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## Main Guide [Updated 5/2020]

USB Tethering with an Android phone, or using a USB Modem, on your DD-WRT-enabled router.

### USB Phone Tethering [Attach an android-based phone via USB to a router]

Already tethered your phone to your computer via USB (or wifi) and now you want to move up to having a full router?

**Here is a Step-by-Step, with a \$19 phone, \$25 - 40/m\* unlimited plan and a \$5 router** [Your router costs may vary] [visible.com](#) [Visible Reddit forum](#) [\\*click here for discounts](#)

Phone: Verizon Visible R2 (ZTE) with LTE-only pre-pay [bandwidth is typically 5mbps down, 2mbps up, however there is no data maximum per month after which your data rate becomes unusable (e.g. 50GB 'unlimited' limit on Tmobile)]

Router: Linksys EA6400 running DD-WRT v3.0-r37012 std (2018/09/21) and also works with r42819 (2020/03/30) [fully tested!]

### Requirements:

1. **Reset your router:** This assumes you have saved your existing Router settings first, **before resetting your router** to test these USB Tethering settings. If you've done some custom config since flashing your router, and you want to keep it, first: back up your settings, then reset the router, and test this out. If you can get it working from a reset router, then if it does not work with your custom settings, you'll have to figure out what additional steps you need to do that are beyond the scope of this article.

2. **Make sure the necessary modules exist on your build:** We will go through the steps to check for this. This guide assumes that the build you downloaded and flashed of DD-WRT, has the modules `cdc_ether.ko` and `rndis_host.ko`, which are not present on some builds (regardless of build size) but required for USB tethering. If they do not exist on your build, you may need either: a larger version of DD-WRT that includes them, or to reflash over to OpenWRT [However OpenWRT has limited Broadcom support!]. These are -very small- modules (8kb) but are not included on some larger builds for some routers.

## Steps:

1. Router: Main configuration page: leave WAN on Automatic DHCP. Set the MTU manually to 1200 [1]. Set your timezone. Save & Apply.
2. Phone: connect it to router's USB port with a USB cable you've already used for successful tethering with your laptop.
3. Phone: Turn on your phone's Developer Options: [Click 'Build Number' in 'About Phone', 7 times in rapid succession]
4. Phone: Search for 'Default USB Configuration' in 'Developer Options'. Set it to 'USB Tethering'
5. Phone: **Permanently turn off your screen lock** (PIN or pattern etc). **The phone must be unlocked for USB Tethering to turn on automatically** when the router is booting-up, with the phone plugged in & powered-up from the Router USB port. A locked phone will not tether when the router's USB interface turns on.
  - (Alternative, not tested) Use Android's Smart Lock feature to automatically unlock your phone.
6. Router: Services, USB: Enable 'Core USB Support'. Apply.
7. Phone: USB Tethering will turn on automatically. **Check to make sure this is happening.** You can press Cancel or simply ignore the pop-up that appears asking what USB connection mode the phone should use. It will have USB tethering turned-on either way at this point.
8. Router: Telnet into the router. Run the following commands:
  - Press Enter after each command. `insmod` commands will insert modules quietly, and not report success.
  - 1. `cd /lib/modules/...`
    - where '...' is your kernel version
    - The last folder, e.g, .../4.4.157, will vary in name, depending on the build of DD-WRT.
    - For noobs: do a `cd /lib/modules`, then an `ls` to see what the name of the folder is. Or look in Status tab.*
  - 2. `insmod usbnet.ko`
  - 3. `insmod cdc_ether.ko`
  - 4. `insmod rndis_host.ko`
    - Use the command '`lsmod`' to verify the modules `usbnet`, `cdc_ether` and `rndis_host` are running.
  - 5. `ifconfig usb0 up`
  - 6. `udhcpc -i usb0`
    - You should be able to 'ping google.com' now from within the telnet interface, but not yet on any connected client devices. *Noobs: CTRL-C to stop ping.*
  - 7. `iptables --table nat --append POSTROUTING --out-interface usb0 -j MASQUERADE`
  - 8. `iptables --append FORWARD --in-interface br0 -j ACCEPT`
    - You should now be able to ping google.com from any client devices.
  - 9. Set the following: further corrects potential MTU issues when connecting a phone to a router (not only DD-WRT!):
    - `iptables -t mangle -A FORWARD -p tcp --tcp-flags SYN,RST SYN -j TCPMSS --clamp-mss-to-pmtu`
10. (Optional: Not tested) If you are trying to hide tethering:
  - `iptables -t mangle -I POSTROUTING -o `get_wanface` -j TTL --ttl-set 65`
  - `iptables -t mangle -I PREROUTING -i `get_wanface` -j TTL --ttl-set 65`
11. Fully test your apps, websites and other services on all your connected clients.

## Cellular\_Phone/USB\_Modem\_as\_WAN\_connection

Everything should be working at this point.

◇ To make the router configure automatically on bootup, you can automate it by adding the following lines to the Startup script:

12. Go to the tab Administration, Commands.

13. Paste: [these are the commands you used above]

```
cd /lib/modules/x.x.xxx #change these values x, exactly
as you did above, based on your kernel build
insmod usbnet.ko
insmod cdc_ether.ko
insmod rndis_host.ko
ifconfig usb0 up
udhcpc -i usb0
iptables --table nat --append POSTROUTING --out-interface usb0 -j
MASQUERADE
iptables --append FORWARD --in-interface br0 -j ACCEPT
iptables -t mangle -A FORWARD -p tcp --tcp-flags SYN,RST SYN -j TCPMSS
--clamp-mss-to-pmtu
```

14. Click 'Save Startup'.

15. (Optional: not tested) You could break out the iptables commands into the Firewall script. But I haven't gotten it to work (no connectivity after Applying changes). Instead, reboot the router after making personal additional changes.

16. Click on (Administration) Management. Click 'Save'. Then 'Reboot Router'.

**Again, everything should be working at this point.** You are finished with this guide. Thank you!

*Credits: Users sydlexia and shenoyh on the forums for the source information.*

See link: <https://forum.dd-wrt.com/phpBB2/viewtopic.php?p=1128616#1128616>

## USB Modem [Use dongle that contains a SIM]

There are newer methods, integrated into the firmware than the previous version of this wiki. The relevant threads: K26 NEWD-2 Mega/Big builds starting with 14414 now have the 3G/UTMS WAN connection option built into the firmware.

See the following thread for more information:

<http://www.dd-wrt.com/phpBB2/viewtopic.php?t=69970>

See also [http://www.dd-wrt.comhttp://forum.dd-wrt.com/wiki/index.php/Mobile\\_Broadband](http://www.dd-wrt.comhttp://forum.dd-wrt.com/wiki/index.php/Mobile_Broadband) for a list of directly supported device in K26 and K3.x builds.