

Motorola NVG5xx Bypass

Like many other AT&T GigaPower users the forced use of Motorola's NVG510, NVG589, NVG595 or NVG599 has been a sore subject! For most of us the shitty part is that all IP traffic is tracked via the internal NAT table for IPv4 connections. NVG5xx devices all crap out after about 2048 connections. As a power user that has a lot of activity at all times, I can't believe that AT&T is using this as their CPE.

*WARNING: This guide is designed for **internet only** customers. If you subscribe to TV or Voice services they will cease to function until returning to the NVG5xx platform.*

Alright, you are here to learn how you can eliminate the NVG5xx from the mix. Well the truth is that you can't fully remove it from the picture, but won't need it past boot and service lock.

I am using a pfSense router that makes the following work very easy. I am not going to go into deep detail on each part. This guide is assuming Intermediate to expert level understanding of internet IP technologies. You should be able to use any router that supports spoofing the WAN MAC.

Things you will need...

1) Netgear ProSafe Plus switch, I am using a gs108e-v2. You can probably use the more recent version of this, but since I don't have one I can't test it. This is a light managed switch that supports VLANs, and allows you to change port assignments without **power cycling / rebooting** the device, which is what we want!

2) A few additional CAT5e or CAT6 cables, mainly to leave in place in case you have to restart your WAN connection.

To begin open the NVG5xx admin website (<http://192.168.1.254>). Click the Broadband tab and print this page for future reference. This will contain your WAN IP, WAN MAC and MTU. The only value you don't have is your netmask. Mine was /22 or 255.255.252.0 or 0xffffc00. You can obtain yours by reading your current interface config from your router, assuming you're already using IP PASSTHROUGH to a router.

Next, go ahead and replace your router's WAN settings to match the values obtained above.

Next, you need take your gs108e switch and configure it for your network. Using the configuration tool for the Netgear switch set the internal IP address and get it recognized on your network. After which you will need to assign each port to a VLAN. We will be using **802.1Q** as the VLAN type, choose the **Basic** config type not Advanced. This type allows you to simply assign a VLAN ID number to the port. On this switch there are 8 ports, of which we are going to focus on three.

Network System **VLAN** QoS Help

Port Based | **802.1Q**

Basic 802.1Q VLAN Configuration

Basic 802.1Q VLAN Status

Basic 802.1Q VLAN ☐ Disable ☒ Enable

Basic 802.1Q VLAN Identifier (1-4093 or all)

port	01	02	03	04	05	06	07	08
VLAN ID	1	2	3	4	4	4	4	4

Switch Port	VLAN Assignment	Device
1	1	ONT
2	2	NVG5xx WAN
3	3	Router WAN
4	4	vacant
5	4	vacant
6	4	vacant
7	4	vacant
8	4	Uplink to existing LAN Switch

Initial gs108e Layout

We want only two ports to be in the same VLAN at any time, this will effectively create a passthrough (like a single cable) on the switch. This forces all traffic from either port to be passed to the other port in the same VLAN.

So, configure your VLAN numbers initially with your ONT and NVG5xx device in the same VLAN. Click apply, wait a few seconds and then **power cycle** the NVG5xx. This will cause the NVG5xx to go through a complete boot sequence and grant your WAN MAC address privileges on the network.



Switch Port	VLAN Assignment	Device
1	1	ONT
2	1	NVG5xx WAN
3	3	Router WAN
4	4	vacant
5	4	vacant
6	4	vacant
7	4	vacant
8	4	Uplink to existing LAN Switch

NVG5xx Pre-Boot gs108e Layout



NVG589 Service Light - ON

Once the NVG5xx has completed the boot sequence and the Service light is solid make the following change to the switch VLAN assignments.

Switch Port	VLAN Assignment	Device
1	1	ONT
2	2	NVG5xx WAN
3	1	Router WAN
4	4	vacant
5	4	vacant
6	4	vacant
7	4	vacant
8	4	Uplink to existing LAN Switch

Post-Boot - Router gs108e Layout

This is where the magic of VLANing really shines. When you apply the above change to the switch, your router will now take over fully as your gateway device. This is all seamless and the link to the ONT will still be intact!

You are effectively done with this guide! Go enjoy your fiber connection without any NAT table limitations and who know what other garbage AT&T and NSA have cooked into the NVG5xx gateways!

In the event of losing link from the ONT or router to the VLAN switch you will need to repeat the boot procedure. This is necessary since the only real security between the ONT and NVG5xx was the fact they used to be linked directly together. Once that link is broken a reauthorization is required on the NVG5xx for the ONT to function.