

Firmware

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Custom Firmware (old)

Old firmware Repositories

Old firmware build instructions are in [our nycmeshfeed repo's README file](#).

- [lime-sdk](#)
- [nycmeshfeed](#)
- [network-profiles](#)

MikroTik Firmware

MikroTik RouterOS v6 firmware is generally stable. We are currently using 6.49.13 (some run 6.49.17)

Do not use version 6.49.6 or older (known security vulnerabilities)
RouterOS 7 v7.12 or newer will generally work on the Mesh, but is not broadly deployed and may behave differently

RouterOS v6

Download 6.49.13 [OmniTik \(mipsbe\) here](#) and [SXTsq \(arm\) here](#)

Remember that OmniTiks use the "mipsbe" firmware and SXT's use the "arm" firmware due to different processors.

We have documented issues with 6.47/6.48/6.49.2 so don't use them.

We have many OmniTiks running 6.49.11 and newer without any problem.

Note: with some OmniTiks in some cases it seems the memory gets used up and not released. When we encounter such a device we add a script that automatically reboots the OmniTik between 2 & 3am when the memory usage reaches 75%.

Connect to your Omni via ssh and copy & paste [these lines](#). This will add a script and schedule the script to run every 15m.

Slack discussion [here](#).

RouterOS v7

RouterOS v7 is not broadly deployed, but a working Omnitik config is available in the [testing branch on configgen](#). Note that in most cases, an Omnitik will have slightly less total throughput on RouterOS v7 vs RouterOS v6 on our network.

Some new Mikrotik devices, such as the [RB5009](#), are not backwards-compatible with RouterOS v7. Check the [#hardware channel](#) on slack for working configs and advice on these devices.

If you choose to run RouterOS v7, it is recommended to run an updated firmware - those in use on the Mesh are mostly running 7.15.3 as of October 2024.

If you need to downgrade, read the [instructions here](#)

Mikrotik devices come in a variety of architectures and form-factors. Fortunately the firmware versioning and build levels are the same across all platforms. The main variant is the architecture, which might be a different chip for each device model.

We usually use the stable version of RouterOS 6 (currently **6.49.13**, though some are running 6.9.17)

You can find all current versions of RouterOS software on [Mikrotik's website](#).

Installing firmware

- Login to your Mikrotik box Web UI (or CLI if you know how)
- Go to WebFig > Files section, upload the firmware file
- Reboot the router
- The firmware version is visible at the top of the Web UI: watch for the new version

Alternatively

- if your device has Internet access you can use the GUI: go to System, Package, Check for update, download & install

or

- ssh in and type `/system package update install`

Ubiquiti Firmware

Ubiquiti firmware has some buggy versions that need to be avoided. In general never use a ".0" release. It is beta quality and will probably have serious bugs that may be fixed by .1 or .2 version.

Ubiquiti have two very separate product lines with different firmware, AirMAX and UniFi

Don't use the latest firmware from Ubiquiti! Use the stable versions below

AirMAX

We are currently updating to 8.7.11 on most CPE (like the LiteBeams)

Version notes:

8.7.11 (the latest) seems to be working and stable

8.7.7 and 8.7.9 are good

8.7.4 and 8.7.5 tend to crash

8.7.5 has a TDMA bug which causes performance to fail after a few days.

8.7.1 the management radio disconnects constantly

Ubiquiti changed the signal to read 5db hotter in versions after 8.7.1, so a -50

So a -55dB in the newer versions would be -60dB in 8.7.1 or earlier

Download [8.7.11 here](#)

For sector AP's we use 8.5.12 for DFS stability (or 8.7.1 if this is not an issue)

Download [8.5.12 here](#)

NEVER UPGRADE A SECTOR WITHOUT ASKING EVERYONE FIRST!

We disable AirView on sectors to improve CPU performance

UniFi

We've found all versions after 4.3.20 to be buggy. Basically meshing broke in the later versions so your network will go down after a day or so, unless all of your AP's are wired. Not only will a

meshed AP crash, it will take down the rest of the local network!

Download 4.3.20 [here](#)

APC UPS Battery Backup Firmware Update Process

NMC2 APC9630 Network Card Firmware Update

- Download the .exe 7.1.6 file from APC and use `unzip name.exe` on the file to get its files.
<https://www.se.com/us/en/product/AP9630/apc-ups-network-management-card-2/>
- If using a Windows computer or VM, just run the EXE and it will automatically do all steps of the firmware process after you put in the IP, username, and password
- Otherwise, use FTP to update <https://www.apc.com/us/en/faqs/FA156047/#FTP> (don't use <https://www.apc.com/us/en/faqs/FAQ000242942/>)
- `ftp ftp://apc:apc@x.x.x.x` to connect with user APC and password APC
- Then `bin` to enter binary mode and then `put apc_hw05_bootmon_109.bin`. Once it uploads, disconnect with `exit` and/or CTRL+C and reconnect after a couple minutes
- Repeat this process twice more, firstly for `put apc_hw05_aos_716.bin` first, then `put apc_hw05_sumx_716.bin`
- Modify the preconfigured config file. Update the naming everywhere else by find-and-replacing the Network Number (NN) and other similar descriptions. The MAC address can be safely ignored. Then go to Configuration/General/User Config File, pick the `nn2299-roof-apc-nmc2-config.ini` and apply it. Then reboot the NMC using Control/Network/Reboot to permanently apply the settings.

UPS Firmware Update

- These are updated way more rarely.
- Thankfully, this can be done easily through the NMC2's web UI under Configuration → Firmware upgrade. Pick the file and wait 5-10 minutes for the upgrade to complete
- Download the UPS firmware ZIP and find the relevant file inside. For example, a UPS with ID18 and model SMT750RM2U is going to need `SMT18UPS_15-0.enc` as per the reference

table in the FAQ <https://www.apc.com/us/en/faqs/FA170679/>. First turn off the outlet group, which cannot be on while it's updating.