

802.1q trunking on the Linksys WRT54G/S/L with DD-WRT

Contributed by Kevan

Our scenario

For our example scenario we will simplify things a bit. We will have Network A, Network B and the internet on our WRT54G running DD-WRT. (If you need help installing DD-WRT firmware on your WRT click [here](#).) Network A is the standard internal LAN and Network B is an addition VLAN/Network that we setup. Networks A and B should be able to route packets freely and both should be able to access the internet. Network A's IP subnet is 192.168.1.0 with a mask of 255.255.255.0. Network B's IP subnet is 192.168.2.0 with a mask of 255.255.255.0. Port 4 on the WRT will be the trunk with both Networks A and B running as a tagged 802.1q trunk back to our VLAN aware switch (Cisco, Dell, HP etc...). DHCP service will be provided on both internal subnets by the WRT. For the purposes of this HOWTO we will assume that the ethernet switch on the other end of the trunk is already configured for a 802.1q trunk with VLAN2 tagged and VLAN3 tagged.

While working with a WRT54G at a small office wisu ended up needing to setup a 802.1q trunk between the WRT and a Dell Managed ethernet switch. The need came about because we wanted to keep the number of switch ports used while setting up the WRT as the default router and firewall for several subnets. As we investigated what it was going to take to get the WRT54G setup we determined there were a few problems:

- The default internal LAN network on the WRT is VLAN 0 - VLAN 0 is not supported on most 802.1q capable switches. Most switches (including ours) start at VLAN 1 and recommend starting at VLAN 2.
- The web interface for DD-WRT enables VLAN tagging on a per port basis but does not enable each VLAN for tagging.
- The documentation on this topic is hard to find.

Our scenario

For our example scenario we will simplify things a bit. We will have Network A, Network B and the internet on our WRT54G running DD-WRT. (If you need help installing DD-WRT firmware on your WRT click [here](#).) Network A is the standard internal LAN and Network B is an addition VLAN/Network that we setup. Networks A and B should be able to route packets freely and both should be able to access the internet. Network A's IP subnet is 192.168.1.0 with a mask of 255.255.255.0. Network B's IP subnet is 192.168.2.0 with a mask of 255.255.255.0. Port 4 on the WRT will be the trunk with both Networks A and B running as a tagged 802.1q trunk back to our VLAN aware switch (Cisco, Dell, HP etc...). DHCP service will be provided on both internal subnets by the WRT. For the purposes of this HOWTO we will assume that the ethernet switch on the other end of the trunk is already configured for a 802.1q trunk with VLAN2 tagged and VLAN3 tagged.

First Step - Changing Network A's VLAN

First we will move the default internal LAN network (Network A) from VLAN 0 to VLAN 2

1) Install the v.23 dd-wrt final or SP1 beta version of firmware available [HERE](#) -- Instructions for installing DD-WRT are available [HERE](#)

2) Logon to the web management interface in DD-WRT. Select the Administration tab. Scroll down until you find the JFFS2 Support information. JFFS2 must be enabled. If you have never enabled JFFS2 before you will also need to select the Clean JFFS2 enable button to initialize the file system. Scroll to the bottom and select Save Settings.

3) Telnet to your router and enter the username of root and your administrative password.

4) Copy the following script and paste on the command line.

----- Copy starting below this line. -----

```
mkdir /jffs/etc
```

```
mkdir /jffs/etc/config
```

```
nvramp set vlan0ports="5*"
```

```
nvrans set vlan2ports="1 2 3 4 5t"
```

```
nvrans commit
```

```
echo '
```

```
#!/bin/ash
```

```
PATH="/sbin:/usr/sbin:/bin:/usr/bin:${PATH}"
```

```
ifconfig vlan2 up
```

```
' > /jffs/etc/config/vlan2.startup
```

```
chmod 750 /jffs/etc/config/vlan2.startup
```

----- Stop here when selecting text to copy -----

5) Back to the web management interface in DD-WRT. Select the Setup tab and the select the VLAN sub-tab.

6) For ports 1 through 4 de-select VLAN 0 and select VLAN 2. Then move VLAN 0's bridge from LAN to None and VLAN 2's bridge from None to LAN.

7) Click the Save Settings button at the bottom of the page.

8) Back to the telnet window. At the prompt type reboot and hit <enter>

Your router is running with your default VLAN on VLAN 2. Network A is now configured to run on VLAN2. Verify that connectivity to internal hosts and the internet is working correctly.

Second Step - Setting up Network B and establishing the trunk on port 4

1) Back to the telnet window. Copy the following script and paste on the command line.

----- Copy starting below this line. -----

```
nvrans set vlan2ports="1 2 3 4t 5t"
```

```
nvrans set vlan3ports="4t 5t"
```

```
nvrans commit
```

```
echo '
```

```
#!/bin/ash
```

```
PATH="/sbin:/usr/sbin:/bin:/usr/bin:${PATH}"
```

```
iptables -I FORWARD -i br0 -o vlan3 -j ACCEPT
```

```
iptables -I FORWARD -i vlan3 -o br0 -j ACCEPT
```

```
iptables -I FORWARD -i vlan3 -o vlan1 -j ACCEPT
```

```
iptables -I INPUT -i vlan3 -j ACCEPT
```

```
ip addr add 192.168.2.1/24 brd + dev vlan3
```

```
ifconfig vlan3 up
```

```
' > /jffs/etc/config/vlan3.startup
```

```
chmod 750 /jffs/etc/config/vlan3.startup
```

----- Stop here when selecting text to copy -----

2) On port 4 select the tagged checkbox and then select VLAN 3.

i

3) Click the Save Settings button at the bottom of the page.

4) Back to the telnet window. At the prompt type reboot and hit <enter>

Your WRT should be configured and port 4 is a 802.1q trunk with both VLAN 2 and 3 present and tagged. (Network A and B)

Last Step - Configuring DNSMASQ to hand out DHCP leases to Network B

1) Back to the web management interface in DD-WRT. Select the Administration tab and then the Management sub-tab.

2) Scroll down until you find the DNS MASQ section of the Management tab.

3) In the Additional DNS Options box paste the following:

```
----- Copy starting below this line. -----      interface=vlan2
dhcp-range=192.168.2.100,192.168.2.149,255.255.255.0,1440m
```

----- Stop here when selecting text to copy -----

4) Click the Save Settings button at the bottom of the page.

You should now have a WRT54G/S/L running DD-WRT with two separate and routable subnets with access to the internet.

If you have any questions or issues please leave a comment and we will see if we can help.