

# Sonicwall NSA220 / TZ215 / TZ300,400,500 Configuration Guide

(Firmware: SonicOS Enhanced 5.8.1.1-350 & up)



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## Introduction

Thank you for choosing FreedomVoice for your industry-leading cloud based phone system. We are glad to have you on board as part of our team and this document will help you set up the SonicWALL router to best optimize voice quality.

NOTE: FreedomVoice only provides QoS configuration support for this product. Our knowledge of these devices does not extend beyond the scope of a basic QoS configuration for VoIP. For networking, VLAN, VPN configuration or anything outside of VoIP QoS as covered by this guide, please consult SonicWALL for support.

## Set BWM and measured WAN speed

The Sonicwall works best when you specify the amount of internet bandwidth that is allocated to you from your ISP. This step is important to ensure proper QoS functionality. Don't just take your ISP's word for your upload and download speeds, the values entered here should be an average of three, real-world speed tests. A recommended place to run these tests is at [www.speedtest.net](http://www.speedtest.net).

### Follow these steps to set the WAN bandwidth:

1. Login to the Sonicwall router GUI (default is 192.168.168.168).
2. Click on the "Firewall Settings" section in the left column, select "BWM".
3. Next to "Bandwidth Management Type:" make sure "Global" is selected.
4. Next to "0 Realtime" check the "Enable" box and set "Guaranteed" to 0 %.
5. Next to "2 High" uncheck the "Enable" box and set "Guaranteed" to 0 %.
6. Next to "4 Medium" set "Guaranteed" to 0 %.
7. Next to "6 Low" set "Guaranteed" to 0 %.
8. Click the "Accept" button.
9. From the "Network" section in the left column, select "Interfaces".
10. Under "Interface Settings" find "WAN" under the "Zone" column and click on the pencil icon under the "Configure" column.
11. Make sure the "Zone:" drop down says "WAN".
12. Click on the "Advanced" tab.
13. Check the box "Enable flow reporting".
14. Under the heading "Bandwidth Management", check "Enable Egress Bandwidth Management".
15. In the field "Available Interface Egress Bandwidth (Kbps):" enter your measured internet speed. If you have a single T-1 this might be "1500.00". If you have a cable modem that measures 2Mbps up, you would enter "2000.00".
16. Under the heading "Bandwidth Management", check "Enable Ingress Bandwidth Management".
17. In the field "Available Interface Ingress Bandwidth (Kbps):" enter your measured internet speed. If you have a single T-1 this might be "1500.00". If you have a cable modem that measures 10Mbps down, you would enter "10000.00".
18. Click the "OK" button at the bottom of the window.

- **WAN speed setup is now complete.**

## Disable SIP ALG

Router/Firewall based SIP services re-write packet headers with information that does not work for cloud based VoIP. Symptoms can vary but will often be no dial tone, one way audio, calls only work in one direction etc.

### Follow these steps to disable SIP ALG:

1. Select "VoIP" and then "Settings" from the left column.
2. Under the heading "SIP Settings" uncheck "Enable SIP Transformations".
3. Click the "Accept" button.

## Configure QoS (Quality of Service)

**Note: To accomplish the QoS configuration, you can either have your phones segregated on their own separate logical network (subnet), assigned a range of IP's or you can enable QoS based on the individual MAC addresses of the devices.**

### Configure QoS Step 1: Create an Address Object

**Create an address object for the network, IP's or MAC addresses of devices you wish to give priority.**

1. Login to the Sonicwall router GUI (default is 192.168.168.168).
2. Click on the "Firewall" section in the left column, select "Address Objects".
3. Under "Address Objects" click "Add".
4. Enter a descriptive name such as "Phone Network" or "Ext 800" depending on the type of address you're choosing.
5. Set the "Zone Assignment:" field to "LAN".
6. In the "Type:" field, select "Range" (LAN Phone IP range), "Network" (Voice Subnet), or "MAC" (specific phone(s)).
7. Enter the applicable information (IP range, Network or MAC) into the next field.
8. Click "Add".

**\* If you chose type "MAC" you'll need to repeat the above process for each phone.**

**\*\* If you have added multiple entries into "Address Objects", it is most efficient to create an "Address Group" that contains all of the address object entries. This way when you add the rule to the firewall you only have to add the group instead of each individual address object entry.**

#	Name	Address Detail
1	IQ phones	192.168.1.2 - 192.168.1.10
2	x800	00:01:f2:13:a1:b2
3	x801	00:01:f2:13:a1:b3
4	x802	00:01:f2:13:a1:b4

### Configure QoS Step 2: Apply Address Objects to the firewall

**Next, create a firewall rule with an address object or an address group created in the previous step.**

1. Click on the "Firewall" section in the left hand column, select "Access Rules".
2. Under "Access Rules (ALL>ALL)" click "Add".
3. Select the "General" tab.
4. Keep the "Action" setting set to "Allow".
5. Next to "From Zone:" select "LAN".
6. Next to "To Zone:" select "WAN".
7. Next to "Service:" select "any".
8. Next to "Source:" select the address group ("FreedomVoice") that was set up in the last step.
9. Next to "Destination:" select "Any".
10. Check "Enable flow reporting".
11. Check "Enable packet monitor".

12. Click on the "Ethernet BWM" tab.
13. Check "Enable Egress Bandwidth Management".
14. For Egress "Bandwidth Priority" select "0 Realtime" from the drop down.
15. Check "Enable Ingress Bandwidth Management".
16. For Ingress "Bandwidth Priority:" select "0 Realtime" from the drop down.
17. Click "OK".

The screenshot shows a web browser window titled "Edit Rule - Google Chrome" with the URL <https://192.168.168.168/addRuleDlg.html?objTypes=3647#>. The page header includes the Dell SonicWALL logo and "Network Security Appliance". There are four tabs: "General", "Advanced", "QoS", and "BWM", with "BWM" being the active tab.

**Settings**

Action:  Allow  Deny  Discard

From : LAN

To : WAN

Source Port: Any

Service: Any

Source: IP7000

Destination: Any

Users Included: All *... these users will be allowed if not excluded,*

Users Excluded: None *... these users will be denied.*

Schedule: Always on

Comment:

Enable Logging  Enable Geo-IP Filter

Allow Fragmented Packets  Enable Botnet Filter

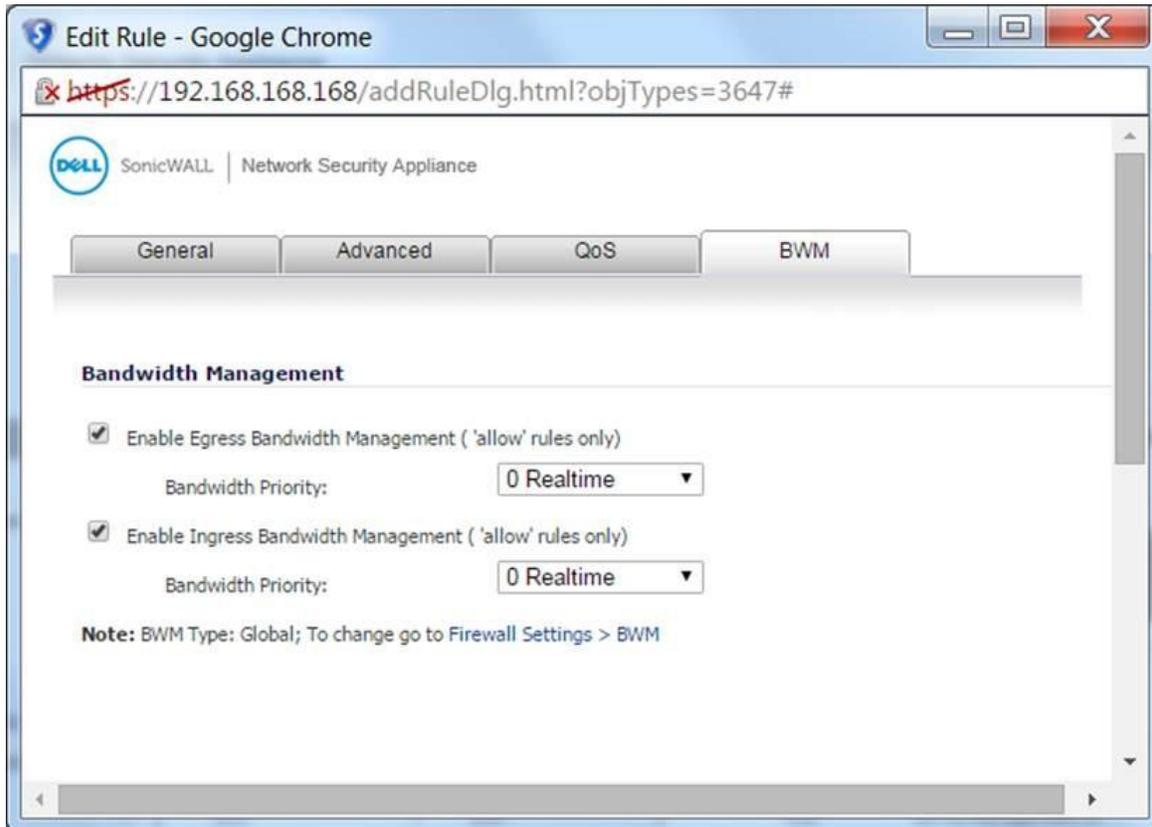
Enable flow reporting

Enable packet monitor

Enable Management

Ready

OK Cancel Help



- **QoS is now complete.**

**NOTE:** Some SonicWALL configurations with IPS (Intrusion Prevention Services) enabled have been known to eliminate the outbound ringing sound when placing calls. If this is occurring, follow the steps below to create an exception for IPS.

1. In the left column click "**Security Services**".
2. In the left column click "**Intrusion Prevention**".
3. Click the "**Configure IPS Settings**" button.
4. Check the "**Enable IPS Exclusion List**" box.
5. Choose the same method used to define the FreedomVoice phones in the above steps (address object, etc) and select the group if you created a group for the phones, or repeat this step for each of the address objects (phone devices).
6. Click "Add".

*Once each of the phones has been added to the IPS exception list and saved, the lack of ringing in the ear piece on an outgoing call should be fixed. Placing an outbound call should now allow you to hear standard rings.*

## Technical Support

Technical support for FreedomVoice is available from 3:00 AM PST to 6:00 PM Pacific, Monday through Friday, Saturday from 6:30am Pacific to 3:30pm PST and can be reached either by phone or by email.

**Phone:** 888-955-3520 ext. 2

Use this number to reach a trained FreedomVoice technical support representative during normal support hours.

**Support Email:** [support@freedomvoice.com](mailto:support@freedomvoice.com)

Emails are automatically forwarded to our ticketing system. An auto-reply will be sent within a few minutes indicating the case number generated. Emails are generally returned within two hours during normal support hours, but may take longer depending on the current volume of tickets received. All emails should, however, be returned same day. For an issue that requires a faster turn-around time, please use the phone numbers listed above.