed below:

1. Minimize the instrument firmware by selecting the menu ‘File’ ⇒ ‘**Minimize Application**’.
2. Bring up the Windows START menu and start the Explorer.
3. Select the directory on the USB stick where the TightVNC EXE is located.
4. Start the installation by double-clicking on the EXE file.



5. Read and accept the license agreement by pressing the “Next” Button.
6. Select the features to be installed according to the following figure:



7. Register and start VNC as a Windows service, let TightVNC configure your firewall settings automatically:



8. Define your password for login and finish the installation:



After installation of the TightVNC on the R&S[®] RTO a reboot of the instrument is required.

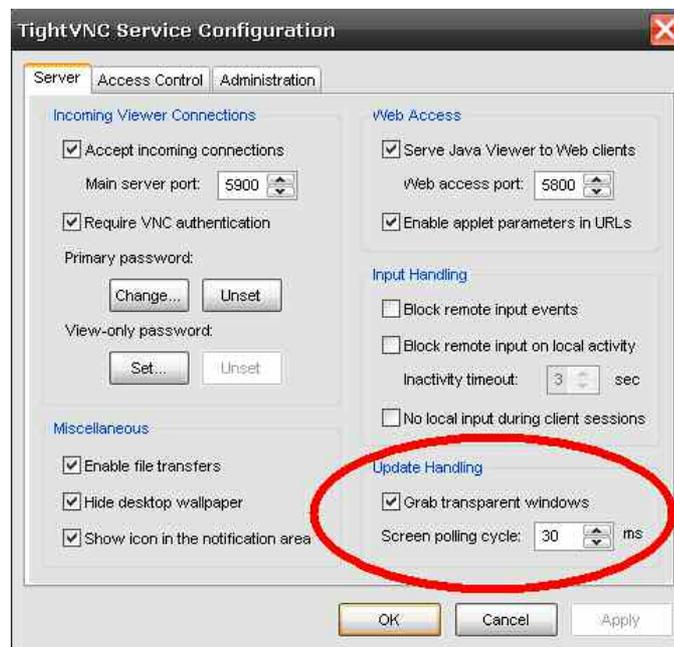
Optimizing the Screen Update Rate

The default settings of TightVNC after installation are one update/second. You can change this in the TightVNC Service Configuration dialog:

1. Minimize the instrument firmware by selecting the menu **'File' ⇒ 'Minimize Application'**.
2. Click with the mouse or tap on the TightVNC icon in the system tray / status bar to bring up the configuration dialog.



3. Change the Update Handling to a faster update rate, e.g. 30 ms.



4. Press 'OK' to confirm the changes.

3 Changing the Instrument Screen Resolution

In order to display the soft front panel on the instrument and in the browser, a higher display resolution for the additional front panel area to be displayed is required.

The increased resolution can only be activated if the graphics driver of the R&S® RTO is configured to allow higher resolutions w/o external monitor.

1. Minimize the instrument firmware by selecting the menu **'File' ⇒ 'Minimize Application'**.
2. Press the Windows START menu and then select **Settings ⇒ Control Panel ⇒ Display**.
3. Select the 'Settings' Tab in the Display dialog and then the 'Advanced...' Button.
4. In the 'Advanced Settings' dialog click on the 'Monitor' Tab and then enable all the monitor modes by de-selecting the 'Hide modes that the monitor cannot display' feature:



5. Press 'OK' to confirm the changes.

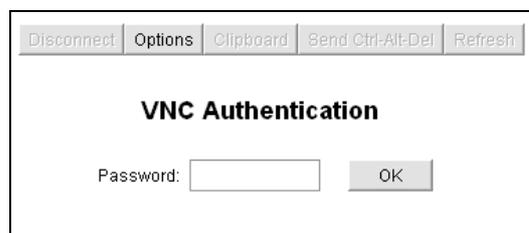
4 Starting the Soft Front Panel from the Browser

The client computer does not require the installation of a dedicated VNC client software.

By default, VNC uses port 5800. In a web browser window type the IP address of the instrument and the VNC port number:



The VNC authentication dialog comes up:



Type in the password that was defined during VNC installation and configuration. The browser window will open and run the java applet showing the instrument firmware application.

Important:

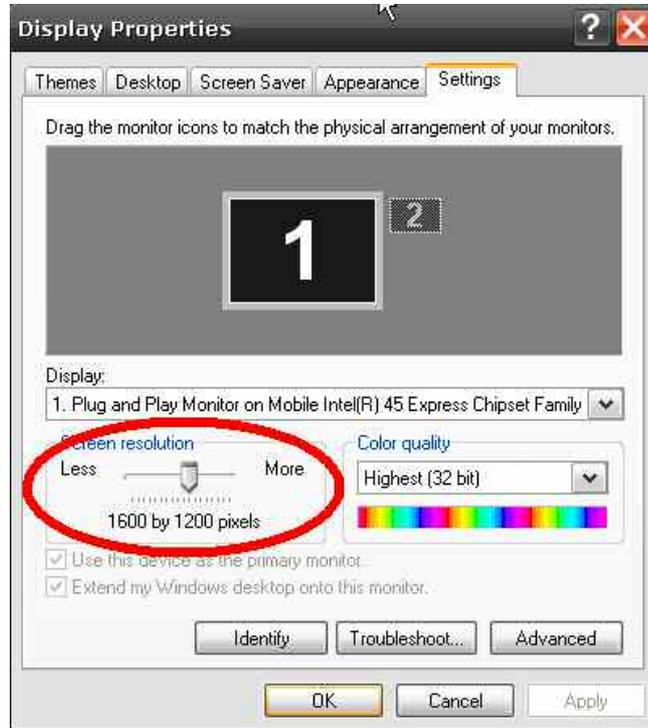
To activate the soft front panel press 'F11' on the PC keyboard.

The soft front panel should now be visible on the screen. Change the screen resolution to make the soft front panel completely visible.

1. Move the soft front panel window by dragging the title bar with the mouse to make the Windows START button visible:



2. Select the Windows START menu and then select **Settings** ⇒ **Control Panel** ⇒ **Display**
3. Select the 'Settings' Tab in the 'Display' dialog and change the screen resolution to '**1600 by 1200**':



4. Press 'OK' to confirm the changes.

Note:

If the screen resolution of the browser window doesn't show the full panel press 'Refresh' for the browser and/or log-in again. It might be necessary to press 'F11' on the PC keyboard again to reactivate the soft front panel.

Since the display resolution is set to a value higher than the instrument's screen physical resolution only a part of the soft front panel is visible on the instrument's display.

From now on the resolution should match to show the complete soft front panel in the browser window.

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