



SATA Firmware Update Instructions



Constellation CS SATA firmware update version **CE03 or CN03**

This firmware update is for the Seagate **Constellation CS SATA** family only.

Backup all data contained on the drive prior to running the update.

See the End User License Agreement below for specific information about these software tools.

Constellation CS SATA (Altos) family drives have two variations: ISE and non-ISE. If data erasure is required, then Seagate's Instant Secure Erase (ISE) feature renders all data on the hard drive unreadable in a matter of seconds rather than hours

This firmware release only supports the following models:

Constellation CS SATA (Altos)

Model	PN	old FW	new FW
ISE			
ST1000NC000	1CX162	CNS1 or CE02	CE03
ST2000NC000	1CX164		
ST3000NC000	1CX166		
non-ISE			
ST1000NC001	1DY162	CN01 or CN02	CN03
ST2000NC001	1DY164		
ST3000NC002	1DY166		

If your current **Constellation CS SATA** firmware does not begin with the digits **"CNS1 or CE02"** or **"CN01 or CN02"** then you have a customized OEM configuration which is not compatible with **CE03 or CN03**. Please contact your OEM for firmware updates for these drives.

Warning, possible loss of data if this firmware is downloaded to unsupported models!

DO NOT run this firmware update on RAID systems.
DO NOT turn the power off during the firmware update procedure.

BEFORE YOU BEGIN:

1. Make sure you have backed up all of your important files and critical data.
2. Save any work in progress.
3. Close all other open applications.
4. Disconnect all external storage devices.

Always handle the drive carefully so you do not cause internal damage to the heads and media inside the drives. Drives are sensitive devices.

A warning about RAID

RAID systems are extremely sensitive to disruptions to individual drives. It is not uncommon for low level disk drive diagnostics to cause RAID management software to fault a drive that is slowed down by testing or firmware download. For this reason, we highly recommend that you use disk management tools provided by your RAID controller manufacturer if they are available. If these tools are not available, you might consider taking the RAID offline to a maintenance mode or rebooting the system to temporary bootable media and running diagnostics from there. Seagate recommends that you use disk utility tools provided by your RAID controller manufacturer.

Among others, RAID management software is available from 3Ware, Adaptec and LSI.

Here are the instructions for updating SATA firmware:

The method you choose to update the firmware on the drive will depend on your operating system, system utilities or work bench environment.

Bootable Tools

Windows operating systems do not tolerate firmware downloads to SATA disk drives while Windows is running. In this case, we recommend that you prepare one of the two bootable solutions, a bootable USB flash drive or CD. Bootable tools are the obvious choices for new, unformatted drives.

1. The bootable USB setup tool is a Windows EXE which formats the USB flash drive and copies all the necessary firmware files. (All previous data on the USB flash drive will be lost.)
2. The bootable CD is prepared from a ISO image file which also contains all the necessary files.

The bootable tools are the best choice when downloading firmware to multiple drives. Attach the drive(s) to be updated to a non-RAID SATA controller (JBOD). An embedded SATA controller on the motherboard works best. Attach the first drive to Port 0 of the SATA controller. If doing multiple drives at once, we recommend no more than 4 drives at a time off one PC.

Linux Command Line Interface Tools

Two command line interface choices are available for Linux based systems. The first is a file named with the extension .sg-SFX (for the sg driver it uses and a SelfExtracting executable). The SFX tool contains all the necessary files for this firmware update.

The second is a simple command line firmware loader (**dl_sea_fw**) for compatible Seagate disk drives listed on /dev/sg devices. The command line instructions for this tool are:

```
=====
Seagate Firmware Download Utility.
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=====

usage:
dl_sea_fw {-m <model_number> -f <fw_file> | -c <cfs_file>} [-d <sg_device>]
dl_sea_fw -f <fw_file> -d <sg_device>

Options:
    -i      PRINT IDENT INFO
    -v      PRINT VERSION AND EXIT (overrides all other arguments)
Modes supported:
    -s      SEGMENT SIZE (1 segment = 512 bytes)
    -p      FORCE ATA PASSTHROUGH
    -w      FORCE WRITE BUFFER CMD

e.g:
    dl_sea_fw -s 64 -f test.lod -d /dev/sg0
returns:
    0      No error found
    1      Fatal error in command line options
    2      FW Download Failed
    3      Invalid device
```

First, run the **-i** option to determine what /dev/sg# assignment lines up to your disk drive. This option also will show you other details about the drive including the current firmware revision. Like this:

```
/dev/sg0  MN: ST94813AS      SN: 3EE043KP  FW: 3.03
/dev/sg1  MN: ST1000NM0011   SN: Z1M15VAS  FW: SN03
```

-m is a model number verification based on the device Inquiry response. **-m** mode scans all sg devices on the system, so it is -- in itself -- a batch mode. The **-d** switch may be used with **-m** to select a specific device.

The raw tool has two batch modes, which can be used thusly:

```
./dl_sea_fw -m <model_number> -f <fw_file>
```

Note: Use of –m mode is reserved for batch processing of sg (SCSI generic) SAS disk drives.

The <cfs_file> noted above is a Seagate-prepared compatible firmware selector file which is used to match up the right firmware for a particular SATA drive.

```
./dl_sea_fw -c <cfs_file>
```

Note: Batch processing of SATA drives should use a Seagate prepared CFS file.

Both of these modes assume that the relevant firmware files are located in the current working directory.

Alternately, these two batch modes may be targeted to a specific device like so:

```
./dl_sea_fw -m <model_number> -f <fw_file> -d </dev/sg#>
```

```
./dl_sea_fw -c <cfs_file> -d </dev/sg#>
```

By specifying -f and -d, without the benefit of requiring a model match with -m or utilizing a Seagate .CFS file, a user may still force a SATA download attempt on any /dev/sg device regardless of type or suitability. Obviously, this use is not recommended for most situations, but is available if needed. Multiple devices can be defined like this:

```
./dl_sea_fw -f <fw_file> -d </dev/sg#> -d </dev/sg#> -d </dev/sg#>
```

Raw Firmware Data Files

You will need the Seagate firmware file to run the simple command line Linux tool. This file will have the .LOD filename extension and should be located in the current working directory. This firmware file should never be used outside of the specific product family models and part numbers listed with the firmware release. Incorrect usage of the .LOD may result in data loss or even product failure. Seagate Technology is not responsible for lost user data. See the End User License Agreement below for specific information about these software tools.

Using Traditional Linux Firmware Tools

For SATA drive firmware downloads you might use the Linux "hdparam" command.

Support

Seagate offers technical support for disk drive installation. If you have any questions related to Seagate products and technologies, feel free to submit your request on our web site. See the web site for a list of world-wide telephone numbers.

Seagate Support: <http://www.seagate.com/www/en-us/support/>

Contact Us: http://www.seagate.com/www/en-us/about/contact_us

This software uses open source packages obtained with permission from the relevant parties. For a complete list of open source components, sources and licenses, please see our Linux USB Boot Maker Utility FAQ for additional information.

Linux USB Boot Maker FAQ:

http://support.seagate.com/firmware/usbbootmaker_faq.html

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