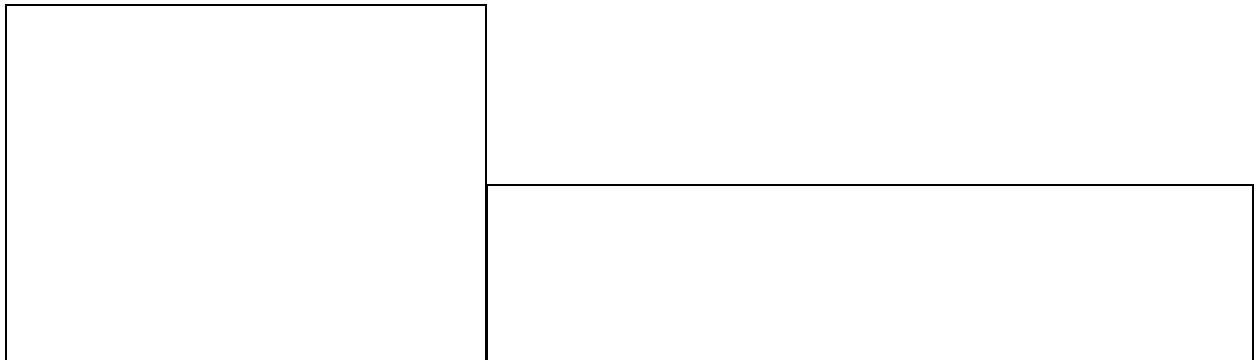


Contents

- [1 Hardware Specifications](#)
- [2 Output Power](#)
- [3 Initial Flash](#)
- [4 Upgrade in DD-WRT](#)
 - ◆ [4.1 e2k-e3k and nv60k](#)
 - ◆ [4.2 Kong Build](#)
 - ◆ [4.3 K3.x upgrade](#)
- [5 Build Information](#)
- [6 Useful Tips](#)
- [7 Wireless-N Configuration](#)
- [8 Printing](#)
- [9 Reverting back to stock firmware](#)

Hardware Specifications



Characteristic	Value
CPU	Broadcom BCM4718
CPU Speed	480 MHz
Flash ROM	8 MB
RAM	64 MB
Radios	2.4 GHz, 5 GHz
WLAN Support	a/b/g/n
WLAN Max Speed	300 Mbps
Antenna Location	Internal
Switch	4x GigE + 1 WAN
USB	1x USB 2.0

Output Power

You can use these figures to come up with what Tx power would be best for you. As factory lists it at a max of 20dBm, then a setting of 100mW could be used as 20dBm = 100mW, 17dBm = 50mW, and so on.

2.4GHz output power per TX chain

802.11b: Max. 20.5dBm @ All rates

802.11g: Max. 20.5dBm @ Low rates

Max. 19.5dBm @ High rates

Wireless-N 20MHz: Max. 20.5dBm @ Low rates

Max. 18.5dBm @ High rates

Wireless-N 40MHz: Max. 17.0dBm @ All rates

5GHz output power per TX chain

UNII-1 (5150-5250GHz)

802.11a: Max. 14.0dBm @ All rates

Wireless-N 20MHz: Max. 11.5dBm @ All rates

Wireless-N 40MHz: Max. 12.0dBm @ All rates

UNII-3 (5725-5850GHz)

802.11a: Max. 17.5dBm @ High rates

802.11a: Max. 20.0dBm @ Low rates

Wireless-N 20MHz: Max. 17.5dBm @ High rates

Wireless-N 20MHz: Max. 20.0dBm @ Low rates

Wireless-N 40MHz: Max. 17.5dBm @ High rates

Wireless-N 40MHz: Max. 21.0dBm @ Low rates

Internal PIFA antennas are rated at 3dBi

Initial Flash

See [Where do I download firmware?](#) for links.

Also reference [this post](#) regarding the **newer nv60k.bin** for Linksys E-series. Be aware that some E-series use nv60k, and others use nv64k.

- This guide also applies to units converted to an E3000, running Linksys firmware.
1. Read all required reading sections of the [Peacock announcement](#):
 2. Disconnect all cables and wireless clients.
 3. As a precaution, USB disks should be removed before flashing.
 4. Do a [Hard reset or 30/30/30](#) on router.
 5. Connect 1 Lan cable to pc doing the flash.
 6. Log into Web Interface and flash the firmware **E3000 Initial Flash Trailed Build**
 7. Wait AT LEAST 5 minutes until WLAN (Wireless LAN, *not* WAN) light turns on.
 8. Power cycle by unplugging E3000 for 30 secs.
 9. Plug E3000 back in and wait about 5 minutes until it finishes booting.
 10. Do a 30/30/30 reset on router.
 11. Wait 3 minutes and log into web interface.
 - ◆ Clear your browser cache if the web login does not display.

Upgrade in DD-WRT

AFTER FLASHING THE TRAILED BUILD, only use the following builds OR YOU WILL BRICK THE e3000:

- For builds before svn16773, ONLY USE *e2k-e3k.bin* builds
 - For builds since svn16773, ONLY USE an *E3000.bin* trailed build
 - If running an E3000.bin build since svn16772, you can upgrade using E3000 (trailed) or nv60k builds
 - See [Where do I download firmware?](#) for links.
1. To flash an nv60k build (that replaces e2k-e3k), you must flash a trailed E3000 build **from svn16773 or later** before nv60k. **Do not flash directly from e2k-e3k to nv60k!**
 - ◆ To flash another e2k-e3k build such as 15692 (**must have e2k-e3k in the file name**), follow these steps.
 2. Download the desired e2k-e3k or e3000.bin trailed build
 3. Hard reset the router, then login to the router at 192.168.1.1.
 4. Go to the *Admin->Firmware Upgrade* page and flash the downloaded file.
 5. Wait AT LEAST 5 minutes until the WLAN light turn on, then unplug power on router and wait 30 seconds.
 6. Power up and wait 5 minutes, then hard reset again
 7. Wait until it finishes booting, log into web interface, set user/password, and set up DD-WRT
 - ◆ Clear your browser cache if the web login does not display.

e2k-e3k and nv60k

Any build past 16773 requires a different build, rather than e2k-e3k, for subsequent flashing. In order to use one of these experimental builds, you must ALREADY HAVE dd-wrt installed on your router using the instructions above, following the steps in the [Peacock announcement](#) note 1.

Linksys_E3000

The first Eko -nv60k build is 16773; the first official BrainSlayer -nv60k build is 16785. If you have a pre-16773 build on the router then you can load either of BrainSlayers 16785 or 16994 builds with file name ending in e2k-e3k, flashing any those files will be the step stone bringing you over to -nv60k type builds.

- 16785:
 - ◆ ftp://ftp.dd-wrt.com/betas/2011/04-09-11-r16785/broadcom_K26/dd-wrt.v24-16785_NEWD-2_K2.6
 - ◆ ftp://ftp.dd-wrt.com/betas/2011/04-09-11-r16785/broadcom_K26/dd-wrt.v24-16785_NEWD-2_K2.6
 - ◆ ftp://ftp.dd-wrt.com/betas/2011/04-09-11-r16785/broadcom_K26/dd-wrt.v24-16785_NEWD-2_K2.6
- 16994:
 - ◆ ftp://ftp.dd-wrt.com/betas/2011/05-08-11-r16994/broadcom_K26/dd-wrt.v24-16994_NEWD-2_K2.6
 - ◆ ftp://ftp.dd-wrt.com/betas/2011/05-08-11-r16994/broadcom_K26/dd-wrt.v24-16994_NEWD-2_K2.6
 - ◆ ftp://ftp.dd-wrt.com/betas/2011/05-08-11-r16994/broadcom_K26/dd-wrt.v24-16994_NEWD-2_K2.6

16995 is the last dd-wrt build with upgrade files of e2k-e3k type, all upgrading thereafter is done with -nv60k type files.

Kong Build

Kong 22000++ is a stable, reliable, recommended large build for the E3000 without the Heartbleed vulnerability. You can (only) upgrade to Kong from DD-WRT. (There are no trialed Kong builds.) Two versions are available:

- DLNA (recommended for home users)
- VPN (recommended for office users)

(Easiest way to rip minidlna is flash the DLNA build then

```
cp /usr/sbin/minidlna /tmp/minidlna.conf /mnt
```

and then flash the VPN build.)

K3.x upgrade

To install K3.x the first time, follow these steps using these EXACT builds, otherwise it will soft brick the E3000.

1. Start with a hard reset, then load from the GUI (*Admin->Firmware Upgrade*):
2. [K2.6 21676 mini e3000](#), wait 5 minutes, hard reset, then load from the GUI:
3. [K2.6 21676 mega nv60K](#), wait 5 minutes, hard reset, then load from the GUI:
4. [K3.x 21676 mega nv60K](#), wait 5 minutes, hard reset
5. Now any newer K3.x_mega build can be flashed from the GUI (use the trailed build for recent builds)

Reference: [redhawk post](#)

See [Where do I download firmware?](#) for links.

Build Information

Brainslayer added E3000 support starting from 14929 kernel 2.6 (in the **broadcom_K26** folder).

Also it has been asked about the builds with e2k-e3k name in them, these builds when already running dd-wrt, you can simply use one of those builds to upgrade, but the initial flash should always be done with the trailed build (build with the unit only name in it) linked above.

Useful Tips

- Cooling can be very important for E-series routers, due to the lack of airflow. It can affect performance and wireless stability. An easy mod to improve airflow under the unit is in [this post by buddee](#).
- If you experience disconnects from the Internet/Network with this router feel free to try the following settings:

```
Wireless > Channel > Ch 161 (5GHz)
Wireless > Channel > Ch 9 (2.4GHz)
Wireless > Security > WPA2 Personal - AES
Wireless > Advanced Wireless Settings > Beacon Interval: 75
Wireless > Advanced Wireless Settings > Fragmentation Threshold: 2306
Wireless > Advanced Wireless Settings > RTS Threshold: 2307
Security > Firewall > Block Anonymous WAN Access <--- Uncheck
```

Wireless-N Configuration

From the [Wireless-N Configuration](#) wiki: AES security is required for 802.11n, as TKIP will force 802.11g. AES+TKIP is also allowed, but only WPA2+AES is recommended.

Printing

[Printer Sharing](#) gives a general description how to configure the router to connect a printer on the USB port. However it describes too much and things that are not needed or even not working for the E3000 router. Following procedure works with firmware DD-WRT v24-sp2 (12/24/10) mega, the latest version at the moment of writing.

So here a more specific description how to enable printing.

On the web interface of the router (<http://192.168.1.1>):

- Enable "Core USB Support", "USB 1.1 Support (UHCI)", "USB 1.1 Support (OHCI)", "USB 2.0 Support", "USB Printer Support" on the Services tab (all items under "USB Support" except for "USB Storage Support"). Note that the router did not recognize my printer if I left the USB 1.1 drivers unselected. This even though the printer supports USB 2.0.
- It is **not** necessary to enable JFFS2 support via Administration, Management
- Check that Secure Shell is enabled via Services, Service. SSHd and Password Login must be enabled

Linksys_E3000

- Connect your printer to the router
- Reboot the router via Administration, Reboot Router

Via an ssh client (for example putty under Windows) connect via SSH on port 22 to the router:

- login as: root
- password: <your password that you use to login to the web interface>
- check if your printer was recognized:

```
root@my-ddwrt-router:~# dmesg | grep usb
usbcore: registered new interface driver usbfs
usbcore: registered new interface driver hub
usbcore: registered new device driver usb
usb usb1: configuration #1 chosen from 1 choice
usb usb2: configuration #1 chosen from 1 choice
usb 2-1: new full speed USB device using ohci_hcd and address 2
usb 2-1: configuration #1 chosen from 1 choice
usbblp0: USB Bidirectional printer dev 2 if 0 alt 1 proto 2 vid 0x047E pid 0x1001
usbcore: registered new interface driver usbblp
```

This indicates that a printer is detected on the USB port

- Now enter

```
root@my-ddwrt-router:~# netstat -an
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 0.0.0.0:9100            0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:80              0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:53              0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN
tcp        0 268 192.168.1.1:22         192.168.1.118:53385    ESTABLISHED
tcp        0      0 192.168.1.1:80         192.168.1.118:53547    TIME_WAIT
tcp        0      0 192.168.1.1:80         192.168.1.118:53538    TIME_WAIT
tcp        0      0 192.168.1.1:80         192.168.1.118:53545    TIME_WAIT
tcp        0      0 192.168.1.1:80         192.168.1.118:53548    TIME_WAIT
tcp        0      0 192.168.1.1:80         192.168.1.118:53543    TIME_WAIT
tcp        0      0 192.168.1.1:80         192.168.1.118:53540    TIME_WAIT
tcp        0      0 192.168.1.1:80         192.168.1.118:53544    TIME_WAIT
tcp        0      0 192.168.1.1:80         192.168.1.118:53541    TIME_WAIT
tcp        0      0 192.168.1.1:80         192.168.1.118:53542    TIME_WAIT
tcp        0      0 192.168.1.1:80         192.168.1.118:53546    TIME_WAIT
udp        0      0 127.0.0.1:34954        0.0.0.0:*
udp        0      0 0.0.0.0:53             0.0.0.0:*
udp        0      0 0.0.0.0:67             0.0.0.0:*
raw        0      0 0.0.0.0:255            0.0.0.0:*               255
Active UNIX domain sockets (servers and established)
Proto RefCnt Flags       Type       State      I-Node Path
unix   3      [ ]        STREAM    CONNECTED  1178
unix   3      [ ]        STREAM    CONNECTED  1177
unix   2      [ ]        DGRAM          1161
```

We are especially interested in the line

```
tcp        0      0 0.0.0.0:9100            0.0.0.0:*               LISTEN
```

It is saying that a service via tcp is listening on port 9100

Linksys_E3000

- And at last enter

```
root@my-ddwrt-router:~# ps | grep p9100d
927 root      1108 S      p9100d -f /dev/lp0 0 -t 5
```

This also indicates that a process p9100d is running looking at port /dev/lp0 which is a printer port

- You don't have to install anything via ipkg or any other script. Everything is installed by default. So if you don't have the expertise to ssh to your router, don't despair, it is only to make sure that your router recognises your printer on the USB port.

To install the printer under Windows, use the following procedure:

Windows 7

- Open Control Panel, Devices and Printers
- Choose Add a printer
- Add a local printer
- Create a new port
- Type of port: Standard TCP/IP Port
- Hostname or IP address: 192.168.1.1
- Make sure that the checkbox to query the printer and select a driver is not checked
- Wait until the detection is done. It will say that the device is not found. Don't despair
- Choose Custom and then click Settings
- Make sure that Protocol Raw is selected and Port 9100 is entered. That will be proposed.
- Leave all other settings also as they were and press OK
- Click Next.
- Choose the printer driver for your printer.
- Click Next
- Give your printer a name
- You don't have to share the printer
- Next
- You can set it as default printer
- Finish

Other

- <http://uis.georgetown.edu/software/documentation/winxp/winxp.network.printer.html>
- <http://docs.info.apple.com/article.html?path=Mac/10.5/en/9031.html>

Don't forget that your routers default address is 192.168.1.1 and its port is 9100

Reverting back to stock firmware

To revert back to stock firmware download the latest E3000 firmware from linksys site, reset you router to defaults from within dd-wrt's webgui, wait, then login and select the stock firmware file and flash, make sure to select "reset to defaults" on the drop down menu when flashing. See

<http://homesupport.cisco.com/en-us/wireless/linksys/E3000>. For older versions see <http://www.mediafire.com/linksysfw>