

Updating Cleverscope

1 Scope

This document shows you how to update the application using the Cscope Update 46xx download from the downloads section on our website and how to update the firmware inside your Cleverscope.

2 Important

The Rom Loader has changed. From now on please use **ONLY** Rom Loader **6.0** or later, as included with this update.

This Rom Loader loads each variety of cleverscope (classic, A version USB, and Ethernet). It also uses a unified file that contains all the version information required. The format of this file is cscope_fw 64xx 53xx.cmf

Update to Calibration Table

We have updated the calibration tables for Cleverscope application versions 6442 and later. If you have been using 6441 and earlier, you will need to do a *Once Yearly*, followed by *Standard* calibration. Instructions are at the end of this document.

Full Install

This document only covers the updater, which assumes you already have an install on your PC. See section 7 if you want to install for the first time.

If you have un-installed Cleverscope using the Windows un-install process, you will need to do a full install. The updater will not work.

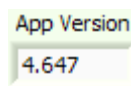
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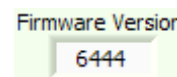
4 To Start

If you already have Cleverscope installed, use Auto to acquire a signal (which gets the CS328A Cleverscope Acquisition Unit – CAU - information into the PC memory), and then use the menu Help/About Cleverscope to get the App Version Number and Firmware version number. Record these for use below.

If the App Version number starts with 3.2 or 3.3 please see the heading ‘To update an old installation’ below before starting.



Please note: if you are using application 4.624 or earlier we have updated the USB drivers to use National Instruments NI-VISA® drivers. If you do not have the Visa run-time installed, you will need to install it. The Installation update program (see the next section) will do this for you.



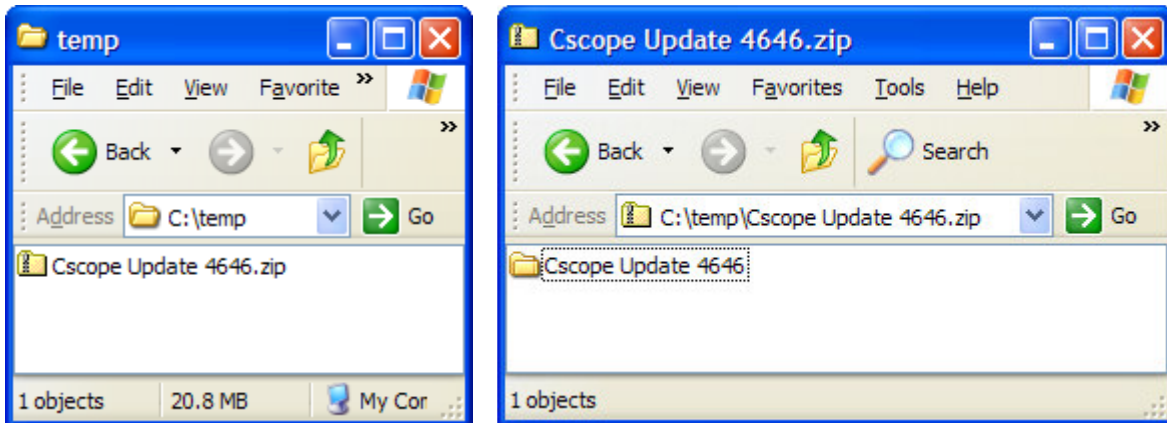
4.1 Important

After verifying the version numbers, and you decide to update the Cleverscope application, please turn **off** the Cleverscope Acquisition Unit. This will ensure that drivers are correctly pre-loaded.

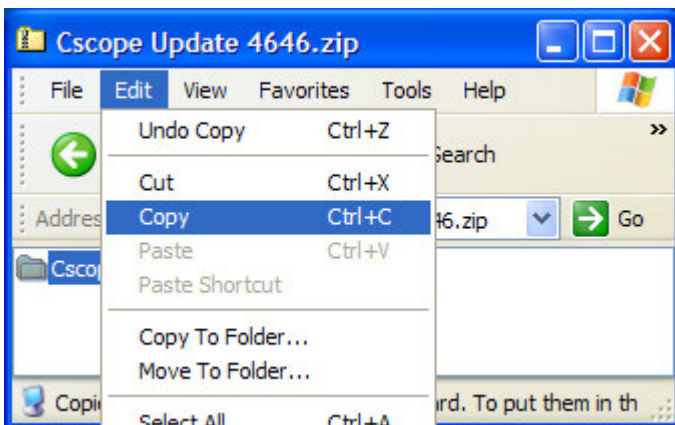
5 To update an existing Cleverscope Application

You can update an existing application by downloading the Cscope Update v64xx.zip file from the download page of the Cleverscope website at <http://www.cleverscope.com/download/>. This file is considerably smaller than a full install.

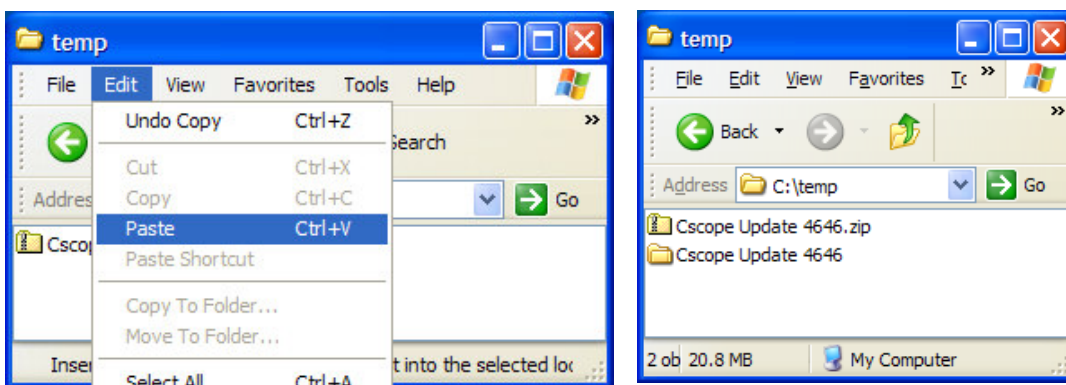
The update is provided as a Windows compressed folder. We assume you have placed the zip file in a suitable (or temporary) location, as shown on the left. Double click on the zip file and it will open, as shown on the right:



Highlight the 'Cscope Update 46xx' folder and choose Edit/Copy, or use Ctrl C.

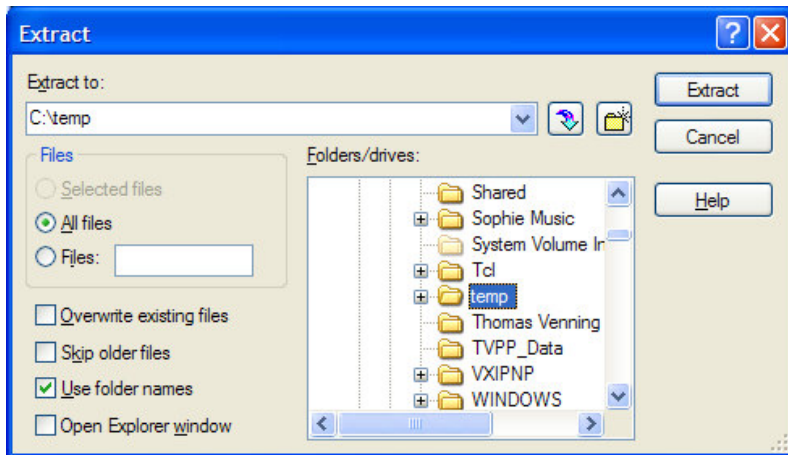


Use the 'Back' button (or the Backspace key) to go up one folder level, and choose Edit/Paste or Ctrl V to paste the folder into the target directory. You should finish as shown on the right:

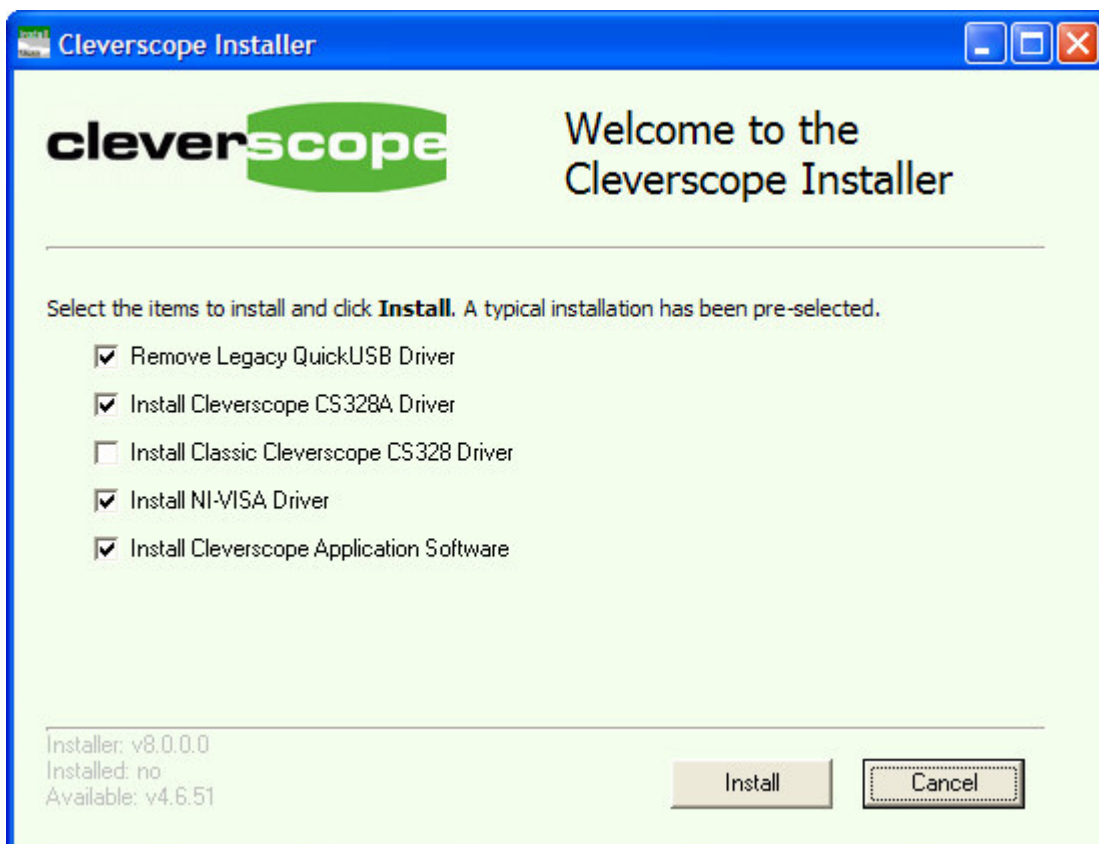


We do this because you can not run the setup.exe from inside the zip.

Alternatively, but not recommended, you can also use Winzip. Open the 'Cscope Update 64xx.zip' archive, and then click on 'Extract'. Make sure you click the 'Use folder names' option, and set the folder to extract to:



Next go into the 'Cscope Update 46xx' folder you have created and double click setup.exe. The Cleverscope Installer window will open, and you are presented with four or five choices. Those choices that are already up to date will not be ticked. However, you can still force an update if required by ticking the option. If you are updating drivers, ensure the Cleverscope Acquisition unit is turned **off**.



Click 'Update Cleverscope Application Software', and the installer will update your current copy of Cleverscope, and any drivers you have chosen. Once finished, click the 'Finished' button to exit the installer.

This completes the application update process. This process does **not** update the firmware. See section 6 for updating firmware.

To use the Cleverscope acquisition unit, plug it in, and turn on the power. If the drivers were updated, the driver will be automatically loaded in Vista or Windows 7. In XP choose to update without connecting to the web, and take defaults from there on.

5.1 *Using the Cleverscope application with a Classic CS320/8*

If you are updating the Cleverscope application, and you plan to use the application with a Classic CS320/8, and you have not used the Classic CS320/8 before, you will need to install the Classic Cleverscope CS328 Driver by ticking the option. Classic Cleverscopes have a serial number of less than 4000.

5.2 *Updating Cleverscope applications prior to 6430.*

If your Cleverscope application had a version number prior to 6430, it may have been using the legacy QuickUSB driver (CS328A versions only). This driver is no longer used. If the driver is not required by another application, an additional option will be displayed 'Remove Legacy QuickUSB Driver'. If this option is selected, the QuickUSB driver will be removed. Make sure you **restart** the computer after the update is complete.

The next section details how to update the firmware.

6 Firmware Update

Some Cleverscope releases require the firmware inside the application unit to be up to date to take advantage of the latest features (you can always use earlier versions of the firmware without the added functionality).

Look inside the release, into the Executables folder. You will see a file of the format 'cscope_fw64xx 53yy.cmf'. The xx gives the current firmware version number. Compare this with the current firmware version. If they are not the same, you will need to update the firmware to gain full advantage of any changes. Note that the cmf file contains the firmware for both CS328 Classic and CS328A versions.

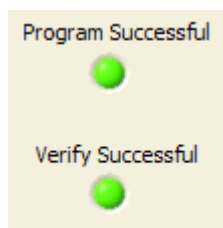
6.1 To update the firmware in your Cleverscope Acquisition Unit

When you did the update above, a firmware file of the form 'cscope_fw53xx.csf' (for CS328/0) or 'cscope_fw64xx.csf' (for CS328A/0A) will have been loaded into your Cleverscope directory. Look at the four digits 53xx/64xx. Are they the same as the Firmware version number currently in the CAU (see intro above)? If not you should update the CAU firmware.

To do this, carry out the following steps:

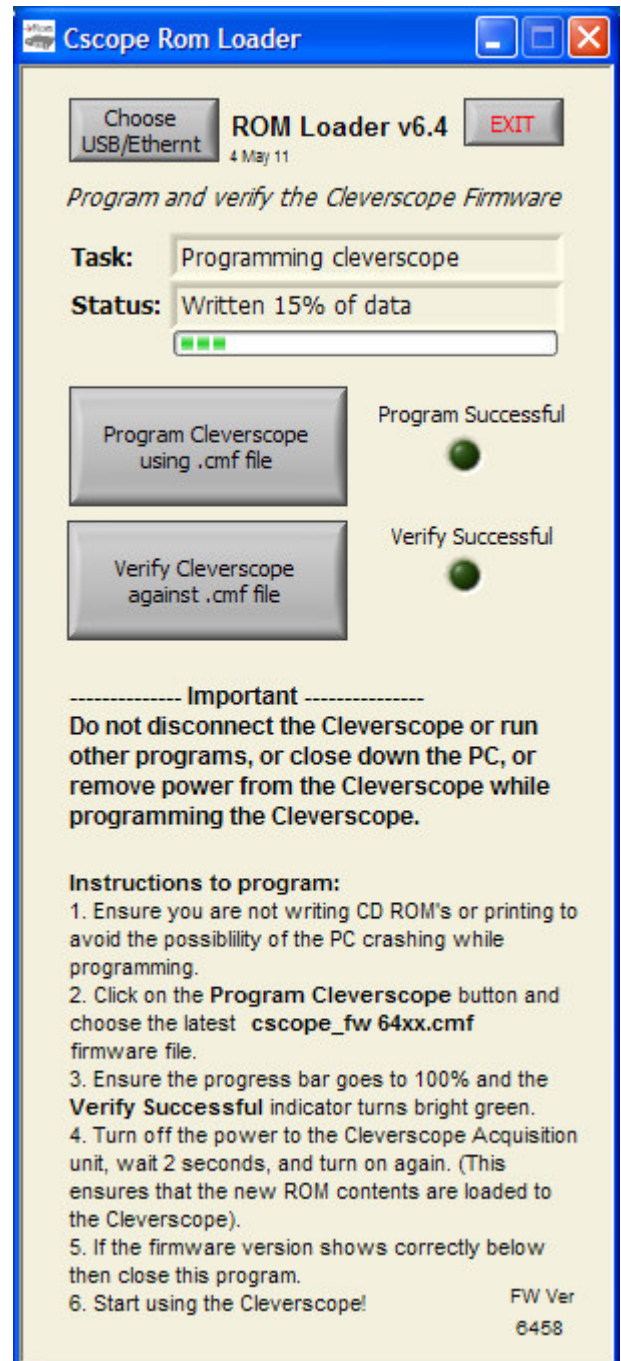
1. Connect the CAU, and cycle the power on it (turn it off, wait 5 seconds, turn it on), to ensure a fresh start.
2. Start 'Cleverscope Rom Loader.exe', a file that is included in the update, and will be in your Cleverscope directory. **Important:** do **not** run any other applications, write CD's or do printing while the update is in progress. If power is lost to the CAU during the update you may have to return the unit to the factory.
3. Click on 'Program Cleverscope using .cmf file'. Navigate to the Cleverscope directory. Choose the newest cscope_fw64xx 53yy.csf (the file contains firmware for all versions of Cleverscope). The programmer should now write the firmware to the CAU in 3% increments, and light the 'Program Successful' light when complete.

ROM Loader will then proceed to automatically verify the download. If the program and verify were successful you should see:



If not please repeat this step.

4. You may verify the correct .csf file is loaded at anytime by clicking on the 'Verify Cleverscope against .csf file' button.
5. **Important:** Turn off the power to the CAU. Wait 5 seconds. Turn the power to the CAU back on again. This forces the FPGA inside the CAU to reload the firmware from ROM. Verify that the green power light is on.
6. Check that the FW Ver shown on the bottom right of the Rom Loader panel now matches the version you programmed.
7. Close Rom Loader. Your firmware update is now complete.



6.2 Ethernet firmware update

To update the firmware in an Ethernet Cleverscope click the Choose USB/Ethernet, and choose an interface source of Ethernet – Find by IP address. Click on the Cleverscope to program in the list, and proceed as above.

7 To install Cleverscope for the first time

If you are installing Cleverscope for the first time on a new PC, you can get the latest installation from the website at <http://www.cleverscope.com/resources/>. Look for the [Full WinXP/Vista Install](#).

Cleverscope no longer supports Win98. If you need a Win98 version, please look at the resources page (<http://www.cleverscope.com/resources/>) for the last version available.

Steps are:

1. Download the installation zip. Drag the contained folder out of the zip and put it into a temporary folder somewhere.
2. Open the folder, and run setup.exe. You will see the Cleverscope Installer (as on page 2). Tick the options you want (make sure you click 'Install Legacy Cs328 driver' if you have the classic CS328 (with a serial number less than 4000). Follow the prompts, and Cleverscope should be installed, including pre-installed USB drivers. If required, please click the 'Continue Anyway' button while installing the USB drivers.
3. Connect up the acquisition unit - you'll need to plug in the power adaptor, and the USB cable to a spare port.
4. The PC should discover the USB connection and display 'Cleverscope CS328 MSO' or similar. Just wait after this for Windows to load the driver request dialog. (It might take some seconds as some installations go looking on the internet for a driver). Once the dialog comes up, choose to find the driver automatically. Windows will find the driver and install it. It will warn you that it is not digitally signed. Just carry on - we are still waiting for the digital certificate, and no harm will come to your machine. After some more work Windows should announce that the hardware is installed. For Vista this process should happen automatically.
5. Startup Cleverscope (it will be in the Start Menu. You can drag it to the desktop if desired).
6. Click on 'Auto' in the Cleverscope Control Panel, and the graph should become live.
7. Exit Cleverscope (File/Exit) or close button.
8. Now follow the section 'Using the CS328 acquisition unit', page 18 of the manual to set up the probes. The manual will be in your start menu bar, or in the program files\cleverscope directory.

8 To update a first generation installation

If your application begins with 3.2 or 3.3, you have an old run time library. You will need to do a new install to obtain the new run time library.

Please carry out the following steps:

1. Rename the 'program files\cleverscope' directory to 'program files\cleverscope_old'. Do **not** un-install the old application.
2. Carry out the steps in 'To install Cleverscope for the first time', above.
3. Update the firmware in your CAU, by following the steps in 'To update the firmware in your Cleverscope Acquisition Unit'.

If you are one of the very few customers with a CAU with a serial number beginning with 'A00' please contact Cleverscope at support@cleverscope.com before attempting an upgrade.

9 Using Windows 98SE, ME and NT

If you use Windows 98SE, ME or NT you will need to download the correct installation or update from the Cleverscope website. You can find these at <http://www.cleverscope.com/resources/>. These operating systems are no longer supported, and are only available for the classic CS328.

10 Calibration for versions 6442+

If you are upgrading from a version prior to 6442 to 6442 or later, you will need to do a One-time full calibration. The calibration table has changed, and the calibration will update it.

You will need a Philips screwdriver to undo the two screws under the Cleverscope Acquisition unit. Remove the lid, and power up. Leave it powered for 30 minutes to become temperature stable.

To carry out the calibration follow these steps:

1. Update your Cleverscope application to the latest.
2. Ensure your Cleverscope has the latest firmware in it.
3. Run the application, and use Auto to acquire. You should see a trace on the screen.
4. Start *Settings/Calibrate Cleverscope*.
5. Choose the *Once Yearly* Tab

(i). Take two cleverscope scope probe, and set the probe switches to 'Ref'. This shorts the probe tip to ground. Connect one to Chan A and the other to Chan B. Do not connect the probe tip to anything else. Click the 'Begin Closed Ground Measurement' button..

(ii). When the button changes to 'Begin Open Measurement', remove the probes, and click the 'Begin Open Measurement' button.

(iii) When the button changes to 'Begin Ref A Measurement', set the probe switch to 1x, plug one probe into Chan A, connect the ground clip to the front panel test pin with the earth symbol above it, pull off the grabber tip if fitted, and probe the via or component pointed at by the red arrow in the picture. Use firm pressure. It is about 40mm in from the front panel Ext Trig BNC. Click the 'Begin Ref A Measurement' button.

(iv) When the button changes to 'Begin Ref B Measurement' move the probe to Chan B, and repeat.

(v) When the button changes to 'Finish' you have completed the 'Once Yearly' Calibration.

6. Now carry out a standard calibration. Click on the 'Standard' tab. Remove the scope probe from the front panel. Click 'Start Self Calibration'. Have a cup of coffee ! When completed click the 'Finish' button. Do an Auto to ensure correct action. You may wish to carry out a Sig Gen calibration if you have one.
7. Replace the lid, being careful to correctly trap the front/rear labels in the groove, and do up the screws. You are done.

