

# **Software Installation Guide**

**Agilent Technologies**

**Baseband Studio  
and  
Signal Studio**



**Agilent Technologies**

**Manufacturing Part Number: E4400-90559**

**Printed in USA**

**April 2007**

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For signal generator warranty information, refer to the signal generator Installation Guide or Service Guide.

## Documentation Questions or Comments

We welcome any questions or comments you may have about signal source documentation. Please email us at [sources\\_manuals@am.exh.agilent.com](mailto:sources_manuals@am.exh.agilent.com).

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# 1 Software Requirements

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**NOTE** Newer releases of Signal Studio and Baseband Studio software products provide installation information in the online documentation (help file) instead of this guide. This online documentation can be accessed from the software's help menu and from the product web page. If your software product is not listed below, visit the Agilent web page for your software product to get installation information from the online documentation.

For Signal Studio products, visit [www.agilent.com/find/signalstudio](http://www.agilent.com/find/signalstudio).

For Baseband Studio products, visit [www.agilent.com/find/basebandstudio](http://www.agilent.com/find/basebandstudio).

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## Baseband Studio

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## Signal Studio

- “1xEV-DO” on page 2
- “1xEV-DV and cdma2000” on page 2
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- “Pulse Building” on page 9
- “S-DMB” on page 10
- “Signal Studio Toolkit” on page 11
- “TD-SCDMA (TSM)” on page 12

## Additional Information

Agilent Baseband Studio products: <http://www.agilent.com/find/basebandstudio>

Agilent Signal Studio products: <http://www.agilent.com/find/signalstudio>

Agilent signal generators: <http://www.agilent.com/find/signalgenerator>

Agilent spectrum analyzers: <http://www.agilent.com/find/spectrumanalyzer>

Assistance with test and measurements needs, or information on finding a local Agilent office: <http://www.agilent.com/find/assist>

If you do not have access to the Internet, contact your Agilent field engineer.









## DVB

Instrument	Requirements
E4438C ESG Vector Signal Generator	Firmware revision C.04.10 or later (see <a href="#">page 14</a> )  One of the following baseband generator options: Option 001 (internal baseband generator with 8 Msample memory), Option 002 (internal baseband generator with 32 Msample memory), Option 601 (internal baseband generator with 8 Msample memory and digital bus capability), Option 602 (internal baseband generator with 64 Msample memory and digital bus capability, <i>recommended</i> )  Option 005 (6 GB internal hard drive, <i>recommended</i> )  Option 403 (calibrated noise personality, <i>required for C/N capability, recommended</i> )  Option 503 (250 kHz to 3GHz frequency range, <i>recommended</i> )
E8267D PSG Vector Signal Generator	Firmware revision C.04.11 or later (see <a href="#">page 14</a> )  One of the following baseband generator options: Option 601 (internal baseband generator with 8 Msample memory and digital bus capability), Option 602 (internal baseband generator with 64 Msample memory and digital bus capability, <i>recommended</i> )  Option 005 (6 GB internal hard drive, <i>recommended</i> )  Option 403 (calibrated noise personality, <i>required for C/N capability, recommended</i> )  Option 520 (250 kHz to 20 GHz frequency range, <i>recommended</i> )  Option UNR (enhanced phase noise performance, <i>recommended</i> )
<b>PC Requirements</b>	
800 MHz Pentium® or higher (1 GHz or higher <i>recommended</i> ) 512 MB RAM (1 GB or greater <i>recommended</i> ) 180 MB free disk space (160 MB for .NET framework, 20 MB for DVB software, 1GB or higher <i>recommended</i> ) Minimum 800 x 600 screen resolution with normal font size (1024 x 768 or higher <i>recommended</i> )  Windows 2000 Professional® (service pack 4 or later) or Windows XP Professional® (service pack 1 or later)  Microsoft .NET® Framework (version 1.1 or later) in OS language version (See <a href="#">"Installing and Setting Securities for the .NET Framework"</a> on page 15)  Installed Agilent IO Libraries (version M.01.01 or later), see <a href="#">"Installing Agilent IO Libraries"</a> on page 16  Installed and configured GPIB IO interface card, LAN interface card, or USB/GPIB interface card	



## Fading (version 2.0.8 or later)

Instrument	Requirements
E4438C ESG Vector Signal Generator	Firmware revision C.03.40 or later (see <a href="#">page 14</a> )  One of the following baseband generator options: Option 601 (internal baseband generator with 8 Msample memory and digital bus capability) Option 602 (internal baseband generator with 64 Msample memory and digital bus capability)
E5515C Wireless Communications Test Set	One of the following E5515C personalities: E6702B cdma2000 (Lab Application with Firmware Revision B.03.00 or later) E6703C W-CDMA (Lab Application with Firmware Revision C.01.00 or later) E6785C Fast Switching (Lab Application with Firmware Revision C.01.00 or later) (in W-CDMA mode only)  Option 003 Flexible Radio Link Option 004 Digital Bus (currently available as Option 504 upgrade kit) Option 185 Protocol Processor/DSP Upgrade Kit (required only for W-CDMA application)
<b>PC Requirements</b>	
600 MHz Pentium® or higher Minimum 256 MB RAM (512 <i>recommended</i> ) 205 MB free disk space (160 MB for .NET framework, 45 MB for application software) Minimum 1024 x 768 screen resolution with normal font size Windows XP Professional® (service pack 1 or later), Windows 2000® (service pack 3 or later)  Microsoft .NET® Framework (version 1.1 service pack 1, or later) in OS language version, see <a href="#">"Installing and Setting Securities for the .NET Framework"</a> on page 15  Installed Agilent IO Libraries (version M.01.01.02 or later), see <a href="#">"Installing Agilent IO Libraries"</a> on page 16 Installed Agilent N5101A Baseband Studio PCI card (2 N5101A PCI cards for dual channel fading with ESG)  Installed and configured interface card: ESG: GPIB IO interface card, LAN interface card, or USB/GPIB interface card E5515C: GPIB IO interface card or USB/GPIB interface card	

## HSDPA over W-CDMA

Instrument	Requirements
E4438C ESG Vector Signal Generator	Firmware revision C.03.70 or later (see <a href="#">page 14</a> )  One of the following baseband generator options: Option 001 (internal baseband generator with 8 Msample memory), Option 002 (internal baseband generator with 32 Msample memory), Option 601 (internal baseband generator with 8 Msample memory and digital bus capability), Option 602 (internal baseband generator with 64 Msample memory and digital bus capability, <i>recommended</i> )  Option 403 (calibrated noise personality, <i>required for C/N capability</i> )
<b>PC Requirements</b>	
400 MHz Pentium® III or higher (2 GHz Pentium® IV or higher <i>recommended</i> ) Minimum 256 MB RAM (384 MB <i>recommended</i> ) 180 MB free disk space (160 MB for .NET framework, 20 MB for HSDPA over W-CDMA software) Minimum 800 x 600 screen resolution with normal font size (1024 x 768 or higher <i>recommended</i> ) Windows XP Professional® (service pack 1 or later) or Windows 2000 Professional® (service pack 4 or later)  Microsoft .NET® Framework (version 1.0 service pack 2, or later) in OS language version (See <a href="#">"Installing and Setting Securities for the .NET Framework"</a> on page 15)  Microsoft® Internet Explorer 5.01 or later (6.0 <i>recommended</i> )  If using GPIB, one of the following libraries must be installed: Agilent IO Libraries (version L.02.01 or later), see <a href="#">"Installing Agilent IO Libraries"</a> on page 16, or NI-488.2 driver and NI-VISA  Installed and configured GPIB IO interface card, LAN interface card, or USB/GPIB interface card	



## Pulse Building

Instrument	Requirements
E4438C ESG Vector Signal Generator	Firmware revision C.04.10 or later (see <a href="#">page 14</a> )  One of the following baseband generator options: Option 001 (internal baseband generator with 8 Msample memory), Option 002 (internal baseband generator with 32 Msample memory), Option 601 (internal baseband generator with 8 Msample memory and digital bus capability), Option 602 (internal baseband generator with 64 Ms memory and digital bus capability, <i>recommended</i> )  Option 005 (6 GB internal hard drive, <i>recommended</i> ) Option UNJ (enhanced phase noise performance, <i>recommended</i> )
E8267C PSG Vector Signal Generator	Firmware revision C.03.80 or later (see <a href="#">page 14</a> )  One of the following baseband generator options: Option 002 (internal baseband generator with 32 Msample memory), Option 602 (internal baseband generator with 64 Ms memory and digital bus capability, <i>recommended</i> )  Option 520 (250 kHz to 20 GHz frequency range)  Option 1E6 (Narrow pulse below 3.2 GHz, <i>recommended</i> )  Option 005 (6 GB internal hard drive, <i>recommended</i> )  Option UNR (enhanced phase noise performance, <i>recommended</i> )
E8267D PSG Vector Signal Generator	Firmware revision C.04.17 or later (see <a href="#">page 14</a> )  One of the following baseband generator options: Option 601 (internal baseband generator with 8 Msample memory and digital bus capability), Option 602 (internal baseband generator with 64 Msample memory and digital bus capability)  Option 005 (6 GB internal hard drive, <i>recommended</i> ) Option UNR (enhanced phase noise performance, <i>recommended</i> )
E4440A, E4443A, E4445A, E4446A, or E4448A PSA Spectrum Analyzer ( <i>optional</i> )	Firmware revision A.03.05 or later (see <a href="#">page 14</a> )
E4403B, E4408B, or E4411B ESA-L Series Spectrum Analyzer ( <i>optional</i> )	Firmware revision A.09.01 or later (see <a href="#">page 14</a> )
E4401B, E4402B, E4404B, E4405B, or E4407B ESA-E Series Spectrum Analyzer ( <i>optional</i> )	Firmware revision A.09.01 or later (see <a href="#">page 14</a> )
<b>PC Requirements</b>	
400 MHz Pentium® III or higher (800 MHz or higher <i>recommended</i> ) 256 MB RAM 180 MB free disk space (160 MB for .NET framework, 20 MB for application software) Minimum 800 x 600 screen resolution with normal font size (1024 x 768 or higher <i>recommended</i> )  Windows XP Professional® (service pack 1 or later), Windows 2000® (service pack 3 or later), or Windows NT® 4.0 (service pack 6a or later)  Microsoft .NET® Framework (version 1.0 service pack 2, or later) in OS language version (see <a href="#">"Installing and Setting Securities for the .NET Framework"</a> on page 15) Microsoft® Internet Explorer (4.01 service pack 2 or later)  Installed Agilent IO Libraries: see <a href="#">"Installing Agilent IO Libraries"</a> on page 16 (for Windows XP Professional® or Windows 2000®, version L.02.01 or later) (for Windows NT® 4.0, version L.02.01 through M.01.01)  Installed and configured GPIB IO interface card, LAN interface card, or USB/GPIB interface card	

## S-DMB

Instrument	Requirements
E4438C ESG Vector Signal Generator	Firmware revision C.03.62 or later (see <a href="#">page 14</a> ) One of the following baseband generator options: Option 001 <sup>a</sup> (internal baseband generator with 8 Msample memory), Option 002 <sup>b</sup> (internal baseband generator with 32 Msample memory), Option 601 <sup>a</sup> (internal baseband generator with 8 Msample memory and digital bus capability), Option 602 <sup>c</sup> (internal baseband generator with 64 Msample memory and digital bus capability, <i>recommended</i> )
<b>PC Requirements</b>	
400 MHz Pentium <sup>®</sup> or higher (1 GHz or higher <i>recommended</i> ) 512 MB RAM (1 GB recommended) 1.26 GB free disk space (160 MB for .NET framework, 1.1 GB for S-DMB software) Minimum 800 x 600 screen resolution with normal font size (1024 x 768 <i>recommended</i> ) Windows 2000 Professional <sup>®</sup> (service pack 4 or later) or Windows XP Professional <sup>®</sup> (service pack 1 or later) Microsoft .NET <sup>®</sup> Framework (version 1.0 service pack 2, or later) in OS language version (See <a href="#">"Installing and Setting Securities for the .NET Framework"</a> on page 15) Microsoft <sup>®</sup> Internet Explorer 5.01 or later (6.0 <i>recommended</i> ) If using GPIB, one of the following libraries must be installed: Agilent IO Libraries (version L.02.01 or later), see <a href="#">"Installing Agilent IO Libraries"</a> on page 16, or NI-488.2 driver and NI-VISA Installed and configured GPIB IO interface card or LAN interface card	

<sup>a</sup>Two super frames available with an oversample ratio (OSR) of 3.

<sup>b</sup>Eight super frames available with an OSR of 3; six super frames available with an OSR of 4.

<sup>c</sup>Twelve super frames available.

## Signal Studio Toolkit

Instrument	Requirements
E4438C ESG Vector Signal Generator	Firmware revision C.04.10 or later (see <a href="#">page 14</a> )  One of the following baseband generator options: Option 001 (internal baseband generator with 8 Msample memory), Option 002 (internal baseband generator with 32 Msample memory), Option 601 (internal baseband generator with 8 Msample memory and digital bus capability), Option 602 (internal baseband generator with 64 Ms memory and digital bus capability, <i>recommended</i> )  Option 005 (6 GB internal hard drive)
E8267C PSG Vector Signal Generator	Firmware revision C.03.76 or later (see <a href="#">page 14</a> )  One of the following baseband generator options: Option 002 (internal baseband generator with 32 Msample memory), Option 602 (internal baseband generator with 64 Ms memory and digital bus capability, <i>recommended</i> )  Option 005 (6 GB internal hard drive) Option 015 (wideband external I/Q, <i>required for wideband IQ</i> )
E8267D PSG Vector Signal Generator	Firmware revision C.04.01 <sup>a</sup> or later (see <a href="#">page 14</a> )  One of the following baseband generator options: Option 601 (internal baseband generator with 8 Msample memory and digital bus capability), Option 602 (internal baseband generator with 64 Ms memory and digital bus capability, <i>recommended</i> )  Option 005 (6 GB internal hard drive) Option 015 (wideband external I/Q, <i>required for wideband IQ</i> )
Tektronix® AWG520	Program version 4.0 or later Program build August 30, 2002 or later OS version 3.0 or later OS build August 30, 2002 or later  Lowpass coaxial filters: Mini-Circuits® BLP-150 (300 MHZ RF BW) through BLP-450 (800 MHZ RF BW)
E4440A PSA Series Spectrum Analyzer	Firmware revision A.05.06 or later (see <a href="#">page 14</a> )
E4440B ESA Series Spectrum Analyzer	Firmware revision A.07.05, or A.11.00 with Option B72 (see <a href="#">page 14</a> )
<b>PC Requirements</b>	
800 MHz Pentium® or higher Minimum 256 MB RAM (512 <i>recommended</i> ) 180 MB free disk space (160 MB for .NET framework, 20 MB for application software) Minimum 1024 x 768 screen resolution with normal font size  Windows XP Professional® (service pack 1 or later), Windows 2000® (service pack 3 or later)  Microsoft .NET® Framework (version 1.1 or later) in OS language version (see <a href="#">“Installing and Setting Securities for the .NET Framework”</a> on page 15) Installed Agilent IO Libraries (version M.01.01 or later), see <a href="#">“Installing Agilent IO Libraries”</a> on page 16 Installed and configured GPIB IO interface card, LAN interface card, or USB/GPIB interface card	

<sup>a</sup>C.04.10 firmware does not work with the first release of Signal Studio tool kit (version 1.0.16.0)

## TD-SCDMA (TSM)

Instrument	Requirements
E4438C ESG Vector Signal Generator	Firmware revision C.03.30 or later (see <a href="#">page 14</a> ) One of the following baseband generator options: Option 001 (internal baseband generator with 8 Msample memory), Option 002 (internal baseband generator with 32 Msample memory), Option 403 (calibrated noise personality, <i>required for C/N capability</i> ) Option 601 (internal baseband generator with 8 Msample memory and digital bus capability), Option 602 (internal baseband generator with 64 Msample memory and digital bus capability, <i>recommended</i> ),
<b>PC Requirements</b>	
400 MHz Pentium® or higher (800 MHz or higher <i>recommended</i> ) 128 MB RAM (256 MB <i>recommended</i> ) 180 MB free disk space (160 MB for .NET framework, 20 MB for TD-SCDMA software) Minimum 800 x 600 screen resolution with normal font size (1024 x 768 <i>recommended</i> ) Windows XP Professional® (service pack 1 or later) or Windows 2000® (service pack 3 or later) Microsoft .NET® Framework (version 1.0 service pack 2, or later) in OS language version (See <a href="#">“Installing and Setting Securities for the .NET Framework”</a> on page 15) Microsoft® Internet Explorer (4.01 service pack 2 or later) If using GPIB, one of the following libraries must be installed: Agilent IO Libraries (version L.01.00 or later), see <a href="#">“Installing Agilent IO Libraries”</a> on page 16, or NI-488.2 driver and NI-VISA Installed and configured GPIB IO interface card or LAN interface card	
<b>NOTE</b> The Signal Studio for TD-SCDMA (TSM) application is not supported on a networked drive.	



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## 2 Firmware and Software

This chapter covers the following:

- [“Downloading Agilent PSG or ESG Signal Generator Firmware”](#) on page 14
- [“Downloading Agilent PSA or ESA Spectrum Analyzer Firmware”](#) on page 14
- [“Downloading Agilent Wireless Communications Test Set Firmware”](#) on page 14
- [“Installing and Setting Securities for the .NET Framework”](#) on page 15
- [“Installing Agilent IO Libraries”](#) on page 16
- [Installing Baseband Studio Software](#)
  - [“Getting a Software License”](#) on page 17
  - [“Installing a Software License”](#) on page 17
- [Installing Signal Studio Software](#)
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  - [“Installing a Software License”](#) on page 18

## Downloading Agilent PSG or ESG Signal Generator Firmware

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**CAUTION** Failure to follow this procedure may affect the signal generator's compatibility with other software applications.

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You may need to upgrade the firmware in your signal generator to run the software (see [Chapter 1](#)). Use the following steps to load the latest version of firmware:

1. Go to <http://www.agilent.com/find/upgradeassistant>.
2. Click the **PSG/ESG Upgrade Assistant** and install the program.
3. Click the latest version of firmware for your signal generator model.
4. Click **Enhancements, Issues Resolved, and Hardware Compatibility**, and check the compatibility information for the firmware release that you wish to download. If there is a compatibility problem, contact Agilent Technologies for assistance: <http://www.agilent.com/find/assist>.
5. If there are no compatibility problems, return to the firmware page and click the firmware update to place the firmware files in the Upgrade Assistant folder.
6. Run the Upgrade Assistant and follow the program prompts.

If you would like more information, click **PSG/ESG Firmware Upgrade Guide**.

## Downloading Agilent PSA or ESA Spectrum Analyzer Firmware

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**CAUTION** Failure to follow this procedure may affect the spectrum analyzer's compatibility with other software applications.

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You may need to upgrade the firmware in your spectrum analyzer to run the software (see [Chapter 1](#)). Use the following steps to load the latest version of firmware:

1. Go to <http://www.agilent.com/find/spectrumanalyzer>.
2. In the Key Library Information, click **Software & Firmware Downloads**.
3. Select your spectrum analyzer model.
4. Click the **Firmware Upgrade** selection.
5. In the Documents & Downloads area, click the **Upgrade Documentation** selection.
6. Read and follow the directions in the documentation.

## Downloading Agilent Wireless Communications Test Set Firmware

You may need to upgrade the firmware in your test set to run the software (see [Chapter 1](#)). Use the following steps to load the latest version of firmware:

1. Go to <http://www.agilent.com/find/8960>.
2. In the Key Library Information, click **Software & Firmware Downloads**.
3. Click **8960 Series 10 Test and Lab Application Downloads**.
4. In the Lab Applications area, click the lab application revision that you wish to install.
5. Read and follow the directions in the documentation.

## Installing and Setting Securities for the .NET Framework

### Installing the .NET Framework

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**NOTE** You must have administrator privileges on your PC before you can install the .NET Framework.

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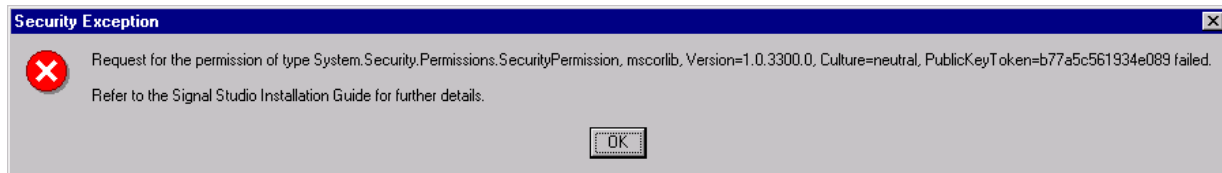
1. On the Microsoft website, go to the SDKs, Redistributables & Service Packs page:  
<http://msdn.microsoft.com/netframework/downloads/updates/>.
2. Download and install the version of the .NET Framework required by the software application you are using (see [Chapter 1](#)).

### Setting Securities

If the program is installed on a shared network drive, you may not be able to run it because of the default security setting on most intranets. To run the software from a shared drive, you must adjust the security setting to grant more permissions to the local intranet.

For details on setting the security level, see [page 15](#).

If you have installed the .NET Framework on your C:\ drive and you get the following security exception when you try to open the software, you must adjust the security level on your computer. Use the procedures indicated above, but select **My Computer** instead of **Local Intranet**.



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**NOTE** For more details on .NET and security settings, go to <http://www.microsoft.com>.

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### Windows NT

1. Open the **.net Wizards** window: Select **Start > Programs > Administrative Tools > Microsoft .NET Framework Wizard**
2. Open the Security Adjustment Wizard: Select **Adjust .net Security**.
3. Select **Make changes to this computer**.
4. Click **Next**.
5. Select the **Local Intranet**.
6. Move the slider up one position.
7. Click **Next**.
8. Click **Finish**.

### Windows 2000 and Windows XP Professional

1. Open the Control Panel:  
Select: **Start > Settings > Control Panel**
2. Open the .NET Framework Configuration tool:
  - a. In Windows 2000, select:  
**Administrative Tools > Microsoft .NET Framework Configuration**
  - b. In Windows XP, select:  
**Performance and Maintenance > Administrative Tools > Microsoft .NET Framework Configuration**
3. Select **Expand Runtime Security Policy > Machine > Code Groups > All\_code**
4. Select **LocalIntranet\_Zone**.
5. Click the **Edit code group properties** link.
6. Select the **Permission set** tab.
7. In the **Permission set** drop-down list, select **Full Trust**, then click **OK**.

## Installing Agilent IO Libraries

Use the latest version of Agilent IO Libraries that supports the Windows operating system you are using.

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**NOTE** Revision M.01.01 is the last version of Agilent IO Libraries that supports Windows NT® 4.0.

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Agilent IO Libraries are included with most Agilent interface products, or you can download Agilent IO Libraries from the Agilent website free of charge:

1. Go to <http://www.agilent.com/find/iolib>, and click **Agilent IO Libraries Interface Support Matrix**.
2. In the support matrix table, locate the operating system and interface you wish to use, and note the recommended IO Libraries version.
3. Go back to the **Software: IO Libraries** page.
4. Load the desired version of IO Libraries.

Either load the latest version of IO Libraries and follow the installation procedure, or click **IO Libraries Archive** and follow the installation procedure for the version that you need.

If you have problems with the installation, or if you want to customize the installation, refer to the documentation that is also available as a download.

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**NOTE** When you install the Agilent IO Libraries Suite on your PC, an IO configuration utility called Agilent Connection Expert also installs. You can use Connection Expert to verify communication between the PC and connected GPIB instruments.

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## Installing Baseband Studio Software

1. Go to the Agilent Technologies website: <http://www.agilent.com/find/basebandstudio>.
2. Click the product link for the Baseband Studio application that you wish to download.
3. Click the Baseband Studio Installation Software link.
4. On the Baseband Studio Installation Software page, click the program/utility link and follow the download instructions.

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**NOTE** If you are using Windows XP Professional® with service pack 2, you may see a Setup Launcher security warning when you install the software. Simply click **Run**.

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## Getting a Software License

While you can download Baseband Studio for viewing, you must install a license file before the software is fully functional. To purchase a license, contact your sales engineer, local sales office, or Agilent Contact Center at <http://www.agilent.com/find/contactus>.

To obtain a license file, follow the instructions on the *Software Entitlement Certificate* that you get after you place your order. You will need the following information to obtain the license file:

From the entitlement certificate:	<ul style="list-style-type: none"> <li>• Order Number</li> <li>• Certificate Number</li> </ul>
From the N5101A PCI card <sup>a</sup> :	<ul style="list-style-type: none"> <li>• PCI card Bar Code License Number</li> <li>• PCI card Serial Number (optional)</li> </ul>

<sup>a</sup>Applications are licensed to a specific PCI card; you may license more than one application to a given PCI card. Refer to the PCI Card Installation Guide for the location of the bar code license number and the serial number.

## Installing a Software License

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**NOTE** If the software for which you want to install a license is running, close it. A license activates when you open the software. If you install a license with the software running, you must close and reopen the software to activate the license.

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1. Once the license file is emailed to you, copy the file into the appropriate directory:
  - For fading: *C:\Program Files\Agilent\Baseband Studio\LicenseFiles*
2. Make a back-up copy of the license file and store it in a safe place in case the license file is lost or erased.

## Installing Signal Studio Software

1. Go to the Agilent Technologies website: <http://www.agilent.com/find/signalstudio>.
2. Click the **Signal Studio Software** link for the signal generator you are using.
3. Click the link for the software you would like to install.
4. On the software application page, click the program/utility link and follow the download instructions.

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**NOTE** The Signal Studio for TD-SCDMA (TSM) application is not supported on a network drive.

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## Getting a Software License

While you can download a Signal Studio product for viewing, you must have a license before the software is fully functional. Some products download with a 14-day trial license, as described in the following table. Refer to the product Help for details.

Product	To start the trial license period...
DVB	Download a waveform to the signal generator.

To purchase a license, contact your sales engineer, local sales office, or Agilent Contact Center at <http://www.agilent.com/find/contactus>.

To get a license, follow the instructions on the *Software Entitlement Certificate* that you get after you place your order.

## Installing a Software License

There are two types of licenses, a key or a file. The type of license depends on the Signal Studio product.

---

**NOTE** If the software for which you want to install a license is running, close it. A license activates when you open the software. If you install a license with the software running, you must close and reopen the software to activate the license.

---

	License Key	License File
<b>Licensed To:</b>	Signal Generator Host ID	Signal Generator Model & Serial Number
<b>Signal Studio Products:</b>	1xEV-DO HSDPA over W-CDMA 1xEV-DV and cdma200 Noise Power Ratio (NPR) 802.11 WLAN Pulse Building Bluetooth™ S-DMB Enhanced Multitone TD-SCDMA (TSM)	Signal Studio Toolkit DVB

1. Once the license is emailed to you, verify that it is valid for the signal generator you wish to use:

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>On the signal generator, press <b>Utility &gt; Instrument Adjustments &gt; Instrument Options &gt; Software Options</b>.</li> <li>Verify that the host ID shown on the display matches the host ID for the license key.</li> </ol> | <ol style="list-style-type: none"> <li>On the signal generator, press <b>Utility &gt; Instrument Info/Help Mode &gt; Diagnostic Info</b>.</li> <li>Verify that the listed instrument model and serial number match those for the license file.</li> </ol> |
|---|---|

2. Enter (or load) the license.

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>Press <b>Utility &gt; Instrument Adjustments &gt; Instrument Options &gt; Software Options</b>.</li> <li>Highlight the option and press <b>Modify License Key</b>.</li> <li>Enter the 12-character license key and press <b>Enter</b>.</li> <li>Press <b>Proceed With Reconfiguration &gt; Confirm Change (Instrument will Reboot)</b>.</li> </ol> | <ol style="list-style-type: none"> <li>Copy the file into the directory <i>C:\Program Files\Agilent\Signal Generation License Files\Drop</i></li> <li>Make a back-up copy of the license file and store it in a safe place.</li> </ol> |
|---|--|

---

# 3 Connections

This chapter describes the basic equipment setup for each software product, as well as troubleshooting tips.

For ...	Refer to...
<ul style="list-style-type: none"><li>• 1xEV-DO:</li><li>• 1xEV-DV and cdma2000:</li><li>• 802.11 WLAN:</li><li>• Bluetooth™:</li><li>• DVB</li><li>• HSDPA over W-CDMA:</li><li>• Pulse Building:</li><li>• S-DMB:</li><li>• TD-SCDMA (TSM):</li></ul>	<a href="#">Figure 3-1 on page 20</a>
<ul style="list-style-type: none"><li>• Enhanced Multitone:</li><li>• Noise Power Ratio (NPR):</li></ul>	<a href="#">Figure 3-2 on page 21</a>
<ul style="list-style-type: none"><li>• Fading (version 2.0.8 or later):</li></ul>	<a href="#">Figure 3-3 on page 22</a>
<ul style="list-style-type: none"><li>• Signal Studio Toolkit:</li></ul>	<a href="#">Figure 3-4 on page 23</a>

### Additional Information

- [“Using the GPIB Interface” on page 24](#)
- [“Using the LAN Interface” on page 24](#)
- [“Using Digital Bus Cables” on page 26](#)
- [Troubleshooting on page 26](#)

---

**NOTE** When you install the Agilent IO Libraries on your PC (as described on [page 16](#)), an IO configuration utility called Agilent Connection Expert also installs. You can use Connection Expert to verify communication between the PC and connected LAN or GPIB instruments.

---

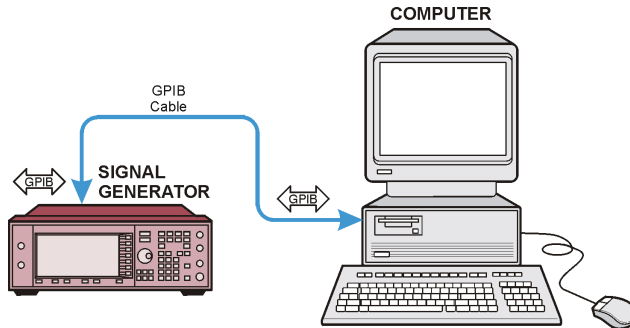
## Basic Connections

Figure 3-1 Using a Signal Generator and a PC

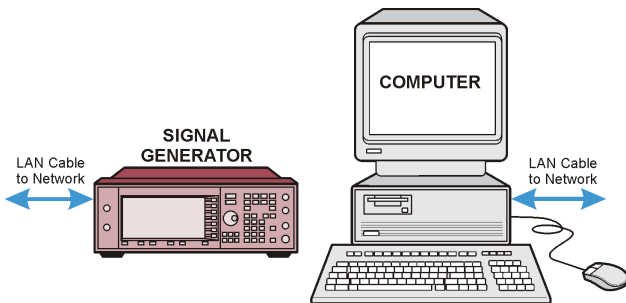
### Software Products:

- 1xEV-DO
- 1xEV-DV and cdma2000
- 802.11 WLAN
- Bluetooth™
- DVB
- HSDPA over W-CDMA
- Pulse Building
- S-DMB
- TD-SCDMA (TSM)

### Using GPIB



### Using Network LAN



### Using Crossover LAN

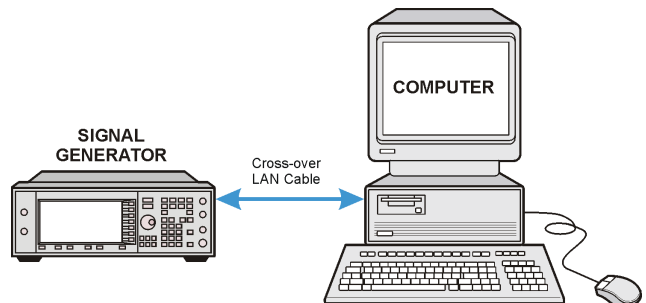


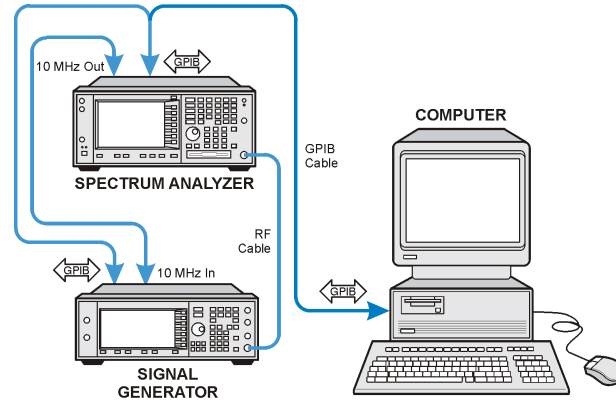


Figure 3-2 Using a Signal Generator, a Spectrum Analyzer, and a PC

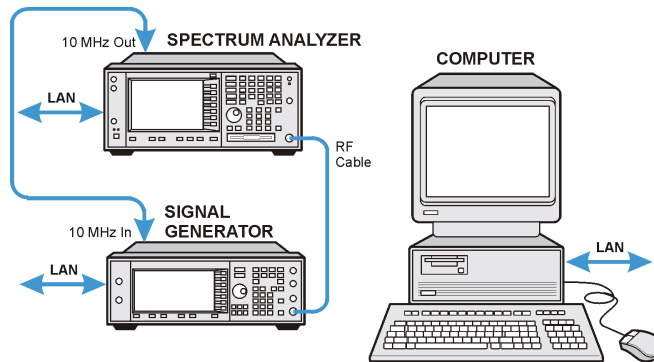
**Software Products:**

- Enhanced Multitone
- Noise Power Ratio (NPR)

**Using GPIB**



**Using Network LAN**



**Using Crossover LAN**

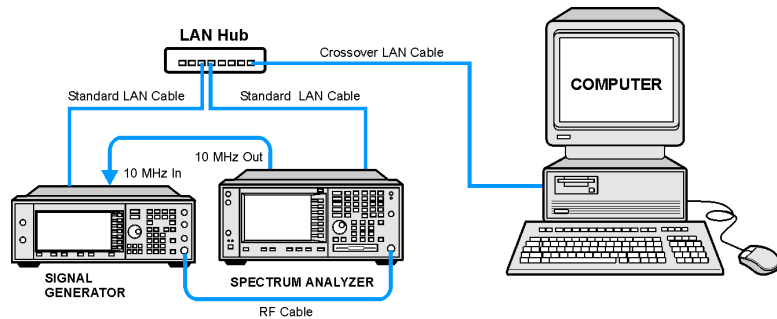
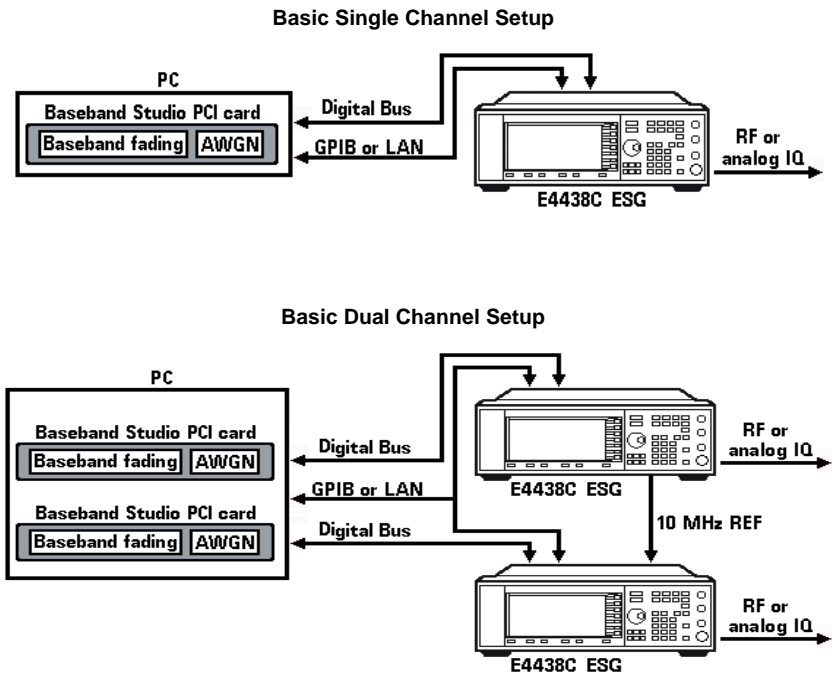


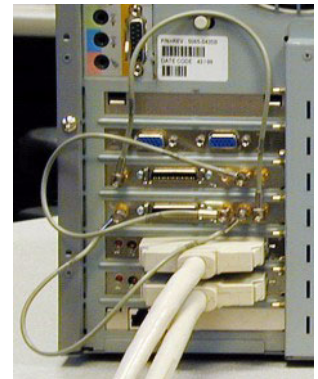
Figure 3-3 Fading Connections

If you use LAN between the PC and the instruments, you can make the connection either through a local network server, or by using a crossover LAN connection directly between the PC and an instrument (see “Using the LAN Interface” on page 24).



Dual channel fading requires two N5101A Baseband Studio PCI cards and two GPIO brackets.

If the two cards have not been connected internally (refer to the N5101A Baseband Studio PCI Card *Installation Guide*, at <http://cp.literature.agilent.com/litweb/pdf/N5101-90005.pdf>), you must connect three SMB cables between the GPIO brackets as shown at right. GPIO bracket connection details are also provided in the software.



See also “Using Digital Bus Cables” on page 26.

Using an E5515C Wireless communications Test Set

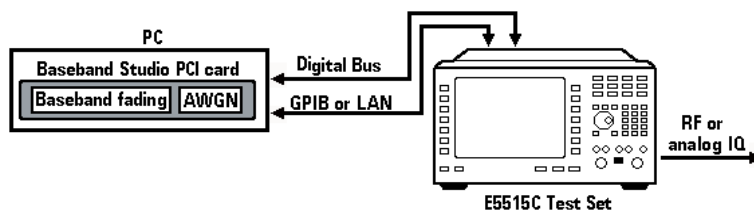
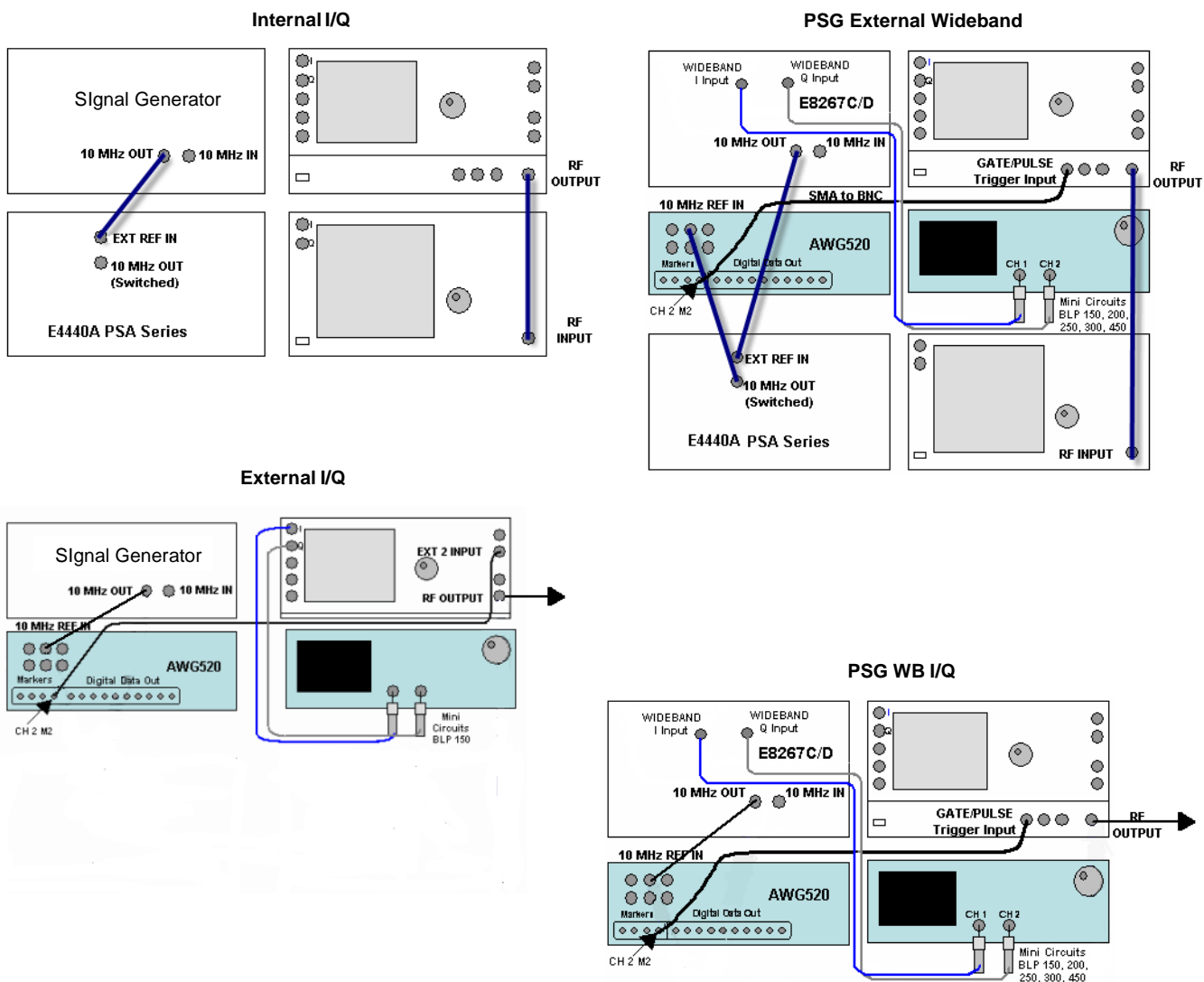
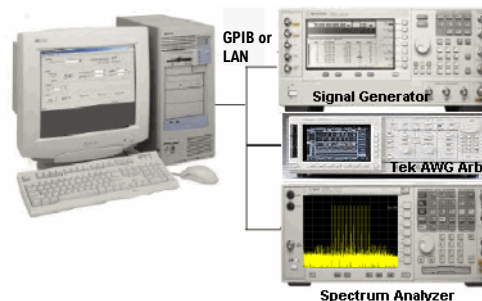


Figure 3-4 Signal Studio Toolkit Connections

For an internal I/Q measurement, connect the PC and an ESG signal generator using either GPIB or LAN. All other measurements connections are shown in detail.

If you use LAN between the PC and the instruments, you can make the connection either through a local network server, or by using a crossover LAN connection directly between the PC and an instrument (see “Using the LAN Interface” on page 24).



## Using the GPIB Interface

If the computer on which you install the software has an installed and configured GPIB interface card, you can configure the software (using its UI) to use the general purpose interface bus (GPIB) connection for instrument control. The GPIB and its associated interface protocols are defined in the ANSI/IEEE standard 488.1-1987 and ANSI/IEEE standard 488.2-1992.

### Using the USB/GPIB Interface

The Agilent 82357A USB/GPIB Interface provides a direct connection from the USB port on a laptop or desktop PC to GPIB instruments. Because the 82357A is a standard Plug and Play device, it is automatically detected and configured when connected to a computer's USB port. Refer to [Chapter 1](#) to determine which software products can use the USB/GPIB interface.

---

**NOTE** The USB/GPIB interface is not supported for NT.

---

### Additional Information

ANSI/IEEE standards:	<a href="http://www.ieee.org">http://www.ieee.org</a>
Agilent GPIB cables:	<a href="http://www.agilent.com/find/gpib">http://www.agilent.com/find/gpib</a>
Agilent 82357A USB/GPIB cable:	<a href="http://www.agilent.com/find/82357">http://www.agilent.com/find/82357</a>
Troubleshooting GPIB:	<a href="#">page 25</a>

If you do not have access to the Internet, contact your Agilent field engineer.

## Using the LAN Interface

If you have configured the local area network (LAN) for the Agilent IO Libraries, you can configure many software products to use the LAN interface for instrument control (see [Chapter 1](#)). The LAN and its associated interface protocols are defined in the IEEE standard 802. You can make a LAN connection either through a local network server or directly between the PC and an instrument.

### Equipment Required

- A LAN interface card installed on the PC.  
Regardless of the type of LAN connection, the computer you use must have a LAN interface card. Most computers have a LAN interface card as part of the hardware configuration. If your computer does not have a LAN card, you can get one from Agilent Technologies or another manufacturer.
- If required by the software (see [Chapter 1](#)), the Agilent IO libraries (installation is described on [page 16](#)).

#### If Connecting to the LAN Through a Local Server (Network LAN)

- One 10Base-T cable for the PC and one for each instrument.

#### If connecting to the PC Directly (Crossover LAN) (see [Figure 3-2](#) on page 21 for examples)

- If connecting one instrument: one 10Base-T crossover cable.
- If connecting more than one instrument:
  - one 10Base-T crossover cable for the PC
  - one 10Base-T cable for each instrument
  - one 10Base-T hub

### Additional Information

IEEE standard 802:	<a href="http://www.ieee.org">http://www.ieee.org</a>
Configuring for a Crossover LAN Connection:	<a href="#">page 26</a>
Troubleshooting LAN:	<a href="#">page 26</a>

If you do not have access to the Internet, contact your Agilent field engineer.

## Configuring for a Crossover LAN Connection

### Configuring the PC

1. From the Network and Dial-up Connections window, select **Start > Setting > Networks and Dial-up Connections > Local Area Connection**.  
The Local Area Connection Status dialog box appears.
2. In the Local Area Connection Status dialog box, click **Properties**.  
The Local Area Connection Properties dialog box appears.
3. In the Local Area Connection Properties dialog box, select the **Internet Protocol (TCP/IP)** radio selection. Ensure that the check box remains checked.
4. Click the **Properties** button.
5. Select the **Use the following IP address** option (radio selection).
6. Enter **1** once for each of the four areas that make up the IP address. After your entries, the IP address should show 1.1.1.1
7. Click the Subnet mask entry field; an address appears.
8. Click **OK > OK** (on the Local Area Connection Properties dialog box)
9. In the Local Area Connection Status dialog box, click **Disable**.
10. In the Network and Dial-up Connections window, double-click **Local Area Connection**.  
The status changes from Disabled to Enabled.

---

**NOTE** To reconfigure the PC for a LAN, perform the following steps:

1. Repeat steps 1–4.
  2. Select the **Obtain an IP address automatically** option.
  3. Repeat steps 8–10.
- 

### Configuring Instruments

#### Signal Generator

1. Press **Utility > GPIB/RS-232 LAN > LAN Setup > IP Address**
2. Record the current IP address.
3. Enter **1 > . > 1 > . > 1 > . > 2** as the new IP address.
4. Press **Enter > Proceed with Reconfiguration > Confirm Change (Instrument will reboot)**.  
The signal generator reboots, completing the LAN reconfiguration.

#### Spectrum Analyzer

1. Press **System > Config I/O > IP Address**
2. Record the current IP address.
3. Enter **1 > . > 1 > . > 1 > . > 3** as the new IP address.
4. Press **Enter**.  
The LAN configuration is now complete.

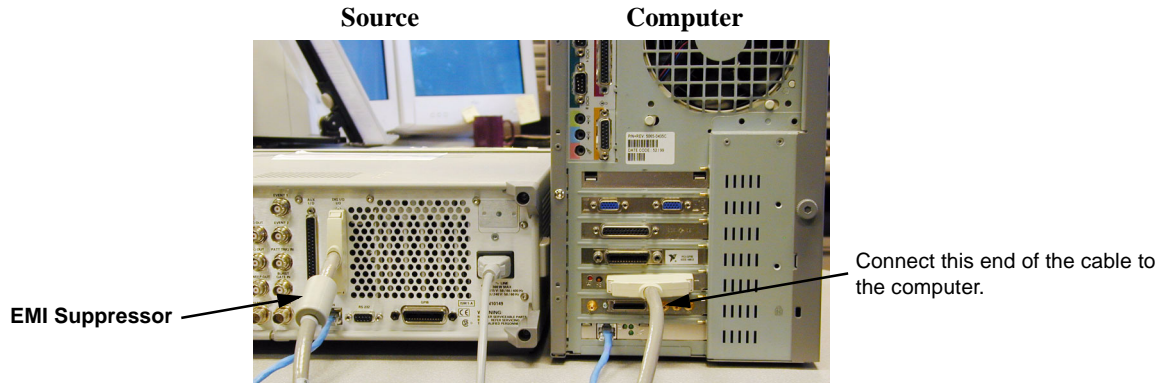
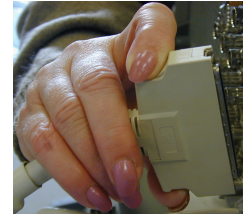
## Using Digital Bus Cables

Digital bus cable connectors have a release latch on each side. As you make a connection, you must simultaneously squeeze these release latches (see the illustration at right); the connector should snap into place.

A securely connected cable does not come loose when gently pulled.

To disconnect the cable, squeeze the release latches as you remove the connector.

When connecting a digital bus cable, connect the end of the cable *without* the EMI suppressor to the computer, as shown in the following example.



## Troubleshooting

If you experience problems communicating with or controlling instruments over the LAN or GPIB, check the following items. If this does not solve the problem, refer to the utility Connection Expert, installed with the Agilent IO Libraries. Full information on using Connection Expert is available in the IO Libraries Suite Online Help.

### GPIB

1. Check to see that the instrument you are trying to communicate with is turned on.
2. Check to see that the GPIB cable connections are securely attached to the instrument and PC.
3. Verify that the GPIB address of the instrument is the same as that set in Connection Expert.
4. Restart the computer. You must restart the PC to initialize the GPIB configuration.
5. Verify that the instrument you are trying to communicate with is using the SCPI (Standard Commands for Programming Instruments) language. For example, the signal generator supports 8656B, 8657A/B languages as well as SCPI. Refer to the instrument's manual for information on available languages and how to select the SCPI language.

### LAN

1. Ensure that the IP address of the signal generator is the same as that used in the Connection Expert.
2. Ensure that the 10Base-T cable used is appropriate (see ["Using the LAN Interface"](#) on page 24).

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