

Recommended QoS Configuration Settings for AdTran NetVanta 3448 Router



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Introduction

RingCentral® has taken the “guesswork” out of router selection. Since we know that Quality of Service (QoS) is paramount to your business, we have carefully selected and tested a set of dependable routers suitable for supporting high quality Voice-over-IP conversations.

This document provides recommended configuration settings to ensure the highest possible QoS for voice calls on the AdTran® NetVanta® 3448 router.

Additional routers that have been tested and recommended are shown on the [Recommended Routers](#) page of the RingCentral Customer Care website.

Supported browsers for test

- Internet Explorer 11 or higher (Windows XP, 7, 8 or higher)
- Firefox version 36 or higher (Windows and Mac)
- Safari version 6.2 or higher (Mac)

Quality of Service

RingCentral® provides reliable, high-quality voice service. Your local network, Internet connection, and your router all contribute to overall call quality, with sufficient dedicated bandwidth to voice calls being the biggest factor. To help you manage your call quality, RingCentral offers tools to check your Internet connection speed, and instructions to configure the Quality of Service (QoS) settings of your routers.

The Quality of Service (QoS) settings on your router enable it to give priority to real time voice traffic over lower priority data traffic, such as large downloads. This document provides recommended configuration settings to ensure the highest possible QoS on the AdTran NetVanta 3448 router. After configuring your router for optimum QoS, select port and firewall settings for mobile and softphone apps from the table [here](#).



Test your connection capacity

The RingCentral [Connection Capacity test](#) will help determine the maximum number of simultaneous RingCentral calls that can be supported on your broadband connection. Run this test during normal business hours when the connection is in use by other applications, including large file downloads.

The capacity test should be run using the maximum number of simultaneous call connections needed, and should use the G.711 codec selection.

Specific requirements for QoS: Bandwidth 100Kbps up and down per call; Latency (one-way) less than 150ms; Jitter not to exceed 100ms; Packet loss less than 3%.

These requirements are the foundation for ensuring your local network can support satisfactory VoIP. Failure to meet these requirements will result in poor voice quality.

When the test completes, you will see the recommended number of simultaneous calls your connection can support while maintaining good quality voice calls.

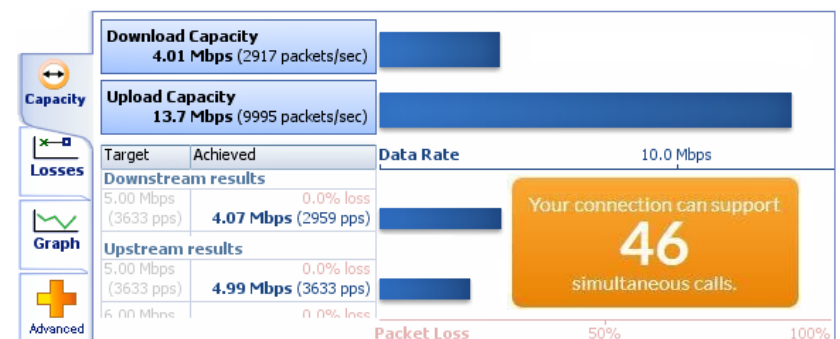
Start Test

Advanced Options

Download bandwidth starting point (Mbps): 5.0

Upload bandwidth starting point (Mbps): 5.0

Codec: G.711 (High)



Test your connection quality

RingCentral provides a **VoIP Quality test** that will simulate VoIP calls between your computer and RingCentral, and provide an estimate of the voice quality you should expect when using our service. For the most accurate results, run this test *at least* three different times throughout a business day, and *during peak usage times*, while connected to the network that you plan to use for RingCentral.

A two-minute test is typically sufficient, while longer tests are useful to find intermittent problems or to simultaneously test VoIP performance along with other traffic such as file transfers or remote access.

Select the maximum number of simultaneous users you expect to support, and set the test duration between 1 and 5 minutes; 2 minutes is considered sufficient in most instances.

Click [jitter](#) and [packet loss](#) on the **RESULTS SUMMARY** page to view the overall quality of your expected VoIP connection.

MOS score (Mean Opinion Score) refers to a test that has been used for decades in telephony networks to obtain the human user's view of the quality of the network. The MOS is the arithmetic mean of all the individual scores, and can range from 1 (worst) to 5 (best). An MOS score of 4 is good.

Number of simultaneous calls: 45 ⓘ

Advanced Options

Test Duration (minutes): 2 ⓘ

Codec: **Start Test** G.711 (High) ⓘ

VoIP

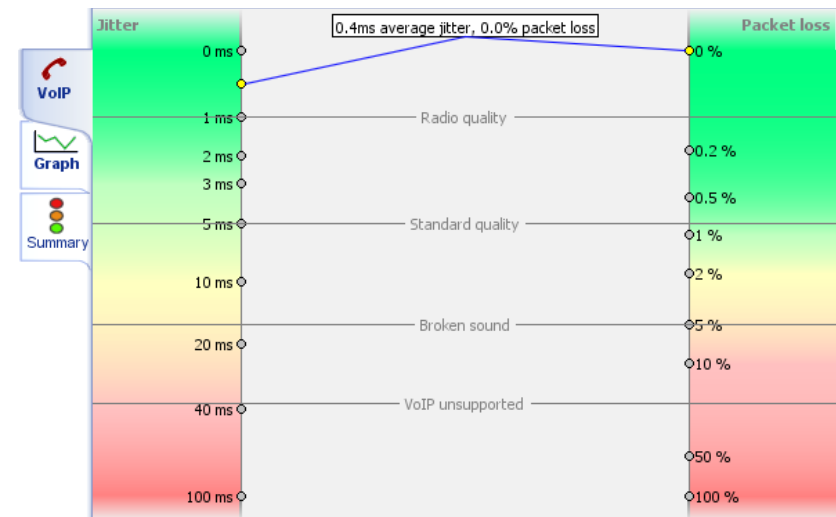
Graph

Summary

Test audit report

RESULTS SUMMARY

- Your connection's **jitter** was measured as 0.4 ms, which indicates that it can produce a constant flow of data. Voice-over-IP conversations should be of good quality.
- Your connection's **packet loss** was measured at 0.0%, which indicates that it is accurately transferring data. Voice-over-IP conversations should be of good quality.
- Your connection's **MOS score** is estimated to be 4.2.



Configure your router

AdTran NetVanta 3448 QoS configuration



Brand: AdTran

Model: NetVanta 3448

Hardware version:

Last tested 1200821E1

Latest available 1200821F1

Firmware version: AOS R12.3.1

To review the AdTran guide that covers configuring QoS in the AOS operating system click [here](#).

1. Access the router on your LAN default gateway: 192.168.1.99. The default username is **admin** and the default password is **password**. Then click **OK**.



2. After logging in, you will be at the **System Summary** page of the GUI.

ADTRAN

NetVanta 3448

Save Logout

System

Getting Started

Setup Wizard

System Summary

Physical Interfaces

Passwords

IP Services

DHCP Server

Hostname / DNS

LLDP

SNMP

Data

Monitoring

Utilities

System Information

Hostname	RC Router Test
Firmware Version	R10.9.6.E
Part Number	1200821E1
Serial Number	LBADTN1509AD911
System Uptime	6 days, 5 hours, 8 minutes, 57 seconds
System Time	04:12:36 PM UTC
System Date	April 26, 2015
Memory	Total Heap: 85,449,712 Bytes Free Heap: 63,867,888 Bytes
CPU Utilization	System Load: 3.34% 1 Min Avg Load: 14.14% 5 Min Avg Load: 10.98% Min Load: 0% Max Load: 100% Context Switch Load: 0.16%
File System	Total: 31,640,415 Bytes Used: 29,050,814 Bytes Free: 2,589,601 Bytes
Time Server	(Not Configured)

Warning: A potential problem has been detected with your system. Please go to the troubleshooting page for more detail.

Clear CPU Max Load

Refresh in 2 seconds...

Ethernet Summary

Status for the Ethernet interfaces.

Name	eth 0/1	eth 0/2
Type	Ethernet	Ethernet
Link	100Mbps/full	100Mbps/full
Encapsulation	none	none

3. Check your Physical Interfaces to ensure they are up and running in full duplex mode. You can do this by clicking **Physical Interfaces** under the **System** tab.

The screenshot displays the AdTran NetVanta 3448 web interface. The left sidebar contains a navigation menu with the following items: **System** (selected), Getting Started, Setup Wizard, System Summary, Physical Interfaces, Passwords, IP Services, DHCP Server, Hostname / DNS, LLDP, and SNMP. Below these are sections for **Data**, **Monitoring**, and **Utilities**. The main content area is titled "Physical Interfaces" and includes a descriptive text: "This is a list of all the physical interfaces that are either physically tied to the product or connected via a plug-in module. View or edit the configuration of an interface by clicking its name." Below this text is a table with four columns: Name, Logical Interface, Line Status, and Type. The table lists eight interfaces: eth 0/1 and eth 0/2 are both at 100Mbps/full; swx 0/1 through swx 0/8 are all Down. At the bottom of the interface list is a section for "Attached USB Devices" which is currently empty. Below that is a "Statistics Rate Interval" section with a dropdown menu set to 300 and an "Apply" button.

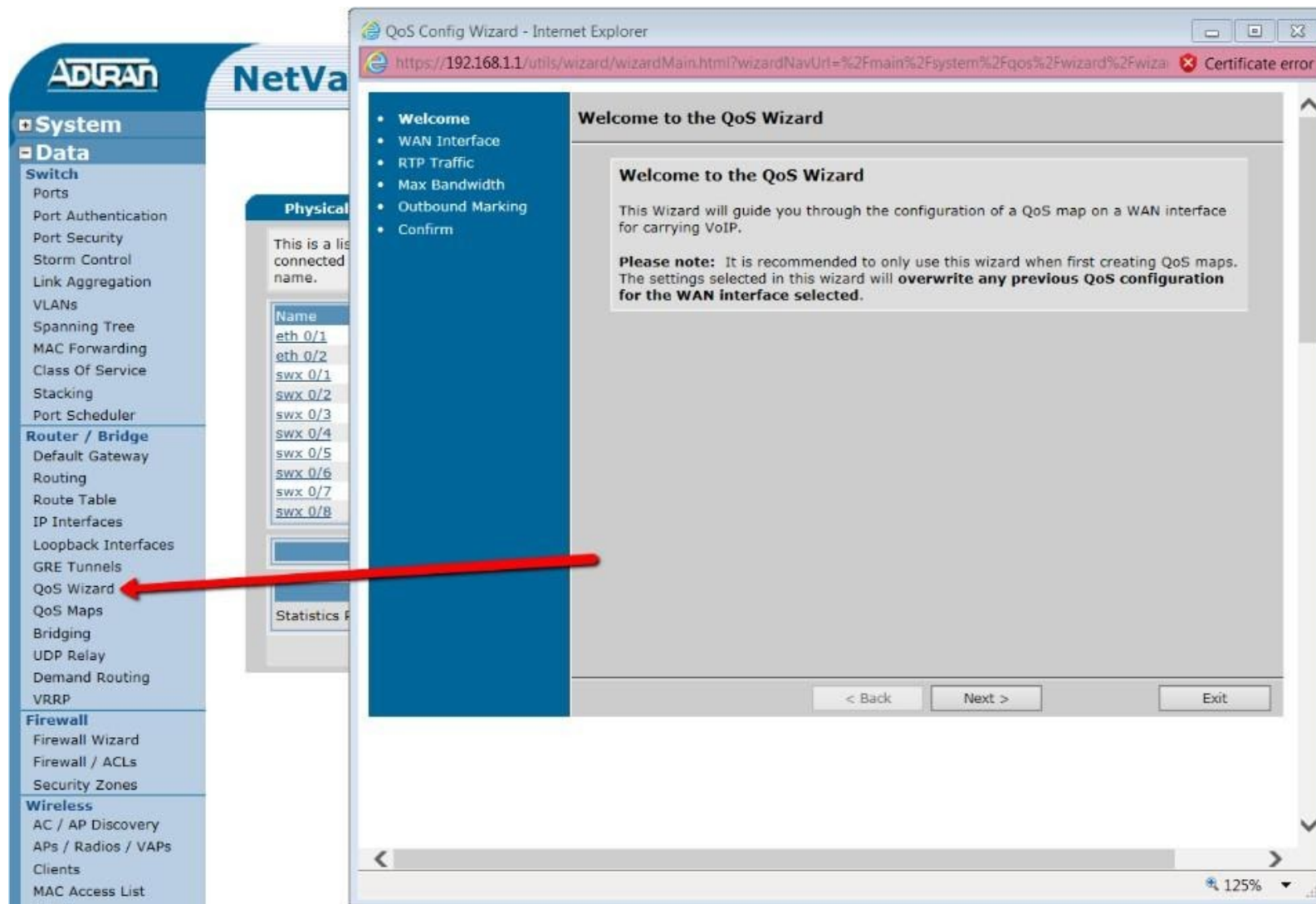
Name	Logical Interface	Line Status	Type
eth 0/1	none	100Mbps/full	Ethernet
eth 0/2	none	100Mbps/full	Ethernet
swx 0/1	none	Down	Switchport
swx 0/2	none	Down	Switchport
swx 0/3	none	Down	Switchport
swx 0/4	none	Down	Switchport
swx 0/5	none	Down	Switchport
swx 0/6	none	Down	Switchport
swx 0/7	none	Down	Switchport
swx 0/8	none	Down	Switchport

Attached USB Devices

Statistics Rate Interval: *Statistics Rate Interval (in seconds)*

Apply

4. Click the **Data** tab. Click **QoS Wizard**. Click **Next** at the bottom of the new window. **NOTE:** if you already have QoS rules configured, using the QoS Wizard will delete and replace them with the new rules. If you have QoS rules already configured, you will have to manually configure the new rules.



5. The QoS Wizard will prompt you to define the WAN interface used to carry VoIP. Select the appropriate interface and click **Next**.

ADTRAN NetVanta 3448

System

- Data**
 - Switch
 - Ports
 - Port Authentication
 - Port Security
 - Storm Control
 - Link Aggregation
 - VLANs
 - Spanning Tree
 - MAC Forwarding
 - Class Of Service
 - Stacking
 - Port Scheduler
- Router / Bridge**
 - Default Gateway
 - Routing
 - Route Table
 - IP Interfaces
 - Loopback Interfaces
 - GRE Tunnels
 - QoS Wizard
 - QoS Maps
 - Bridging
 - UDP Relay
 - Demand Routing
 - VRRP
- Firewall**
 - Firewall Wizard
 - Firewall / ACLs
 - Security Zones
- Wireless**
 - AC / AP Discovery
 - APs / Radios / VAPs
 - Clients
 - MAC Access List

Physical

This is a list of connected name.

Name
eth 0/1
eth 0/2
swx 0/1
swx 0/2
swx 0/3
swx 0/4
swx 0/5
swx 0/6
swx 0/7
swx 0/8

Statistics

QoS Config Wizard - Internet Explorer

https://192.168.1.1/utills/wizard/wizardMain.html?wizardNavUri=%2Fmain%2Fsystem%2Fqos%2Fwizard%2Fwizard Certificate error

Select WAN Interface

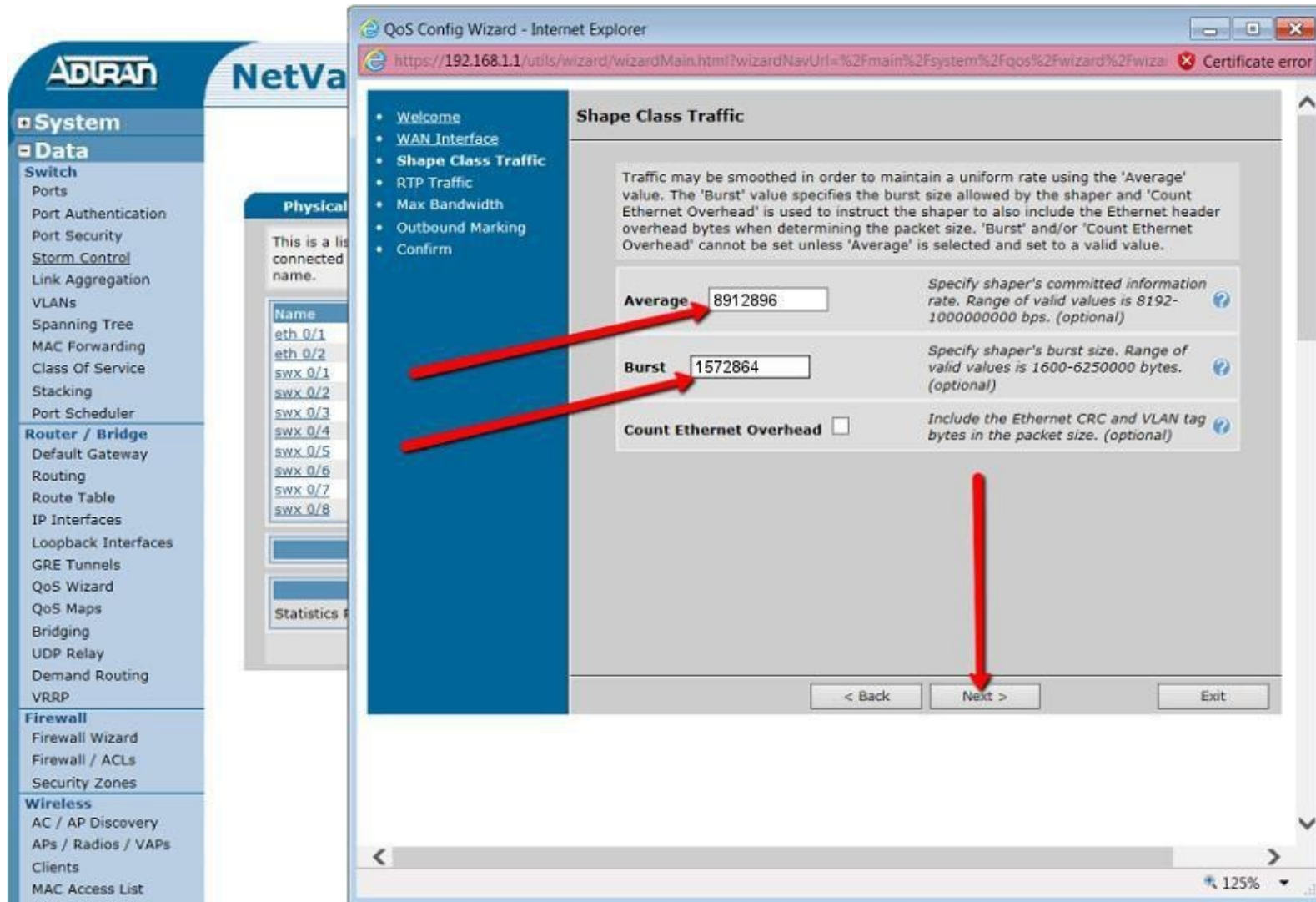
Which WAN interface will be used to carry VoIP?

WAN Interface: **eth 0/1**

< Back Next > Exit

125%

6. Next, enter the Average bandwidth you would like to configure for the traffic shaper. If the connection speed is contracted at 10 Mbps, assume 85% as "Average". Remember, this entry is in bits per second, so 8.5 Mbps equals 8912896 bps. Set Burst at 15% of 10 Mbps, which equals 1572864 bps. Functionally, the router should never "Burst" beyond the contracted rate. Convert Mbps to bps carefully using a calculator; several are available online. When done, click **Next**.



7. Now the QoS Wizard will ask you to configure the **VoIP Traffic Matching**. Select the following methods of matching packets. Use the **DSCP** option and set the first DSCP field to **EF**. Next, use the **Precedence** option and select “0”, “1”, and “2”. Finally, use the **RTP** option and use the Start Port of 1000 and the End Port of 65535. Make sure you also enable the even and odd ports when using the RTP method. It is not recommended to use the **Source Address** option. Finally, click **Next**.

QoS Config Wizard - Internet Explorer

https://192.168.1.1/utls/wizard/wizardMain.html?wizardNavUrl=%2Fmain%2Fsystem%2Fqos%2Fwizard%2Fwiza Certificate error

System

- Ports
- Port Authentication
- Port Security
- Storm Control
- Link Aggregation
- VLANs
- Spanning Tree
- MAC Forwarding
- Class Of Service
- Stacking
- Port Scheduler

Router / Bridge

- Default Gateway
- Routing
- Route Table
- IP Interfaces
- Loopback Interfaces
- GRE Tunnels
- QoS Wizard
- QoS Maps
- Bridging
- UDP Relay
- Demand Routing
- VRRP

Firewall

- Firewall Wizard
- Firewall / ACLs
- Security Zones

Wireless

- AC / AP Discovery
- APs / Radios / VAPs
- Clients
- MAC Access List

Physical

This is a list of connected names.

Name
eth 0/1
eth 0/2
swx 0/1
swx 0/2
swx 0/3
swx 0/4
swx 0/5
swx 0/6
swx 0/7
swx 0/8

VoIP Traffic Matching

Select the method(s) the router will use to identify VoIP packets on the network. Select 'Any' to match all packets within a QoS map entry or select individual methods to match packets.

☐ Any

--OR--

☒ **DSCP**

EF <none> <none> <none>
<none> <none> <none> <none>

☒ **Precedence**

☒ 0 ☒ 1 ☒ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7

☒ **RTP**

Start Port 1000
End Port 65535
Enable Even and Odd Ports ☒

☐ **Source Address**

Network . . .
Mask . . .

< Back Next > Exit

8. The QoS Wizard will now take you to the **DSCP Outbound Marking** section. Set the **DSCP** value to "26". Then click **Next**.

The screenshot displays the AdTran NetVanta 3448 web interface. On the left, a navigation menu is visible with categories: System, Data, Router / Bridge, Firewall, and Wireless. The 'Data' section is expanded, showing options like Switch, Ports, Port Authentication, Port Security, Storm Control, Link Aggregation, VLANs, Spanning Tree, MAC Forwarding, Class Of Service, Stacking, and Port Scheduler. The 'Router / Bridge' section is also expanded, showing options like Default Gateway, Routing, Route Table, IP Interfaces, Loopback Interfaces, GRE Tunnels, QoS Wizard, QoS Maps, Bridging, UDP Relay, Demand Routing, and VRRP. The 'QoS Wizard' option is highlighted. The main content area shows the 'DSCP Outbound Marking' configuration page. The page title is 'DSCP Outbound Marking'. The instructions state: 'Define the DSCP marking for the outbound SIP signaling traffic. It is recommended that VoIP signaling traffic be given a DSCP value of 26 (Assured Forwarding 31) or greater.' The 'DSCP' field is set to '26'. A red arrow points to the 'DSCP' field. Another red arrow points to the 'Next >' button. The page also includes a '< Back' button and an 'Exit' button. The browser window title is 'QoS Config Wizard - Internet Explorer' and the address bar shows 'https://192.168.1.1/utis/wizard/wizardMain.html?wizardNavUri=%2Fmain%2Fsystem%2Fqos%2Fwizard%2Fwizai'. A 'Certificate error' message is visible in the browser window.

9. The QoS Wizard will now ask you to review and confirm your settings. If everything looks correct, click **Finish**.

QoS Config Wizard - Internet Explorer
https://192.168.1.1/utlils/wizard/wizardMain.html?wizardNavUrl=%2Fmain%2Fsystem%2Fqos%2Fwizard%2Fwizal Certificate error

System
Data
Switch
Ports
Port Authentication
Port Security
Storm Control
Link Aggregation
VLANs
Spanning Tree
MAC Forwarding
Class Of Service
Stacking
Port Scheduler
Router / Bridge
Default Gateway
Routing
Route Table
IP Interfaces
Loopback Interfaces
GRE Tunnels
QoS Wizard
QoS Maps
Bridging
UDP Relay
Demand Routing
VRRP
Firewall

Physical
This is a list of connected name.
Name
eth 0/1
eth 0/2
swx 0/1
swx 0/2
swx 0/3
swx 0/4
swx 0/5
swx 0/6
swx 0/7
swx 0/8
Statistics

Confirm Settings

WAN Interface
Interface: eth 0/1
QoS Action: Traffic is smoothed using a shape average of 8388608 bps. The traffic burst rate is set to 1310720 bits.

RTP Traffic
Match Method(s): RTP , DSCP , Precedence
RTP Start - End Ports: 1000-65535
Match with DSCP: ef
Match with Precedence: 0, 1, 2
Maximum Bandwidth:
QoS Action: Outbound RTP traffic will be placed in the low-latency queue and transmitted ahead of all other traffic.

Signaling Traffic
Signaling Protocol: SIP (ports: UDP 5060, TCP 5060)
Mark with DSCP: 26
QoS Action: Outbound signaling traffic will be placed in the weighted-fair queue and weighted above other flows based on DSCP markings.

WARNING: Clicking the finish button will overwrite your current QoS settings with the settings shown above.

< Back Finish Exit

10. Next, go into **QoS Maps** and you will see the new QoS Map that was just created by the QoS Wizard. In this case, eth0/1 is the WAN interface.

The screenshot shows the AdTran NetVanta 3448 configuration interface. The left sidebar contains a navigation menu with 'System' and 'Data' sections. Under 'Data', there are sub-sections for 'Switch' and 'Router / Bridge'. The 'Router / Bridge' section is expanded, showing options like 'Default Gateway', 'Routing', 'Route Table', 'IP Interfaces', 'Loopback Interfaces', 'GRE Tunnels', and 'QoS Wizard'. The main content area is titled 'Add / Modify / Delete QoS Map'. It has a 'Save' button and a 'Logout' link in the top right. The 'Add New QoS Map' section includes fields for 'Map Name' (with a note: 'QoS map tag. (maximum of 79 characters)'), 'Sequence Number' (with a note: 'Sequence to insert into QoS map entry. Valid values are 0-65535.'), and an 'Add' button. The 'Modify/Delete a QoS Map' section includes a text block explaining how to view or modify an existing QoS map. Below this is a table with columns: 'QoS Map', 'QoS-Policy', 'Matching', 'Marking', and 'Bandwidth'. A red arrow points to the 'eth0/1QosMap-20' entry in the 'QoS Map' column.

AdTran **NetVanta 3448** Save Logout

System

Data

Switch

- Ports
- Port Authentication
- Port Security
- Storm Control
- Link Aggregation
- VLANs
- Spanning Tree
- MAC Forwarding
- Class Of Service
- Stacking
- Port Scheduler

Router / Bridge

- Default Gateway
- Routing
- Route Table
- IP Interfaces
- Loopback Interfaces
- GRE Tunnels
- QoS Wizard
- QoS Maps

Add / Modify / Delete QoS Map

Configure a QoS map ?

Add New QoS Map

Map Name: QoS map tag. (maximum of 79 characters)

Sequence Number: Sequence to insert into QoS map entry. Valid values are 0-65535.

Modify/Delete a QoS Map

To view or modify an existing QoS map, click the link in the desired row. A '*' in the bandwidth column denotes class based bandwidth-shaper information. This information will be displayed in parentheses, separated by commas. Otherwise, the bandwidth is priority based.

<input type="checkbox"/>	QoS Map	QoS-Policy	Matching	Marking	Bandwidth
<input type="checkbox"/>	eth0/1QosMap-20	<none>	PREC(0) PREC(1) PREC(2)	DSCP(26)	(4500000 bps, 4700000 bytes) *

11. Now scroll down to the **QoS-policy assignment and statistics** section and select your QoS map that was just created under the **Outbound QoS-Policy** on your WAN interface. Then click **Apply**.

Link Aggregation
VLANs
Spanning Tree
MAC Forwarding
Class Of Service
Stacking
Port Scheduler

Router / Bridge
Default Gateway
Routing
Route Table
IP Interfaces
Loopback Interfaces
GRE Tunnels
QoS Wizard
QoS Maps
Bridging
UDP Relay
Demand Routing
VRRP

Firewall
Firewall Wizard
Firewall / ACLs
Security Zones

Wireless
AC / AP Discovery
APs / Radios / VAPs
Clients
MAC Access List
AP Firmware

VPN
VPN Wizard
VPN Peers
Certificates

Network Monitor
Wizard
Probes / Schedules / Tracks
Probe Responder

URL Filtering
URL Filters
Top Websites

Map Name: QoS map tag. (maximum of 79 characters)

Sequence Number: Sequence to insert into QoS map entry. Valid values are 0-65535.

Modify/Delete a QoS Map

To view or modify an existing QoS map, click the link in the desired row. A "™" in the bandwidth column denotes class based bandwidth-shaper information. This information will be displayed in parentheses separated by commas. Otherwise, the bandwidth is priority based.

<input type="checkbox"/>	QoS Map	QoS-Policy	Matching	Marking	Bandwidth
<input type="checkbox"/>	eth0/1Qos....-20	<none>	PREC(0) PREC(1) PREC(2)	DSCP(26)	(4500000 bps, 4700000 bytes) *
<input type="checkbox"/>	eth0/1Qos....-21	<none>	ACL	DSCP(26)	disabled

QoS-policy assignment and statistics

Modify Assignment

Assign a QoS-policy to an interface's input/output.

Name	Available Bandwidth(Kbps)	Inbound QoS-Policy	Outbound QoS-Policy
vlan 1	75000	<none>	<none>
eth 0/1	3375	<none>	eth0/1QosWi...
eth 0/2	75000	<none>	<none>

Shaping statistics

The shaping information for a QoS-policy and its assigned interface is listed below.

Policy	Interface	Sent packets	Waiting packets	Dropped packets	Delayed packets
eth0/1Q..-20	eth 0/1	656251	0	74436	398397

12A. Now, if you click **QoS Maps** and select the QoS map that was created earlier, you can review your settings under the **Packet Matching**, **Packet Marking**, and **Queueing** tabs in the following three screen shots.

The screenshot shows the 'QoS Maps' configuration page with the 'Packet Matching' tab selected. The left sidebar contains a navigation menu with categories: Port Authentication, Port Security, Storm Control, Link Aggregation, VLANs, Spanning Tree, MAC Forwarding, Class Of Service, Stacking, Port Scheduler, Router / Bridge, Default Gateway, Routing, Route Table, IP Interfaces, Loopback Interfaces, GRE Tunnels, QoS Wizard, QoS Maps, Bridging, UDP Relay, Demand Routing, VRRP, Firewall, Firewall Wizard, Firewall / ACLs, Security Zones, Wireless, AC / AP Discovery, APs / Radios / VAPs, Clients, MAC Access List, AP Firmware, VPN, VPN Wizard, VPN Peers, Certificates, Network Monitor, Wizard, Probes / Schedules / Tracks, Probe Responder, URL Filtering, and URL Filters. The main content area has a warning at the top: 'WARNING: Any IPv6 match cases or IPv4-specific "match ip dscp", "match ip precedence", or "match protocol ipv4" cases added previously through the CLI will be deleted if changes are applied to this QoS Map entry using the Web GUI. The GUI does not support adding these match types.' Below the warning are two sections: 'Match All' (disabled) and 'QoS-Policy' (set to '<none>'). The 'Packet Matching' tab is active, showing options to 'Disable', 'Match any', 'VLAN Id', 'DLCI', 'IP RTP' (with start/end ports 10000 and 10048), 'Precedence' (with checkboxes 0-7), 'List' (set to '<Please Select an ACL name>'), 'Bridged', 'NetBEUI', and 'DSCP'. The 'Precedence' section is checked, and the 'List' section has a help icon. At the bottom are 'Cancel' and 'Apply' buttons.

WARNING: Any IPv6 match cases or IPv4-specific "match ip dscp", "match ip precedence", or "match protocol ipv4" cases added previously through the CLI will be deleted if changes are applied to this QoS Map entry using the Web GUI. The GUI does not support adding these match types.

☐ Match All

☐ QoS-Policy <none> Specify child QoS-Policy.

Packet Matching | Packet Marking | Queueing

☐ Disable *Disable packet matching.*

☐ Match any *Match Any packets.*

☐ VLAN Id 1 *Match IP packets by VLAN Id (1-4095).*

☐ DLCI 16 *Match all packets on a frame relay DLCI (16-1007).*

☐ IP RTP
Start Port 10000
End Port 10048 *Match IP RTP packets.*

Enable Even and Odd Ports ☐

☒ Precedence
☒ 0 ☒ 1 ☒ 2 ☐ 3
☐ 4 ☐ 5 ☐ 6 ☐ 7 *Select up to 8 different precedence values. (0 - 7)*

☐ List <Please Select an ACL name> *Match using access-list. Go to the 'Firewall' page and click on the 'Configure ACLs' button at the bottom of the page to configure an 'Extended ACL'.*

☐ Bridged *Match frames being bridged.*

☐ NetBEUI *Match bridged NetBEUI frames.*

☐ DSCP *Match packet DSCP value(s).*

Cancel Apply

ADURAN

NetVanta 3448

Save Logout

System

Data

Switch

Router / Bridge

Firewall

Ports

Port Authentication

Port Security

Storm Control

Link Aggregation

VLANs

Spanning Tree

MAC Forwarding

Class Of Service

Stacking

Port Scheduler

Default Gateway

Routing

Route Table

IP Interfaces

Loopback Interfaces

GRE Tunnels

QoS Wizard

QoS Maps

Bridging

UDP Relay

Demand Routing

VRRP

Firewall Wizard

Firewall / ACLs

Security Zones

QoS Maps > QoS Map "eth0/1QosWizard-20"

QoS Map Setup for eth0/1QosWizard-20

WARNING: Any IPv6 match cases or IPv4-specific "match ip dscp", "match ip precedence", or "match protocol ipv4" cases added previously through the CLI will be deleted if changes are applied to this QoS Map entry using the Web GUI. The GUI does not support adding these match types.

☐ Match All

If Match All is enabled and multiple match options are selected for this QoS Map entry, then they must ALL be true before a packet will be processed.
NOTE: This option is typically not required.

☐ QoS-Policy

Specify child QoS-Policy.

Packet Matching

Packet Marking

Queueing

☐ Disable

Disable all marking.

☒ DSCP

DSCP field value (0-63)

☐ DSCP alias

DSCP alias

☐ Precedence

Precedence field value (0-7)

☐ CoS

Mark packet Ethernet VLAN Priority field with value (0-7).

Cancel

Apply

12C. QoS Maps – Queueing.

Save Logout

QoS Maps > QoS Map "eth0/1QoSWizard-20"

QoS Map Setup for eth0/1QoSWizard-20

WARNING: Any IPv6 match cases or IPv4-specific "match ip dscp", "match ip precedence", or "match protocol ipv4" cases added previously through the CLI will be deleted if changes are applied to this QoS Map entry using the Web GUI. The GUI does not support adding these match types.

☐ Match All If Match All is enabled and multiple match options are selected for this QoS Map entry, then they must ALL be true before a packet will be processed.
NOTE: This option is typically not required.

☐ QoS-Policy <none> Specify child QoS-Policy.

Packet Matching Packet Marking **Queueing**

☐ Disable Disable bandwidth.

☐ Priority Queue Bandwidth

☐ Percent Total 1-100% of TOTAL interface BW

☐ Limit Limit (8-1000000 Kbits/sec)

Burst Burst (0, 32-1000000 bytes)

☒ Traffic Class Queueing

Bandwidth

☐ Percent Total 1-100% of TOTAL interface BW

☐ Percent Remaining 1-100% of REMAINING interface BW

☐ Limit Limit (8-1000000 Kbits/sec)

Shaping

☒ Average Committed information rate in bps (8192-1000000000).

☒ Burst Burst size in bytes (1600-625000). Include Ethernet CRC and VLAN tag bytes in the packet size.

☐ Count Ethernet Overhead

☐ Unlimited priority bandwidth Enable unlimited bandwidth.

Cancel Apply

13. Click **Physical Interfaces** under the **System** tab and look at the QoS policy; note that it now has the **Outbound QoS Policy Map**.

ADTRAN **NetVanta 3448** [Save](#) [Logout](#)

System

- Getting Started
- Setup Wizard
- System Summary
- Physical Interfaces**
- Passwords
- IP Services
- DHCP Server
- Hostname / DNS
- LLDP
- SNMP

Data

Monitoring

Utilities

Physical Interfaces > Ethernet 0/1

Configuration for "Ethernet 0/1"

Basic configuration for the Ethernet interface.

Description:	<input type="text" value="Router Test WAN"/>	Description label (optional)
Enable:	<input checked="" type="checkbox"/>	Enable or disable this interface.
Speed/Duplex:	<input type="text" value="Auto"/>	Selection of Auto will auto-negotiate the best speed and duplex.
Factory MAC Address:	00 : A0 : C8 : EE : 0C : B4	The factory Media Access Control address
MAC Address Masquerade:	<input type="checkbox"/>	Check to allow MAC Address Masquerade.
MAC Address:	<input type="text" value="00 : A0 : C8 : EE : 0C : B4"/>	Set the masquerade Media Access Control address.
Traffic-Shaping:	<input checked="" type="checkbox"/>	Enable traffic-shaping.
Traffic-Shaping rate:	<input type="text" value="4500000"/>	Outbound rate in bits per second <1000-100000000>
Traffic-Shaping burst:	<input type="text" value="612500"/>	Output burst in bytes (optional)<0, 1600-6250000>
Qos-policy:	eth0/1QosWizard	Outbound QoS-Policy map
Interface Mode:	<input type="text" value="IP routing"/>	Select an interface mode.

Wireless Control Protocol

Enabled AWCP: ☐ Enable/Disable Wireless Control Protocol.

IP Settings

14. Now you are ready to disable SIP ALG. Click **Firewall / ACLs** under the **Data** tab.

ADTRAN **NetVanta 3448** [Save](#) [Logout](#)

- System**
- Data**
 - Switch
 - Ports
 - Port Authentication
 - Port Security
 - Storm Control
 - Link Aggregation
 - VLANs
 - Spanning Tree
 - MAC Forwarding
 - Class Of Service
 - Stacking
 - Port Scheduler
 - Router / Bridge**
 - Default Gateway
 - Routing
 - Route Table
 - IP Interfaces
 - Loopback Interfaces
 - GRE Tunnels
 - QoS Wizard
 - QoS Maps
 - Bridging
 - UDP Relay
 - Demand Routing
 - VRRP
 - Firewall**
 - Firewall Wizard
 - Firewall / ACLs**
 - Security Zones
 - Wireless**
 - AC / AP Discovery
 - APs / Radios / VAPs
 - Clients
 - MAC Access List
 - AP Firmware
 - VPN**

Firewall Configuration

Basic Setup **ALG Settings**

Configuration for the firewall ALG features. ?

Enable/Disable ALGs

FTP ALG:	<input type="checkbox"/> Enabled
H.323 ALG:	<input type="checkbox"/> Enabled
PPTP ALG:	<input type="checkbox"/> Enabled
SIP ALG:	<input type="checkbox"/> Enabled

[Reset](#) [Apply](#)

Add / Modify / Delete IP Policy-Timeouts

The NetVanta creates 'Associations' for all traffic routed through it. These 'Associations' timeout after a period of inactivity; some applications require the period of inactivity to be fairly large (a day, days, a week). You are able to create specified timeouts for these types of applications below.

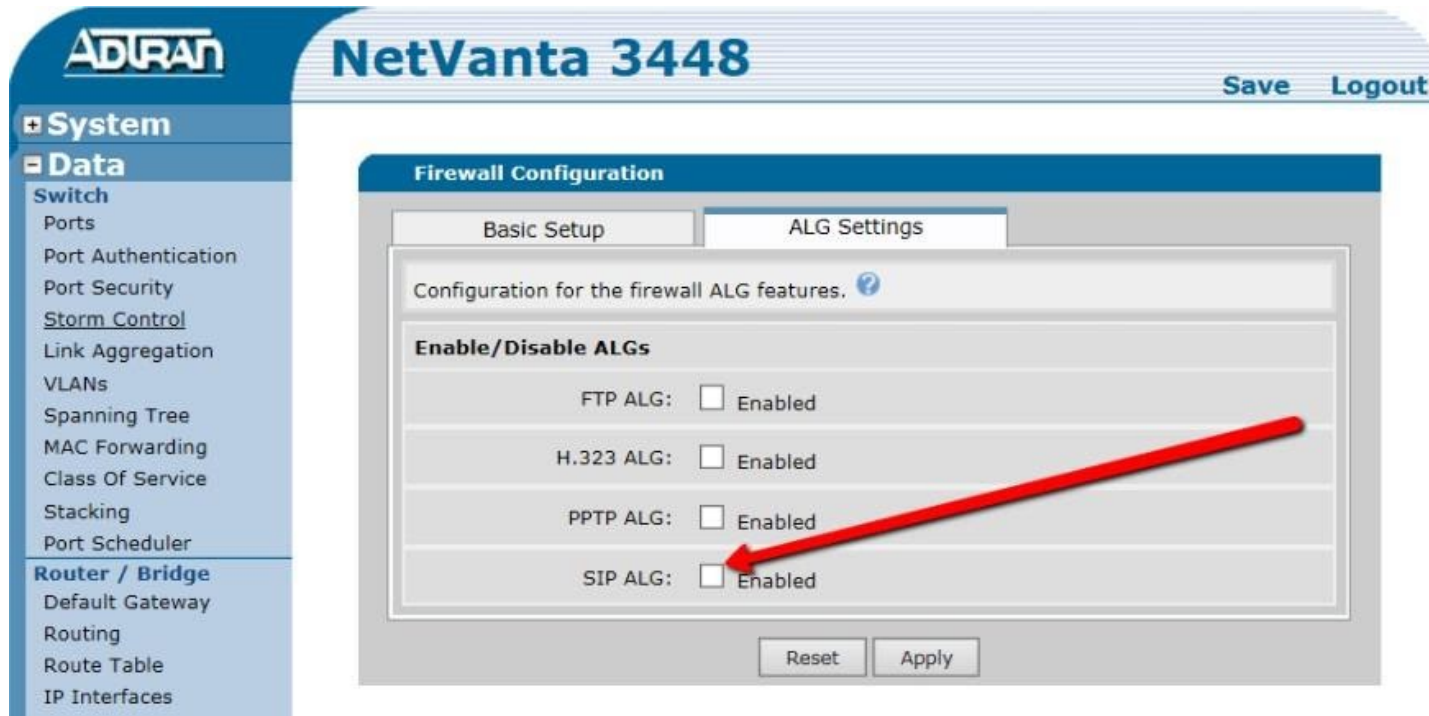
Add an IP Policy-Timeout

Protocol:	<input type="text" value="TCP"/>	Specify the data protocol.
Port Type:	<input type="text" value="echo (7)"/>	Select or specify a port value. Valid specified values are 1-65535.
Timeout:	<input type="text" value="0"/> days <input type="text" value="0"/> hours <input type="text" value="1"/> min. <input type="text" value="0"/> sec.	Customize the timeout interval. (Default 1 min.) ?

[Add/Modify](#)

Delete Entries

15. If SIP ALG is enabled, disable it by clicking the checkbox. The checkmark should disappear. Click **Apply**.



The screenshot shows the AdTran NetVanta 3448 web interface. The left sidebar contains a navigation menu with the following items: System, Data, Switch, Ports, Port Authentication, Port Security, Storm Control, Link Aggregation, VLANs, Spanning Tree, MAC Forwarding, Class Of Service, Stacking, Port Scheduler, Router / Bridge, Default Gateway, Routing, Route Table, and IP Interfaces. The main content area is titled "Firewall Configuration" and has two tabs: "Basic Setup" and "ALG Settings". The "ALG Settings" tab is active, showing a configuration page for firewall ALG features. The page includes a heading "Enable/Disable ALGs" and a list of four ALG settings: FTP ALG, H.323 ALG, PPTP ALG, and SIP ALG. Each setting has a checkbox and the word "Enabled". A red arrow points to the checkbox for SIP ALG, which is currently checked. At the bottom of the page are "Reset" and "Apply" buttons.

Enable/Disable ALGs	
FTP ALG:	<input checked="" type="checkbox"/> Enabled
H.323 ALG:	<input checked="" type="checkbox"/> Enabled
PPTP ALG:	<input checked="" type="checkbox"/> Enabled
SIP ALG:	<input checked="" type="checkbox"/> Enabled

Congratulations. You have finished configuring your AdTran NetVanta 3448 router to use QoS to prioritize the voice packets.

Now select the port and firewall settings for mobile and softphone apps from the table on the next page.

Ports and Firewalls Settings for RingCentral VoIP Service

Please see RingCentral [Ports and Firewalls](#) reference link for the required TCP/UDP ports that need to be opened for RingCentral devices to work. Categories are:

- Device Type
- Protocol
- Source Port—Customer Side
- Destination Port—RingCentral Side

Also see information on **Port Triggering** on the referenced [page](#).