

TrueNAS® M-Series NVDIMM Updates

v.231101



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1 Introduction

⚠ Warning - Data Loss

Only use the iXsystems-provided NVDIMM firmware images from the table below. Using update images other than the ones provided in this article can result in system malfunction and data loss. Double check the downloaded firmware update file matches the NVDIMM model installed in TrueNAS.

📌 Note - CORE Only

This procedure applies TrueNAS CORE Enterprise deployed systems only.

When there is an active support contract, [iXsystems Support](#) can assist with this procedure.

2 Preconditions

Before updating your M-Series NVDIMMs:

- Ensure TrueNAS is up to date.
- Ensure HA is active and healthy in the web UI.
- Verify that all active alerts are non-critical.
- Ensure you have IPMI web access to both controllers.
- Know the IP addresses for both TrueNAS storage controllers.
- Ensure TrueNAS SSH Service is active and allows root access.
- Enable SSH root access to the system only when specific procedures require it and for best security.
- Remove NVDIMMs (log devices) from storage pools before updating. Re-add the devices after updates finish.

2.1 Removing Log Devices From A Storage Pool

1. Log in to the web UI and go to **Storage > Pools**.
2. Open the ⚙ (Pool Operations) menu for the pool and click **Status**.
3. Find the **log** entries, click ⋮ (Options) for each log device, and click **Remove**.
4. Confirm the choice and wait for the process to complete.

2.2 Adding Log Devices To A Storage Pool

1. Log in to the web UI and go to **Storage > Pools**.
2. Open the ⚙ (Pool Operations) menu for the pool and click **Add Vdevs**.
3. Open the **ADD VDEV** dropdown and select **Log**.
4. Select the NVDIMM devices and click the ➤ (add) icon to add disks to the **Log VDev**.
5. Click **ADD VDEVS**.

3 Identify the NVDIMM and Firmware Update File

Open an SSH session with the TrueNAS system using the root account credentials. Information about the storage controller and failover status displays after logging in. To view this information again, enter `hactl`.

Validate you can access the correct controller (**Active** or **Standby**) before proceeding. Example:

```
root@truenas-ha-examplea[~]# hactl
Node status: Active
Node serial: A1-##### (ACTIVE)
Other node serial: A1-#####
Failover status: Enabled
root@truenas-ha-examplea[~]#
```

Enter `ixnvdimm /dev/nvdimm0` and read the output to find the correct firmware update file in the table below.

Results	NVDIMM Model	Update File	SHA256 Checksum
vendor: 2c80 device: 4e32 revision: 31 subvendor: 3480 subdevice: 4131 subrevision: 01	Micron 16GB 2666 (Payette)	Version 2.6	Download
vendor: 2c80 device: 4e36 revision: 31 subvendor: 3480 subdevice: 4231 subrevision: 02	Micron 16GB 2933 (River16)	Version 2.2	Download
vendor: 2c80 device: 4e33 revision: 31 subvendor: 3480 subdevice: 4231 subrevision: 01	Micron 32GB 2933 (River32)	Version 2.4	Download
vendor: ce01 device: 4e38 revision: 33 subvendor: c180 subdevice: 4331 subrevision: 01	Unigen 16GB 3200 (Komodo16)	Version 0.8	Download
vendor: ce01 device: 4e39 revision: 34 subvendor: c180 subdevice: 4331 subrevision: 01	Unigen 32GB 3200 (Komodo32)	Version 0.8	Download

3.1 SHA256 Verification

The command to verify the checksum varies by operating system:

Windows command: `Get-FileHash file.iso`

BSD command: `sha256 file.iso`

Linux command: `sha256sum file.iso`

Mac command: `shasum -a 256 file.iso`

Windows or Mac users can install additional utilities like [HashCalc](https://hashcalc.soft112.com/) (https://hashcalc.soft112.com/) or [HashTab](https://download.cnet.com/HashTab/3000-2094_4-84837.html) (https://download.cnet.com/HashTab/3000-2094_4-84837.html).

The value produced by running the command must match the value shown in the table above. Different checksum values indicate a corrupted installer file that you should not use.

3.2 Update TrueNAS

Download the [update file](https://www.truenas.com/download-truenas-core) (https://www.truenas.com/download-truenas-core) for the latest TrueNAS version.

Look for the **Manual Update** expandable on the download page.

Update your TrueNAS system to the latest version.

4 Update 1st Controller NVDIMMs

4.1 Ensure the 1st Controller IPMI/BMC Firmware Version is Up-To-Date

ⓘ Note - IPMI Reset

Updating IPMI resets IPMI but does not affect the active controller.

1. Log in to the standby controller IPMI web UI, click the **Maintenance** tab, and select **Firmware Update**.
2. Select **Enter Update Mode** in the confirmation window.
3. Select **Choose File** and choose the IPMI *.bin* file in IPMI folder received from iXsystems Support.
4. Click **Upload Firmware**.
5. Select **Preserve Configuration/Preserve** and **SDR/Preserve SSL certificate**.
6. Select **Start Upgrade**.
7. Follow all the prompts until the IPMI web interface reappears.

✔ Tip - Clear Cache

Don't see any changes? Use **shift+ctrl+r** (Windows) or **cmd+shift+r** (Mac) to refresh the page and clear the cache.

4.2 Update the 1st Controller BIOS

✔ Tip - Browser

Use a non-Chrome browser like Firefox to update the BIOS. Chrome might freeze when uploading the BIOS file.

1. Go to the standby controller IPMI web UI. Click the **Maintenance** tab and select **BIOS Update**.
2. Select **Choose File** and choose the BIOS *.rom* file you got from iX Support.
3. Click **Upload BIOS**.
4. Enable **Preserve SMBIOS**, but not **Preserve ME Region** or **Preserve NVRAM**.
5. Click **Start Upgrade**.
6. When you are ready to reboot the system, select **YES** on the confirmation popup.
7. As system resets and reboots, monitor the TrueNAS web UI and wait for HA to recover.

4.3 Check NVDIMM Version

Open a command line utility and SSH into the standby controller.

Enter `ixnvdimm /dev/nvdimm0` . Make sure that firmware slot 1 is selected and running.

```
root@m40b[~]# ixnvdimm /dev/nvdimm0
Module:
vendor: 2c80 device: 4e32 revision: 31
subvendor: 3480 subdevice: 4131 subrevision: 01
serial: 1748248B

Firmware:
slot0: 235c sub: 22 es: 0040
slot1: 262c sub: 25 es: 0000
selected: 1 running: 1
```

Enter `ixnvdimm /dev/nvdimm0 |grep -o "slot1: [0-9A-F][0-9A-F]"` .

The two digits after `slot1:` indicate the firmware version. For example, a `22` indicates version 2.2. The latest firmware version is 2.6.

```
root@m40b[~]# ixnvdimm /dev/nvdimm0 |grep -o "slot1: [0-9A-F][0-9A-F]"
slot1: 22
root@m40b[~]#
```

4.4 Update NVDIMM

Enter `ixnvdimm -f P_V26_All.img /dev/nvdimm0` where `P_V26_All.img` is the downloaded firmware update file.

```
root@m40b[~]# ixnvdimm -f P_V26_All.img /dev/nvdimm0
Start Firmware Update succeeded
Validate Firmware Header succeeded
Send Firmware Update Data succeeded
Validate Firmware Image succeeded
Finish Firmware Update succeeded
Select Firmware Image Slot 1 succeeded
```

Note - Validation

The `Validate Firmware Image` step can take up to 30 minutes. If it fails, rerun the command.

When the upgrade succeeds, run `poweroff` and leave your system powered off for at least 10 minutes.

After 10 minutes, open a browser and go to the IPMI web interface. Click the **Remote Control** tab, then select **Power Control**.

Select **Power On Server**, then **Perform Action**.

4.5 Failover

When the TrueNAS web interface shows that HA is active and healthy, click **Initiate Failover** on the **Dashboard**. Wait for the web UI to recover and show that HA is active and healthy again.

The controller with updated firmware becomes the active controller, and the formerly active controller becomes the standby controller.

5 Update 2nd Controller NVDIMMs

5.1 Ensure the 1st Controller IPMI/BMC Firmware Version is Up-To-Date

ⓘNote - IPMI Reset

Updating IPMI resets IPMI but does not affect the active controller.

1. Log in to the standby controller IPMI web UI, click the **Maintenance** tab, and select **Firmware Update**.
2. Select **Enter Update Mode** in the confirmation window.
3. Select **Choose File** and choose the IPMI *.bin* file in IPMI folder received from iXsystems Support.
4. Click **Upload Firmware**.
5. Select **Preserve Configuration/Preserve** and **SDR/Preserve SSL certificate**.
6. Select **Start Upgrade**.
7. Follow all the prompts until the IPMI web interface reappears.

✔Tip - Clear Cache

Don't see any changes? Use **shift+ctrl+r** (Windows) or **cmd+shift+r** (Mac) to refresh the page and clear the cache.

5.2 Update the 2nd Controller BIOS

✔Tip - Browser

Use a non-Chrome browser like Firefox to update the BIOS. Chrome might freeze when uploading the BIOS file.

1. Go to the standby controller IPMI web UI. Click the **Maintenance** tab and select **BIOS Update**.
2. Select **Choose File** and choose the BIOS *.rom* file you got from iX Support.
3. Click **Upload BIOS**.
4. Enable **Preserve SMBIOS**, but not **Preserve ME Region** or **Preserve NVRAM**.
5. Click **Start Upgrade**.
6. When you are ready to reboot the system, select **YES** on the confirmation popup.
7. As system resets and reboots, monitor the TrueNAS web UI and wait for HA to recover.

5.3 Update NVDIMM

Open a command line utility and SSH into the standby controller.

Enter `ixnvdimm -f P_V26_All.img /dev/nvdimm0` where `P_V26_All.img` is the downloaded firmware update file.

```
root@m40a[~]# ixnvdimm -f P_V26_All.img /dev/nvdimm0
Start Firmware Update succeeded
Validate Firmware Header succeeded
Send Firmware Update Data succeeded
Validate Firmware Image succeeded
Finish Firmware Update succeeded
Select Firmware Image Slot 1 succeeded
```

ⓘNote - Validation

The `Validate Firmware Image` step can take up to 30 minutes. If it fails, rerun the command.

When the upgrade succeeds, run `poweroff` and leave your system powered off for at least 10 minutes.

After 10 minutes, open a browser and go to the IPMI web interface. Click the **Remote Control** tab, then select **Power Control**.

Select **Power On Server**, then **Perform Action**.

6 Validate System Health

After updating the NVDIMMs in both controllers, clear all BIOS and NVDIMM alerts and any other new alerts in the TrueNAS web UI.

Tip - Failover

Failing over again might help the system recover if HA is not healthy after updating both controller NVDIMMs.

7 Additional Resources

The TrueNAS Documentation Hub has complete software configuration and usage instructions. Click **Guide** in the TrueNAS web interface or go directly to:

<https://www.truenas.com/docs>⁴

Additional hardware guides and articles are in the Documentation Hub's Hardware section:

<https://www.truenas.com/docs/hardware>⁵

The TrueNAS Community forums provide opportunities to interact with other TrueNAS users and discuss their configurations:

<https://www.truenas.com/community>⁶

8 Contacting iXsystems

Having issues? Please contact iX Support to ensure a smooth resolution.

Contact Method	Contact Options
Web	https://support.ixsystems.com ⁷
Email	support@ixsystems.com
Telephone	Monday-Friday, 6:00AM to 6:00PM Pacific Standard Time: <ul style="list-style-type: none">• US-only toll-free: 1-855-473-7449 option 2• Local and international: 1-408-943-4100 option 2
Telephone	Telephone After Hours (24x7 Gold Level Support only): <ul style="list-style-type: none">• US-only toll-free: 1-855-499-5131• International: 1-408-878-3140 (International calling rates will apply)

