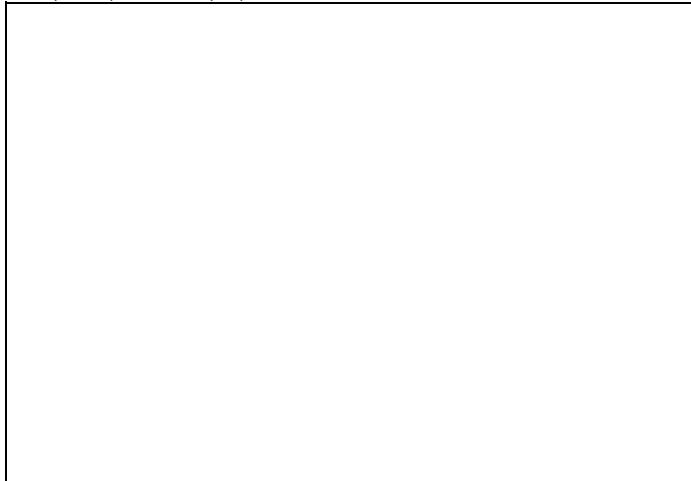


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## Hardware

This 'Dark Night' presents significant risk (bricking) that requires careful adherence to the installation process. The NVRAM issue has been resolved, however, knowing what builds can be used must be understood well.

## Specifications

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

## Reset button for Recovery

Pressing the Reset button at powerup will put the N66U into recovery mode.

- Press and hold the reset button while plugging in the power, and keep pressing the reset button for about ten seconds until the power led is blinking slowly, then release the reset button. The router is now in recovery mode: go to 192.168.1.1.

## WPS button to Clear NVRAM

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

- Press and hold the WPS button while plugging in the power, and keep pressing the WPS button for about ten seconds, then release the WPS button. All settings have now been wiped, and default settings will be used.

## 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](#)

## CFE Version (or Update)

[AsusWRT-Merlin](#) can be installed to enable telnet and check the CFE version, and still be flashed directly to DD.

- In nvram: nvram get bl\_version
- CFE partition: strings /dev/mtd0ro | grep bl\_ver

## K3.X Builds

- **Read the New Build threads on the forums**, such as [this](#).
- Find new builds in the *Broadcom\_K3X* build folder. Stick with big or mega with n66u in the name. See [Where do I download firmware](#) for links.

## 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.

## DD-WRT Alternatives

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

- Homepage: <https://asuswrt.lostrealm.ca/>
- Download: <https://sourceforge.net/projects/asuswrt-merlin/files/>
- Source code: <https://github.com/RMerl/asuswrt-merlin/>

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 you are already on a custom 64K Build like Fractal or Kong with CFE 1.0.1.3, you need to flash [26138 mega\\_nv64k](#). 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.
- [Kong 22000++ \(7-Jun-2014\)](#) is a recommended build for the RT-N66U with 64K CFE **with fix for the serious [Heartbleed vulnerability](#)**.
- **25-May-2013**: With the new experimental [K3.X Broadcom builds](#), the CFE version is irrelevant. DD-WRT detects it automatically to extend 32KB NVRAM to 64KB. *Which Image you have to flash, depends on your previous Image (Stock, Merlin, DD-WRT K2.6).*
- **9-Apr-2013**: It seems more recently manufactured units come pre-loaded with the 64K v1.0.1.3 CFE and so are not compatible with standard DD-WRT builds. Flashing a K2.6 DD-WRT build on these devices will result in a brick.
- **26-Jan-2013**: Current versions of DD-WRT can quickly run out of 32k nvram.

# Installation Instructions

For recommended builds, read the [Peacock Announcement](#), New Build, and model-specific threads.

## Preparation

For builds and more information, see here: [Where do I download firmware?](#)

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

- Older CFE (32K nvram) can use K2.6: see the above **K2.6** and **K3.X** sections for details

**Note:** Reset **BEFORE** and **AFTER** firmware upload. If upgrading *with DD, before* is optional.

## Upload via Web GUI

1. Reset via WPS or select Factory Default settings.
2. Upload the DD-WRT trailed build (**N66U big or mega .trx**) using the stock web GUI.
3. When complete, wait until the router reboots itself, which **can take at least 10 minutes**. You want both ping response and web gui response to know that the router is fully rebooted.
4. Hard reset or select Factory Default settings. Wait for the router to reboot itself!!

## Upload via 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. When complete, wait until the router reboots itself, which **can take at least 10 minutes**.
6. 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>
7. 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. Download the latest K3.x mega build. See Where do I download firmware? for links.
2. Navigate to the Tomato firmware update page
  - ◆ Administration > Upgrade
3. Upload the firmware you downloaded in step 1
4. The router will reset several times and change its IP address to the default one (192.168.1.1).
5. Navigate to [http://192.168.1.1/Factory\\_Defaults.asp](http://192.168.1.1/Factory_Defaults.asp)
  - ◆ The login credentials have been reset to the default dd-wrt username/password (root/admin)
6. Set "Restore Factory Defaults" to yes and click "Apply Settings"
7. After reboot, set a new user/password

Note: Many settings will carry over from Tomato to DD-WRT, but it's highly advisable to reset to factory defaults after flashing, or you risk undesired behavior and instability.

## Upgrade to newer DD-WRT

- Clear settings (Clear NVRAM)
- Router will 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
- Using the DD-WRT web GUI : Administration -> Firmware upgrade
- Clear settings (Clear NVRAM)
- svn24461 BRICKS RT-N66U. Recover possible through mini CFE webinterface.

## Revert to original ASUS firmware

- Download firmware from ASUS web site
- Reset to Factory Default Settings or clear NVRAM
- Use the DD-WRT web gui: Administration -> Firmware upgrade
- 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

- [Peacock Announcement](#): **Required reading** for DD-WRT on Broadcom routers!
- [Frequently Asked Questions](#)

## 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](#)

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](#)