

Welcome to SIGNAL 5 !

SIGNAL 5 supports Windows XP / Vista / 7 / 8 / 10

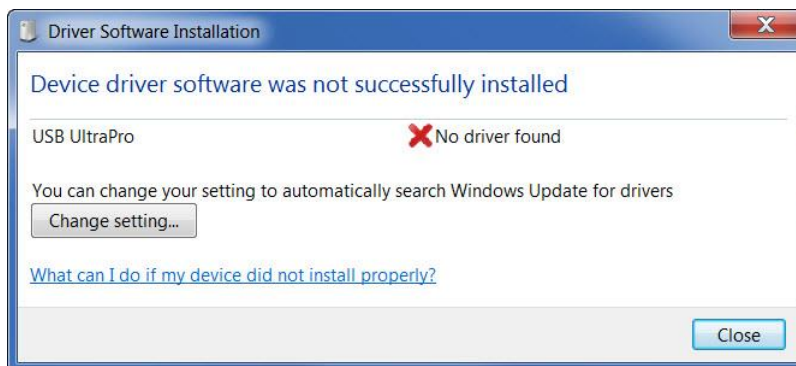


Installing SIGNAL 5

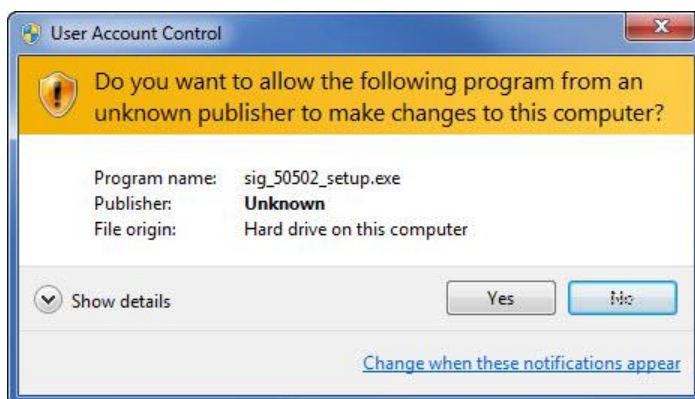
Follow these steps to install SIGNAL 5 on Windows XP / Vista / 7 / 8 / 10

Note: Beginning with Windows Vista, Microsoft introduced a new internal architecture which affects SIGNAL operation. Therefore in places, these notes present **alternate instructions** for "Windows XP and earlier" vs. "Windows Vista and later". Be sure to follow the right instructions for your Windows version!

1. Insert the SIGNAL installation CD.
2. Plug in the SIGNAL USB security key. Later in the installation, SIGNAL will install the driver for this key. Windows may attempt to install its own driver upon insertion; ignore the following message and click Close.



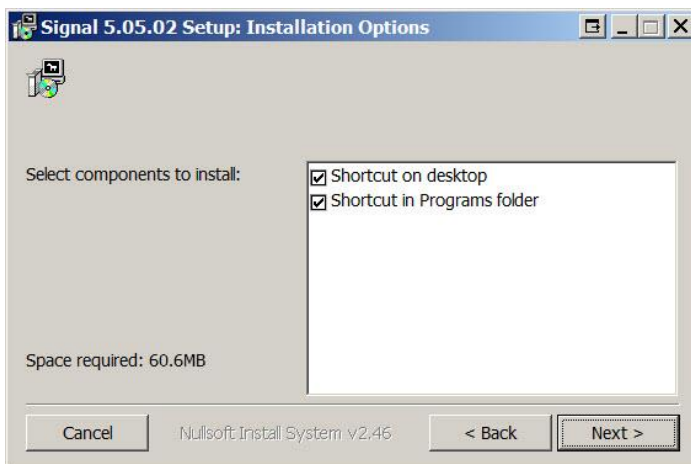
3. If the SIGNAL installer doesn't launch automatically, navigate to the CD and execute **sig_50xxx_setup.exe**, where "xxx" is the version number of the release.
4. For **Windows Vista and later**, approve the setup program.



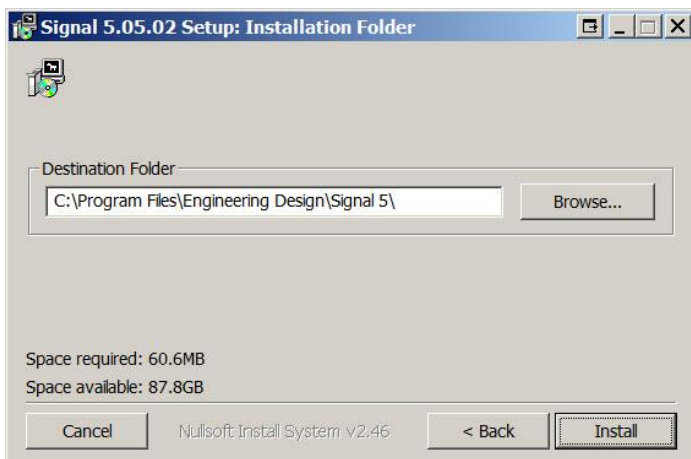
5. Approve the license agreement.



6. Approve all shortcuts.

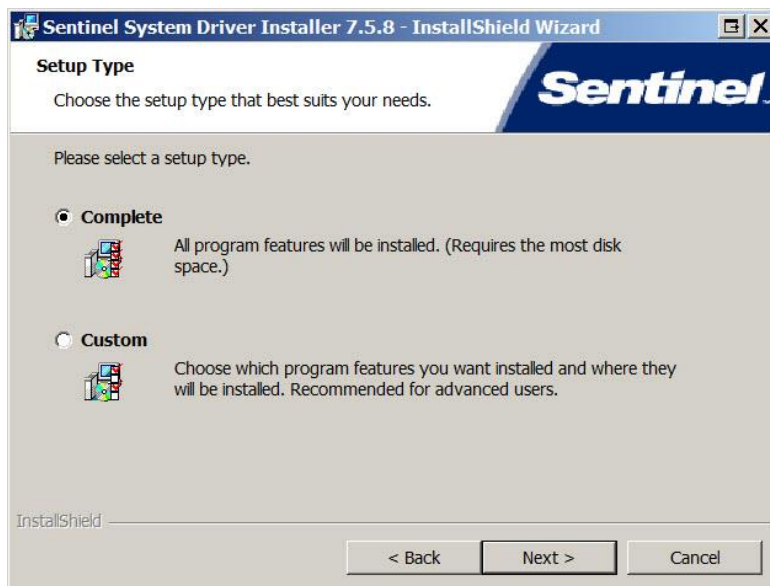


7. Approve the default installation path – this is **strongly recommended**. Note this path is different from SIGNAL 4 and early releases of SIGNAL 5.

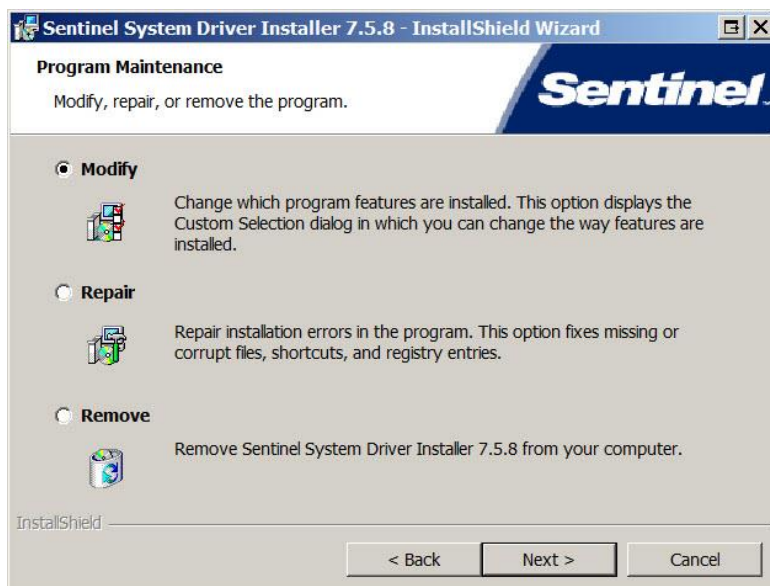


8. The SIGNAL security key driver (Sentinel System Driver) will be installed.

- If you are installing Signal for the first time on this computer, you will see the following choices. Select a **Complete** installation, then select defaults on all following screens.



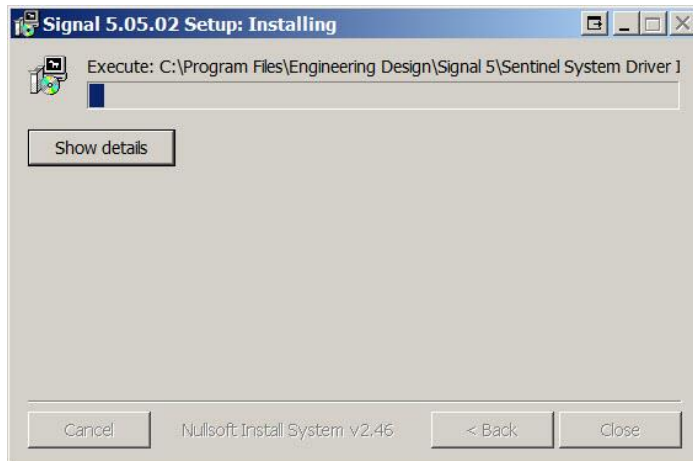
- If the security key driver is already installed (such as when you are updating Signal), you will see the following choices. Select **Modify**, then select defaults on all following screens.



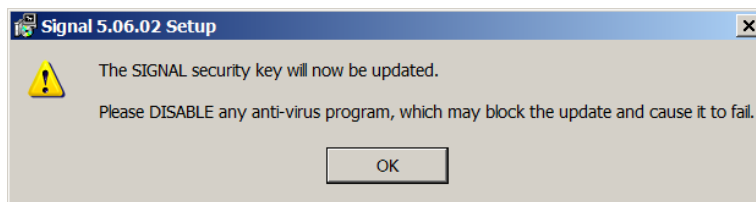
9. Upon completion, the Sentinel System Driver installer may offer to restart the system. **Do not restart the system** – that would abort the SIGNAL installer. Instead, restart after the SIGNAL installation is complete.



10. After the security key is installed, the SIGNAL installer may **pause for 5-10 seconds** with the following screen – please be patient...



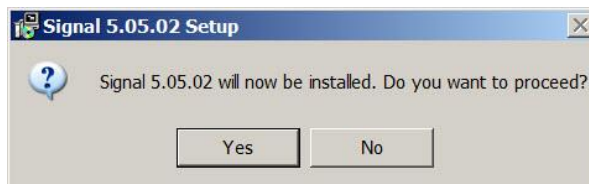
11. The installer will now update the SIGNAL security key. **Be sure the SIGNAL security key is plugged in** and **be sure to disable any anti-virus program** on the computer (which can block writing to the key). Then approve the update. Click Yes or OK on all following screens.



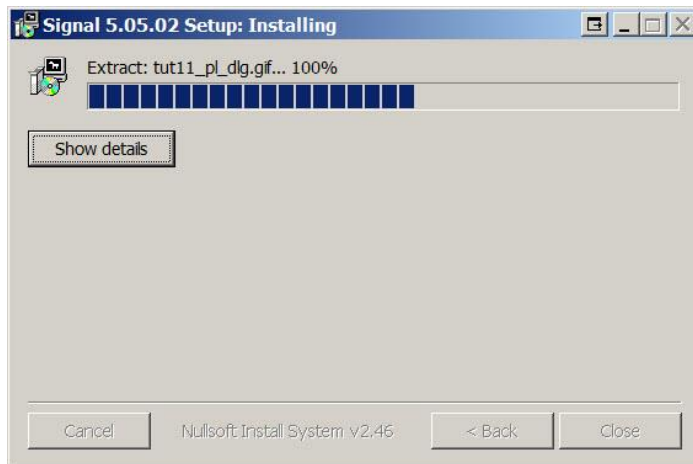
12. If the SIGNAL security key driver is not properly installed or the security key is not detected or the key is not licensed for SIGNAL 5, the installer will halt the installation and display the following message. Please contact Engineering Design for assistance.



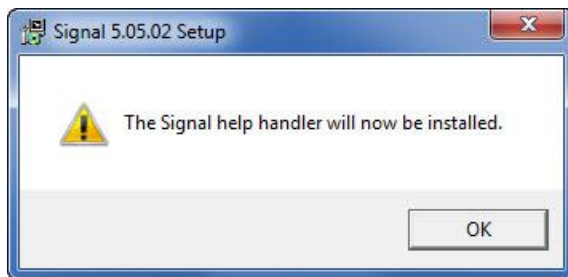
13. After the security key installation completes, click Yes to proceed with SIGNAL installation.



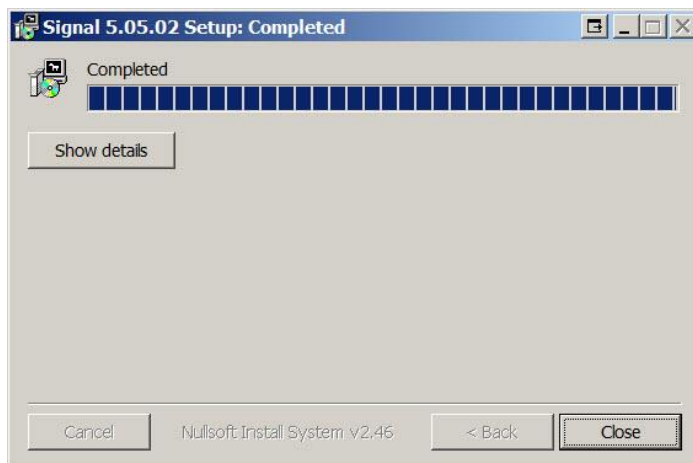
14. SIGNAL files will be copied to your computer.



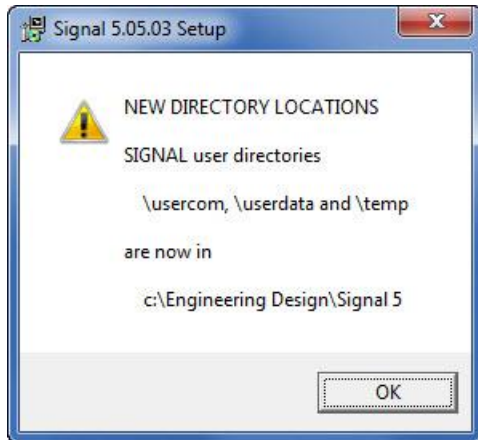
15. For **Windows Vista and later**, a handler will be installed to access the SIGNAL help file and system help macros will be enabled.



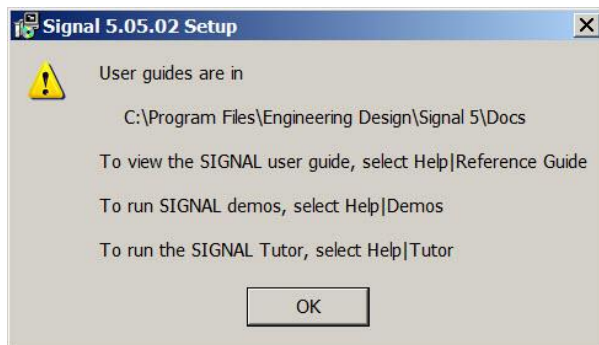
16. After the file copy completes, click **Close** to complete the installation



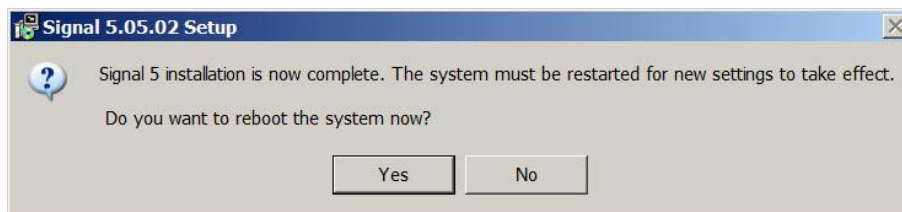
17. For **Windows Vista and later**, the installer will remind you that SIGNAL user directories have moved to new locations relative to earlier SIGNAL versions.



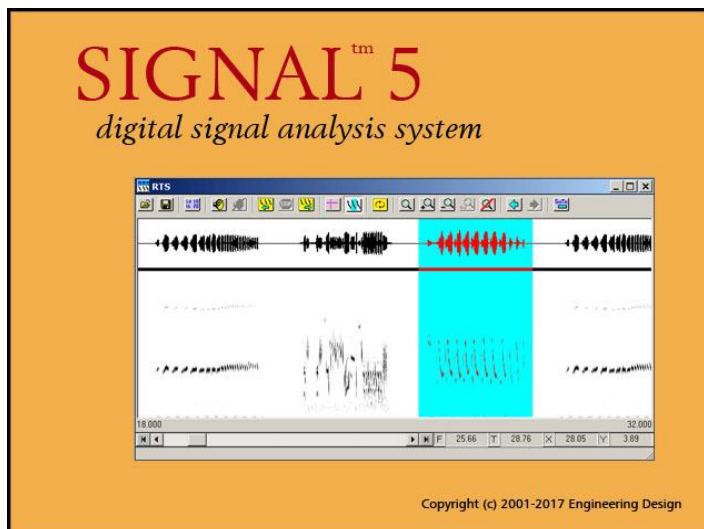
18. The installer will point out SIGNAL's learning tools for getting started.



19. Click Yes to allow the system to restart.



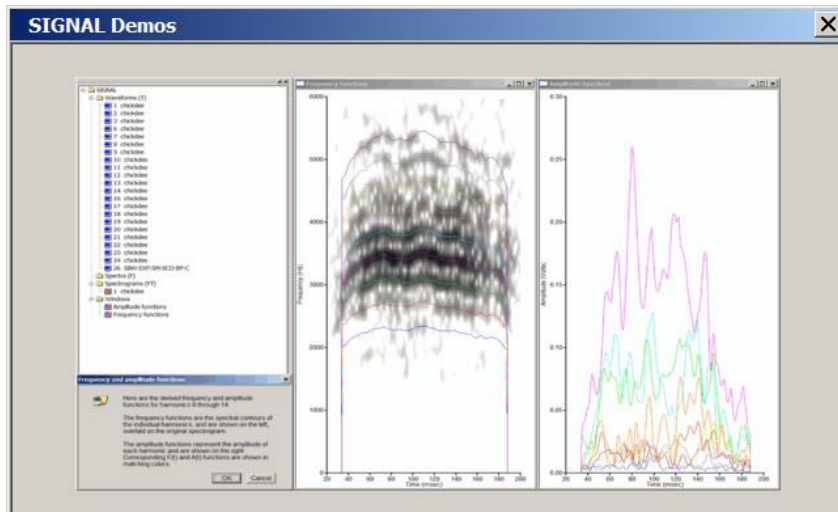
20. **Enjoy SIGNAL 5!**



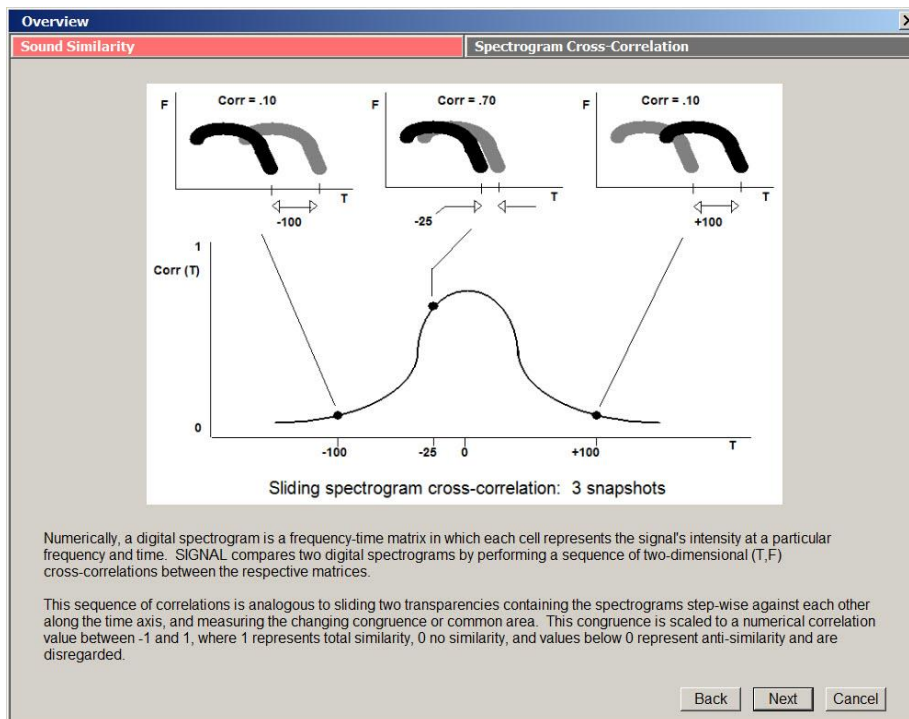
Getting Started with SIGNAL 5

These steps are recommended for getting started with SIGNAL 5.

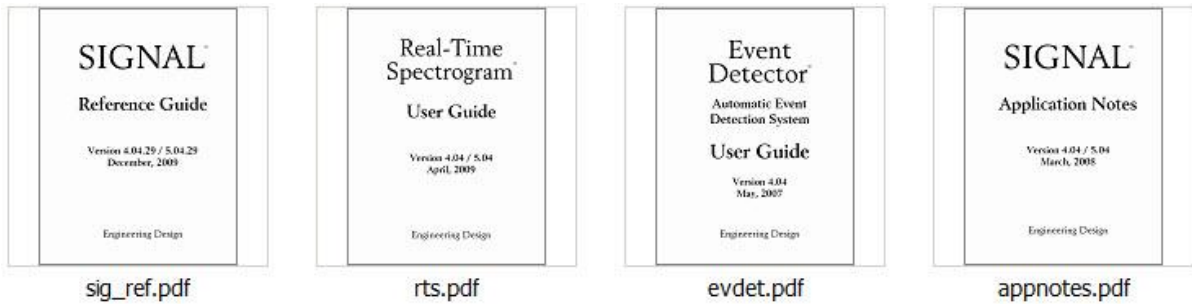
1. Run the SIGNAL demos. These provide a tour of SIGNAL's basic and advanced features, including the new features of SIGNAL 5. Select **Help|Demos** from the SIGNAL menu. SIGNAL has many powerful tools and this is the easiest way to become aware of them.



2. Visit TUTOR, a 30-chapter automated tutorial program covering every major SIGNAL capability – from basic SIGNAL tools to advanced bioacoustic analysis. TUTOR interleaves the teaching of SIGNAL tools and bioacoustic analysis principles. It was designed to train students (and researchers!) planning to do projects in SIGNAL. Select **Help|Tutor** from the SIGNAL menu.



3. SIGNAL **user guides** are installed in c:\ProgFiles\ED\5\Docs (XP) or c:\ProgFiles (x86)\ED\5\Docs (Vista or later). To view the main SIGNAL Reference Guide, select **Help|Reference Guide** from the SIGNAL menu.


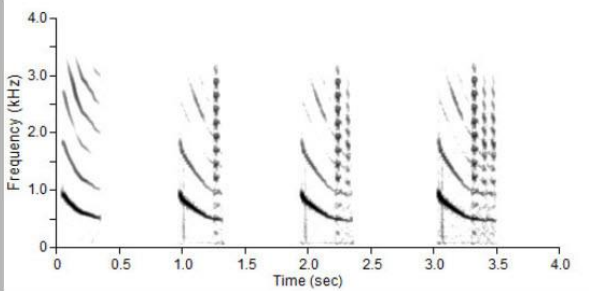


4. SIGNAL has produced important research in bioacoustics, behavior and neuroscience. Some highlights are described on the Engineering Design website <http://www.engdes.com/sigwin/science/science.html>

SIGNAL in Science

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The Perilous Serenades of Túngara Frogs

Click sonogram to hear sound

The Michael Ryan Lab at the University of Texas studies the effect of sexual preference on the communication systems of tungara frogs, investigating the evolutionary advantages and costs of different call behaviors.

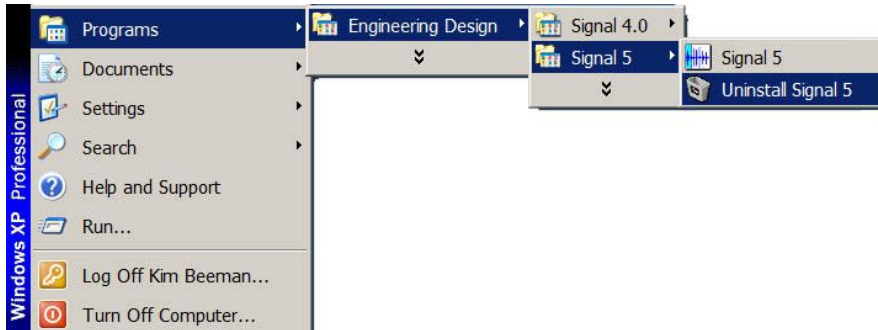
Dr. Ryan used SIGNAL to generate a set of precisely varied synthetic male frog calls and played these back to females. Observed phonotactic behavior showed that females favor call complexity and suggested their role in shaping male call behavior. Mike then presented a graded set of frog stimuli to frog-eating bats and showed that the call complexity that attracts females also makes the callers acoustically easier to locate as prey.

5. The SIGNAL Bibliography lists scientific papers using SIGNAL as the analysis tool. Many papers are included as PDF's. <http://www.engdes.com/sigwin/company/biblio/biblio.html>
6. Feedback on SIGNAL is always welcome. <http://www.engdes.com/sigwin/support/support.html#contact>

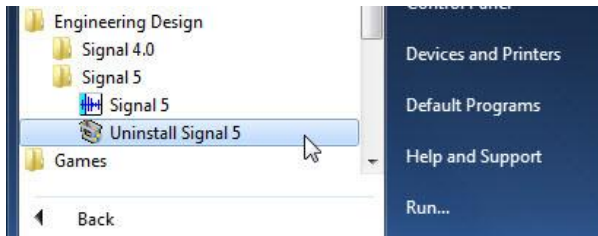
Uninstalling SIGNAL 5

Follow these steps to uninstall SIGNAL 5 on Windows XP / Vista / 7 / 8 / 10

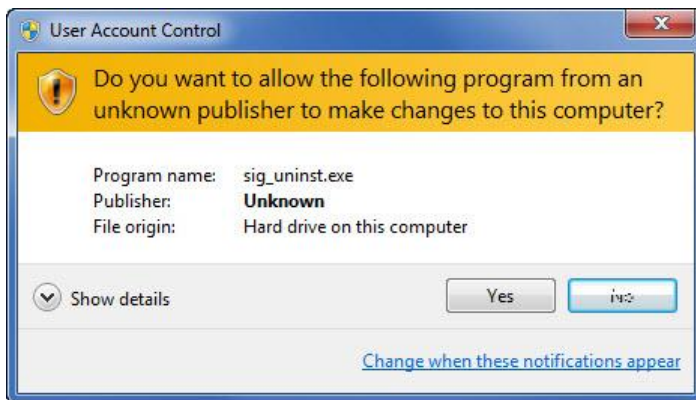
1. **Windows XP:** click Start | Programs | Engineering Design | Signal 5 | Uninstall Signal 5



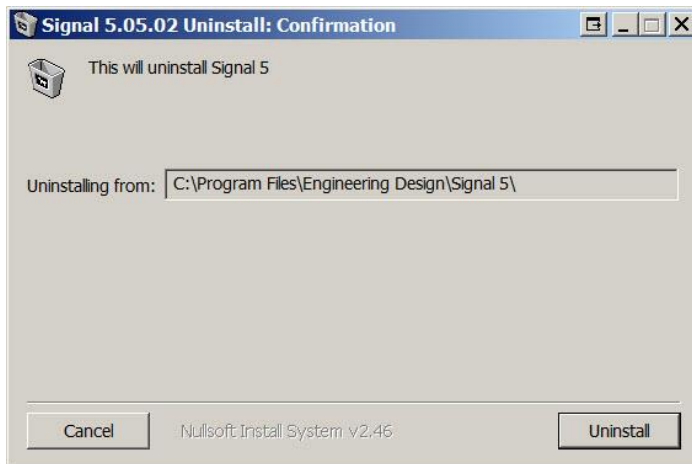
2. **Windows Vista and later:** click Start | All Programs | Engineering Design | Signal 5 | Uninstall Signal 5



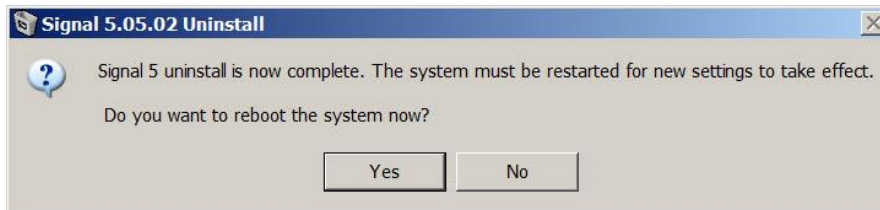
3. For **Windows Vista and later**, allow the uninstall to proceed.



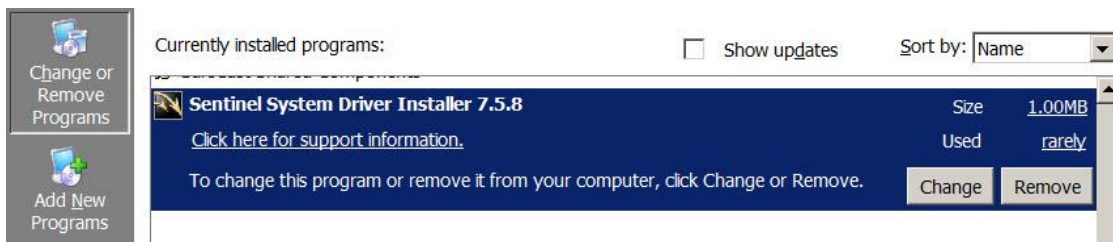
4. Click **Uninstall** to begin the uninstall.



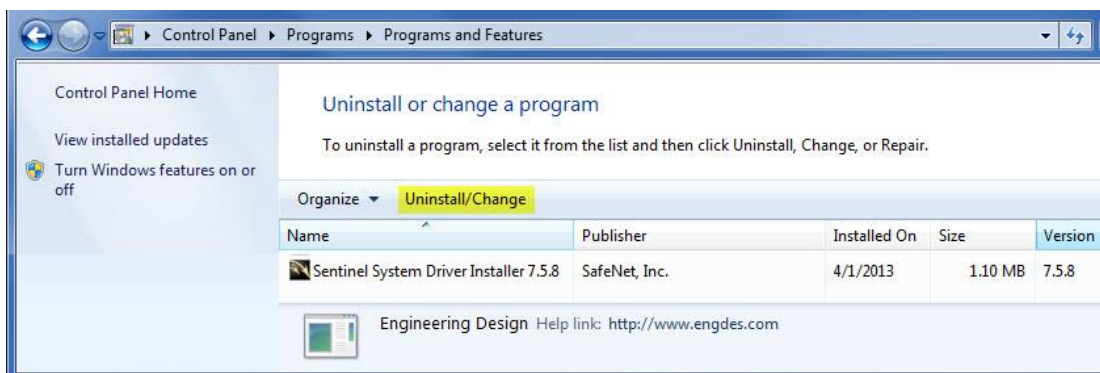
5. The SIGNAL uninstaller will remove SIGNAL files and registry settings.
6. In **Windows Vista and later**, the uninstaller will **not** remove the user directories \temp, \usercom and \userdata in C:\Engineering Design\Signal 5.
7. Click Yes to allow the system to restart.



8. After uninstalling SIGNAL, the SIGNAL security key driver **will remain installed**. This does no harm, but the driver can be uninstalled if desired, as follows.
- In Windows XP, click Start | Settings | Control Panel | Add or Remove Programs. Select **Sentinel System Driver Installer** and click Remove.



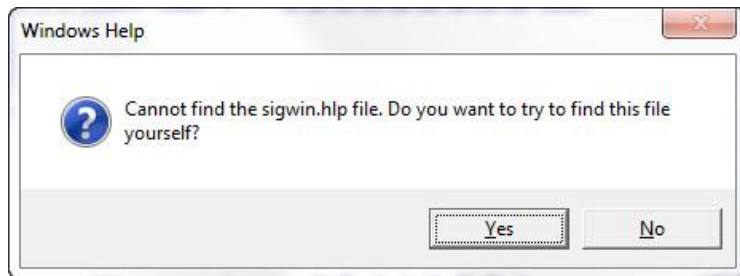
- In Windows Vista or later, click Start | Control Panel | Programs | Uninstall a Program, then select **Sentinel System Driver Installer** and click Uninstall/Change.



SIGNAL Help Issues

Can't find Help file

SIGNAL may report that it can't find its Help file

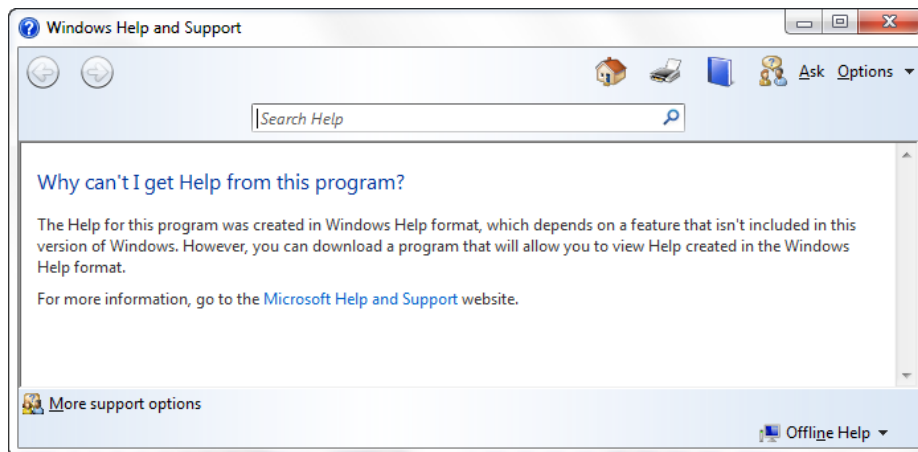


1. Click No, then click Tools | Help again.
2. If that doesn't help, click Yes and browse to the Help file (sigwin.hlp), which is located in
c:\Program Files\Engineering Design\Signal 5 Win XP
c:\Program Files (x86)\Engineering Design\Signal 5 Win Vista or later
3. If the message recurs, try exiting and restarting SIGNAL.

Help handler not installed [Windows Vista and later]

For Windows Vista and later, the SIGNAL installer installs the **WinHlp32.exe** handler to access the SIGNAL Help file and runs a tool to enable system help macros. If this installation fails, Windows will display one of the following messages.

Windows Vista / 7 / 8:

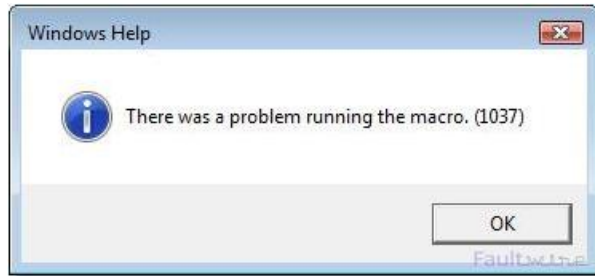


Windows 10: a web page with the following message:

Error opening Help in
Windows-based programs:
"Feature not included" or "Help not
supported"

Windows "problem running the macro" [Win Vista and later]

If the help handler is properly installed but system help macros are not enabled, Windows will display the following message when you access SIGNAL Help:



Windows Vista / 7 / 8: run **MicrosoftFixit50105.msi** in the SIGNAL root directory c:\Program Files (x86)\Engineering Design\SIGNAL 5.

Windows 10: run **WinHelpMacros.reg** in the WinHlp32 subfolder of the SIGNAL installation folder, or contact Engineering Design.

Help handler overwritten [Windows 10 and later]

For Windows Vista and later, the SIGNAL uses a special Windows handler to access the SIGNAL Help file. **Windows 10 updates can overwrite this handler, disabling the SIGNAL Help system.** In this case, a SIGNAL Help command (such as "Help AC") will trigger a web page with the following message:

Error opening Help in
Windows-based programs:
"Feature not included" or "Help not
supported"

To fix this, perform the following steps:

1. Type "cmd" in the Windows Start box. Windows will display a list of choices.
2. Right-click on **cmd.exe** in the list and select "Run as Administrator".
3. Click Yes in the User Account Control box, then a black command prompt window will open.
4. In the command window, type "cd \Program Files (x86)\Engineering Design\SIGNAL 5\WinHlp32" to navigate to the SIGNAL help tools folder.
5. Type "WinHlp32Copy.cmd" to perform the repair. This will copy correct versions of the two Windows help files required by SIGNAL -- **WinHlp32.exe** and **WinHlp32.exe.mui** – into the Windows folder.

SIGNAL and Windows Vista/7/8/10

Note that the discussion in this section applies only to Windows Vista and later, not to Windows XP.

Installation directory

SIGNAL 5 is a 32-bit application. On 64-bit Windows platforms, 32-bit applications like SIGNAL are installed under **c:\Program Files (x86)**. The SIGNAL default installation path is **strongly recommended** on all Windows platforms:

Win XP and earlier: c:\Program Files\Engineering Design\SIGNAL 5

Win Vista and later: c:\Program Files (x86)\Engineering Design\SIGNAL 5

User-based directories

Windows Vista and later prohibit user interaction with files inside c:\Program Files and c:\Program Files (x86). Therefore in Vista and later, SIGNAL's three user-based directories (\usercom, \userdata and \temp) have moved to the new directory c:\Engineering Design\SIGNAL 5:

Win XP and earlier: c:\Program Files\Engineering Design\SIGNAL 5
Win Vista and later: c:\Engineering Design\SIGNAL 5

SIGNAL Help file

See the section "SIGNAL Help Issues" above in this document.

Drag & drop / User Account Control (UAC)

User Account Control (UAC) is the security layer of Windows Vista/7/8, which manages user and program privilege levels. For example, UAC will prevent a program from invading another program of higher privilege or from overwriting operating system files.

SIGNAL must run at elevated privilege ("Run as Administrator") in order to function properly. The SIGNAL installer sets this privilege level permanently in the registry on Windows Vista and later. Note that logging into Windows as an Administrator does **not** automatically cause your programs to run at administrator level.

Drag & drop is the capability to drag sound files or command files from Windows Explorer into SIGNAL, in order to open or execute them. When SIGNAL runs as an Administrator, **drag & drop from Windows Explorer will not function**, because UAC will prevent the normal privilege program (Win Explorer) from passing data to the higher privilege one (SIGNAL running as administrator).

Drag & drop functionality can be restored by using an Explorer substitute such as Explorer++, **launched with Run as Administrator**. Explorer++ and SIGNAL privilege levels will then match and drag & drop can proceed.

Here are instructions to implement this:

1. Download and install Explorer++ <https://explorerplusplus.com/>
2. Create a shortcut for Explorer++ and configure the shortcut to run as administrator. In Win7, R-click on the shortcut, select Compatibility, click Change settings for all users, then select Run this program as an administrator.
3. Launch SIGNAL.
4. For testing, drag a signal from Win Explorer to SIGNAL. The drag & drop should be ignored.
5. Then drag a signal from Explorer++ to SIGNAL. The drag & drop should be successful.

Sound I/O with Windows 10

SIGNAL sound I/O such as playback from the graphics cursor and I/O | Play on the main menu has been tested using the built-in Windows sound hardware in Windows 10.

SIGNAL sound I/O using National Instruments I/O boards has not been tested in Windows 10 and may require a SIGNAL patch – contact Engineering Design.

Windows Vista/7/8/10 issues resolved

The following issues with Windows Vista and later are resolved in SIGNAL 5.06.02 and later.

- The SIGNAL **security key** driver did not support Windows Vista or later. The SIGNAL installer now installs a key driver compatible with all Windows versions.
- **Sound playback from the graphics cursor** (e.g., the <p> key). Early SIGNAL 5 versions failed to play through the built-in sound chip. SIGNAL 5.05 performs uses Windows Media Player (WMP) for cursor playback. A small WMP window appears on-screen temporarily for the duration of the playback. Playback volume can be adjusted through the Windows sound controller.



SIGNAL 5.06 and later uses an internal playback driver (rather than WMP) for seamless sound chip playback, and restores the playback wiper, a blue vertical line that moves continuously across the screen in synchronization with the sound.

2-19-2021