

UPDATE PROCEDURE FOR SOFTWARE VERSION 3.50

BIS™ monitoring system



BEFORE YOU BEGIN THE UPDATE

1. Check the current software version of your BIS™ monitor. Go to MENU > NEXT > CONFIGURATION. The software version can be identified at the application line.
2. Next, check the current software version of your BISx™ LoC2 or LoC4 modules. Connect the BISx™ module interface cable to the monitor and go to MENU > NEXT > CONFIGURATION > NEXT. The software revision can be identified at the software revision line. The BIS™ monitoring system software version 3.50 only supports BISx™ LoC2 or LoC4 modules with software revisions 1.13 and above. If this is your current revision, follow the instructions outlined below.

If your current BISx™ LoC2 or LoC4 module software revision is 1.12 or below, our experts will manage your upgrade or exchange at the nearest Medtronic service center. Please contact your local Medtronic representative or technical services at 1-800-635-5267 — or find your local service center [here](#).

If your current BISx™ LoC2 or LoC4 module software revision is 1.12 or below, and your BIS™ monitoring system software version is 3.50, the error message “Unrecoverable BISX error 504 [1504]” will appear on the screen.

For monitor software versions 3.22, 3.25, and 3.26

Follow the instructions outlined in this guide to update directly to version 3.50.

For monitor software version 3.01

Follow the instructions outlined in this guide to update the monitor to versions 3.22 and 3.50 in successive order.

For monitor software version 2.0

Follow the instructions outlined in this guide to update the monitor to versions 3.01, 3.22, and 3.50 in successive order.

If your BIS™ monitoring system software version is older than 2.0, our experts will manage your upgrade at the nearest Medtronic service center. Please contact your local Medtronic representative or technical services at 1-800-635-5267 — or find your local service center [here](#).

Please note: If your BIS™ monitor is connected to EMR/EHR or multiparameter monitors (MPM), go to MENU > NEXT > NEXT > MAINTENANCE > SERIAL PROTOCOL. Identify which serial protocol (Vista Binary/Legacy Binary/ASCII) is selected. This is the serial protocol required to update to software version 3.50. (Note: write down the serial protocol setting for use later during the upgrade process.)

PREPARATIONS

Selecting the flash drive*

The USB flash drive requirements to upgrade the BIS™ monitor include:

- Storage size of 4GB or less
- Ability to support USB 2.0 or lower. Do NOT use USB 3.0 or higher.
- A USB type-A connection

We recommend the following flash drives:

- SanDisk: Manufacturer model SDCZ50-004G
- Apacer: Manufacturer model AP4GAH322B-1

*An empty flash drive is required to complete the update.

Preparing the upgrade files on the USB flash drive

1. Go to the Sales and Support section of the [Medtronic upgrade site](#).
2. Click "Software" > "BIS™ VISTA Software Versions Update" > "Download and Install BIS™ Monitor Software Version 3.50."
3. Select the software you would like to download from the three compressed folders. See the previous section for a guide to selecting the appropriate software.
4. Download the zip folder and extract the contents to a computer.
5. Copy **only** the extracted folder contents into the flash drive root folder. Do NOT change the name of the files. Once the files are copied to the flash drive, you are ready to begin the update.

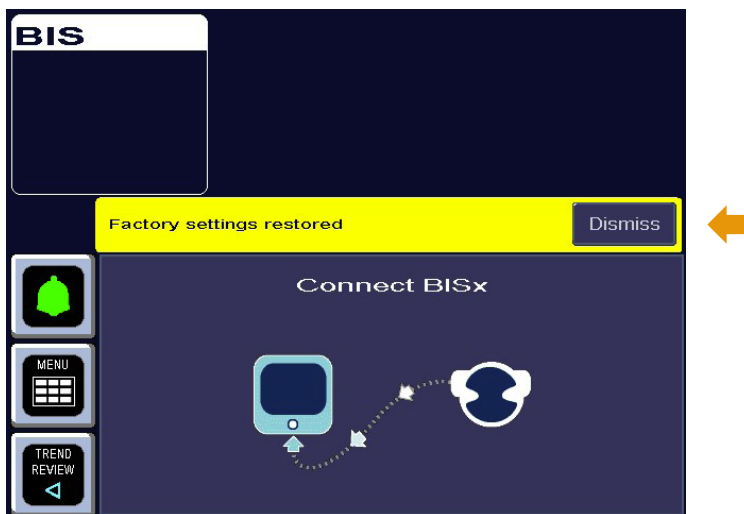
Please note that you should only copy one software version to the USB flash drive at a time. The flash drive shouldn't contain any files other than those required for the update.

When completing consecutive updates, you must delete all previous files before copying the next software version or use multiple USB flash drives. For example, after updating your monitor to version 3.22, you must delete all files before copying version 3.50 to the flash drive. To avoid errors, you may consider using separate flash drives for each version update.

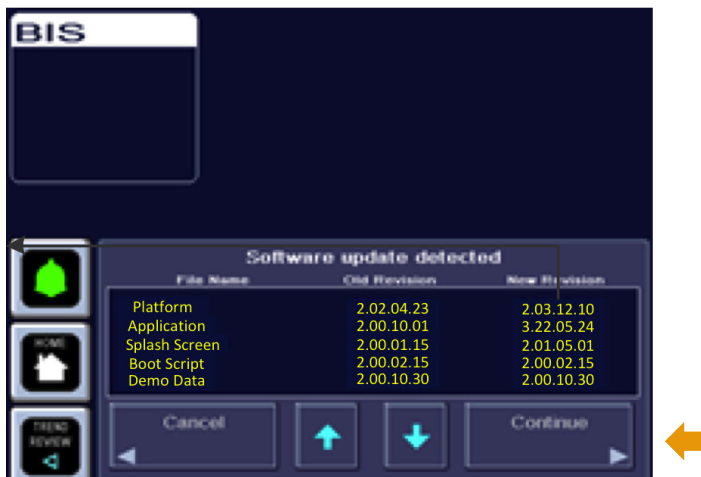
START THE SOFTWARE UPDATE

A. Before any update, please do the following:

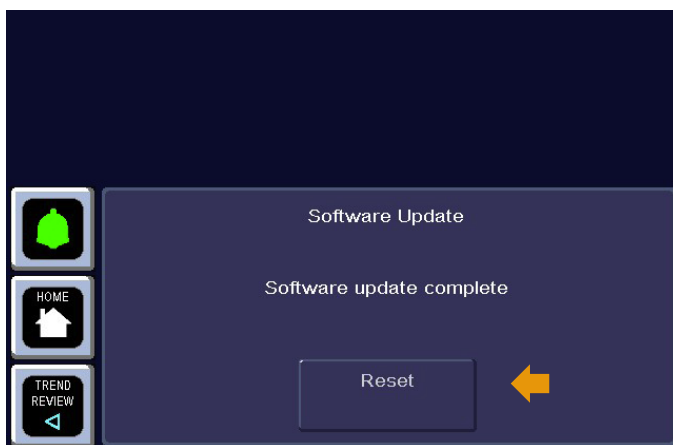
1. Power down the monitor.
2. Disconnect all cables from the monitor and only reconnect the AC power cable.
3. Turn on the monitor and allow the monitor to reboot.
4. If prompted, press DISMISS.



- B. Once the USB flash drive is equipped with the necessary update files, insert it into the USB port on the rear of the monitor.
Wait for the monitor to recognize the USB flash drive — approximately 20 seconds.
- C. Go to MENU > NEXT > NEXT > MAINTENANCE > SOFTWARE UPGRADE.
- D. A list of files will appear. Press CONTINUE. If the list of files doesn't appear, repeat steps A, B and C.



- E. The software update will begin and take a few minutes. **Do not remove the USB flash drive or AC power cord or reset the monitor during this time.**
- F. A message will appear indicating the software update is complete. Remove the USB flash drive. Press RESET.



- G. Allow the monitor to reboot. In some cases, it may reboot more than once.

Important: If you get error 4517, make sure the monitor is first updated to software version 3.22 or higher before proceeding with the version 3.50 update. If error 4517 persists, repeat steps A through F or try a different USB flash drive.

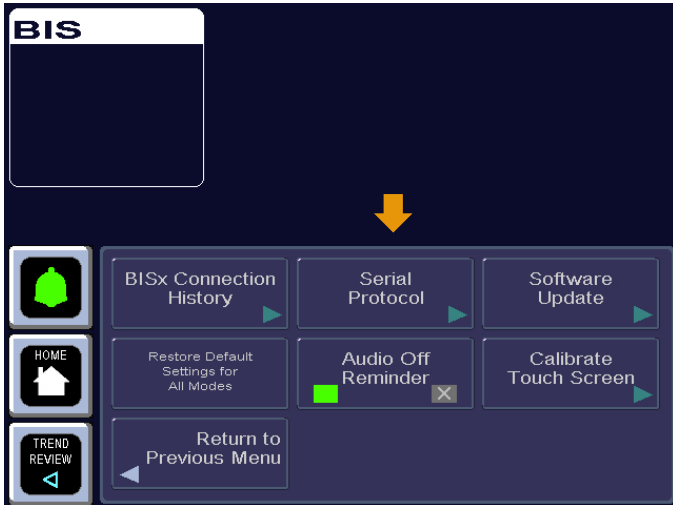
VERIFY THE MONITOR WAS UPDATED

- If prompted, press DISMISS.
- Go to MENU > NEXT > CONFIGURATION.
- The monitor application software version should now be 3.50 and the host protocol revision should be 1.13.

If the revision numbers have not been updated, then the software update was incomplete. Re-execute the software update starting at Step A. If the software update continues to fail, the USB flash drive may be faulty. If so, we recommend trying a different USB flash drive.

SETTING UP THE SERIAL PROTOCOL

- For BIS™ monitors connected to EMR/EHR or MPM, go to MENU > NEXT > NEXT > MAINTENANCE > SERIAL PROTOCOL.



- Select the required serial protocol (Vista Binary/Legacy Binary/ASCII) identified in the “BEFORE YOU BEGIN THE UPDATE” section above.
- Press SAVE.
- The text color of selected serial protocol should be changed from yellow to white.