

SonicWall QoS Configuration

Set the measured WAN speed

The Sonicwall firewall works best when you specify the amount of internet bandwidth that is allocated to you from your ISP. This step is always important but it is absolutely critical to proper QoS functionality. Don't always take your ISP's word for the up and down speeds, the values entered here should be an average of three speed tests using www.speedtest.net. (QoS can also leverage MAC addresses added as objects and then grouped, or IPs, subnets.)

Follow these steps to set the WAN bandwidth:

1. From the "Network" section in the left column, select "Interfaces".
2. Under "Interface Settings" find the Zone column labeled "WAN" and click on the pencil icon under the "Configure" column.
3. Make sure the "Zone:" drop down says "WAN".
4. Click on the "Advanced" tab.
5. Check the box "Enable flow reporting".
6. Under the heading "Bandwidth Management", check "Enable Egress Bandwidth Management".
7. 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 10Mbps down, you would enter "10000.00".
8. Under the heading "Bandwidth Management", check "Enable Ingress Bandwidth Management".
9. 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 2Mbps up, you would enter "2000.00".
10. Click the "OK" button at the bottom of the window.

Configure basic QoS (Quality of Service)

The Sonicwall NSA240/TZ210 comes preconfigured for basic QoS (UDP packet priority & bandwidth management) when ordered directly from HopDial. You may need to modify the bandwidth allocations depending on the bandwidth available to the customer in each direction. Also, depending on the type of traffic on the network, you may want to modify the QoS so it is based on a specific VLAN or specific device(s) instead of giving priority to all UDP traffic. We cover these alternate QoS configurations under "Advanced QoS" later on in this document.

Configure basic QoS within the GUI,

Step 1: Select a type of Bandwidth Management - Start by setting BWM to WAN:

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 "WAN" is selected.
4. Next to "0 Realtime" check the "Enable" box.
5. Next to "2 High" uncheck the "Enable" box.
6. Next to "4 Medium" set "Guaranteed" to 0 %.
7. Next to "6 Low" set "Guaranteed" to 0 %.
8. Click the "Accept" button.

Step 2: Configure basic QoS within the GUI, Create Service Objects - create a UDP 5060 signal service object:

9. Login to the Sonicwall router GUI (default is 192.168.168.168).
10. Click on the "Firewall" section in the left column, select "Service Objects".
11. Under "Services" click "Add".
12. Enter a descriptive name such as "SignalUDP".
13. Select the protocol "UDP".
14. Enter the port range of 5060 – 5060.
15. Click "Add".

Next, create a TCP 5061 signal service object:

1. Click on the "Firewall" section in the left column, select "Service Objects".
2. Under "Services" click "Add".
3. Enter a descriptive name such as "SignalTCP".
4. Select the protocol "TCP".
5. Enter the port range of 5061 – 5061.
6. Click "Add".

Next, create a UDP audio service object:

1. Click on the "Firewall" section in the left column, select "Service Objects".
2. Under "Services" click "Add".
3. Enter a descriptive name such as "AudioUDP".
4. Select the protocol "UDP".
5. Enter the RTP port range of 10000 – 30000.
6. Click "Add".

Next, create a group that contains all three service objects:

1. Click on the "Firewall" section in the left column, select "Service Objects".
2. Under "Service Groups" click "Add Group".
3. Enter a descriptive name such as "HopDial".
4. Find the three service objects you created earlier.
5. Highlight each of them and click the  arrow to add them to the group.
6. Click "OK".

Configure basic QoS within the GUI, Step 3: Apply Service Objects to the firewall - create a new firewall rule:

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

For the next steps you'll need to determine how much bandwidth you want to guarantee for this particular service group (the phones). This can be done by percentage of total bandwidth or by a set Kbps (Kilobits Per Second). When using the G.711 codec, each phone needs 88Kbps in both directions (Outbound, Inbound) to properly function. Many administrators like to allocate 90-100Kbps per phone to keep a slight cushion of bandwidth. Example: 1.44Mbps T-1 with 4 phones (using 90Kbps per phone) would require either 25% of available bandwidth or 360Kbps.

11. Check "Enable Outbound Bandwidth Management".
12. In the field "Guaranteed Bandwidth:" enter your number and select the proper corresponding allocation type (% or Kbps).
13. In the field "Maximum Bandwidth:" enter 100 and select % from the drop down.
14. Check "Enable Inbound Bandwidth Management".
15. In the field "Guaranteed Bandwidth:" enter the same number and corresponding allocation type (% or Kbps) you choose in the above (Outbound) section.
16. In the field "Maximum Bandwidth:" enter 100 and select % from the drop down.
17. Make sure the "Bandwidth Priority:" drop down is set to "0 Realtime" for both Outbound and Inbound.
18. Check "Enable Tracking Bandwidth Usage".
19. Click "Add".