

# Agilent PSA Spectrum Analyzer Firmware Upgrade Procedure

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## Purpose

This document provides a step-by-step procedure for installing firmware and measurement personalities into an Agilent PSA Series Spectrum Analyzer, model numbers E4440A, E4443A, E4445A, E4446A, E4447A, or E4448A.

## Procedure

**Be sure to follow all the parts of this procedure to complete this upgrade process:**

Using Windows XP? See "[Using PC Update program with Windows XP](#)".

[Check Known Problems List](#)

[Download the firmware update package into your PC](#)

[Install new firmware update package on your PC](#)

[Download the firmware from your PC into the PSA](#)

[Install License Key](#)

## Requirements to Install Firmware

Microsoft Windows based Personal Computer with Local Area Network (LAN) card.

Administrator privileges on the PC

CD-ROM drive

Windows NT 4.0, Windows 98, Windows 2000, or Windows XP<sup>1</sup>

Crossover cable (or LAN Hub) if PC or analyzer is not connected to network.

Use a CAT5, RJ45 cable with cross pinning, Agilent p/n 8121-0545

<sup>1</sup>See [Known Problems List](#) for information on installing program using Windows XP.

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## Download the firmware update package into your PC

1. Click on the PSA firmware package file to start the download.  
A "Save As" dialogue text box will appear
2. Select "**Save this program to disk**".  
Select a temporary folder to save the firmware package in your computer.  
The package needs to be in your local computer in order to extract the files.
3. Start the upgrade process by printing out these instructions.

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## Install new firmware update package on your PC

4. **Close all open or running applications by clicking Alt + Tab. Select the running program and close it.**
5. Go to the location where you saved the PSA firmware package. Double click on the executable file to extract the files.  
The files will be extracted and installed in your PC.
6. If the "Update or Remove" screen appears, click "**Remove**". **Do not** use the "Update" feature.  
If you updated an existing program, go back to step 5 to continue.
7. Follow the on screen instructions.  
We recommend using the default directories and file names in this program.
8. Once the install wizard completes the download, press [Finish]

9. If you are using Windows NT, load JVM (Java Virtual Machine) on your computer if needed. You may be given an opportunity to load Java Virtual Machine (JVM) depending on your PC's operating system. JVM needs to be loaded in order to run the firmware update program. The program cannot detect if JVM has been previously installed. If you have installed it before, you do not need to install it again.
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## Download the firmware from your PC into the PSA

10. Please record the following important backup information in your instrument before proceeding with the upgrade.

Configuration Information: press **System, Config I/O** and record the settings for the GPIB, IP, Gateway addresses, the Subnet Mask, and the Host Name.

License Keys: press **System, More 1 of 2, More 2 of 3, Licensing, Show License** and record all listed options and their license keys.

State Files: press **File, Load, Type State** and save any important state files to a floppy disk. See the User's and Programmer's Reference volume 1 for details.

**Note:** Old state files may not be compatible with the new version of firmware.

11. TURN OFF YOUR FIREWALL program. Firewall programs interfere with the instrument booting from the PC.
  12. Click on the "PSA Series Update Program" icon on your desktop  
Or click Start, Programs, Agilent Firmware Updates, and then select PSA Series Update Program
  13. **Use the Help Screens and read the instructions carefully.**  
The help screens are very important since some instruments will have LAN addresses and be connected to a LAN, other instruments will not, or the PC and the instrument may not share the same subnet. The help text will guide you through changing IP addresses if needed. The crossover cable procedure requires changing the IP address on both the PC and the PSA.
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## Important Program Notes

- **Instrument Configuration**

The program will save the instrument configuration files after a directory is created. Please use the default directory. The program may not save the files correctly if a directory other than the default is used. Creating the directory takes 15-20 seconds.

- **Installing measurement personalities**

**Note:** All the measurement personalities available for the instrument will not fit in the instrument's memory. Use the [Memory Calculator](#) to determine which options you can install. **Only** install personalities for which you have a license. You may install the license before or after installing the new firmware.

Most measurement personalities have an option check box. When installing measurement personalities, insure there is a check in the option box of each personality you wish to install. The PC Update Program will display a screen "Choose the components to be loaded to your instrument." Be sure to check the "Option Name" for each personality. This process deletes all the components in the instrument so you need to select which ones are to be installed even if you installed them before.

The following options do not have an option check box in the "Choose the components to be loaded in your instrument":

- AYZ External Mixing (requires hardware)
- B7J Digital Demod Hardware (requires hardware)
- IDS Preamplifier (requires hardware)
- 122 80 MHz Bandwidth Digitizer (requires hardware)
- 123 Switchable Microwave Preselector Bypass (requires hardware)
- 124 Y-Axis Video Out (requires hardware)
- 210 HSDPA (requires Option BAF W-CDMA)
- 214 1xEV-DV (requires Option B78 cdma2000)

These options are activated automatically when the license key and the appropriate firmware/hardware are installed.

- **Operating System May Need to be Loaded.**

The PSA may require the Operating System to be loaded to match the firmware. When the program asks you to choose components to be loaded, DO NOT uncheck the “operating system version, core firmware version” if the box is checked.

- **External Keyboard vs. Keypad**

The PSA does not require the use of an external keyboard for the normal process. You will use the instrument **front panel keypad**. Disconnect the external keyboard if one is attached to the analyzer.

- **Stopping Instrument Boot Process**

The instrument boot process needs to be stopped in order to download the new firmware. When the update program instructs you to stop the boot process, press the power switch off, then on. A message will appear on the analyzer as the boot process starts. This message reads: “To Discontinue, Press Any Key Within 2 Seconds”. When you see this message, repeatedly press any numeric key (0-9) on the analyzer’s keypad until the “Main Menu: Enter Command” prompt appears. Then follow the Firmware Update Program’s instructions for the keypad.

- **How Long?**

The download process takes about 25 minutes once the LAN cable is connected and the instrument is communicating with the PC.

**WARNING!! Do not cycle instrument power or exit the update program once the firmware download has begun.**

If for some reason the program is interrupted, you must perform the process for a nonfunctional instrument. Start the Firmware Update Software. Follow the procedure. The software will not be able to find the instrument. A check box for the Nonfunctional Instrument Process will appear. Check this box and follow the instructions. See Help for more information.

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## Install License Key

Do the following steps if you are installing a new measurement personality or new hardware that requires a license key.

1. Perform the following to verify the Host ID:

Set the PSA power switch to ON (1).

Press the following keys:

**Mode**

**Spectrum Analysis**

**Measure**

**Meas Off**

**System**

**More**

**Show System**

Verify that the Host ID shown on the instrument display matches the Host ID on the license key certificate. The Host ID is a unique number for each instrument. If the Host ID on the license key certificate does not match the instrument, you cannot load the personality into your instrument.

2. Press the following keys to enter the license keyword:

Press the following keys:

**Return**

**More**

**Licensing**

**Option**

The alpha editor will now appear.

Use the alpha editor to enter the letters (upper-case) and the front-panel numeric keys to enter the option identifier of the personality you are installing.

Your entry will appear in the active function area of the display. If you make a typing error, use the backspace key to correct the mistake.

Press **Enter** when finished.

Press **License Key** and enter the license key number.

Use the alpha editor and the front-panel numeric keys to enter the hexadecimal license key number listed on the license key certificate.

Check the license key number you have entered.

Press the **Enter** and then press **Activate License**.

3. Cycle the instrument's power (set the line switch to off then on.)

**Note:** Some options require a power cycle to activate.

4. To verify that the measurement personality or hardware option is available for to use:  
Press the front-panel **System** key  
Press **More**  
Press **Show System**  
The option identifier should appear in the “Options:” field.
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## Troubleshooting Measurement Personality Installation

*If the measurement personality you are updating or adding is not listed in the PSA’s Mode menu, access the personality information screen by pressing the following keys:*

**System**  
**More 1 of 3**  
**More 2 of 3**  
**Personality**

*If a “No” appears in the Licensed column for the personality that you are trying to install:*

- a. Check to make sure that your Host ID matches the Host ID on the certificate. See step 1 in “Install License Key”.
- b. If it does not match, contact your Agilent Representative or your nearest Agilent Sales and Service Office.
- c. Check to make sure that you entered the hexadecimal license key correctly. If it is not correct, re-enter the license key. See step 2 in “Install License Key”.

*If the measurement personality is not listed:*

- a. The firmware for the personality was not installed with the firmware update. Install the measurement personality by starting with the “Download the firmware from your PC into the PSA” step . If the operating system and firmware update installed correctly, you will not need to install them again.
- b. Not all the measurement personalities that are available for the PSA will fit in the instrument’s memory. The program will automatically check the option box for all personalities currently installed in the instrument. You may need to uncheck an existing option box to install your new option. Use the [Memory Calculator](#) to determine which options will fit in the instrument’s memory.

*If the measurement personality is still not installing:*

Try re-installing the firmware on your analyzer and selecting all options that you would like loaded in your instrument.

Contact nearest Agilent Technologies Sales and Service Office for assistance.

[www.agilent.com/find/contactus](http://www.agilent.com/find/contactus)

1-800-452-4844 (8am-8pm EST)

Please provide the following information:

Model Number: E4440A, E4443A, E4445A, E4446A, or E4448A

Serial Number:

State that you are having trouble installing a measurement personality.

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## Known Problems List

- Windows XP may not allow the PC Update program to load or run  
See “[Using PC Update program with Windows XP](#)”.
- This program will not function properly with firewall software running.  
Firewall software, in most cases, will not allow the instrument to boot from the PC. Booting from the PC is required if new firmware is to be installed in the instrument. Disable the firewall while upgrading the PSA.
- More options are available than will fit in memory.  
There are more measurement personality options available than will fit in the instrument memory. To load a new personality, you may need to delete an existing personality from memory and then load the one you want. The PSA Series Update Program will lead you through this process. Use the [Memory Calculator](#) at to determine which options will fit in the instrument’s memory.
- Unable to choose all of the options to be installed in the instrument  
Measurement personalities that require hardware options to install (for example Option B7J), may not be selectable until the dependant hardware option has been licensed. First license the necessary

hardware option, then re-run the update program to enable these options to be selectable by the Update Program.

- **SCPI LAN Socket Port 5025 turn off causes Update Program to not communicate to the instrument**

The SCPI LAN Socket Port 5025 must be turned on in order for the Update program to communicate to the analyzer. Ensure that it is turned on by pressing <System> <Config IO> <SCPI LAN> <SCPI Socket Port 5025> and toggling the value to “On”

- **Update program may stop after attempting to create backup configuration files.**  
Please use the default directory for saving the configuration files. The program may not save the files correctly if a directory other than the default is used.

- **Upgrading from firmware <A.04.0.0**

**Update program may loose connection to analyzer after loading the operating system.**

Older firmware did not include a gateway address. The gateway and subnet masks may need to be set after loading the new operating system (O.S.). If the update program loads the O.S. successfully but then loses communication when attempting to load the measurement personalities, check the analyzer’s gateway and subnet mask settings. Press **System, Config I/O**. The default value for the Subnet Mask is 255.255.0.0 and the default value for the Gateway is 0.0.0.0. Enter the subnet mask and gateway values if needed. Run the update program again to load the measurement personalities. Use only the default settings for saving and restoring the configuration files. (Do not use old <A.04.00 configuration files.)

**“Undefined Header” or “File Not Found” errors**

“Undefined Header” or “File Not Found” errors may occur when upgrading from older firmware revisions. In most cases, the PSA Upgrade Program can supply the missing information and files. If these errors should occur, just proceed with the upgrade.

- **If the new software does not load successfully:**  
Please see the [“PSA Update Troubleshooting Wizard”](#).
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