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Introduction

Hardware Specifications

See [Netgear R9000 on wikidevi](#)

This router can handle top VPN speeds, as of 2019.

Please note, Wireless-AD (60GHz) support is untested at this time, 2019.

10g interface- supported SFP hardware info:

<https://forum.dd-wrt.com/phpBB2/viewtopic.php?p=1230130#1230130>

Installation

[Download](#) and flash the factory-to-ddwrt.img file:

1. Authenticate to the router. The original Netgear firmware defaults to IP address 192.168.1.1, username "admin" and password "password"
2. Go to the Administration page - then Upgrade (or something similar).
3. You will see a notice about the file you uploaded being older than the firmware currently on the router. Click Yes to proceed.
4. The router will flash DD-WRT. Wait a few minutes (5 min to be safe).

Try logging into DD-WRT at <http://192.168.1.1>. You should see a screen asking you to create a username and password.

Upgrading/Downgrading DD-WRT

Download and flash the r9000-webupgrade.bin file:

- **NOTE: The webupgrade.bin file is *only* used to upgrade or downgrade to a **different** version of DD-WRT.**

1. Authenticate to the router.
2. Go to the *Administration -> Firmware Upgrade* page.
3. Select the r9000-webupgrade.bin file you downloaded (do not select "reset to defaults after flashing").
4. Click on "Upgrade".
5. Wait a minimum of 5 minutes for router to flash and reboot.

- **NOTE:** reset is only necessary if you run into issues or changes in firmware require it. There are two methods of doing this:
via the "*Administration -> Factory Defaults*" page or via telnet/ssh nvram erase && reboot.

Recovery

The same rules apply for dd-wrt tftp as you would for stock below. Just make sure you grab the factory-to-dd-wrt.IMG file.

ONLY IMG files can be TFTP'd onto the router.

Make sure you statically set the IP address on your computer to 192.168.1.2; subnet 255.255.255.0 and gateway to 192.168.1.1.

If you want to go back to stock: All you need to do is TFTP the stock firmware back onto the router. Make sure to factory reset dd-wrt on the admin>factory defaults tab. Grab the latest Firmware file from Netgear: <https://www.netgear.com/support/product/R9000.aspx#download>

1. Get TFTP64 installed on your PC <https://www.tftpd64.com/> (MAKE SURE TO ALLOW THIS PROGRAM IN YOUR FIREWALL FOR BOTH PUBLIC AND PRIVATE NETWORKS OR YOU'LL NEVER SEND THE IMG FILE)
2. Read how to use "TFTP client mode"-
<https://kb.netgear.com/000059633/How-to-upload-firmware-to-a-NETGEAR-router-using-TFTP-client>
3. Get the TFTP program up and running and ready to push the correct file onto the router- then you will wait for step 6 below.

To put the R9000 into TFTP mode.

1. Power off the router.
2. Hold down the reset button.

3. Power on the router and keep holding down the reset button.
4. When the router first boots the power led flashes orange and then it will switch to a slow white flash. Keep holding down reset button. The slow white flash will change to a faster white flash and then to a second even faster white flash. Let it blink 3-4 on the second set of faster white flashes and let go of the reset button and now send the IMG file via TFTP. When the power LED is fast white blinking, the router is in TFTP mode and ready to accept any IMG file (Stock or dd-wrt). You will have about 2-3 minutes to send the IMG file.
5. Go to the tftp program and re-select your NIC with the static IP 192.168.1.2 from the dropdown. It will change as you boot the router initially so you have to go back and select the right NIC/IP in the TFTP program. (You can avoid this by using a cheap/dumb 1gig switch which keeps your NIC active the whole time and shouldn't have to worry about re-selecting the right NIC in the dropdown)
6. Push the file onto the router using TFTP64.
7. Wait a full 5 minutes before touching the router. It should do its update and reboot by itself. Keep your browser open and try to load 192.168.1.1 It should load the stock firmware gui/website automatically once the router is booted. If the stock gui loads, clear your static NIC settings to grab IP's automatically again.
8. If 5 minutes have passed and nothing has happened performing website refreshes, then reboot the router manually and try loading the gui website again.

GPIO

GPIO LED's

- 22 =Power LED
- 23 =WAN LED
- 36 =USB 1 LED
- 37 =USB 2 LED
- 30 =10Gbps LED
- 29 =WIFI Button LED

https://wiki.dd-wrt.com/wiki/dd-wrt.comhttp://wiki.dd-wrt.com/wiki/index.php/LED_Scripts

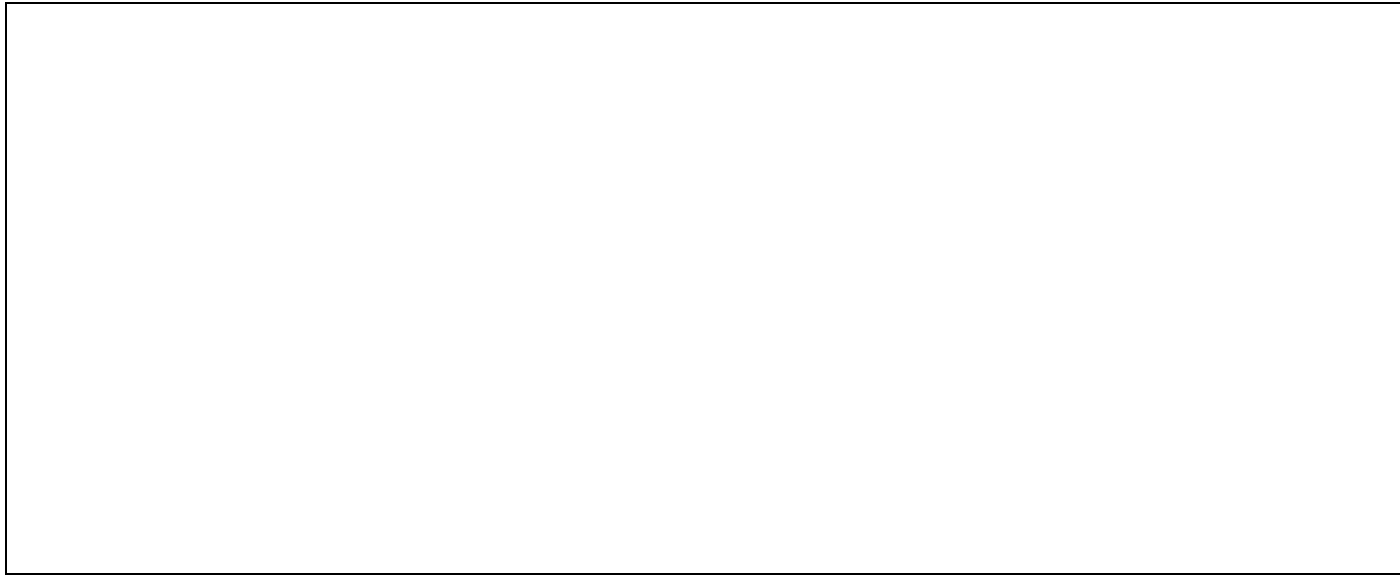
VLAN Detached networks

Putting any of the 6 ethernet ports on a separate detached VLAN network is complicated by the fact that there are **two** internal hardware switches used by R9000 for routing traffic. Creating additional Vlan's on the R9000, right now, has not yet been "figured out" for the 6 ethernet ports.

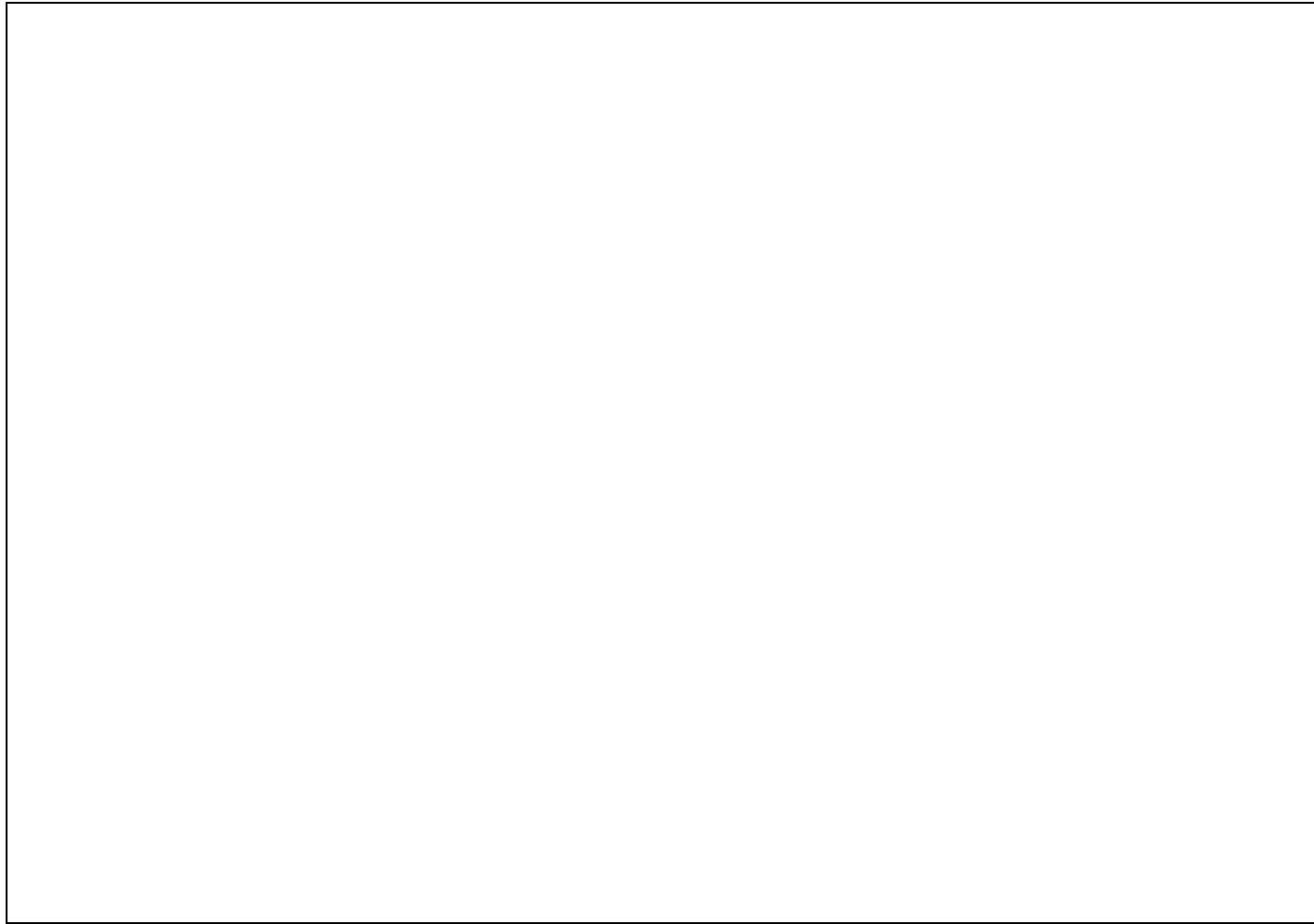
However, the SFP+ port can be easily segregated into its own VLAN since it's the only port associated with the eth0 interface. Read below for how to unbridge eth0, which is bridged to br0 by default .

Detaching the SFP+ port

To create a 10 gb/sec VLAN, start by setting up the SFP+ port as you would any VAP by navigating to **Setup > Networking**:



Next, under the **Port Setup** heading, locate the group box called **Network Configuration eth0** and unbridge the interface by selecting the **Unbridged** radio button assigned to **Bridge Assignment**. Since it's going to be a VLAN, select the **Net Isolation** radio button to isolate it from the rest of your network and assign **IP/Subnet mask** of your choosing.



Optionally, you can force DNS redirection if you want the devices on that VLAN to be forced into using a preferred DNS server choice by enabling the **Forced DNS Redirection** option and entering the DNS server IP in the **Optional DNS Target** text boxes.

Stop here and click **Save** and **Apply Settings** at the bottom of the page, in that order.

Finally, create a DHCP server for your newly minted VLAN by scrolling to the bottom of the same page and, under the **DHCPD** heading, click the **Add** button to create a new DHCP server. In the ensuing list box, scroll through the list of interfaces and select eth0, make sure it is enabled by selecting **On** in the neighboring list box, leave the default lease time or modify it, click **Save**, then **Apply Settings**, in that order.



Netgear_R9000

Restart for good measure and begin using the SFP+ VLAN.

As for choice of SFP+ modules, note that there really isn't any meaningful speed difference between them as shown in this Serve The Home YT video: <https://www.youtube.com/watch?v=4qM9dyEuaS4>

Also note that the SFP+ modules do get hot. I would change the fan threshold parameters to make sure that your R9000 fans stay on 24/7. They aren't loud and could help keep mobo and CPU speeds in check during the incoming summer months while transferring files at 10 gb/sec in your new VLAN.