Microtik Flashing Instructions v1.4

Before you begin, make sure you have:

Ethernet Cable

Pen or other tool to comfortably press and hold reset button on router

Ethernet port on your computer (unplug network cables after downloading required software – you should also disconnect from any WiFi networks during this process)

Plug the Microtik AC adapter into a power outlet but do **NOT** connect the power cable to the router yet

IF POWER TO THE ROUTER IS DISCONNECTED BEFORE STEP #6 YOU WILL HAVE TO REPEAT FROM #4

1: Download Software

Go to https://www.arednmesh.org/content/installation-instructions-mikrotik-devices

Scroll down to 'Windows Procedure'

Click the link to download the PXE Software:
https://www.slsrc.org/wp-content/uploads/2021/01/pxesrv.zip

Extract the zip file for the PXE Software (Desktop or preferred location)

Goto https://www.arednmesh.org/content/current-software/ (software/download from menu bar)

Click the big red '**Download**' button

Be sure to select the correct firmware for your device: 'hAP AC Lite'

Download the 'sysupgrade' file that ends in '**ac-sysupgrade.bin**' (look for the **ac** in the file name!)

 (i.e. hAP AC lite sysupgrade, as of this writing it was
aredn-3.20.3.1-ar71xx-mikrtik-rb-nor-flash-16M-**ac**-sysupgrade.bin)

Download the 'factory' file that ends in .elf (i.e. hAP AC lite factory, as of this writing it was
aredn-3.20.3.1-ar71xx-mikrtik-vmlinux-initramfs.elf)

Move the .bin and .elf files to an easy to locate folder on your computer

Rename the .elf file to **rb.elf**

2. Configure Network Adapter

In Windows 10 click Start and type 'View Network Connections' and hit enter

Right click on your ethernet connection and select 'Properties'

WRITE DOWN YOUR CURRENT SETTINGS BEFORE PROCEEDING THIS WILL BE CHANGED BACK LATER

Highlight the line for 'Internet Protocol Version 4 (TCP/IPv4)' and click 'Properties'

Select 'Use the following IP address' and type in 192.168.1.10. If Windows asks you for a subnet and gateway use 255.255.255.0 for the subnet and 192.168.1.10 for the gateway.

Click OK

3. Run the PXE Application

Plug the power cable into the router

Plug an ethernet cable into your computer and plug the other end into the '**Internet**' port of the router

Open the PXE software folder and double click on the **pxesrv** application to run it

If a network security dialog box appears check the boxes for both Private and Public Networks and click 'Allow Access'

In the '**Option 54 (DHCP Server)**' drop down menu, select **192.168.1.10**

At the bottom of the screen in the 'Boot File' section, click the '…' button beside 'Filename' and locate the **rb.elf** file we renamed earlier - select **rb.elf** and click the 'Open' button

Uncheck the checkbox at the bottom beside '**Filename if user-class=gPXE of iPXE**'

REMOVE both the power cable and ethernet cable from the router

Click the '**Online**' button at the top of the PXE window

4. Flashing AREDN Firmware Step 1

Plug the other end of the ethernet cable into the first port on the router labeled '**Internet**'

Using a small tool hold down the reset button on the router and while holding reset down, plug in the power adapter.

IMPORTANT – CONTINUE TO HOLD THE RESET BUTTON DOWN EVEN AFTER YOU HAVE CONNECTED POWER

Watch the PXE window for several more text lines to appear in the status window – you will want to see a line that says '**DHCPd:ACK Sent IP 192.168.*.**, XID:**********'

When you see the line above release the reset button

Wait for the '**User**' light on the router to stay solid green

At the top of the PXE Window, click '**Offline**' and close the PXE program

Unplug the ethernet cable from the 'Internet' port on the router and plug it into **port #2**

DO NOT DISCONNECT POWER

Open a browser window, type **192.168.1.1** and hit Enter

Click '**Setup**' – Username: **root** Password: **hsmm**

Click **'Enter'**

Click 'Administration'

In the 'Firmware Update' section click 'Choose File' and browse to where you saved the file ending in '**ac-sysupgrade.bin'**

Select the file and click 'Open'

Click the 'Upload' button

Your browser window will update with a status screen that says the firmware is being written to the router. This process can take up to 5 minutes and the router will power cycle several times.

Go back into your network adapter settings (reference steps taken earlier)

Select 'Obtain an IP address automatically' (or whatever your previous configuration was before you began)

At the bottom, if it is not selected, select 'Obtain DNS server address automatically' (or your previous configuration)

Click OK and close the networking window

5. Flashing AREDN Firmware Step 2

After 3-5 minutes open a browser window and type 192.168.1.1

You must run through the initial setup procedure to finalize the configuration by naming the node (include your call sign), setting a password, and setting the transmit power with the slider in the 'Active Settings' box. If you plan to have more than one node add a sequence number after your call sign (i.e. N0ARS-1). You can only have a-z, 0-9, and - characters in that name. It becomes part of the DNS name. It also has a limit of 63 characters in the name.

The router will reboot, and you can now access it by typing **localnode.local.mesh:8080/** or **Your Callsign-1.local.mesh:8080/** into your browser

The firmware upload is complete