

Firmware Upgrade Process for the N4960A BERT System

What you will need

- PC running Windows, with the N4980A Multi-Instrument BERT Software installed. Latest version available online: www.agilent.com/find/N4980A.
- N4960A Clock Synthesizer/Serial BERT Controller.
- N4951A/B Pattern Generator (PG) and/or N4952A Error Detector (ED) remote heads which require upgraded firmware (FW).
- Firmware upgrade ZIP files for N4960A, N4951A, N4951B, N4952A, as applicable. Latest versions available online: www.agilent.com/find/N4960A, www.agilent.com/find/N4951A, www.agilent.com/find/N4951B, www.agilent.com/find/N4952A. Save the ZIP files to a convenient location on the PC, it is not necessary to unzip the files. Note that it is a different ZIP file required for each model number: N4960A, N4951A, N4951B, and N4952A.
- USB A -> B cable.

Notes

- Recommended upgrade order:
 1. Install latest version of N4980A software (approximate install time: 15 minutes)
 2. Upgrade N4960A Controller FW to the latest version (approximate install time: 15 minutes)
 3. Upgrade N4951A/N4951B/N4952A PG/ED FW to the latest versions (if upgrading more than one remote head, the order of remote head upgrade is not important). (approximate install time: 3 ½ to 4 hours per remote head; may be left unattended)
- If the starting version of N4960A Controller FW is older than version 2.02, it is recommended to disconnect the remote pattern generator and error detector heads and their cables from the N4960A controller before beginning the N4960A FW upgrade. Heads are not hot-pluggable, power the controller off to remove or connect remote heads. Once the controller is upgraded to version 2.10 or later, future upgrades may be performed with remote heads attached.
- Version 3.0.2718.0 or later of the N4980A Multi-Instrument BERT Software is required in order to upgrade the FW of remote heads (PG/ED).
- If not already done, you may need to load the USB driver for the N4960A.
- USB 3.0 ports are currently not supported by the N4980A software. Connect to the PC using a USB 2.0 port.
- This procedure is also compatible with SSB16000(J) systems.

Firmware Upgrade Process for the N4960A BERT System

Upgrading the N4960A Clock Synthesizer/Serial BERT Controller Firmware

1. Connect the N4960A Controller to the PC with the USB cable.
2. Launch the N4980A Multi-Instrument BERT Software and select 'Discover'.



3. After a brief time the N4960A system shows up in the N4980A main panel.



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4. Select 'Connect All' to allow the N4980A software to connect to the N4960A. A connect symbol will appear next to the N4960A item in the N4980A main window.

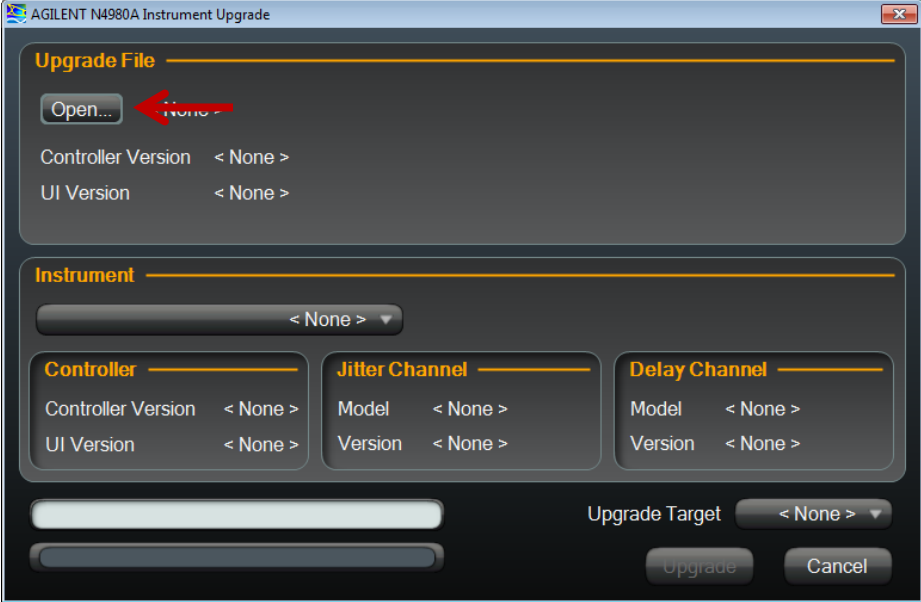


5. Select 'Instrument Upgrade ...' under the Tools menu.

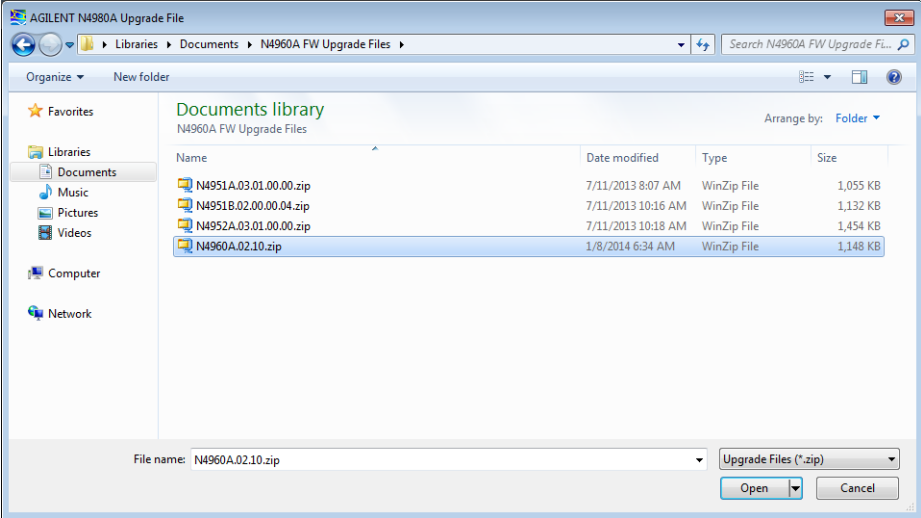


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6. In the Instrument Upgrade window, select 'Open' in the Upgrade File section to open a Windows browser.

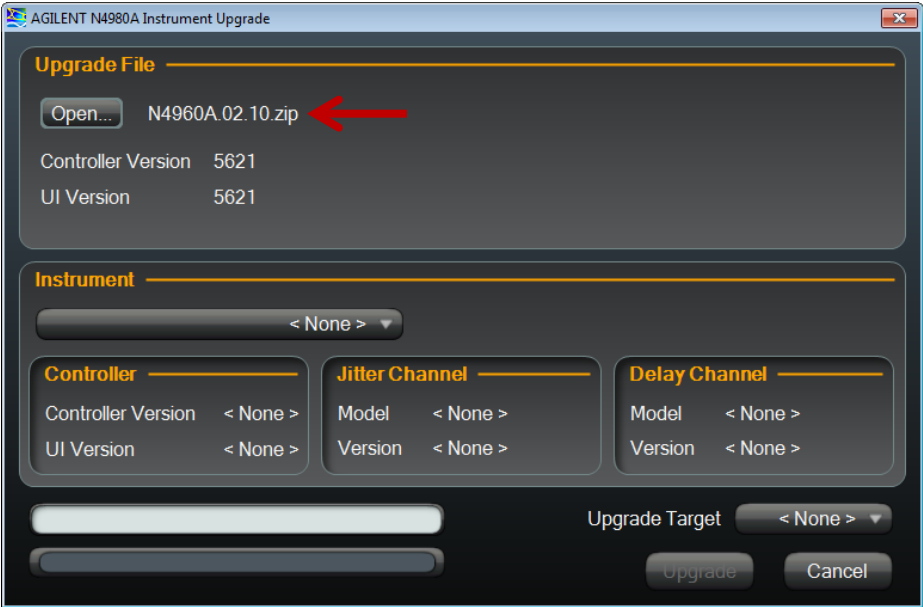


7. Navigate to the location where the N4960A FW Upgrade ZIP file is located, select, and click 'Open'.

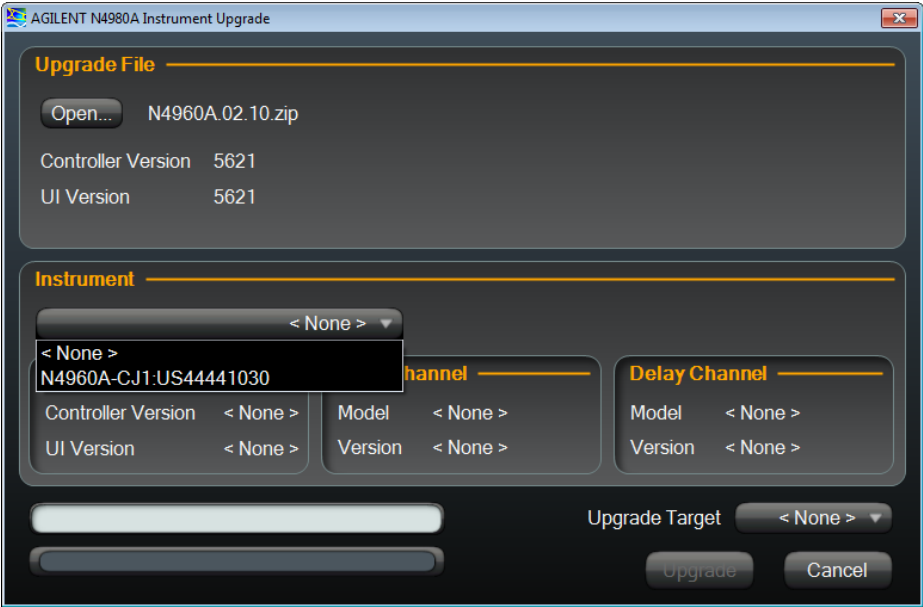


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- 8. Confirm that you have selected the correct FW ZIP file (the model and FW revision numbers are included in the filename).

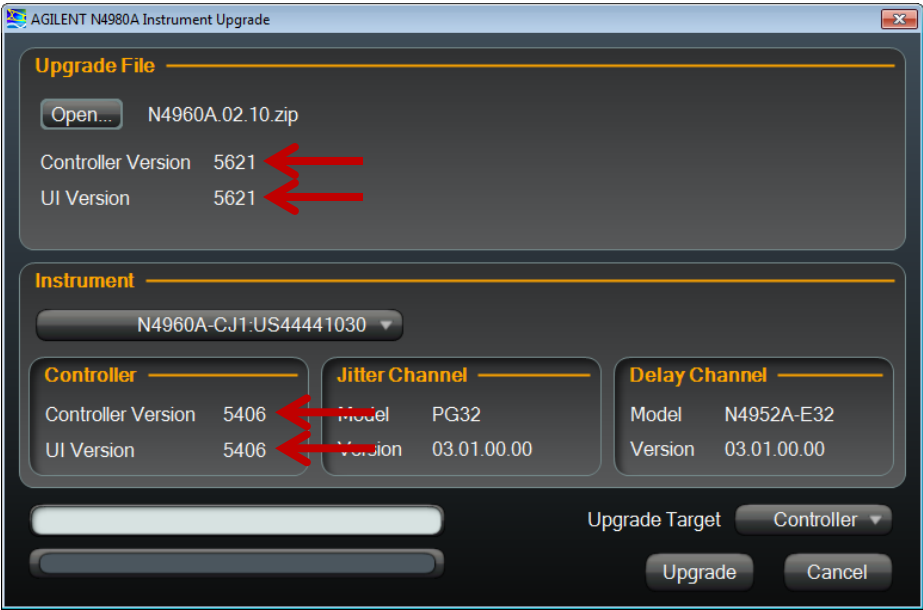


- 9. Select the N4960A system to be upgraded in the Instrument section of the window.

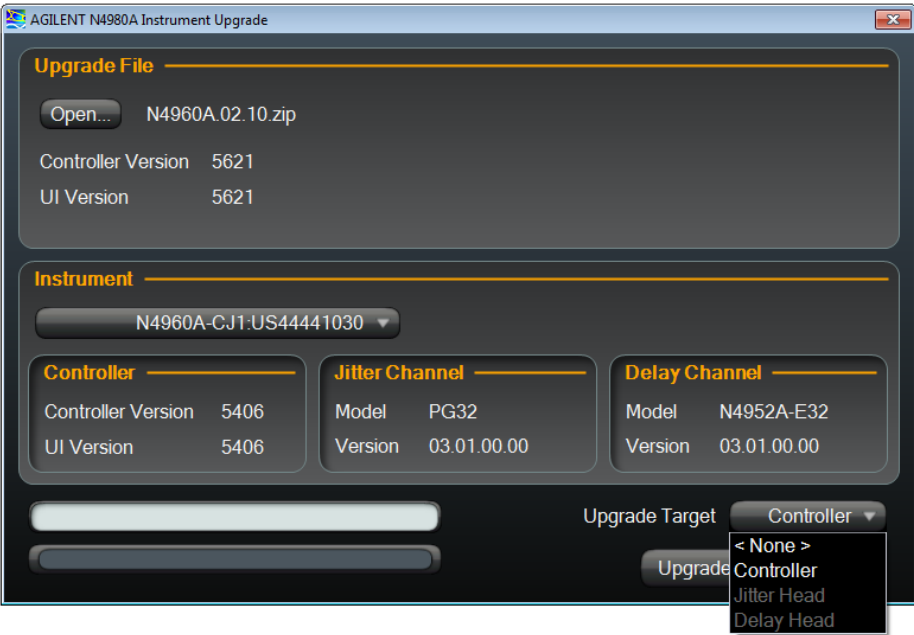


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10. The Instrument section of the window will show the current Controller Version and UI Version installed on the N4960A. If you are upgrading the firmware, these should be smaller numbers than the Controller and UI Versions listed in the Upgrade File section.



11. Select 'Controller' from the Upgrade Target combo box (invalid choices for the selected FW upgrade file will be greyed out).



Firmware Upgrade Process for the N4960A BERT System

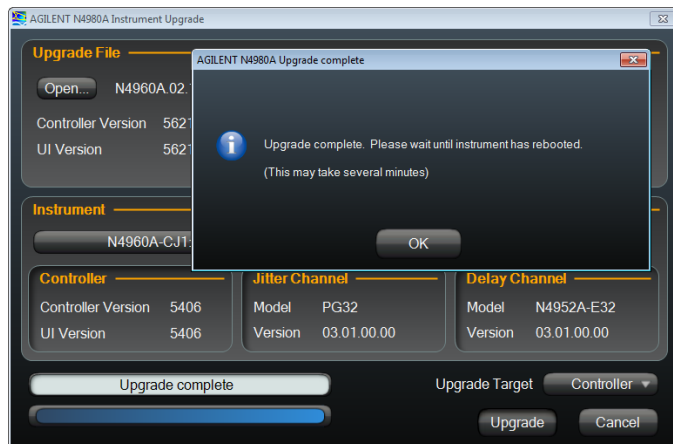
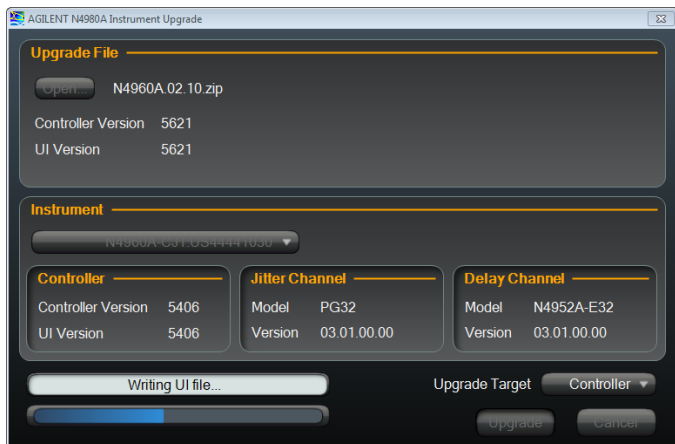
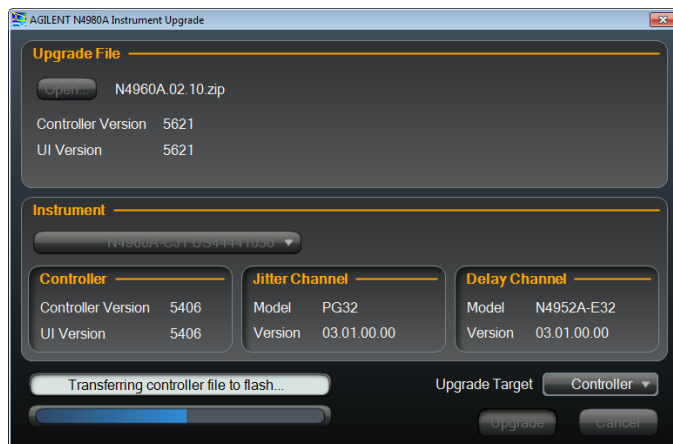
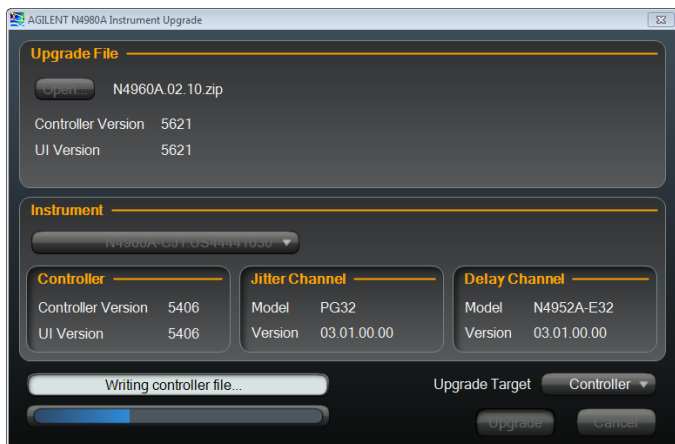
12. Select 'Upgrade' to begin the FW upgrade process. The controller upgrade process takes around 15 minutes to complete. During this process do not turn off the N4960A or close the N4980A software.

Note: If downgrading FW, a caution window will ask you to confirm before continuing. You should confirm and allow it to continue.



Firmware Upgrade Process for the N4960A BERT System

13. The status section of the Instrument Upgrade window will go through four stages: 'writing controller file', 'transferring controller file to flash', 'writing UI file', and 'upgrade complete'.



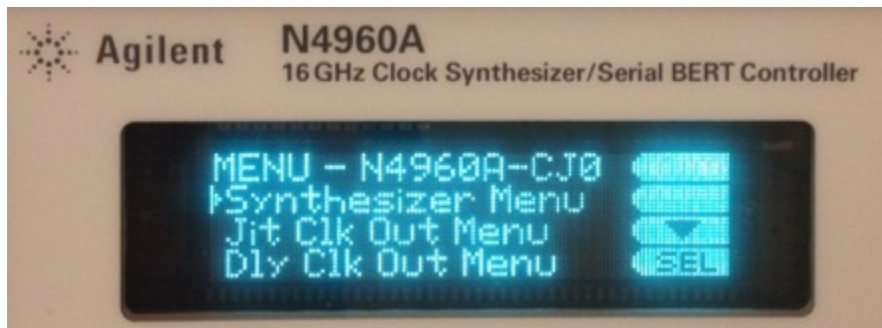
After clicking 'OK', the Instrument Upgrade window closes and the N4960A system is disconnected from the N4980A software.

Note that although the N4980A software has reported the upgrade as complete, it only indicates that the files have been transferred. The N4960A at this stage will re-boot. It may take several more minutes before the re-boot completes.

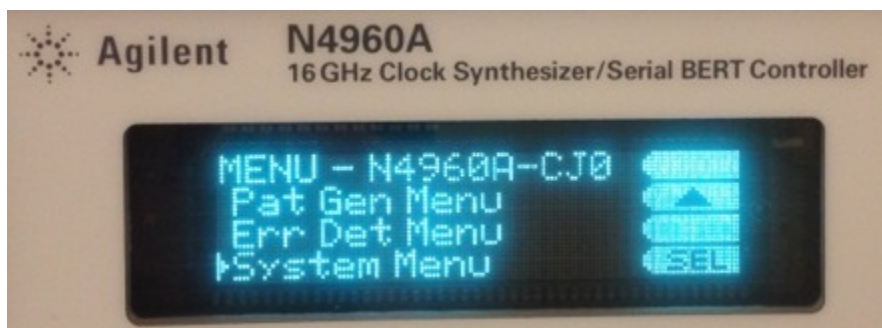
Do not power cycle the N4960A until the MENU screen appears

Firmware Upgrade Process for the N4960A BERT System

14. When the MENU screen appears, then power cycle the N4960A.



15. Once the N4960A has completed the power on boot (again this may take a few minutes), check the firmware revision from the front panel of the N4960A. Navigate to the System Menu, then to Instrument Info. Note that the FW revision number is as expected. If so, the N4960A FW has been successfully upgraded.



Firmware Upgrade Process for the N4960A BERT System

Upgrading the N4951A/B Pattern Generator or N4952A Error Detector Firmware

Note that this upgrade will take several hours for each remote head. You should not turn off the N4960A system during the upgrade process, however, it is okay to leave the system unattended once the upgrade process has begun.

1. Power on the N4960A Controller with the desired remote head attached.
 - Error Detectors may only be connected to the Delay port.
 - Pattern Generators may be connected to either the Delay or Jitter port.
 - Remote heads are not hot-pluggable, power the controller off to remove or connect remote heads.
2. Connect the N4960A Controller to the PC with the USB cable.
3. Launch the N4980A Multi-Instrument BERT Software and select 'Discover'.



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4. After a brief time the N4960A system shows up in the N4980A main panel.



5. Select 'Connect All' to allow the N4980A software to connect to the N4960A. A connect symbol will appear next to the N4960A item in the N4980A main window.

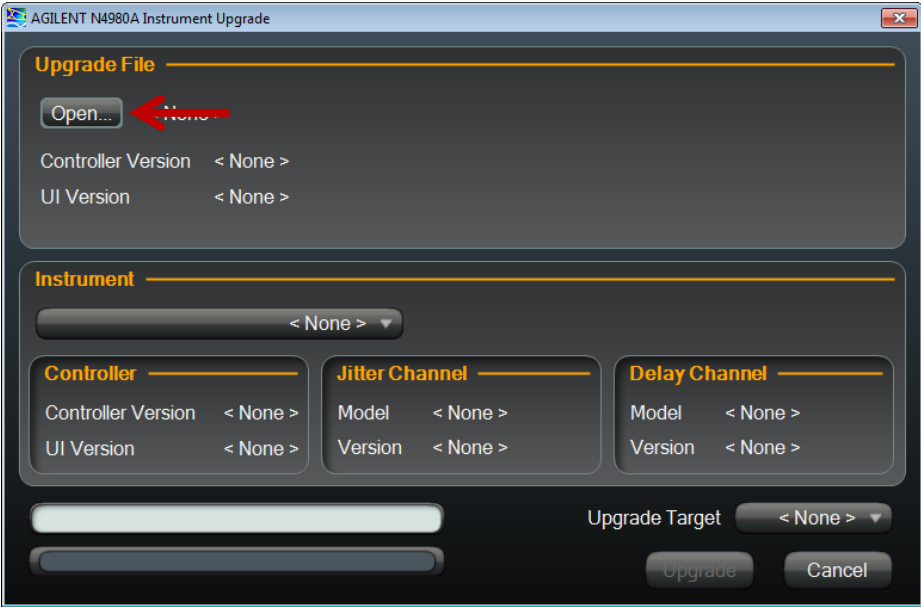


Firmware Upgrade Process for the N4960A BERT System

6. Select 'Instrument Upgrade ...' under the Tools menu.

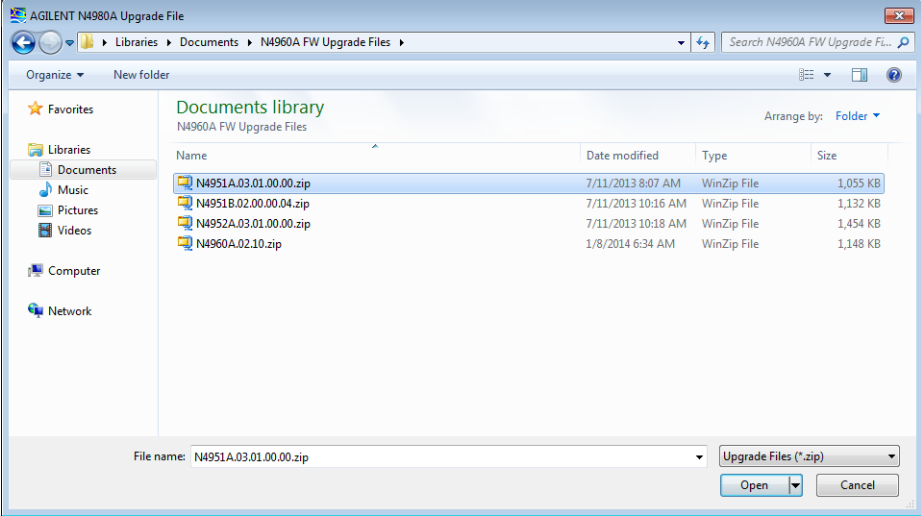


7. In the Instrument Upgrade window, select 'Open' in the Upgrade File section to open a Windows browser.

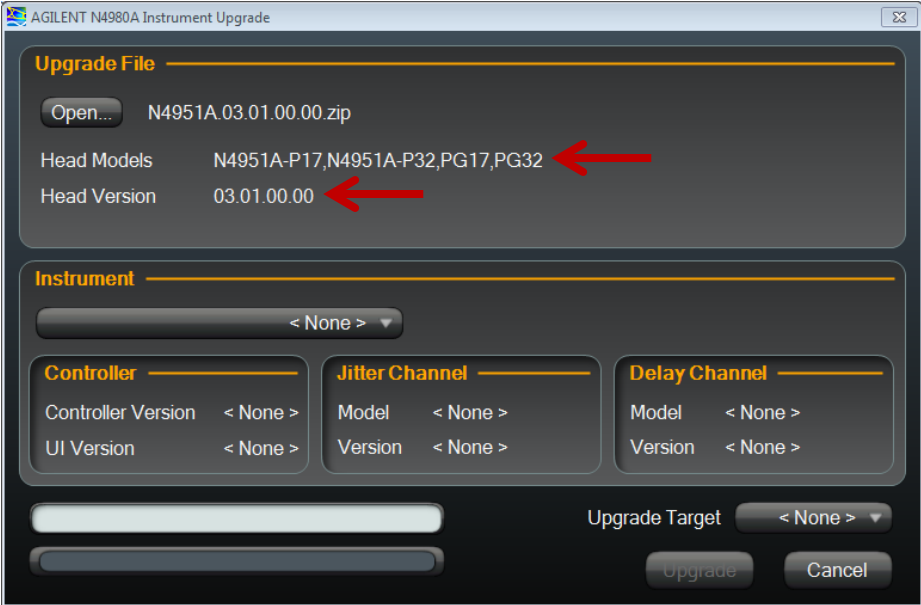


Firmware Upgrade Process for the N4960A BERT System

8. Navigate to the location where the desired remote head FW Upgrade ZIP file is located, select, and click 'Open'.

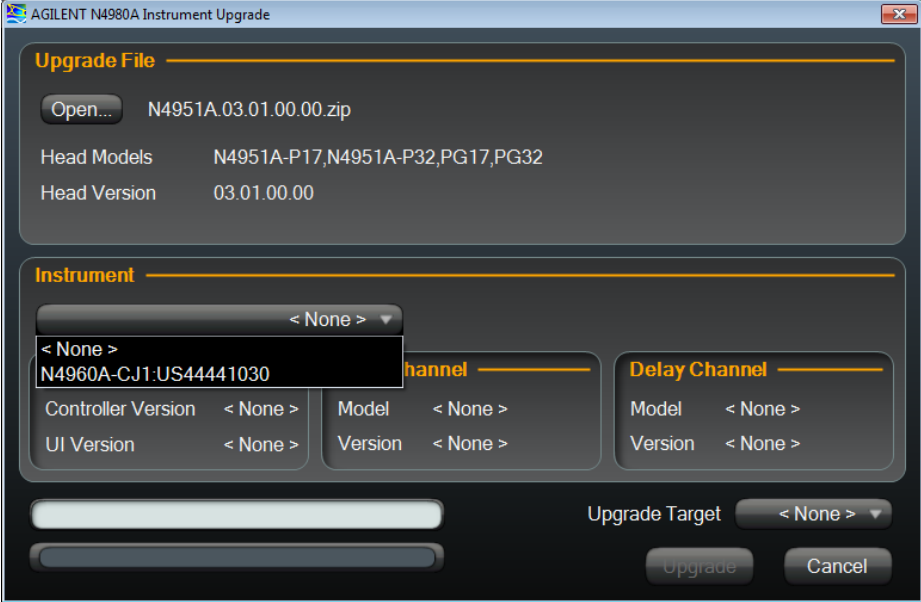


9. Confirm that you have selected the correct FW ZIP file. Valid model numbers and the upgrade FW version are listed in the Upgrade File section of the window.

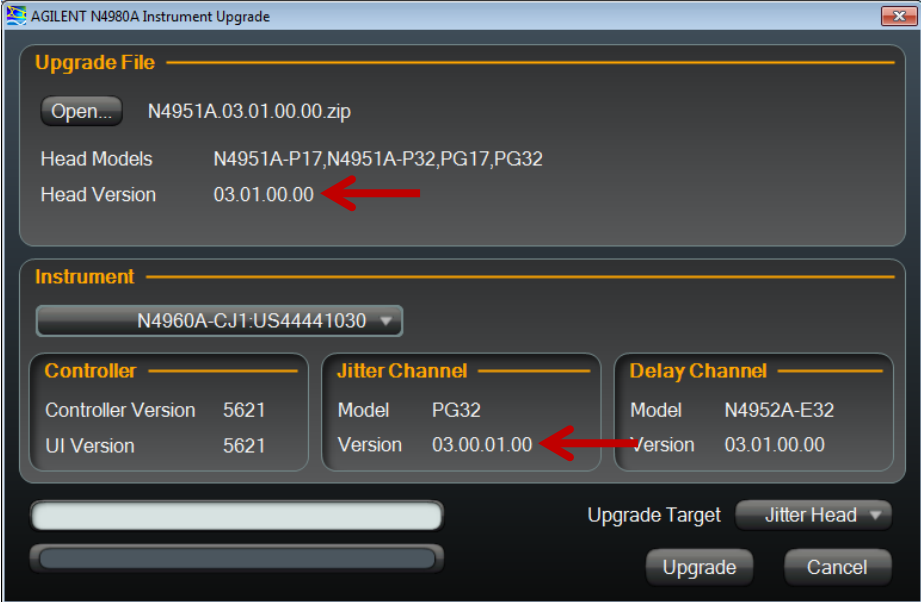


Firmware Upgrade Process for the N4960A BERT System

10. Select the N4960A system with the remote head to be upgraded in the Instrument section of the window

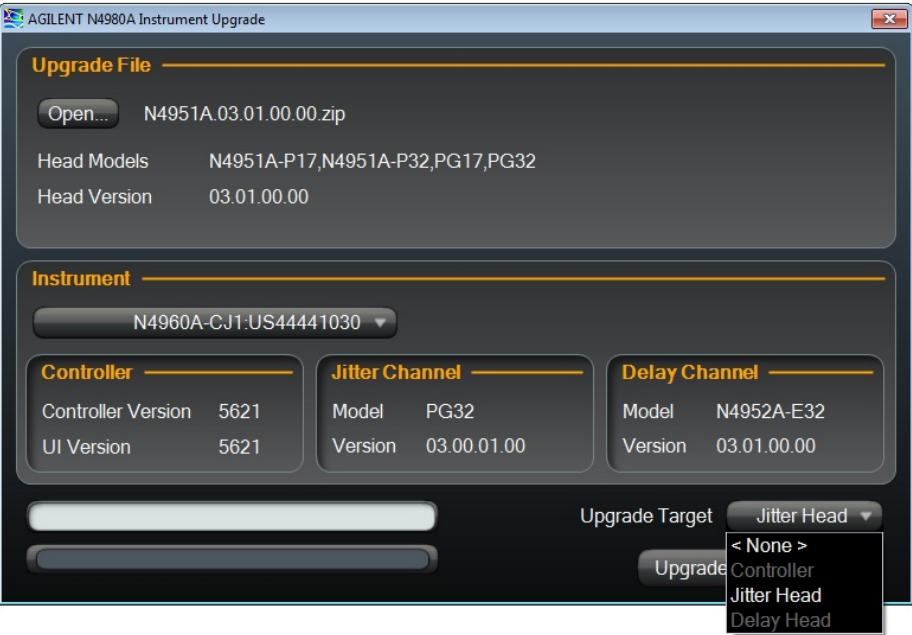


11. The Instrument section of the window will show the current FW Version installed on each attached remote head. In this example, it is the PG32 connected to the Jitter Channel that is of interest.

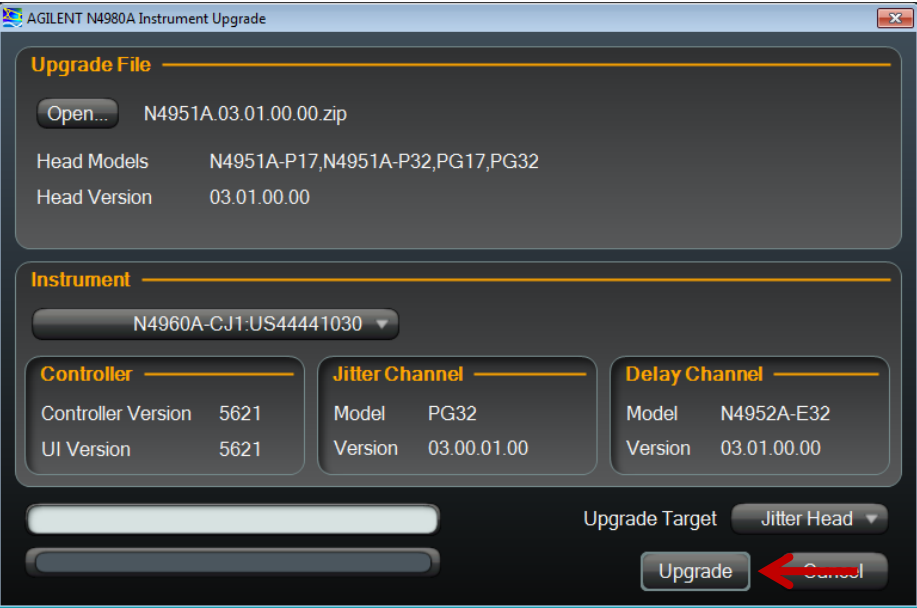


Firmware Upgrade Process for the N4960A BERT System

12. From the Upgrade Target combo box, select 'Jitter Head' or 'Delay Head' depending on which port the target remote head is connected to (invalid choices for the selected FW upgrade file will be greyed out).

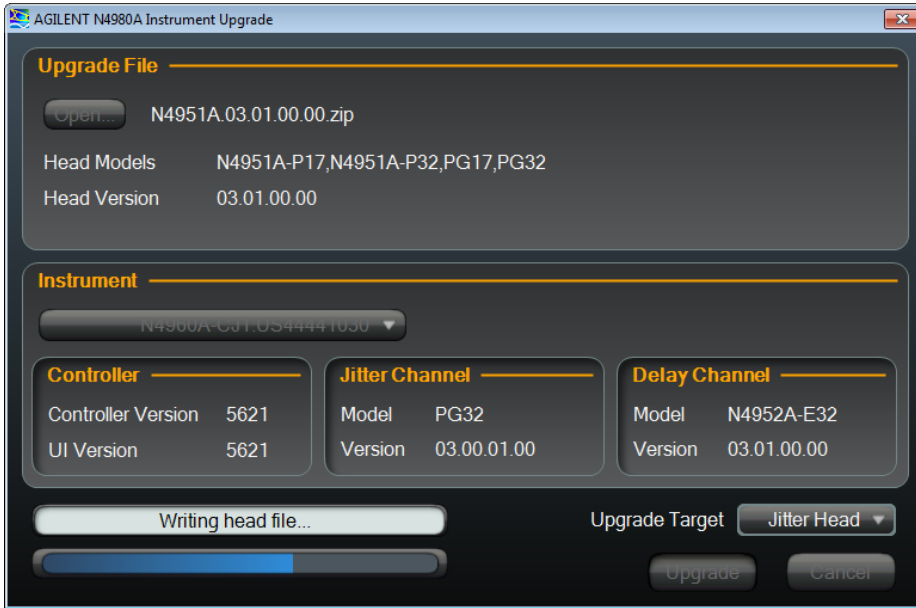


13. Select 'Upgrade' to begin the FW upgrade process.

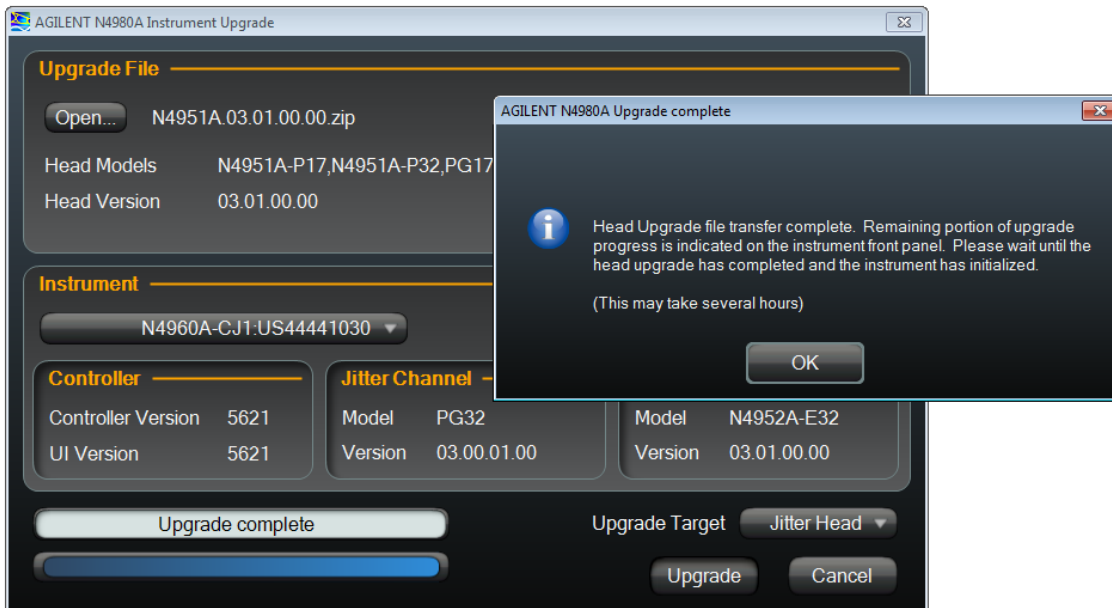


Firmware Upgrade Process for the N4960A BERT System

14. The first stage of the upgrade process is for the N4980A software to transfer the FW file to the N4960A system, 'writing head file...'. This takes about 15 minutes. During this stage do not turn off the N4960A or close the N4980A software.

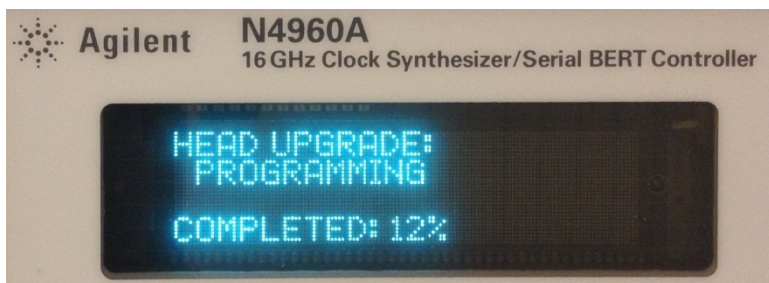
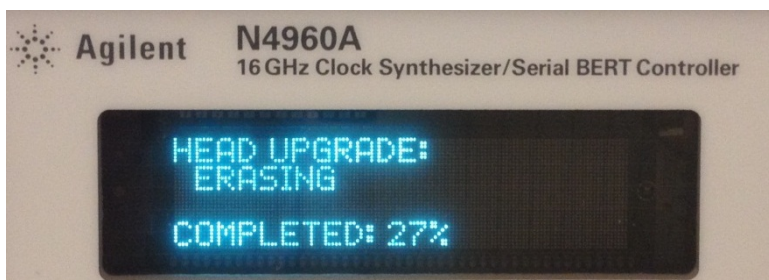


15. After clicking 'OK', the N4980A software disconnects from the N4960A system and it is okay to close the N4980A software. **Do not turn off the N4960A system.**

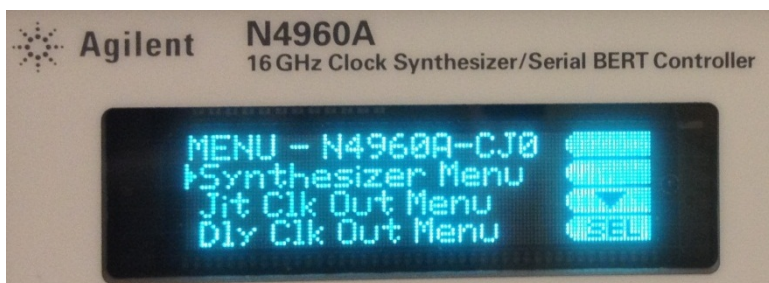


Firmware Upgrade Process for the N4960A BERT System

16. The front panel of the N4960A system will go through three remaining stages: 'initializing', 'erasing', and 'programming'. The initializing and erasing stages take about 10 minutes, combined. The programming stage takes about 3 ½ hours. During this process you should not turn off the N4960A, however, it is okay to leave the system unattended. Should the upgrade be interrupted by an unexpected event, such as a power outage, you should restart the FW upgrade process, beginning with step 3 on page 10, and allow it to complete.

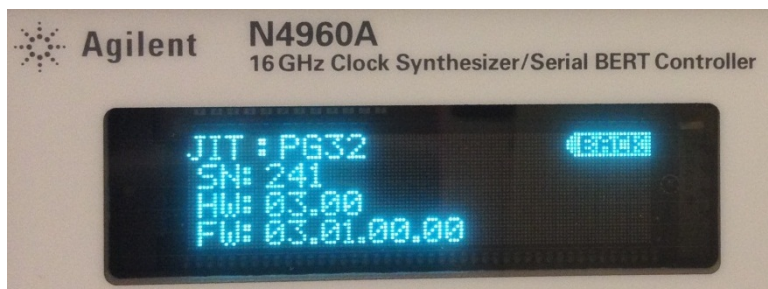


17. Wait for about 5 minutes after the programming stage is complete, if the N4960A system does not reboot and come back to the main MENU display, then you should manually power cycle the N4960A.



Firmware Upgrade Process for the N4960A BERT System

1. Once the N4960A has completed the power on boot (again this may take a few minutes), check the firmware revision from the front panel of the N4960A. Navigate to the System Menu, then to either Jit Head Info or Dly Head Info, depending on whether the upgraded remote head is connected to the Jitter or Delay port. Note that the FW revision number is as expected. If so, the N4960A remote head FW has been successfully upgraded.



For further support, please contact post-sales_cent-berts@agilent.com