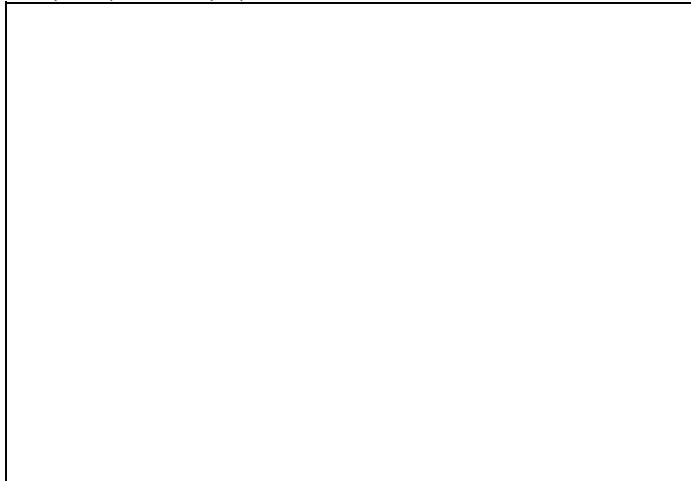


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This 'Dark Night' presents significant risk to bricking that requires careful adherence to the installation process. However, there is a built-in and robust Recovery Mode. The NVRAM issue has been resolved in newer CFE versions (and K3X builds).

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Hardware Specifications

CPU	Broadcom 4706 @ 600MHz
Flash/RAM	32MB / 256MB
Wireless support	2.4GHz and 5GHz bands
Wireless controller	Broadcom BCM4331
MIMO config	3x3 (both bands) (see Ref: forum)
ETH chip	Broadcom BCM4706
Switch	Broadcom BCM53125
Ports	Gigabit LAN (4) and WAN (1)
USB	2x USB 2.0
Other	Micro SDHC socket (internal)
Power supply	DC Output, 19 V, max. 1.58 A current (=> max 30W)
Serial header	8, n, 1, no flow control, 115200.

Reset button for Recovery

Pressing the Reset button (labeled like ' > o < ') at powerup will put the N66U into recovery mode.

- Press and hold the reset button then plug in power until the power LED starts blinking. Access recovery mode at 192.168.1.1.

WPS button to Clear NVRAM

Pressing the WPS button at powerup will reset (clear NVRAM) to default settings.

- Press and hold the WPS button while plugging in the power for about ten seconds. All the LEDs should flash, indicating settings have been reset to default settings.

NVRAM issue

IMPORTANT: DO NOT USE K2.6 builds if using CFE v1.0.1.3 (64K nvram) or NEWER!!!

At launch, the RT-N66U was limited to 32k nvram. However, CFE (bootloader) version 1.0.1.3 added 64k nvram support around April 2013, but was not compatible with DD-WRT firmware at that time. For details, see these forum links to historical nvram and 64K implementation discussions: [Fractal comments](#) and ["RT-N66](#)

CFE Thread"

This was resolved with DD-WRT K3X builds (kernel 3.x) which extended nvram to 64k, and can be used for any CFE version. It was eventually extended to 256k.

More historical info: <http://charleswilkinson.co.uk/2012/12/22/dd-wrt-on-the-asus-rt-n66u-with-64k-cfe/>

For newer CFE version updates and procedures see here: [SNB Forums](#)

Note: CFE can be thought of, as a bootloader for routers. The CFE is what loads the firmware when using ASUS Recovery Utility (and/or a TFTP tool)

CFE Version (or Update)

[AsusWRT-Merlin](#) can be installed to enable telnet/ssh. telnet/ssh and then be used to check the CFE version. DD-WRT can then be flashed directly from Asuswrt-Merlin

Find the CFE version:

- in telnet/ssh type: `nvram get bl_version`
- or look at the CFE partition. In telnet/ssh type: `strings /dev/mtd0ro | grep bl_ver`

ToDo:

- link to Asus CFE sources
- determine if updating to latest official Asus Firmware will also update to newest CFE version
- newest CFE version (as of July 2020) is 1.0.1.9
- how to update the CFE

K3.X Builds

- Use RT-N66U.trx *big* or *mega* builds in the *Broadcom_K3X* folder. [Forum note](#) about the difference between *mega* and *big*
- See [Where do I download firmware](#) for links and read forum build threads.

Note: do NOT use build 40559 - 40559 is broken for most routers, despite being the recommended build for many routers in the Router Database. Search forum "New build" to get the latest updated info about builds (noted Aug 2020).

K2.6 Builds

USB (and thus MMC) also does not work in K2.6 builds. USB devices cause a kernel panic: see [SVN ticket](#). Use a K3.x build (see above), which also works around the NVRAM issue.

Noted Aug 2020: All K2.6 builds after 43136 are likely broken.

DD-WRT Alternatives

User Merlin implemented a solution in mid-2012 to extend the original 32k NVRAM CFE to ~60k NVRAM in firmware

- After 380.70 Asuswrt-Merlin stopped supporting RT-N66U. So earlier versions will still work (to enable SSH/Telnet)
 - ◆ Homepage: <https://asuswrt.lostrealm.ca/>
 - ◆ Download: <https://sourceforge.net/projects/asuswrt-merlin/files/>
 - ◆ Source code: <https://github.com/RMerl/asuswrt-merlin/>
- For a Asuswrt-Merlin version that still supports RT-N66U
 - ◆ see: [snbforums post](#) where the first entry keeps getting updated with the latest information.

TomatoUSB [Shibby](#) also implemented a 64k NVRAM solution for 32K NVRAM CFE in 2012.

Historical Build Information

This is only potentially relevant if using builds from 2015 and earlier.

- If already running a custom 64K Build like Fractal or Kong with CFE 1.0.1.3, [26138 mega nv64k](#) must be used to upgrade. Since K2.6 Builds have an embedded check, you need to use those special nvXXk trailed images. On K3.X this check has been removed and you can simply upgrade from a previous K3.X.
- With K3.X Broadcom builds, the CFE version is less concerning since DD-WRT detects it automatically to extend the 32KB limitation.
- Build 24461 BRICKS the RT-N66U, but recover is possible through the mini CFE web interface.

Installation Instructions

Read the [Firmware FAQ](#), [Peacock Announcement](#), new build, and model-specific threads.

Preparation

- If upgrading to DD-WRT from other firmwares, then use a *.trx file, as in *_RT-N66U.trx file for initial flash and upgrades, **or only half the memory will be available** (with ASUS routers, using a *.trx file is always a safe bet).
- If you are upgrading from one version of DD-WRT to a different (newer/older) version of DD-WRT, you can also use the firmwares that end in *.bin. as in **_mega.bin** or **_big.bin**
- **IMPORTANT:** determine what version of CFE you have on your router,

if CFE v1.0.1.3 (64K nvram) or 'NEWER' - DO NOT USE K2.6 builds

- If using Older CFE (32K nvram) you can use K2.6

- Reset **BEFORE** and **AFTER** firmware upload. If upgrading from DD-WRT to a newer version of DD-WRT, then *before* is (mainly) optional.

Upload via Web GUI

1. Reset NVRAM via WPS button , or select WebGUI option: Factory Default settings.
2. Upload the DD-WRT build using the stock web GUI (use file ending in .trx or .bin, according to description under Preparation).
3. Wait until the router reboots itself, which **can take at least 10 minutes** (some times 30 minutes or more). Be patient and wait until you get a response from both ping and the routers WebGUI when you use your PC to access the router.
4. Reset NVRAM via WPS button, or select WebGUI option: Factory Default settings. Wait for the router to reboot!!

Note: If you are having trouble uploading a newer version of DD-WRT, using the WebGUI, then you might want to try to use a different browser. Sometimes it solves the problem.

Upload via ASUS Recovery Utility

1. Set your computer to a static IP (e.g. 192.168.1.12), subnet 255.255.255.0, default gateway 192.168.1.1
2. Put router into recovery mode by holding down the reset button while powering up the router, wait until the power led is blinking slowly, then release the reset button.
3. Access the Asus CFE recovery mode by issuing 192.168.1.1 in browser field.
4. Browse to select the DD-WRT trailed build (**N66U big or mega .trx**) then click *Upload*.
5. Wait until the router reboots itself, which **can take at least 10 minutes**.
6. If it doesn't reboot after 30 minutes, power off for 10 seconds, then reset via WPS
7. Reset (via WPS) or reenter recovery mode and select to *Restore defaults NVRAM values*
 - ◆ (Optional?) When it completes (should be quick), type this in the browser field then press enter:
 - ◆ <http://192.168.1.1/do.htm?cmd=nvram+commit>
8. Wait until the router reboots itself, then access the DD-WRT GUI at 192.168.1.1 to set a password.

Switching from Tomato

1. Navigate to the Tomato firmware update page
 - ◆ *Administration -> Upgrade*
2. Upload the firmware you downloaded in step 1
3. The router will reset several times and change its IP address to the default one (192.168.1.1).
4. Navigate to http://192.168.1.1/Factory_Defaults.asp
 - ◆ The login credentials have been reset to the default dd-wrt username/password (root/admin)
5. Set "Restore Factory Defaults" to yes and click "Apply Settings"
6. After reboot, set a new user/password

Note: Reset to factory defaults after flashing from Tomato to DD-WRT to avoid undesired behavior and instability.

Upgrade to newer DD-WRT

- Clear settings (Clear NVRAM)
- Router should revert to default IP (192.168.1.1), so you may have to change your client's IP to the same subnet (e.g. 192.168.1.2).
- Use browser to navigate to 192.168.1.1
- DD-WRT GUI: *Administration -> Firmware upgrade*
- Clear settings (Clear NVRAM)

Revert to original ASUS firmware

1. Download firmware from ASUS web site
2. Reset to Factory Default Settings or clear NVRAM
3. Use the DD-WRT web gui: 'Administration -> Firmware upgrade', to upload the ASUS firmware file you downloaded in step 1.
4. Reset to Factory Default Settings or clear NVRAM

Mods

Internal MicroSD card

The N66U has an unused internal MicroSD card slot, but note that USB (and thus MMC) is not supported on K2.6 builds. However, it is working on K3.x builds. See [SVN ticket](#)

1. Open the case
 - ◆ Unscrew the four screws at the bottom
 - ◆ Then you want to release the plastic clips that holds the top and bottom parts together.
 - ◆ Pry the bottom case outward, which has the male clips.
 - ◆ For future access, it is recommended to either snip off the female "U" clips on the top cover, or round off the square edges on the male part of the clip with a nail file.
 2. Install MicroSD card
 3. Enable USB features to utilize the MicroSD card
- In addition to DD-WRT NAS features, the extra storage can be used to install Optware or [Entware-3X \(recommended over Optware\)](#) with K3.x builds: [OTRW Take 2](#)

For easier access, see below.

Case Top Mod

Spacers (~1/4" to 10mm) can be installed to elevate the case top, which allows easier access to the MicroSD card, and also improve cooling. A piece of dark foam and hole punch can be used to retain the top cover LED lighting.

Overclocking

Overclocking works since CFE 1.0.1.3, while underclocking worked prior to that. Overclocking may cause instability, or services (like QoS) to behave unpredictably

- Recommended to improve cooling or ventilation when overclocking, like the case top mod
- jwh7 has run @663MHz (CFE 1.0.1.9) without issue for 3 years, with an elevated case top
- There is one report of QoS degradation at 632Mhz with K3.X big r27360 (06/18/15)

Notes

Performance

Test Description		RT-N66U
WAN - LAN		732 Mbps
LAN - WAN		729 Mbps
Total Simultaneous		810 Mbps
Maximum Simultaneous Connections	34,925	
Firmware Version		3.1.0.3.90 (stock firmware number)

Sources and testing methods

LAN/WAN issue

There should be no *vlan0ports* in nvram for the N66U switch: [1] and [2]

Links

Primary forum threads

- One User's Guide - A users guide for flashing RT-N66U
- Possible ways to update CFE (once a 32k+ CFE is released for this router), see LOM post
- Linking Routers to cover a bigger area with WiFi
- Wireless tweaking: Basic Wireless Settings and Advanced Wireless Settings
- External antennas: The CATFISH thread
- A good 2020 forum thread

Additional forum threads

- Forum: Flashing discussion
- Forum: Reason for starting from Build 18946
- Forum: N66U and 32k/64k NVRAM issue
- Forum: Open case to add MicroSD card, and a 32Gb card tested here
- techinfodepot.info on RT-N66U
- SmallNetBuilder Review
- Asus Stock UI demo