SignalVu-PC Quick Start

This document describes how to install the SignalVu-PC base software, connect to an instrument with SignalVu-PC, activate SignalVu-PC optional applications, and provides a brief introduction to the application. For full operating information on SignalVu-PC, access the SignalVu-PC help in the application software under Help > User Manual.

PC requirements for SignalVu-PC

The PC on which SignalVu-PC is installed must meet the following minimum requirements:

- One of the following Windows operating systems:
  - Windows 10 (64-bit)
  - Windows 8/8.1 (64-bit)
  - Windows 7 (64-bit) with Service Pack 1
- 20 GB free space on the C: drive
- 4 GB RAM

PC requirements for SignalVu-PC when connecting to a Tektronix USB Spectrum Analyzer

USB Spectrum Analyzers supported. The following Tektronix USB Spectrum Analyzers require a PC with the minimum requirements listed below to obtain full performance.

- RSA306
- RSA306B
- RSA503A, RSA507A
- RSA603A, RSA607A

Minimum PC requirements. The PC on which SignalVu-PC is installed must meet the following minimum requirements when connecting the instruments in the above list.

- SuperSpeed USB 3.0 port
- Windows 7, 8/8.1, or 10 (64-bit) operating system
- Intel Core i7 4th generation processor

  Processors of lower performance can be used, with reduced real time performance. This means that the minimum signal duration for 100% probability of intercept will increase and the performance of AM/FM demodulation and listening will be degraded.

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- 8 GB RAM

- Drive capable of sustained write rates of 300 MB/sec to support streaming data

  If streaming data is not needed, drives with slower write rates will work.

- 20 GB free space on the C: drive

Connect feature

SignalVU-PC-SVE automatically connects to a Tektronix USB spectrum analyzer if one is detected via the USB port (and no other devices are currently connected to SignalVu-PC). No user action is required. The Connect feature also allows connection to an MDO4000B/C series oscilloscope when Option CON is installed.

Refer to the *Connectivity* section about connecting to an MDO4000B/C series oscilloscope. The Connectivity section also provides instructions to manually connect to a Tektronix USB spectrum analyzer.

The SignalVu-PC application help also contains this information.

TekVISA

Tektronix Virtual Instrument Software Architecture (TekVISA) is a Tektronix VISA solution. It is a collection of software and documentation that allows for remote control of instruments regardless of instrument brand and physical connection. TekVISA includes a VISA driver, VISA libraries, documentation, USB Device Driver, VXI-11 server, and connection management/debug software.

When you install the SignalVu-PC software, you will have the option to install TekVISA. You should only use the version of TekVISA supplied with the SignalVu-PC software.

If you have an older version of TekVISA already installed, you need to uninstall that version before installing the most recent version.
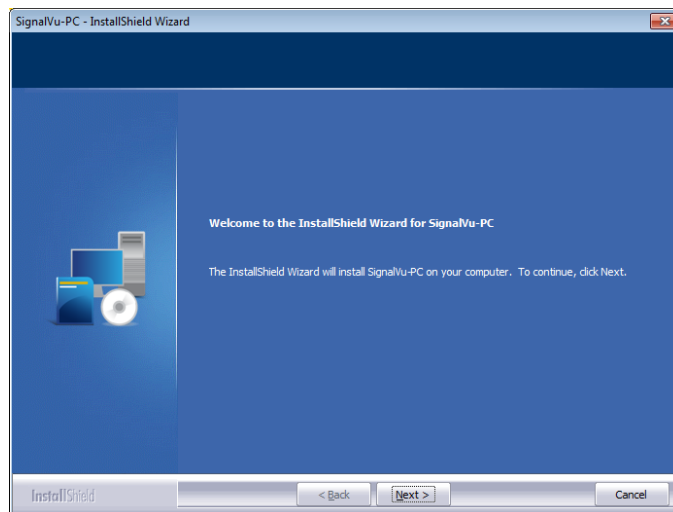
NOTE. If you want to control SignalVu-PC from another PC by using a programmatic interface, you must use TekVISA. TekVISA is also required for a LAN connection to a supported instrument.

TekVISA is not required for a USB connection to a Tektronix USB spectrum analyzer with SignalVu-PC.
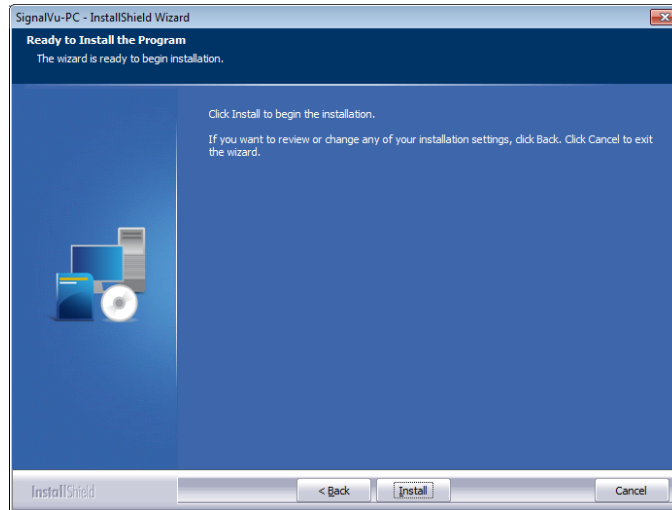
Installing SignalVu-PC

SignalVu-PC can be downloaded from the web. It is also provided with each Tektronix USB spectrum analyzer.
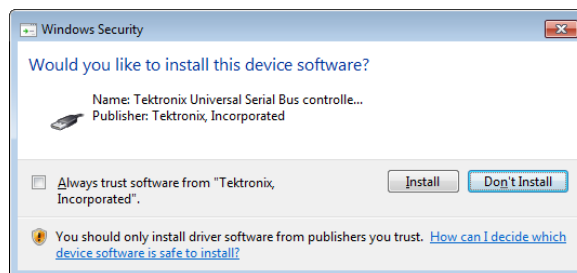
1. If you downloaded SignalVu-PC from the web:

    a. Unzip the archive on the PC where SignalVu-PC will be installed.

    b. Use Windows Explorer to navigate to the folder you extracted from the archive.

    c. Double-click **Setup.exe** to start the software installation.

2. If you are installing from the USB Flash drive provided with the instrument:

    a. Insert the Flash drive on the PC where SignalVu-PC will be installed.

    b. Use Windows Explorer to navigate to the SignalVu-PC folder and open the Win64 folder on the flash drive.

    c. Double-click **Setup.exe** to start the software installation.

3. Follow the software installation steps.

    a. Installation start up. Click Next to continue.

b. Software installation is ready to begin. Click Install to begin.

c. Depending on your PC's security settings, you may see this Windows Security dialog box. Click Install to continue with the USB device software installation.
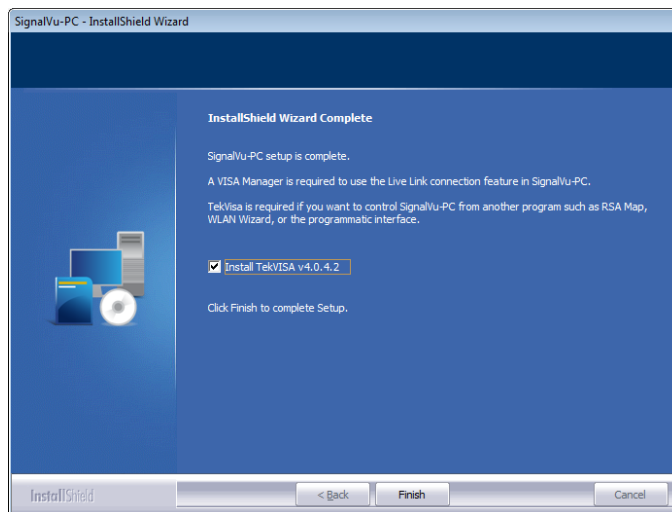
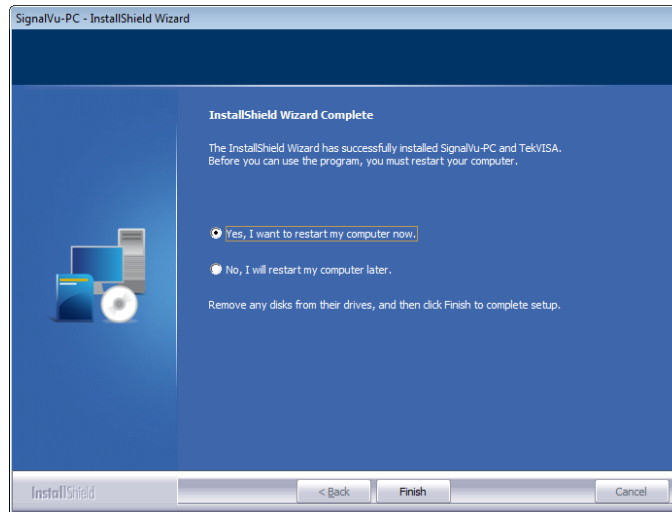**d.** Install the TekVISA software. Ensure the box is checked and click Finish to complete the installation.

NOTE. If you want to control SignalVu-PC from another PC by using a programmatic interface, you must use TekVISA. TekVISA is also required for a LAN connection to a supported instrument.

TekVISA is optimized for SignalVu-PC, especially for instrument searching, and is the recommended VISA application. If you want to use another VISA application, such as NIVISA, uncheck the TekVISA box to bypass the installation.

TekVISA is not required for a USB connection to a Tektronix USB spectrum analyzer with SignalVu-PC.

e. If TekVISA was installed, a restart of the PC is required before using the software.

4. Next step: If you've purchased optional applications for SignalVu-PC, you'll need to activate them by installing a purchased license. See the section *SignalVu-PC optional application licenses*.

SignalVu-PC optional application licenses

The SignalVu-PC product software is made up of the base software and any additionally purchased applications software (licensed optional software). The base software provides access to the standard SignalVu-PC applications. It is available for download, free of charge, from the Tektronix Web site at www.tektronix.com\downloads. Once you have the base version, you can purchase licenses for optional SignalVu-PC applications or choose to activate 30-day free trials of those applications.

License types   Tektronix is working to make it easier for you to manage the options you purchase for SignalVu-PC by implementing a licensing scheme to host your purchased licenses and allow you to manage your licenses yourself. As a result, there are two types of licenses: License Keys (legacy) and License Files (new).

■ **License Keys**: Prior to December 4, 2015, optional applications were activated with license keys. This is referred to as the legacy licensing method. Any license keys already purchased are still valid. To install a license key, see *SignalVu-PC license keys (legacy)*.

■ **License Files**: Beginning December 4, 2015, optional applications are activated with license files. To install a license file, see *SignalVu-PC license files*.

SignalVu-PC license files

SignalVu-PC optional applications (purchased after December 4, 2015) are controlled via license files, rather than the previous method of installing license keys.

A licensing scheme is used to host your license files. You will access and manage your licenses through the Tektronix Product License Web page: http://www.tek.com/products/product-license. The Product License page provides the following:

- Inventory of all the licenses in your company account

- Ability to check out a license

- Ability to check in a license

- Ability to move a floating licenses

How to purchase application licenses

A variety of optional, licensed applications are available for purchase for SignalVu-PC. Contact your local Tektronix Account Manager to purchase SignalVu-PC optional application licenses. After purchasing a license, you will receive an email with a list of the applications purchased and the URL to the Tektronix Product License Web page, where you will create an account and can then manage your licenses: http://www.tek.com/products/product-license.

The product license page provides an inventory of the license(s) in your account. It enables you to check out or check in a license and view the history of licenses.

Optional applications are enabled by one of the following license types.

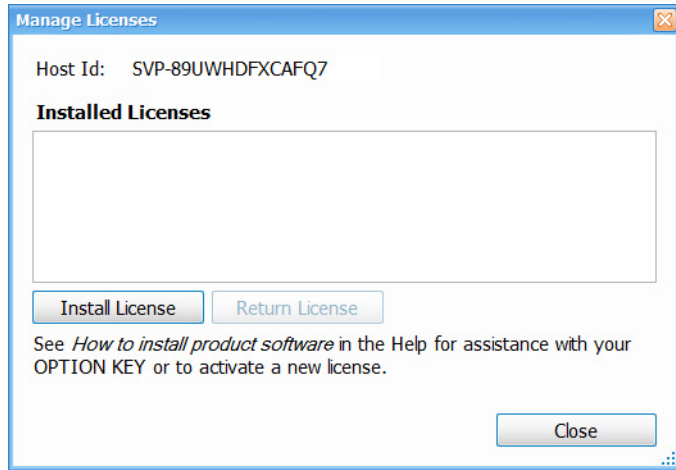| License type	Description
Node locked (NL)	This license is permanently assigned to a specific Hostid.
Floating License (FL)	This license can be moved between different Hostids.

To view a list of currently installed application licenses (options) in your SignalVu-PC product, select **Tools** > **Licenses** > **Manage** from the SignalVu-PC main toolbar.

Refer to the following topics for information about *How to install a license* and *How to return a license*.
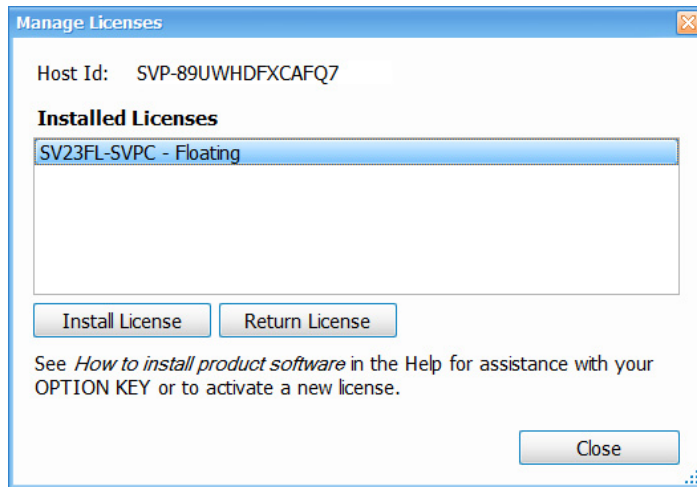
Available application options. To see a list of currently available application options, see the topic SignalVu-PC ordering information.

How to install a license

1. Select **Tools** > **Licenses** > **Manage** to open the Manage Licenses window.

2. In the **Manage Licenses** window, click **Install License**. An Explorer window will open.

3. Navigate to the location of the license file (*.lic) you downloaded from your Tektronix Product License account page.

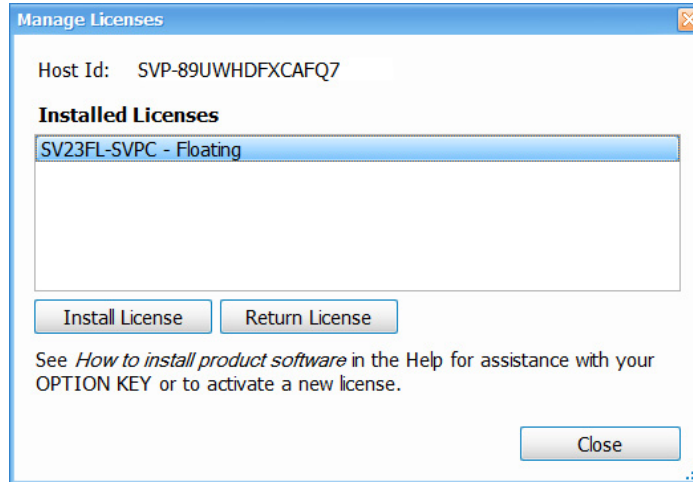4. Click **Open**. The new license should now appear in the Installed Licenses list.
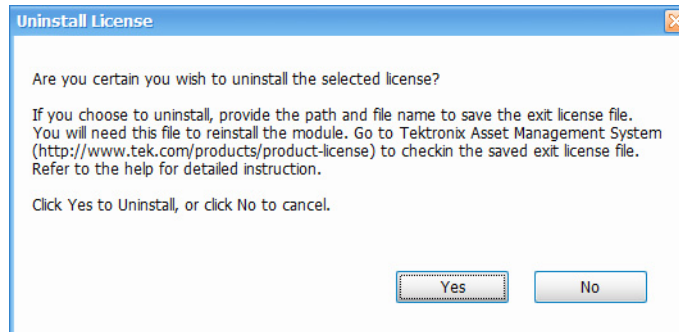

5. Click **Close**.

How to return a license   You can return (uninstall) a license from a particular PC as follows:

1. Select **Tools** > **Licenses** > **Manage** to open the Manage Licenses window.

2. In the **Manage Licenses** window, select the license you want to return.

3. Click **Return License**. The following window will appear.

4. Click **Yes** to uninstall the license. You will then be prompted to save an exit license file. This is the file you will check into (return to) your Tektronix Product License account.

5. Save the exit license file to the desired location.

6. Click **Close**.

7. Navigate to your Tektronix Product License account page and check in the saved exit license file.

How to move a license to a different host

You can return a purchased license and then reassign it to a different host, as indicated below. See the SignalVu-PC ordering information topic for a list of available application licenses.

- **Node locked license** (NL): This license type can be reassigned no more than two times. This allows you to reassign the license in the case of an upgrade to a new Windows platform, for example.

- **Floating license** (FL): This license type can be reassigned an unlimited number of times.

  When assigning a floating license, you need to specify the host id and the duration the feature is to be enabled on the host. After the license expires, the feature is automatically disabled on that host and the license in then available to be assigned to a different host.

SignalVu-PC license keys (legacy)

This section is only for use with SignalVu-PC installations that used license keys to activate optional applications.
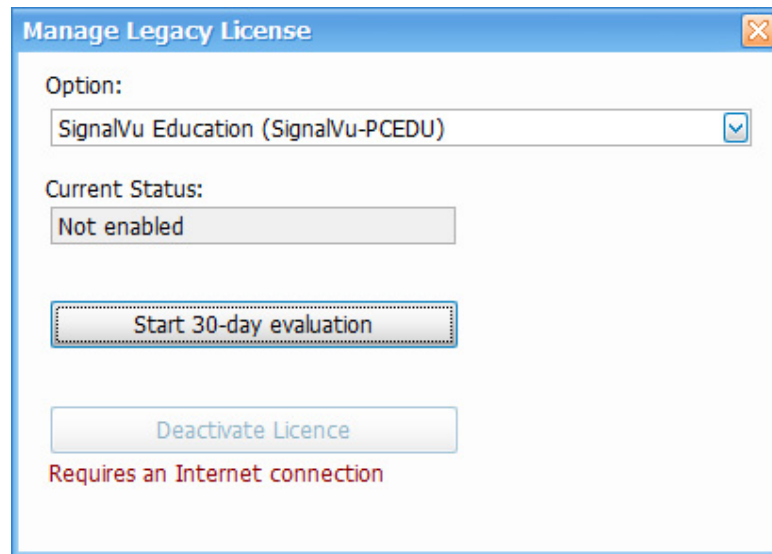
Activating SignalVu-PC options in evaluation mode

If you don't have a license for one (or any) SignalVu-PC options, you can activate each option in evaluation mode for a period of 30 days. No Internet access is required for activation of evaluation licenses.

NOTE. Each option has its own evaluation period.

To activate an option in evaluation mode:

1. Launch **SignalVu-PC**.

2. Go to Tools > Licenses > Legacy > Manage, displaying the Manage Legacy License dialog.

3. Select the option you want to evaluate, the select **Start 30-day evaluation**.

The Current Status box will change to display the number of days remaining for evaluation. Repeat this procedure for each of the SignalVu-PC options you wish to evaluate.
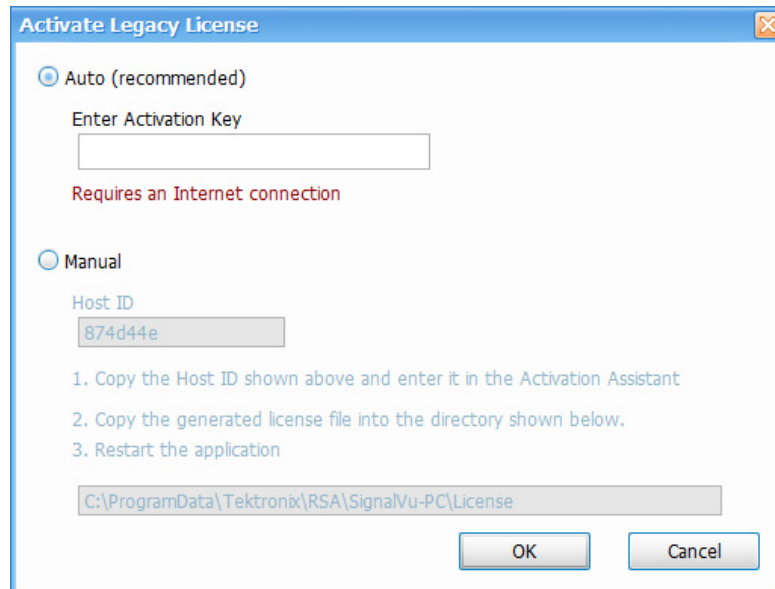
Activating SignalVu-PC options

Activating SignalVu-PC options requires internet access. However, you can activate SignalVu-PC on a PC that does not have internet access by using a second PC that does have internet access to contact the license server and use it to download a license file. The license file can then be transferred to the PC on which SignalVu-PC is to be activated.

NOTE. In order to use any options you have purchased for SignalVu-PC, you must activate each option individually.

Activating with Internet Access.   To activate an option:

1. Launch **SignalVu-PC**.

2. Go to Tools > Licenses > Legacy > Activate..., displaying the Activate Legacy License dialog.

3. In the dialog, select **Auto**.

4. In the **Enter Activation Key** text box, enter the option activation key provided when you purchased the option.

5. Click **OK** in the License Activation window.

SignalVu-PC will contact the license server and install a license file provided by the license server.
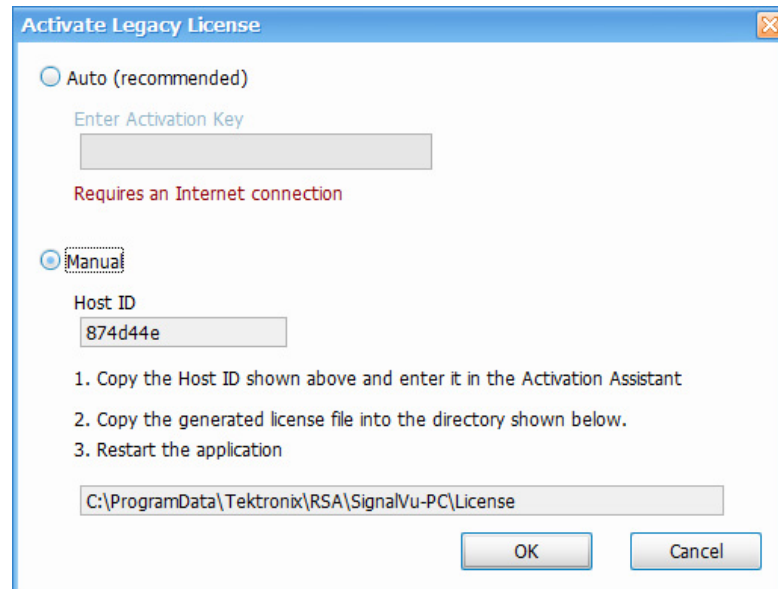
6. Repeat the steps above to activate each option, using the activation key specific to each option.

Activating without internet access. To activate SignalVu-PC options on a PC without internet access, you need use the Offline Activation Tool. The tool is provided with SignalVu-PC as a separate installation file.

To activate SignalVu-PC options using a second PC to access the Internet:

1. Launch **SignalVu-PC**.

2. Go to Tools > Licenses > Legacy > Activate..., displaying the Activate Legacy License dialog.

3. In the **Activate Legacy License** window, select **Manual**.

4. Write down the **Host ID** shown. Click **Cancel** to close the Activate Legacy License window.

5. Launch the Activation Assistant application and follow the instructions to generate a license file. Repeat this step for each option that you have purchased. You will also need the option activation key you received.

   Activation keys are specific to each option, therefore you must acquire a license file for each option purchased.

6. Copy the license file (or files) to the following location the PC on which SignalVu-PC is to be activated:

   `C:\ProgramData\Tektronix\RSA\SignalVu-PC\License`

7. Restart SignalVu-PC.

   This completes the activation process for SignalVu-PC options.

Moving SignalVu-PC to a different PC

SignalVu-PC options are licensed for use on a single PC. However, you can move SignalVu-PC and its options from one PC to another PC by deactivating each option on the current installation and reactivating them on another PC.

> *NOTE. Each activated SignalVu-PC option needs to be deactivated.*

To deactivate SignalVu-PC options:

1. Launch SignalVu-PC and select **Tools** > **Licenses** > **Legacy** > **Manage...** from the menu bar.

2. Use the drop-down list under Option to select one of the SignalVu-PC options that is activated on the PC. For example: **OFDM Measurements (SignalVu-PC SVO)**.

> *NOTE. If your SignalVu-PC installation has options installed, be sure to deactivate all options.*

3. Starting with each installed option, click **Deactivate License**. Continue selecting options and clicking Deactivate License until all the SignalVu-PC options have been deactivated.

   SignalVu-PC options are now deactivated. You can now install SignalVu-PC on another PC and activate the options in the new installation.
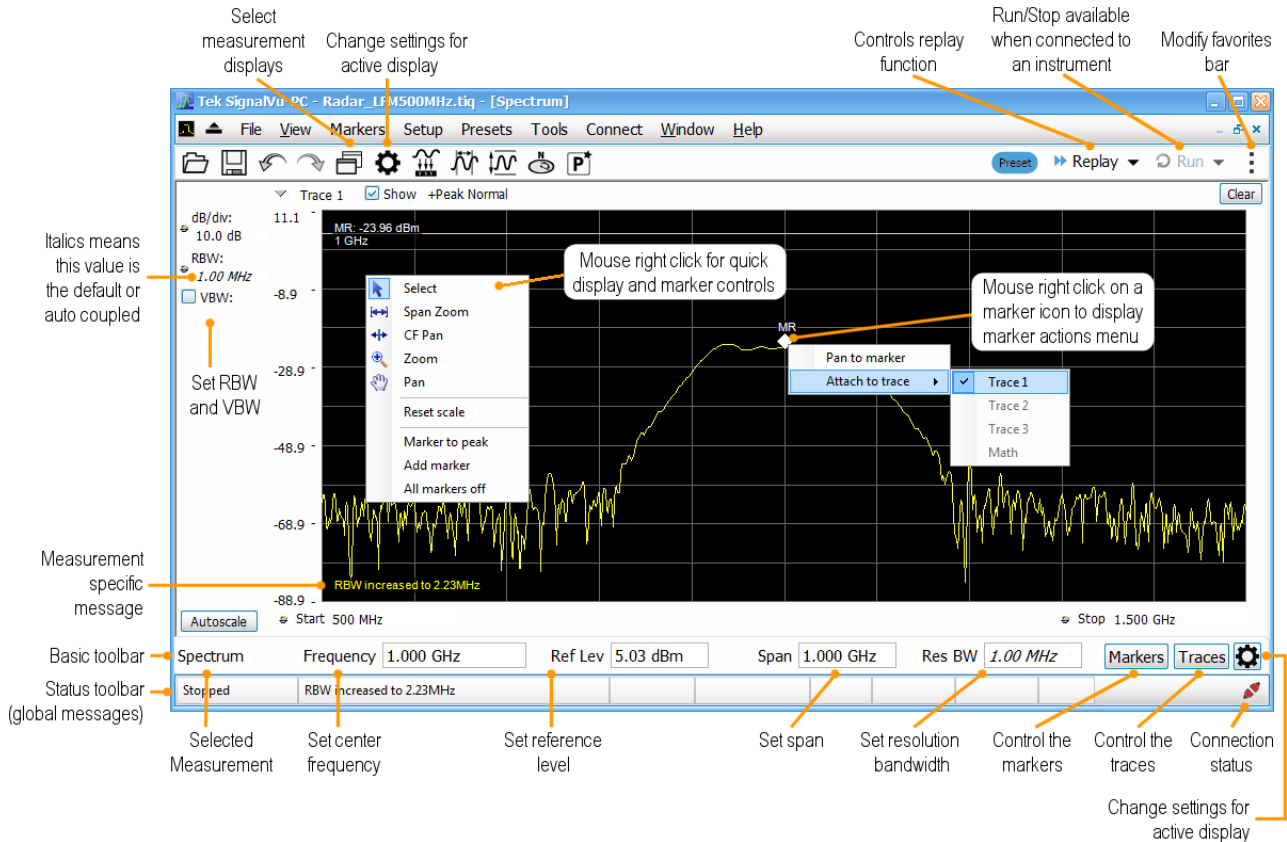
Getting Started with SignalVu-PC
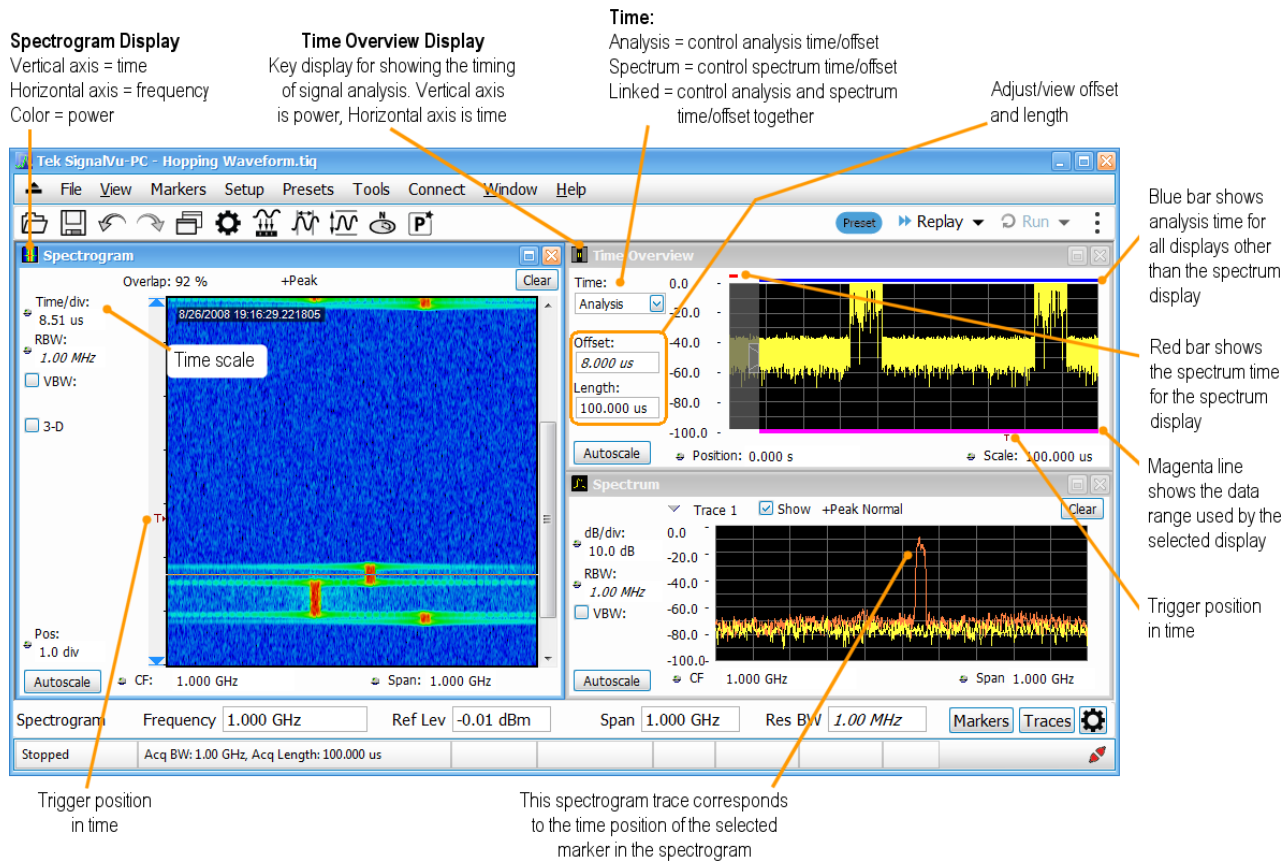
SignalVu-PC displays   The SignalVu-PC Vector Signal Analysis software enables a desktop PC to perform vector-signal analysis on waveforms acquired by Tektronix oscilloscopes and Real-Time Signal Analyzers. Capture the waveform once on an oscilloscope or real-time signal analyzer and make repeated measurements on the PC without recapturing the waveform. SignalVu-PC utilizes the same analysis capabilities found in the RSA6000 Series and RSA5000 Series Real-Time Analyzers.

NOTE. For complete operating instructions, refer to the SignalVu-PC instrument help accessed by selecting Help > User manual.
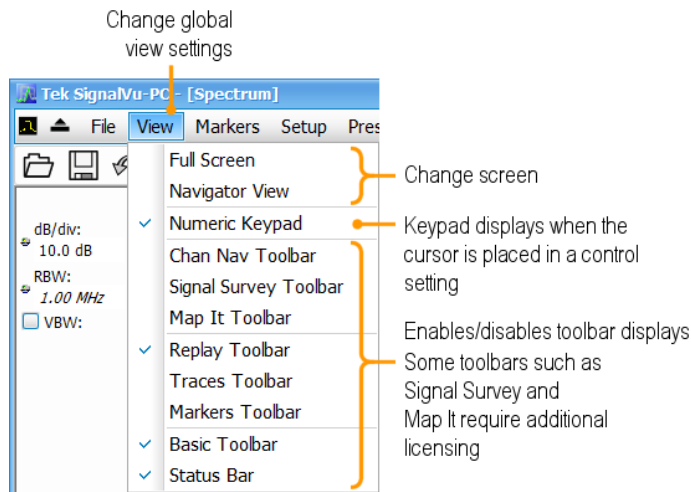
The following figure shows the spectrum display.

This figure shows the spectrogram, time overview, and spectrum displays.

Spectrogram Display
Vertical axis = time
Horizontal axis = frequency
Color = power

Time Overview Display
Key display for showing the timing of signal analysis. Vertical axis is power, Horizontal axis is time

Time:
Analysis = control analysis time/offset
Spectrum = control spectrum time/offset
Linked = control analysis and spectrum time/offset together

Adjust/view offset and length

Blue bar shows analysis time for all displays other than the spectrum display

Red bar shows the spectrum time for the spectrum display

Magenta line shows the data range used by the selected display

Trigger position in time

Trigger position in time

This spectrogram trace corresponds to the time position of the selected marker in the spectrogram

This figure shows the various toolbar display controls.

Change global view settings

Change screen

Keypad displays when the cursor is placed in a control setting

Enables/disables toolbar displays Some toolbars such as Signal Survey and Map It require additional licensing

Connectivity

The Connect feature allows you to connect your PC (with SignalVu-PC installed) to the following instruments:

- RSA503A and RSA507A Spectrum Analyzers via USB 3.0

- RSA603A and RSA607A Spectrum Analyzers via USB 3.0

- RSA306B Spectrum Analyzer via USB 3.0

- RSA306 Spectrum Analyzer via USB 3.0

- MDO4000B/C Series instrument via USB, wireless, or LAN (Option CON for SignalVu-PC required)

NOTE. Only one instrument at a time can be connected to SignalVu-PC.

Connecting to a Tektronix USB Spectrum Analyzer

USB3 connection. Establishing a connection to a instrument is as simple as connecting the USB cable from the PC to the instrument, either before or after starting the SignalVu-PC application. During the connection process, SignalVu-PC indicates that it is finding and connecting to the instrument. Please wait for the connection process to complete before using the software.

NOTE. Your PC may notify you that it has found a new USB device and has loaded the device drivers. If you see these notifications, wait until the drivers are loaded before continuing.

The SignalVu-PC application always monitors the USB ports. Anytime a Tektronix USB Spectrum Analyzer is discovered, a connection is immediately established causing the Connect status indicator to turn green ( ). Disconnecting the instrument from the PC also disconnects the SignalVu-PC application, causing the Connect status indicator to turn red ( ).

If the SignalVu-PC application is already connected to another instrument (either USB or network), an automated connection will not take place. In this situation, you have to do the following:

1. Select **Disconnect From Instrument** to end the existing connection.

2. Select **Connect To Instrument**. You should see the USB connected analyzer in the instrument list.

3. Select the instrument.

NOTE. The SignalVu-PC software version must be at or above the version provided with the Tektronix USB Spectrum Analyzer. The latest version of software is available from the Tektronix web site www.tektronix.com/downloads.

4. A Connect Status dialog box will appear to confirm the instrument is connected and SignalVu-PC can receive live data from the instrument.

*NOTE. You can quickly verify connection status by looking at the **Connected** indicator square. It is green ( ) when an instrument is connected. It is red ( ) when it is not. You can also view the name of the instrument that is connected by hovering the pointer over the .*

5. When you want to connect to a different instrument, select **Disconnect From Instrument** to end the current connection.

Connecting to an MDO4000B/C Series instrument

NOTE. You can watch a video tutorial about using Connect (with Option CON enabled) to connect to an MDO4000B/C Series instrument and about WLAN Presets at www.youtube.com/user/tektronix. For more information about the Tektronix YouTube channel, click on the Help menu in the SignalVu-PC application, select User Manual, and search for YouTube.

USB connection. To establish a connection using USB, perform the following procedures in the order given.

1. Check that the MDO4000B/C is on.

2. Connect a USB cable to the MDO.

3. Connect the other end of that USB cable to the PC.

NOTE. Your PC may notify you that it has found a new USB device and has loaded the device drivers. If you see these notifications, wait until the drivers are loaded before continuing.

4. Double click the SignalVu-PC icon on the Desktop to start the application.

5. Click **Connect** on the menu bar to view the drop down menu.

6. Select **Connect To Instrument**. You should see the USB connected MDO in the Connect To Instrument list.

NOTE. If the PC is currently connected by LAN or USB to another MDO4000B/C, that connection will also show in the Connect To Instrument list. You must select ***Disconnect From Instrument*** *to end that connection before connecting to the newly found instrument.*

7. If you do not see the USB MDO, click **Search for Instrument**. TekVISA is now searching for instruments. A notification will briefly appear stating that the instrument was found. Check that the newly found instrument now appears in the **Connect To Instrument** list.

8. Select the instrument.

9. A Connect Status dialog box will appear to confirm the instrument is connected and SignalVu-PC can receive live data from the instrument.

NOTE. You can quickly verify connection status by looking at the ***Connected*** *indicator square at the bottom of the screen. It is green ( ) when an instrument is connected. It is red ( ) when it is not. You can also view the name of the instrument that is connected by hovering the pointer over the .*

10. Use SignalVu-PC to configure the MDO. Frequency, Amplitude, Span, Bandwidth, and Time Scaling parameters for the RF channels can only be changed using SignalVu-PC.

NOTE. Press F1 on your keyboard to open the SignalVu-PC help for information about configuring and using the application. You can also click on Help > User Manual in the SignalVu-PC menu bar to open the help.

11. When you are ready to connect to a different instrument, select **Disconnect From Instrument** to first end the current connection.

NOTE. For more search options using TekVISA, go to the Visa Resource Manager (double click in the applications tray).

LAN or wireless connection.   To establish a connection using a LAN or wireless connection, perform the following procedures in the order given.

1. Check that the PC has a working LAN or wireless network connection.

2. Use an Ethernet cable to connect the MDO to the network.

3. Check that the MDO is on and wait for the IP Address to display on the screen. Write down the IP address to help you identify the MDO in the SignalVu-PC application.

4. Double click the SignalVu-PC icon on the Desktop to start the application.

5. Click **Connect** on the menu bar to view the drop down menu.

6. Select **Search For Instrument**. TekVISA is now searching for instruments.

7. A notification will briefly appear stating that the instrument was found. Check that the newly found instrument now appears in the **Connect To Instrument** list and then click on the instrument name to connect.

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*NOTE. If the PC is currently connected by LAN/wireless or USB to another MDO4000B/C, that connection will also show in the Connect To Instrument list. You must select **Disconnect From Instrument** to end that connection before connecting to the newly found instrument.*

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8. If you do not see the LAN address of the MDO, click **Manually Search for LAN Instrument**. You will then need to enter the IP address of the MDO into the IP Address dialog box and click **Connect**.

9. A Connect Status dialog box will appear to confirm the instrument is connected and SignalVu-PC can receive live data from the instrument.

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*NOTE. You can quickly verify connection status by looking at the **Connected** indicator square at the bottom of the screen. It is green ( ) when an instrument is connected. It is red ( ) when it is not. You can also view the name of the instrument that is connected by hovering the pointer over the .*

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10. Use SignalVu-PC to configure the MDO. Frequency, Amplitude, Span, Bandwidth, and Time Scaling parameters for the RF channels can only be changed using SignalVu-PC.

NOTE. Press F1 on your keyboard to open the SignalVu-PC help for information about configuring and using the application. You can also click on Help > User Manual in the SignalVu-PC menu bar to open the help.

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11. When you are ready to connect to a different instrument, select **Disconnect From Instrument** to first end the current connection.

NOTE. For more search options using TekVISA, go to the Visa Resource Manager (double click in the Windows applications tray).

SignalVu-PC ordering information

The following table shows available optional applications and the license type associated with that application option. See the How to purchase application licenses topic for information about license types and how to activate one.

Application description	Application (option)	License type
AM/FM/PM/Direct Audio Analysis	SVANL-SVPC	Node Locked
	SVAFL-SVPC	Floating
Settling Time (frequency and phase) measurements	SVTNL-SVPC	Node Locked
	SVTFL-SVPC	Floating
General Purpose Modulation Analysis to work with analyzer of acquisition bandwidth ≤ 40 MHz	SVMNL-SVPC	Node Locked
	SVMFL-SVPC	Floating
Pulse Analysis to work with analyzer of acquisition bandwidth ≤ 40 MHz	SVPNL-SVPC	Node Locked
	SVPFL-SVPC	Floating
Flexible OFDM Analysis	SVONL-SVPC	Node Locked
	SVOFL-SVPC	Floating
WLAN 802.11a/b/g/j/p measurement to work with analyzer	SV23NL-SVPC	Node Locked
	SV23FL-SVPC	Floating
WLAN 802.11n measurement (Requires SV23NL-SVPC or SV23FL-SVPC)	SV24NL-SVPC	Node Locked
	SV24FL-SVPC	Floating
WLAN 802.11ac measurement to work with analyzer of acquisition bandwidth ≤ 40 MHz (Requires SV23NL-SVPC or SV23FL-SVPC and SV24NL-SVPC or SV24FL-SVPC)	SV25NL-SVPC	Node Locked
	SV25FL-SVPC	Floating
APCO P25 measurement	SV26NL-SVPC	Node Locked
	SV26FL-SVPC	Floating
Bluetooth measurement to work with analyzer of acquisition bandwidth ≤ 40 MHz [1]	SV27NL-SVPC	Node Locked
	SV27FL-SVPC	Floating
Mapping	MAPNL-SVPC	Node Locked
	MAPFL-SVPC	Floating
Playback of recorded files	SV56NL-SVPC	Node Locked
	SV56FL-SVPC	Floating
SignalVu-PC connection to the MDO4000B/C series	CONNL-SVPC	Node Locked
	CONFL-SVPC	Floating

Application description	Application (option)	License type
WLAN 802.11a/b/g/j/p/n/ac and connect to a Tektronix USB Spectrum Analyzer or an MDO4000B/C (with Option CON) to work with analyzer of acquisition bandwidth ≤ 40 MHz	SV2CNL-SVPC	Node Locked
	SV2CFL-SVPC	Floating
(Requires one of each of the following: SV23NL-SVPC or SV23FL-SVPC, SV24NL-SVPC or SV24FL-SVPC, SV25NL-SVPC or SV25FL-SVPC, and CONNL-SVPC or CONFL-SVPC)		
LTE Downlink RF measurement to work with analyzer of acquisition bandwidth ≤ 40 MHz [2]	SV28NL-SVPC	Node Locked
	SV28FL-SVPC	Floating
Signal survey and classification	SV54NL-SVPC	Node Locked
	SV54FL-SVPC	Floating
Education-only version of all modules for SignalVu-PC	EDUFL-SVPC	Floating

[1] Bluetooth is a registered trademark of Bluetooth SIG, Inc.

[2] LTE is a trademark of ETSI.