

AlliedView™-EMS 3.11

QoS MANAGER USER'S GUIDE

TABLE OF CONTENTS

1 OVERVIEW	5
2 STARTING QOS MANAGER	6
3 MAIN WINDOW	7
3.1 INITIAL WINDOW	8
3.2 QoS/CoS INFORMATION WINDOW.....	9
4 BASIC OPERATIONS	11
4.1 ADD.....	12
4.2 MODIFY	14
4.3 DELETE.....	16
4.4 INLINE TABLE EDITING.....	17
4.5 APPLY	18
5 MENUS	20
5.1 FILE	21
5.1.1 Open	21
5.1.2 Close	24
5.1.3 Exit	25
5.2 TOOLS	26
5.2.1 Quick Setup.....	26
5.2.2 Refresh	28
5.2.3 Reboot.....	29
5.3 HELP	30
5.3.1 Index.....	30
5.3.2 About	30
6 DEVICE SUPPORT	31
6.1 AT-8000S SERIES.....	32
6.1.1 General.....	32
6.1.2 Port	32
6.1.3 Scheduling.....	33
6.1.4 CoS Priority	33
6.1.5 DSCP Priority.....	33
6.1.6 Bandwidth.....	33
6.2 AT-8600 SERIES	35
6.2.1 Classifiers	35
6.2.2 Flow Groups	39
6.2.3 Traffic Classes	40
6.2.4 Policies.....	41
6.2.5 Ports.....	42
6.2.6 Scheduling.....	42
6.2.7 Quick Setup.....	42
6.2.8 Notes.....	43
6.3 AT-8800 SERIES	44
6.3.1 Classifier	44
6.3.2 Flow Groups	48
6.3.3 Traffic Classes	49
6.3.4 Policies.....	50

6.3.5 Ports	51
6.3.6 Scheduling.....	51
6.3.7 Quick Setup.....	51
6.3.8 Notes.....	52
6.4 AT-9000/24.....	53
6.4.1 General.....	53
6.4.2 Traffic Class.....	53
6.4.3 Port Priority	53
6.5 AT-9400 SERIES	54
6.5.1 Classifiers	54
6.5.2 Flow Groups	56
6.5.3 Traffic Classes.....	57
6.5.4 Policies.....	58
6.5.5 Ports.....	59
6.5.6 Scheduling.....	60
6.5.7 Quick Setup.....	60
6.5.8 Notes.....	61
6.6 AT-9900 SERIES	62
6.6.1 Classifiers	62
6.6.2 Flow Groups	71
6.6.3 Traffic Classes	72
6.6.4 Policies.....	75
6.6.5 Ports.....	78
6.6.6 Scheduling.....	78
6.6.7 Quick Setup.....	80
6.6.8 Notes.....	80
6.7 AT-X900-24X SERIES.....	83
6.7.1 Classifiers	83
6.7.2 Flow Groups	92
6.7.3 Traffic Classes	93
6.7.4 Policies.....	96
6.7.5 Ports.....	99
6.7.6 Scheduling.....	99
6.7.7 Quick Setup.....	101
6.7.8 Notes.....	101
6.8 AT-X900-48 SERIES.....	104
6.8.1 Classifiers	104
6.8.2 Flow Groups	113
6.8.3 Traffic Classes	114
6.8.4 Policies.....	117
6.8.5 Ports.....	120
6.8.6 Scheduling.....	120
6.8.7 Quick Setup.....	122
6.8.8 Notes.....	122
6.9 RAPIER.....	125
6.9.1 Classifiers	125
6.9.2 Flow Groups	132
6.9.3 Traffic Classes.....	132

6.9.4 Policies.....	134
6.9.5 Ports.....	134
6.9.6 Scheduling.....	134
6.9.7 Quick Setup.....	135
6.9.8 Notes.....	135
6.10 SWITCHBLADE SERIES.....	137
6.10.1 Classifiers.....	137
6.10.2 Flow Groups.....	140
6.10.3 Traffic Classes.....	141
6.10.4 Policies.....	143
6.10.5 Ports.....	143
6.10.6 Scheduling.....	143
6.10.7 Quick Setup.....	144
6.10.8 Notes.....	145

I Overview


QoS Manager is a tool that enables you to configure Quality of Service or Class of Service on a device.

Topics

- [Starting QoS Manager](#)
- [Main Window](#)
- [Basic Operations](#)
- [Menus](#)
- [Device Support](#)

2 Starting QoS Manager

QoS Manager can be started from Device Manager or from the command line. In a Windows environment, QoS Manager can be started from the AlliedView-EMS program folder or from the Run command of the Start menu.

You can start QoS Manager from Device Manager by clicking on **Tool > QoS Manager** on the main menu or by clicking on the QoS Manager icon  on the toolbar. If Device Manager is connected to a device, target host information is automatically passed on to QoS Manager so that the QoS configuration of the device can be retrieved and displayed in QoS Manager's main window.

2 Starting QoS Manager

3 Main Window

When started, QoS Manager displays one of the following windows, depending on how it is started.

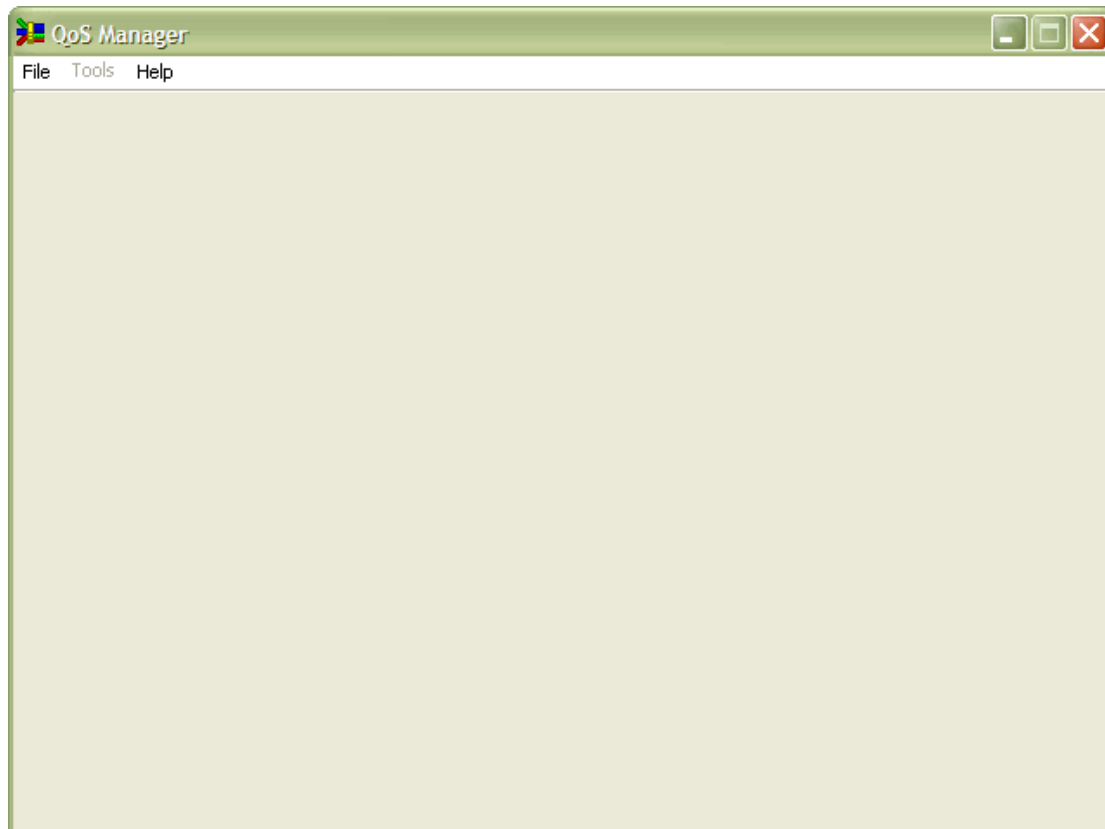
Topics:

- [Initial Window](#)
- [QoS/CoS Information Window](#)

3 Main Window

3.1 Initial Window

If the target host is not specified, or if one or more connection parameters do not match what is configured on the host, the following window appears.



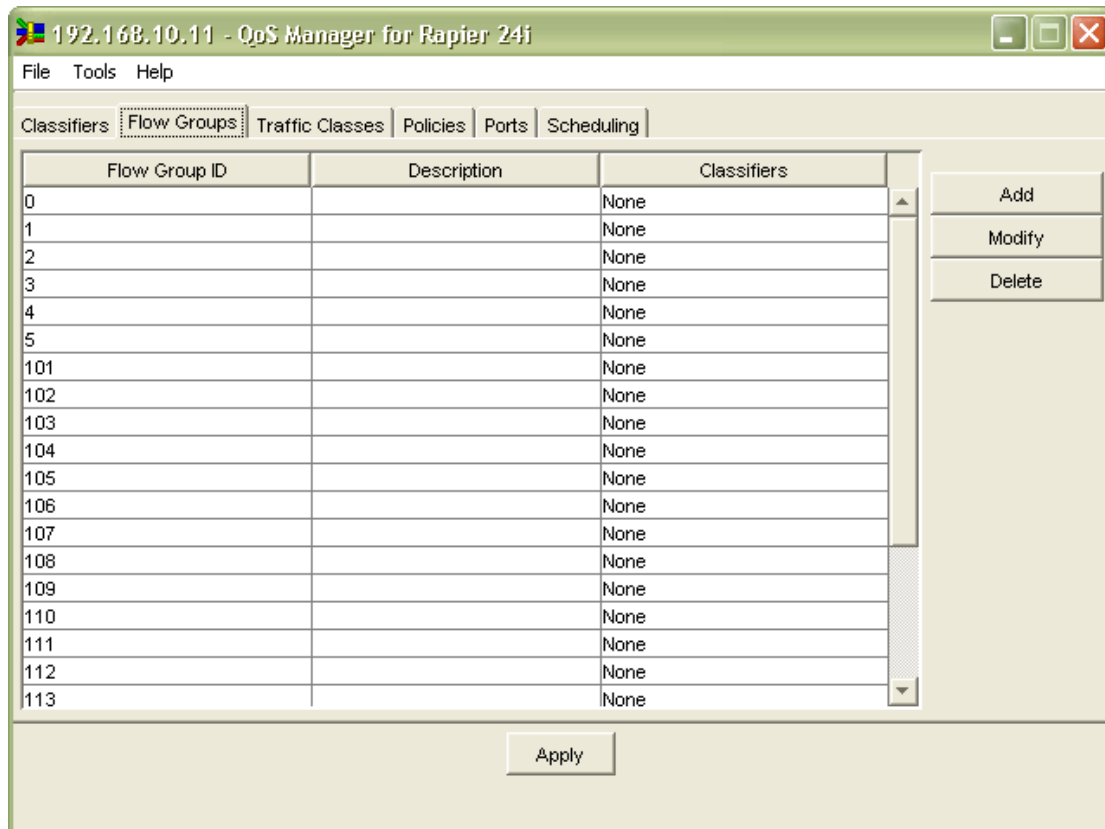
Initial Window

To specify a target host from this window, select **File** → **Open** . If the target host is a device model that is supported by QoS Manager, the QoS/CoS Information Window displaying the target host's QoS/CoS configuration will appear.

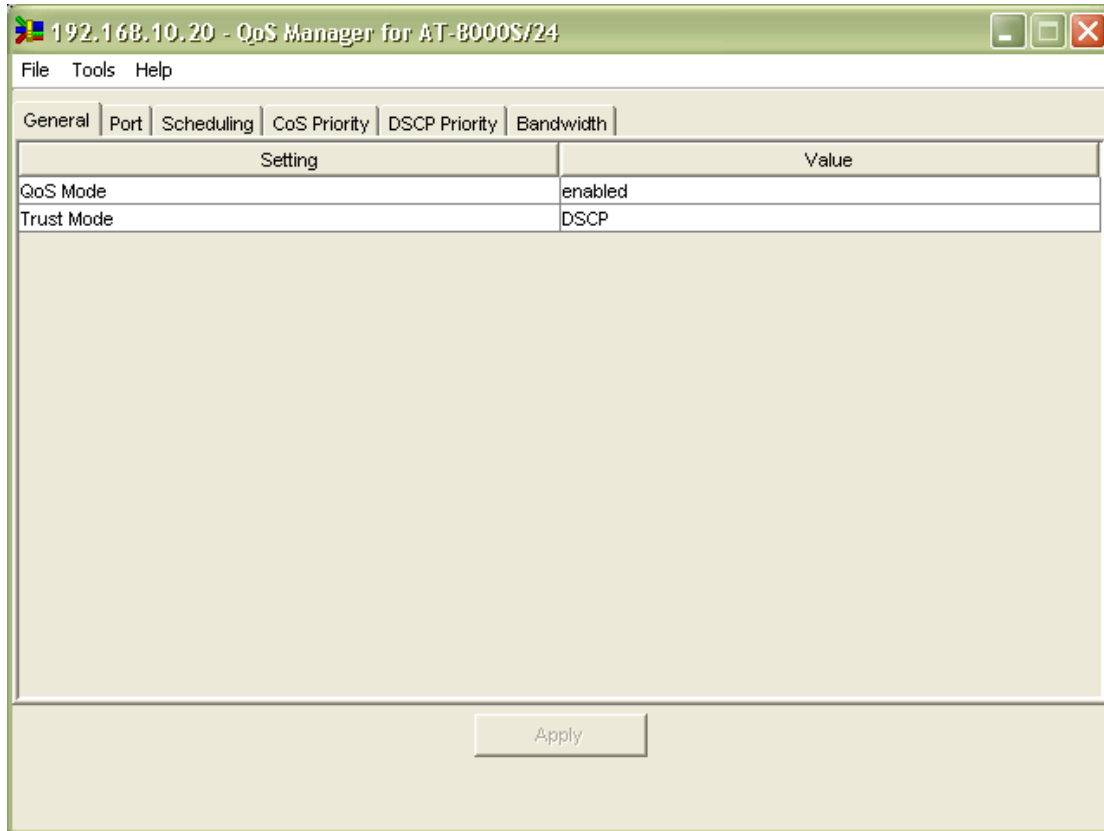
3 Main Window

3.2 QoS/CoS Information Window

Depending on whether the target host is a QoS-based or a CoS-based device, QoS Manager will display the appropriate information window.



QoS Information Window



CoS Information Window

The QoS/CoS Information Window displays the QoS/CoS configuration of the device being managed. QoS/CoS information is organized via tabs with each tab corresponding to a QoS/CoS element. Each QoS/CoS element is presented in a table format with each row representing one instance of the element.

QoS/CoS elements, as well as the fields available under each element, may vary from one device series to another. Refer to [Section 6 - Device Support](#) for the specific attributes displayed for each device series.

4 Basic Operations

This chapter discusses the basic operations within QoS Manager windows.

Topics

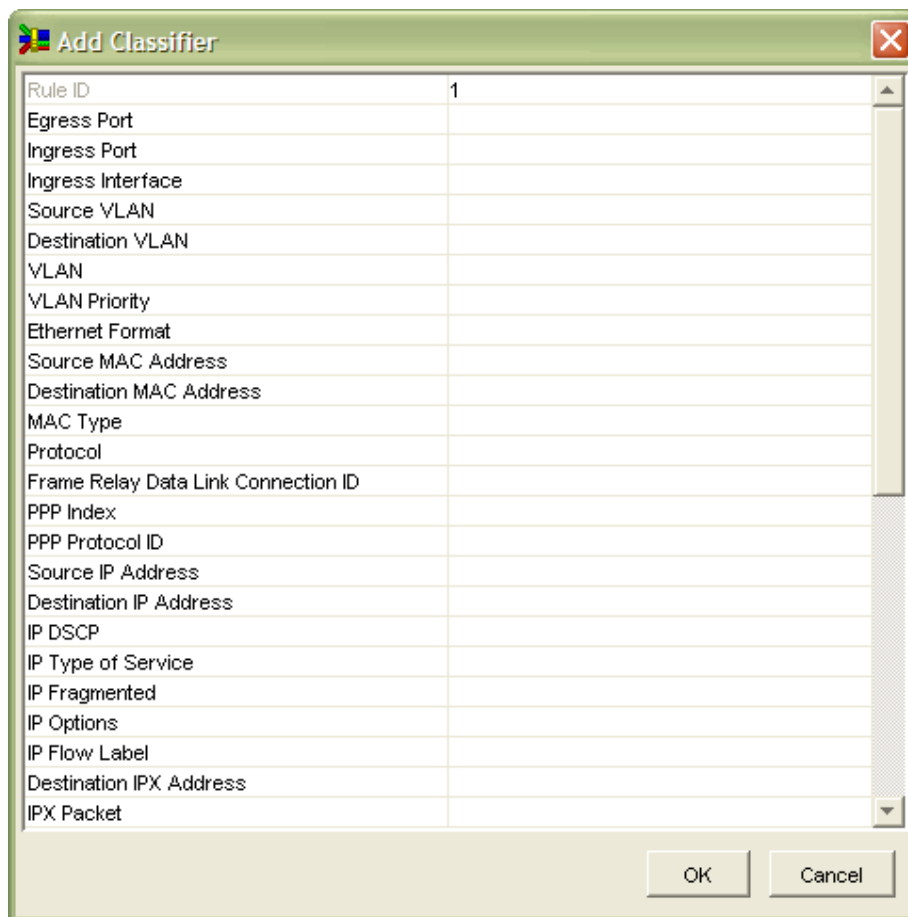
- [Add](#)
- [Modify](#)
- [Delete](#)
- [Inline Table Editing](#)
- [Apply](#)

4.1 Add

The Add operation is only available on QoS-based devices and only for the following QoS elements:

- Classifiers
- Flow Groups
- Traffic Classes
- Policies

To add a new instance of a QoS element, click on the *Add* button to display the Add window.



Field	Value
Rule ID	1
Egress Port	
Ingress Port	
Ingress Interface	
Source VLAN	
Destination VLAN	
VLAN	
VLAN Priority	
Ethernet Format	
Source MAC Address	
Destination MAC Address	
MAC Type	
Protocol	
Frame Relay Data Link Connection ID	
PPP Index	
PPP Protocol ID	
Source IP Address	
Destination IP Address	
IP DSCP	
IP Type of Service	
IP Fragmented	
IP Options	
IP Flow Label	
Destination IPX Address	
IPX Packet	

The Add window is presented as a two-column table (Property Sheet). The left column represents the available fields for the QoS element, while the right column represents their corresponding values.

During an Add operation, all field values are initially blank.

To configure a field, click on the value cell of that field. Depending on the field being configured, the value cell will become one of the following:

- **Editable** - a value is keyed in manually
- **Dropdown Selection** - a single value is selected from a pre-defined list of values
- **Editable Dropdown Selection** - a single value can either be selected from a pre-defined list of values or keyed in manually
- **Multiple Selection** - one or more values can be selected from a pre-defined list of values. To select multiple contiguous values, hold down the *Shift* key while selecting items from the list. To select multiple non-contiguous values, hold down the *Ctrl* key while selecting items from the list.

After setting all the desired fields, you can complete the Add operation by clicking the *OK* button.

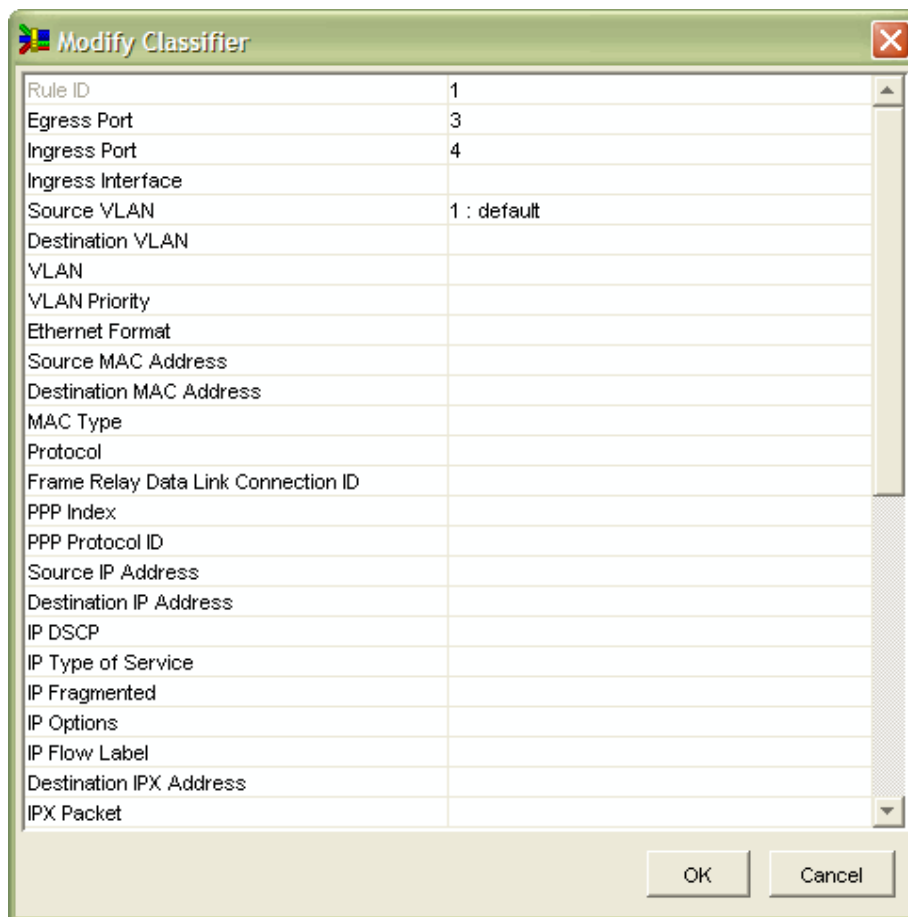
If you wish to cancel the operation, click on the *Cancel* button.

4.2 Modify

The Modify operation is only available on QoS-based devices and only for the following QoS elements:

- Classifiers
- Flow Groups
- Traffic Classes
- Policies

To modify the field values of an existing instance of a QoS element, select a table row from the QoS Information Window then click on the *Modify* button.



Rule ID	1
Egress Port	3
Ingress Port	4
Ingress Interface	
Source VLAN	1 : default
Destination VLAN	
VLAN	
VLAN Priority	
Ethernet Format	
Source MAC Address	
Destination MAC Address	
MAC Type	
Protocol	
Frame Relay Data Link Connection ID	
PPP Index	
PPP Protocol ID	
Source IP Address	
Destination IP Address	
IP DSCP	
IP Type of Service	
IP Fragmented	
IP Options	
IP Flow Label	
Destination IPX Address	
IPX Packet	

The Modify window is the same as the Add window except that the value cells will now contain the values which were previously set.

The procedure for modifying a field value is the same as that used in the Add operation.

After modifying or setting all the desired fields, you can complete the Modify operation by clicking the *OK* button.

If you wish to cancel the operation without applying the changes, click on the *Cancel* button.

4.3 Delete

The Delete operation is only available on QoS-based devices and only for the following QoS elements:

- Classifiers
- Flow Groups
- Traffic Classes
- Policies

To delete an instance of a QoS element, select a table row from the QoS Information Window then click on the *Delete* button.

As a safety measure, before the selected element is deleted, you will be asked to confirm the action.

4.4 Inline Table Editing

Inline table editing is available for both QoS-based and CoS-based devices. It makes it relatively easy to manipulate table data directly on-screen without having to use a *Submit* button or to go into some kind of 'edit' mode. For QoS-based devices, inline table editing is used to configure table fields in the Add and Modify operations as well as in the Ports and Scheduling tabs. For CoS-based devices, inline table editing is used to configure table fields in all tabs.

Inline table editing is similar to the process of configuring a field as described in the Add operation. Refer to [Section 4.1 - Add](#).

Note - When modifying a field that contains a non-blank value to blank, the following rules are observed:

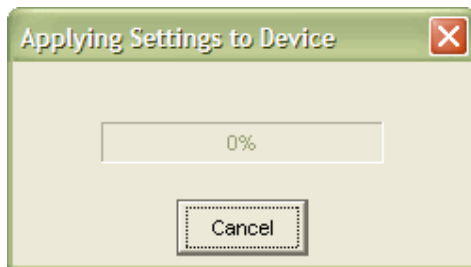
- If "none" is a valid value, field will be set to "none".
- If "any" is a valid value, field will be set to "any".
- If neither "none" nor "any" is valid, field will be set to the last accepted value for that field.

4.5 Apply

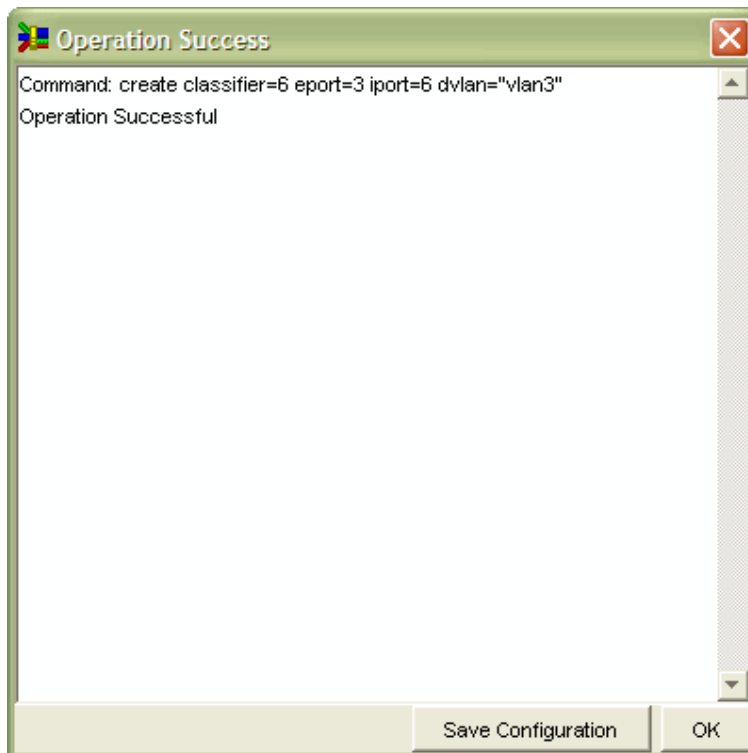
QoS/Cos configuration changes made through Add/Modify/Delete operations or Inline Table Editing will not be immediately reflected on the device. QoS Manager just stores these changes locally until an Apply operation is performed.

To apply QoS/CoS configuration changes to the device, click on the *Apply* button.

As a safety measure, before the operation is performed, you will be asked to confirm the action.



During the operation, a progress window will be displayed to indicate the status of the operation. At any point in time, you may cancel the operation by clicking the *Cancel* button.



When the operation is completed, a Results/Summary window will be displayed. This window will indicate whether the operation was successful or not. Also, this window will display a log of the commands that were issued to the device in the course of the operation.

If the operation was successful, the *Save Configuration* button will be enabled to allow you to save the applied changes to the configuration file of the device.

To close the Results/Summary window, click on the OK button.

After the Results/Summary window closes, QoS Manager will perform a refresh operation by retrieving the QoS/CoS Settings from the device. This is done to ensure that the settings between the device and QoS Manager are synchronized.

5 Menus

This chapter describes the items on QoS Manager's main menu.

Topics:

- [File](#)
- [Tools](#)
- [Help](#)

5 Menus

5.1 File

The File menu lets you connect to and disconnect from a target host, check the properties of the target host, or exit QoS Manager.

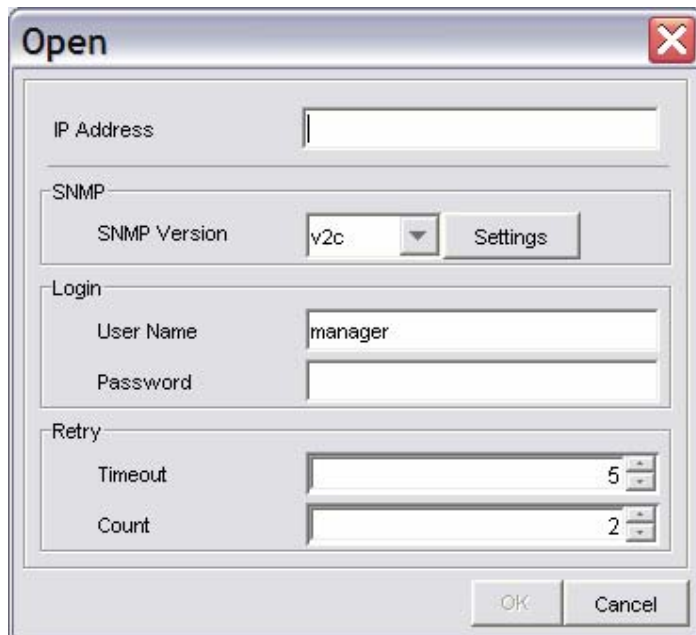
Topics:

- [Open](#)
- [Close](#)
- [Exit](#)

5.1.1 Open

This option allows you to specify a target host to connect to. When you select **File > Open**, the following dialog box appears. To connect to the device, fill in parameters in the dialog box, and click *OK*.

Note - This option is not available if QoS Manager is already connected to a target host.



Open dialog box

IP Address

This is the Host Name or IP Address of the target host.

SNMP

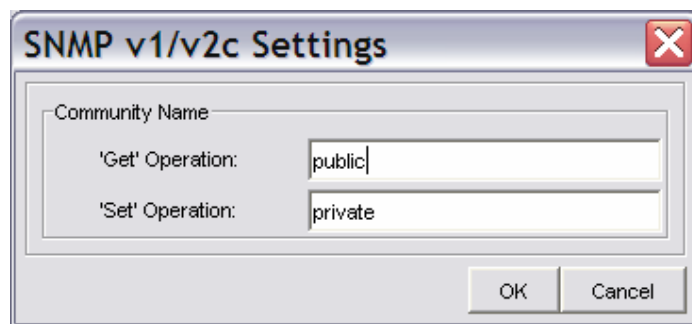
Version

This drop down list allows you to select the SNMP version to use in managing the target device.

Note - Before choosing "v2c" or "v3", make sure that the target device you are connecting to supports SNMP v2c and/or SNMP v3 respectively.

Settings

If the Version is set to "v1" or "v2c", this button opens the SNMP v1/v2c Settings window. Otherwise, if the Version is set to "v3", this button opens the SNMP v3 Settings window.



SNMP v1/v2c Settings dialog box

Community Name

The community strings to use in performing SNMP operations on the target host. There are two types of community strings for SNMP. Be sure to specify strings which match the ones configured on the target host.

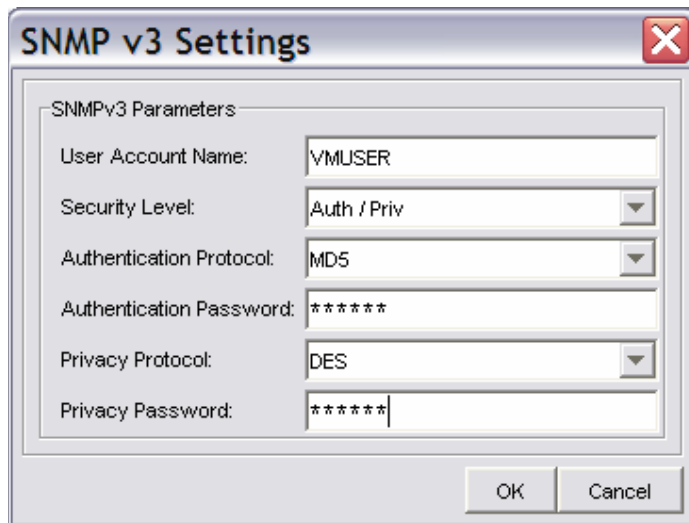
By default, the following strings are used:

for the 'Get' operation

public

for the 'Set' operation

private



SNMP v3 Settings dialog box

User Account Name

This is the SNMPv3 User Account to be used for accessing the MIB of the target device. Make sure to specify a User Account that has already been configured on the target device.

Security Level

This is the Security Level for the User Account Name that you have specified. Make sure to set the Security Level that is configured for the User Account Name on the target device.

These are the available Security Levels:

No Auth / No Priv

This Security Level uses no authentication and no privacy.

Auth / No Priv

This Security Level uses authentication without privacy.

Auth / Priv

This Security Level uses authentication and privacy.

Authentication Protocol

If the Security Level is "Auth / No Priv" or "Auth / Priv", you need to specify an Authentication Protocol that is configured for the User Account Name on the target device.

These are the available Authentication Protocols:

MD5

Use HMAC-MD5-96 protocol

SHA

Use HMAC-SHA-96 protocol

Authentication Password

If the Security Level is "Auth / No Priv" or "Auth / Priv", you need to specify an Authentication Password that is configured for the User Account Name on the target device.

Privacy Protocol

If the Security Level is "Auth / Priv", you need to specify a Privacy Protocol. This is the available Privacy Protocol:

DES

Use Data Encryption Standard

Privacy Password

If the Security Level is "Auth / Priv", you need to specify a Privacy Password that is configured for the User Account Name on the target device.

Login

User Name

This is the account name to be used to log in to the device. By default, this field is set to *manager*.

Password

This is the password for the account to be used.

Retry

Timeout

The number of seconds QoS Manager waits before it determines that the device is not responding. By default, this value is set to *5 seconds*.

Count

The number of times QoS Manager sends SNMP messages to the agent before giving up. By default, this value is set to *2 retries*.

5.1.2 Close

This option closes the active connection with the device and empties the **QoS/CoS Information Window**.

Note - This option is not available if QoS Manager is not yet connected to a device.

5.1.3 Exit

This option terminates connection to the target host and closes the QoS Manager application.

5.2 Tools

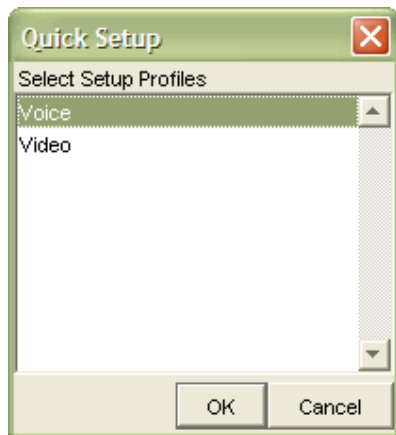
The Tools menu lets you refresh the contents of the QoS/CoS Information Window and restart the currently connected device. It also provides a quick method for configuring QoS specifically for voice and video.

Topics:

- [Quick Setup](#)
- [Refresh](#)
- [Reboot](#)

5.2.1 Quick Setup

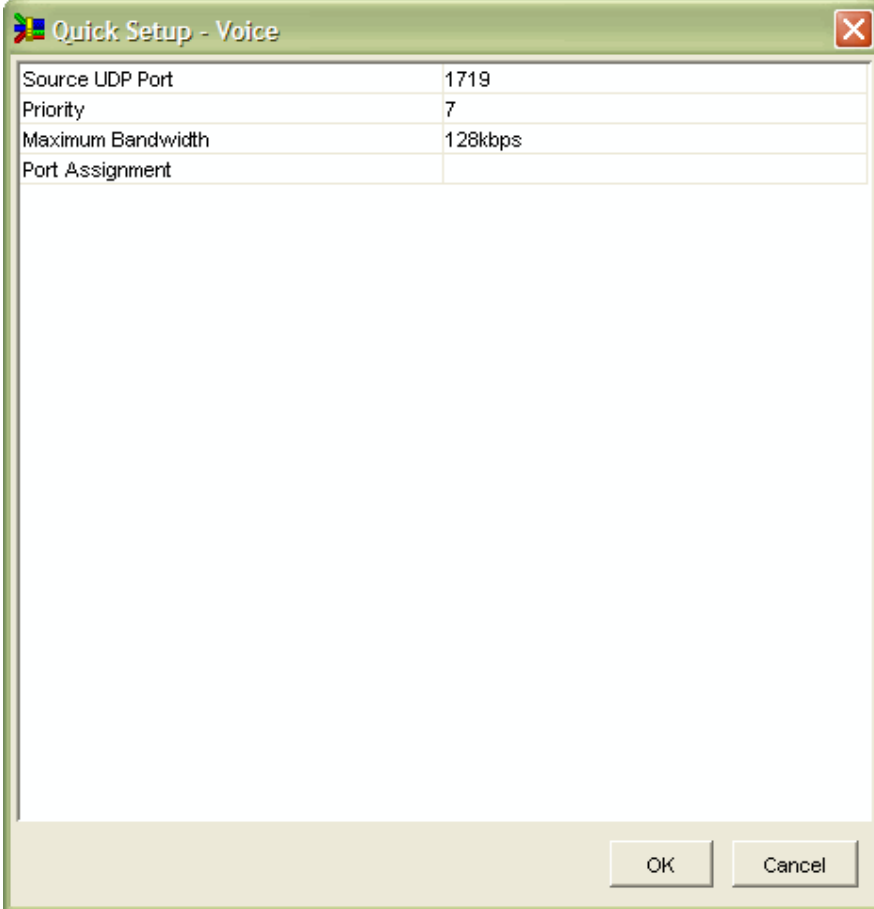
Quick Setup provides a two-step process for creating a simple QoS configuration for voice and/or video on the target device.



At the start of the Quick Setup, you will be prompted to select from two profiles:

- **Voice** - Contains default settings suitable for Voice (VoIP) type applications.
- **Video** - Contains default settings suitable for Video streaming applications.

After selecting a Quick Setup profile, click *OK* to proceed to the next step.

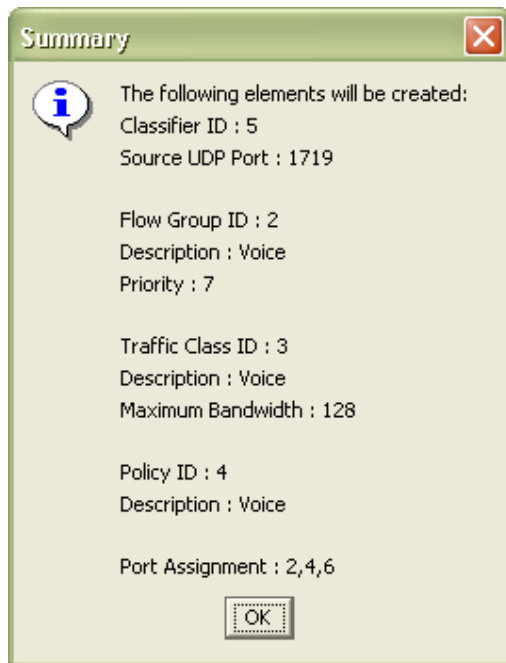


The image shows a 'Quick Setup - Voice' dialog box with a table of settings. The table has two columns: the left column contains the setting name, and the right column contains the value. The settings are: Source UDP Port (1719), Priority (7), Maximum Bandwidth (128kbps), and Port Assignment (empty). At the bottom of the dialog are 'OK' and 'Cancel' buttons.

Setting	Value
Source UDP Port	1719
Priority	7
Maximum Bandwidth	128kbps
Port Assignment	

You will now be presented with default settings that you may adjust or fine-tune depending on the requirements of your network.

After you complete the adjustments, click *OK* to complete the setup.



A Summary window will be displayed. The Summary window will contain a list of QoS elements and settings that will be created by the Quick Setup function. After confirming the message, you will be returned to the QoS Information Window where you can do further revisions to or fine-tuning on the newly created QoS elements.

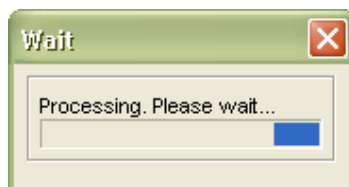
Note that the Quick Setup function is only available for QoS-based devices.

5.2.2 Refresh

The Refresh operation will force QoS Manager to retrieve all QoS/CoS configurations from the device. Note that performing a Refresh operation will wipe out any settings which have not yet been applied to the device.

Before a Refresh operation is performed, you will be prompted with a confirmation box. Upon confirmation, the refresh will start. While the Refresh operation is in progress, a progress window will be displayed. Once completed, the progress window will close and the contents of the QoS/CoS Information Window will now be updated with the latest settings from the device.

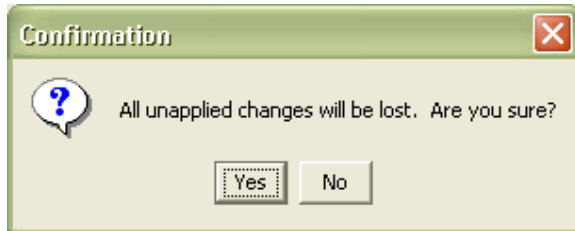
Note that the Refresh operation is only available if QoS Manager is already connected to a target host.



5.2.3 Reboot

This option displays a reboot confirmation dialog box.

Note - This option is only available if QoS Manager is already connected to a target host.



Upon confirmation, the device will be rebooted. While the Reboot is in progress, a progress window will be displayed. Once completed, the progress window will close and the contents of the QoS/CoS Information Window should now be updated with the latest settings from the device.

5.3 Help

The Help menu lets you view the online user's guide as well as some basic information about the application.

Topics:

- [Index](#)
- [About](#)

5.3.1 Index

This option displays the main page of the online user's manual.

5.3.2 About

This option displays version and copyright information for QoS Manager. It also displays a list of the currently supported devices.

6 Device Support

This section describes, on a per device series basis, the specific QoS/CoS attributes displayed in the QoS/CoS Information Window, the configurable fields available in the Add, Modify and Quick Setup windows, and any known issues and/or operational notes.

Topics:

- [AT-8000S Series](#)
- [AT-8600 Series](#)
- [AT-8800 Series](#)
- [AT-9000/24](#)
- [AT-9400 Series](#)
- [AT-9900 Series](#)
- [AT-x900-24X Series](#)
- [AT-x900-48 Series](#)
- [Rapier](#)
- [SwitchBlade Series](#)

6 Device Support

6.1 AT-8000S Series

Topics:

- [General](#)
- [Port](#)
- [Scheduling](#)
- [CoS Priority](#)
- [DSCP Priority](#)
- [Bandwidth](#)

6.1.1 General

Setting	Description	Value
QoS Mode	Enables/Disables quality of service (QoS) on the device	<ul style="list-style-type: none"> • enabled • disabled
Trust Mode	Configures the system to the basic mode and trust state. It is used to specify whether the ports are trusted and which field of the ingress packets to use to classify traffic.	<ul style="list-style-type: none"> • CoS - ingress packets are classified using packet CoS values. Untagged packets are classified using the default port CoS value. • DSCP - ingress packets are classified using packet DSCP values

6.1.2 Port

Column Name	Description	Value
Interface (cannot be modified)	Lists the interfaces (ports and channels) available	<p>The available interfaces will depend on the device model and configuration.</p> <ul style="list-style-type: none"> • standalone - e1, e2..en • stacked - 1/e1, 1/e2..1/en, 2/e1, 2/e2..s/en • channels - ch1, ch2..chn <p>where:</p> <ul style="list-style-type: none"> • n = port/channel number • s = stack id
Default CoS	Specifies the default CoS value of an interface	Range: 0-7

6.1.3 Scheduling

Setting	Description	Value
Scheduling	Configures the number of expedite queues. It is used to specify the scheduling method to use.	<ul style="list-style-type: none"> Strict Priority - higher priority queues are emptied before any packets are transmitted from lower priority queues Weighted Priority - packets are transmitted from all queues in a round-robin fashion based on the queue weights

6.1.4 CoS Priority

Column Name	Description	Value
Class of Service (cannot be modified)	Lists the CoS values available	Range: 0-7
Queue	Specifies the queue number to which the CoS value is mapped	Range: 1-4

6.1.5 DSCP Priority

Column Name	Description	Value
DSCP (cannot be modified)	Lists the DSCP values available	Range: 0-63
Queue	Specifies the queue number to which the DSCP value is mapped	Range: 1-4

6.1.6 Bandwidth

Column Name	Description	Value
Interface (cannot be modified)	Lists the interfaces (ports and channels) available	<p>The available interfaces will depend on the device model and configuration.</p> <ul style="list-style-type: none"> standalone - e1, e2..en stacked - 1/e1, 1/e2..1/en, 2/e1, 2/e2..s/en channels - ch1, ch2..chn <p>where:</p> <ul style="list-style-type: none"> n = port/channel number s = stack id
Ingress Status	Enables/Disables the Rate Limit field	<ul style="list-style-type: none"> enabled disabled

Column Name	Description	Value
Rate Limit	Specifies the maximum kilobits per second of ingress traffic on a port Note - This field does not apply to channels.	Range: 62-1000000
Egress Status	Enables/Disables the CIR field	<ul style="list-style-type: none"> • enabled • disabled
CIR	Sets the average traffic rate in kilobits per second and enables the CBS field	Range: 64-1000000
CBS	Sets the excess burst size in bytes. This field remains disabled if CIR field is empty Note - This field applies to combo ports and channels only.	Range: 4096-16769020

6.2 AT-8600 Series

Topics:

- [Classifiers](#)
- [Flow Groups](#)
- [Traffic Classes](#)
- [Policies](#)
- [Ports](#)
- [Scheduling](#)
- [Quick Setup](#)
- [Notes](#)

6.2.1 Classifiers

6.2.1.1 QoS Information Window

Column Name	Description
Classifier ID	Lists the Rule ID of packet-matching rules available

6.2.1.2 Add/Modify Classifier

Property Name	Description	Valid Values
Rule ID (cannot be modified)	Uniquely identifies the packet-matching rule	Range: 1-9999
VLAN	Specifies the Destination VLAN that the packet will be transmitted on.	This can be set by selecting from a list of available VLANs or "any".
Egress Port	Specifies the egress port on the switch to match for each frame.	This can be set by selecting any of the following values: <ul style="list-style-type: none"> • 1-N (where N is the number of ports available on the device)
Ingress Port	Specifies the ingress port on the switch to match for each frame.	This can be set by selecting any of the following values: <ul style="list-style-type: none"> • 1-N (where N is the number of ports available on the device)
Ethernet Format	Specifies the Ethernet encapsulation type of the packet.	This can be set by selecting any of the following values:

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • 802.2 • 802.2-Tagged • 802.2-Untagged • EthII • EthII-Tagged • EthII-Untagged • NetwareRaw • NetwareRaw-Tagged • NetwareRaw-Untagged • SNAP • any
Source IP Address	Specifies the source IP Address (either host or host/subnet) of an IP packet.	<p>This can be set by entering an IP Address in dotted decimal notation with an optional mask</p> <ul style="list-style-type: none"> • NNN.NNN.NNN.NNN • NNN.NNN.NNN.NNN/M <p>Where M = 0-32</p>
Destination IP Address	Specifies the destination IP Address (either host or host/subnet) of an IP packet.	<p>This can be set by entering an IP Address in dotted decimal notation with an optional mask</p> <ul style="list-style-type: none"> • NNN.NNN.NNN.NNN • NNN.NNN.NNN.NNN/M <p>Where M = 0-32.</p>
IP DSCP	This the Code Point bits of the DiffServ field of an IP packet.	<p>This can be set by entering one or more integers from 0-63. Input can be a comma separated list or a range (specified as m-n) or a combination of both. (e.g. 2, 4-7) This value can also be set to "any".</p>
IP Protocol	This specifies a Layer 4 IP protocol of an IP packet.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • TCP • UDP • ICMP • IGMP • any <p>This can also be set by entering an integer from 0-255.</p>

Property Name	Description	Valid Values
IP Type of Service	Specifies the value of the precedence field within the TOS (Type of Service) byte of an IP packet.	Range: any, 0-7
Destination IPX Address	Specifies the destination network address of an IPX packet.	This can be set by entering a 4-byte hexadecimal value. (00000001-FFFFFFFF) This can also be set to "any".
IPX Packet	Specifies the value of the Packet Type field of an IPX packet.	This can be set by entering a 2-byte hexadecimal value (00-FF) or selecting from the following: <ul style="list-style-type: none"> • NLSP • RIP • SAP • SPX • NCP • NETBIOS • any
Source IPX Socket	Specifies the source IPX socket number of an IPX packet.	This can be set by entering a 2-byte hexadecimal value (0000-FFFF) or by selecting one of the following: <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any
Destination IPX Socket	Specifies the destination IPX socket number of an IPX packet.	This can be set by entering a 2-byte hexadecimal value (0000-FFFF) or by selecting one of the following: <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any

Property Name	Description	Valid Values
Source MAC Address	Specifies the source MAC address of the packet.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> XX-XX-XX-XX-XX-XX This can also be set to "any".
Destination MAC Address	This parameter specifies the destination MAC address of the packet.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> XX-XX-XX-XX-XX-XX This can also be set to "any".
Match1	Specifies the actual data to match	This can be set by entering a 2-byte hex number. (0000-FFFF)
Mask1	Specifies whether the corresponding bit in the Match1 parameter is "on" for a match or "don't care" for a match.	This can be set by entering a 2-byte hex number. (0000-FFFF)
Offset1	Specifies the location or offset where the pattern for Match1 is to be checked.	Range: 0-62
Match2	Specifies the actual data to match	This can be set by entering a 2-byte hex number. (0000-FFFF)
Mask2	Specifies whether the corresponding bit in the Match2 parameter is "on" for a match or "don't care" for a match.	This can be set by entering a 2-byte hex number. (0000-FFFF)
Offset2	Specifies the location or offset where the pattern for Match2 is to be checked.	Range: 0-62
Match3	Specifies the actual data to match	This can be set by entering a 2-byte hex number. (0000-FFFF)
Mask3	Specifies whether the corresponding bit in the Match3 parameter is "on" for a match or "don't care" for a match.	This can be set by entering a 2-byte hex number. (0000-FFFF)
Offset3	Specifies the location or offset where the pattern for Match3 is to be checked.	Range: 0-62
Protocol	Specifies the protocol of the packet.	This can be set by selecting any of the following values: <ul style="list-style-type: none"> IP IPv6

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • ARP • IPX • NONIPIX • any <p>This can also be set by entering a 1- to 5- byte hexadecimal value (00-FFFFFFFF).</p>
Source TCP Port	Specifies the TCP source port of a TCP/IP packet.	Range: any, 0-65535
Destination TCP Port	Specifies the TCP destination port of a TCP/IP packet.	Range: any, 0-65535
TCP Flags	Specifies the TCP flags of a TCP/IP packet.	<p>This can be set by selecting one or more of the following values:</p> <ul style="list-style-type: none"> • URG • ACK • RST • SYN • FIN • any
Source UDP Port	Specifies the UDP source port of an UDP/IP packet.	Range: any, 0-65535
Destination UDP Port	Specifies the UDP destination port of an UDP/IP packet.	Range: any, 0-65535

6.2.2 Flow Groups

6.2.2.1 QoS Information Window

Column Name	Description
Flow Group ID	Lists the ID of Flow Groups available
Description	A brief description of the Flow Group.
Classifiers	List of Classifiers associated with this Flow Group

6.2.2.2 Add/Modify Flow Group

Property Name	Description	Valid Values
Flow Group ID (cannot be modified)	Specifies the unique identifier for the flow group.	Range: 0-1023
Description	Specifies a brief description of the Flow Group.	To set this value, enter an alphanumeric string from 1-15 characters.
Mark Value	This parameter specifies a	Range: none, 0-63

Property Name	Description	Valid Values
	replacement value to write into the DSCP (TOS) field for all packets.	
Priority	This parameter specifies the priority that traffic belonging to this Flow Group has.	Range: none, 0-7
Remark Priority	Specifies whether the value of the priority parameter is used to set the egress queue selection for a frame and also to replace the 802.1p priority value in the frame, or just to select the egress queue for the frame.	<ul style="list-style-type: none"> • yes • no
Classifier List	Specifies a list of the Classifiers currently assigned to this Flow Group.	Select from a list of available classifier IDs.

6.2.3 Traffic Classes

6.2.3.1 QoS Information Window

Column Name	Description
Traffic Class ID	Lists the ID of Traffic Classes available
Description	A brief description of the Traffic Class
Flow Groups	List of the Flow Groups associated with this Traffic Class

6.2.3.2 Add/Modify Traffic Class

Property Name	Description	Valid Values
Traffic Class ID (cannot be modified)	Specifies the unique identifier for this Traffic Class.	Range: 0-511
Description	Specifies a brief description of the Traffic Class.	To set this value, enter an alphanumeric string from 1-15 characters.
Exceed Action	Specifies the action to take if the traffic classes maxbandwidth is exceeded.	<ul style="list-style-type: none"> • drop • remark
Exceed Remark Value	Specifies the DSCP replacement value for traffic that exceeds the maxbandwidth.	Range: 0-63
Mark Value	Specifies a replacement value to write into the DSCP (TOS) field for all packets.	Range: none, 0-63
Maximum Bandwidth	Specifies the maximum bandwidth available to the traffic class.	This can be set by entering a value using one the following formats:

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> 0-16000000 kbps 0-16000 Mbps (decimal point supported) 0-16 Gbps (decimal point supported)
Priority	Specifies the priority value in the IEEE Standard 802.1p tag control field that traffic belonging to this traffic class is assigned.	Range: none, 0-7
Remark Priority	Specifies whether the value of the priority parameter is used to set the egress queue selection for a frame and also to replace the 802.1p priority value in the frame, or just to select the egress queue for the frame.	<ul style="list-style-type: none"> yes no
Flow Group List	Specifies a list of the Flow Groups currently assigned to this Traffic Class.	Select from a list of available Flow Group IDs.

6.2.4 Policies

6.2.4.1 QoS Information Window

Column Name	Description
Policy ID	Lists the ID of Policies available
Description	A brief description of the Policy
Traffic Classes	List of Traffic Classes associated with this Policy

6.2.4.2 Add/Modify Policy

Property Name	Description	Valid Values
Policy ID (cannot be modified)	Specifies the unique identifier for the Policy.	Range: 0-255
Description	Specifies a brief description of the Policy.	To set this value, enter an alphanumeric string from 1-15 characters.
Ingress DSCP Overwrite	Specifies the DSCP value used to overwrite the DSCP value on the ingress queue.	Range: none, 0-63
Remark Ingress DSCP	Specifies the conditions under which the ingress DSCP value is overwritten.	<ul style="list-style-type: none"> zero all

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • none
Traffic Class List	Specifies a list of the Traffic Classes currently assigned to this Policy.	Select from a list of available Traffic Class IDs.

6.2.5 Ports

Column Name	Description	Valid Values
Port (cannot be modified)	Lists the ports available	Available ports will depend on the device model
Policy	Specifies the policy to associate with the port	Select from a list of available policies

6.2.6 Scheduling

Column Name	Description	Valid Values
Queue (cannot be modified)	Lists the hardware CoS queues available.	Range: 0-3
Max Packets	Maximum number of packets able to be transmitted from this queue before the control is passed to the next queue.	Range: 0-255
Max Latency	Maximum permissible elapsed time between packets transmitted from this queue.	Range: 0, 16-4080

6.2.7 Quick Setup

Property Name	Description	Valid Values
Source UDP Port	Specifies the UDP source port of an UDP/IP packet.	Range: 0-65535 Default for VOICE: 1719 Default for VIDEO: 1024
Priority	Specifies the priority that will be assigned for this setup.	Range: none, 0-7 Default for VOICE: 7 Default for VIDEO: 4
Maximum Bandwidth	Specifies the maximum bandwidth available to this setup.	<ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) Default for VOICE: 128kbps Default for VIDEO: 256kbps
Port Assignment	Specifies a list of ports that will be	Select from a list of available Ports.

Property Name	Description	Valid Values
	affected by this setup.	Default for VOICE: no ports Default for VIDEO: no ports

6.2.8 Notes

- Values entered for the Max Bandwidth traffic class property are rounded to the nearest 1000kbps.

6.3 AT-8800 Series

Topics:

- [Classifiers](#)
- [Flow Groups](#)
- [Traffic Classes](#)
- [Policies](#)
- [Ports](#)
- [Scheduling](#)
- [Quick Setup](#)
- [Notes](#)

6.3.1 Classifier

6.3.1.1 QoS Information Window

Column Name	Description
Classifier ID	Lists the Rule ID of packet-matching rules available

6.3.1.2 Add/Modify Classifier

Property Name	Description	Valid Values
Rule ID (cannot be modified)	Uniquely identifies the packet-matching rule	Range: 1-9999
VLAN	Specifies the Destination VLAN that the packet will be transmitted on.	This can be set by selecting from a list of available VLANs or "any".
Egress Port	Specifies the egress port on the switch to match for each frame.	This can be set by selecting any of the following values: <ul style="list-style-type: none"> • 1-N (where N is the number of ports available on the device)
Ingress Port	Specifies the ingress port on the switch to match for each frame.	This can be set by selecting any of the following values: <ul style="list-style-type: none"> • 1-N (where N is the number of ports available on the device)
Ethernet Format	Specifies the Ethernet encapsulation type of the packet.	This can be set by selecting any of the following values:

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • 802.2 • 802.2-Tagged • 802.2-Untagged • EthII • EthII-Tagged • EthII-Untagged • NetwareRaw • NetwareRaw-Tagged • NetwareRaw-Untagged • SNAP • any
Source IP Address	Specifies the source IP Address (either host or host/subnet) of an IP packet.	<p>This can be set by entering an IP Address in dotted decimal notation with an optional mask</p> <ul style="list-style-type: none"> • NNN.NNN.NNN.NNN • NNN.NNN.NNN.NNN/M <p>Where M = 0-32</p>
Destination IP Address	Specifies the destination IP Address (either host or host/subnet) of an IP packet.	<p>This can be set by entering an IP Address in dotted decimal notation with an optional mask</p> <ul style="list-style-type: none"> • NNN.NNN.NNN.NNN • NNN.NNN.NNN.NNN/M <p>Where M = 0-32.</p>
IP DSCP	This the Code Point bits of the DiffServ field of an IP packet.	<p>This can be set by entering one or more integers from 0-63. Input can be a comma separated list or a range (specified as m-n) or a combination of both. (e.g. 2, 4-7) This value can also be set to "any".</p>
IP Protocol	This specifies a Layer 4 IP protocol of an IP packet.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • TCP • UDP • ICMP • IGMP • any <p>This can also be set by entering an integer from 0-255.</p>

Property Name	Description	Valid Values
IP Type of Service	Specifies the value of the precedence field within the TOS (Type of Service) byte of an IP packet.	Range: any, 0-7
Destination IPX Address	Specifies the destination network address of an IPX packet.	This can be set by entering a 4-byte hexadecimal value. (00000001-FFFFFFFF) This can also be set to "any".
IPX Packet	Specifies the value of the Packet Type field of an IPX packet.	This can be set by entering a 2-byte hexadecimal value (00-FF) or selecting from the following: <ul style="list-style-type: none"> • NLSP • RIP • SAP • SPX • NCP • NETBIOS • any
Source IPX Socket	Specifies the source IPX socket number of an IPX packet.	This can be set by entering a 2-byte hexadecimal value (0000-FFFF) or by selecting one of the following: <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any
Destination IPX Socket	Specifies the destination IPX socket number of an IPX packet.	This can be set by entering a 2-byte hexadecimal value (0000-FFFF) or by selecting one of the following: <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any

Property Name	Description	Valid Values
Source MAC Address	Specifies the source MAC address of the packet.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> XX-XX-XX-XX-XX-XX This can also be set to "any".
Destination MAC Address	This parameter specifies the destination MAC address of the packet.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> XX-XX-XX-XX-XX-XX This can also be set to "any".
Match1	Specifies the actual data to match	This can be set by entering a 2-byte hex number. (0000-FFFF)
Mask1	Specifies whether the corresponding bit in the Match1 parameter is "on" for a match or "don't care" for a match.	This can be set by entering a 2-byte hex number. (0000-FFFF)
Offset1	Specifies the location or offset where the pattern for Match1 is to be checked.	Range: 0-62
Match2	Specifies the actual data to match	This can be set by entering a 2-byte hex number. (0000-FFFF)
Mask2	Specifies whether the corresponding bit in the Match2 parameter is "on" for a match or "don't care" for a match.	This can be set by entering a 2-byte hex number. (0000-FFFF)
Offset2	Specifies the location or offset where the pattern for Match2 is to be checked.	Range: 0-62
Match3	Specifies the actual data to match	This can be set by entering a 2-byte hex number. (0000-FFFF)
Mask3	Specifies whether the corresponding bit in the Match3 parameter is "on" for a match or "don't care" for a match.	This can be set by entering a 2-byte hex number. (0000-FFFF)
Offset3	Specifies the location or offset where the pattern for Match3 is to be checked.	Range: 0-62
Protocol	Specifies the protocol of the packet.	This can be set by selecting any of the following values: <ul style="list-style-type: none"> IP

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> IPv6 ARP IPX NONIPIX any <p>This can also be set by entering a 1- to 5- byte hexadecimal value (00-FFFFFFFF).</p>
Source TCP Port	Specifies the TCP source port of a TCP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Destination TCP Port	Specifies the TCP destination port of a TCP/IP packet.	Range: any, 0-65535 or a port range (n-m).
TCP Flags	Specifies the TCP flags of a TCP/IP packet.	<p>This can be set by selecting one or more of the following values:</p> <ul style="list-style-type: none"> URG ACK RST SYN FIN any
Source UDP Port	Specifies the UDP source port of an UDP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Destination UDP Port	Specifies the UDP destination port of an UDP/IP packet.	Range: any, 0-65535 or a port range (n-m).

6.3.2 Flow Groups

6.3.2.1 QoS Information Window

Column Name	Description
Flow Group ID	Lists the ID of Flow Groups available
Description	A brief description of the Flow Group.
Classifiers	List of Classifiers associated with this Flow Group

6.3.2.2 Add/Modify Flow Group

Property Name	Description	Valid Values
Flow Group ID (cannot be modified)	Specifies the unique identifier for the flow group.	Range: 0-1023
Description	Specifies a brief description of the Flow Group.	To set this value, enter an alphanumeric string from 1-15 characters.

Property Name	Description	Valid Values
Mark Value	This parameter specifies a replacement value to write into the DSCP (TOS) field for all packets.	Range: none, 0-63
Priority	This parameter specifies the priority that traffic belonging to this Flow Group has.	Range: none, 0-7
Remark Priority	Specifies whether the value of the priority parameter is used to set the egress queue selection for a frame and also to replace the 802.1p priority value in the frame, or just to select the egress queue for the frame.	<ul style="list-style-type: none"> • yes • no
Classifier List	Specifies a list of the Classifiers currently assigned to this Flow Group.	Select from a list of available classifier IDs.

6.3.3 Traffic Classes

6.3.3.1 QoS Information Window

Column Name	Description
Traffic Class ID	Lists the ID of Traffic Classes available
Description	A brief description of the Traffic Class
Flow Groups	List of the Flow Groups associated with this Traffic Class

6.3.3.2 Add/Modify Traffic Class

Property Name	Description	Valid Values
Traffic Class ID (cannot be modified)	Specifies the unique identifier for this Traffic Class.	Range: 0-511
Description	Specifies a brief description of the Traffic Class.	To set this value, enter an alphanumeric string from 1-15 characters.
Exceed Action	Specifies the action to take if the traffic classes maxbandwidth is exceeded.	<ul style="list-style-type: none"> • drop • remark
Exceed Remark Value	Specifies the DSCP replacement value for traffic that exceeds the maxbandwidth.	Range: 0-63
Mark Value	Specifies a replacement value to write into the DSCP (TOS) field for all packets.	Range: none, 0-63
Maximum	Specifies the maximum bandwidth	This can be set by entering a value

Property Name	Description	Valid Values
Bandwidth	available to the traffic class.	using one the following formats: <ul style="list-style-type: none"> 0-16000000 kbps 0-16000 Mbps (decimal point supported) 0-16 GBps (decimal point supported)
Priority	Specifies the priority value in the IEEE Standard 802.Ip tag control field that traffic belonging to this traffic class is assigned.	Range: none, 0-7
Remark Priority	Specifies whether the value of the priority parameter is used to set the egress queue selection for a frame and also to replace the 802.Ip priority value in the frame, or just to select the egress queue for the frame.	<ul style="list-style-type: none"> yes no
Flow Group List	Specifies a list of the Flow Groups currently assigned to this Traffic Class.	Select from a list of available Flow Group IDs.

6.3.4 Policies

6.3.4.1 QoS Information Window

Column Name	Description
Policy ID	Lists the ID of Policies available
Description	A brief description of the Policy
Traffic Classes	List of Traffic Classes associated with this Policy

6.3.4.2 Add/Modify Policy

Property Name	Description	Valid Values
Policy ID (cannot be modified)	Specifies the unique identifier for the Policy.	Range: 0-255
Description	Specifies a brief description of the Policy.	To set this value, enter an alphanumeric string from 1-15 characters.
Ingress DSCP Overwrite	Specifies the DSCP value used to overwrite the DSCP value on the ingress queue.	Range; none, 0-63
Remark Ingress DSCP	Specifies the conditions under which the ingress DSCP value is	<ul style="list-style-type: none"> zero all

Property Name	Description	Valid Values
	overwritten.	<ul style="list-style-type: none"> • none
Traffic Class List	Specifies a list of the Traffic Classes currently assigned to this Policy.	Select from a list of available Traffic Class IDs.

6.3.5 Ports

Column Name	Description	Valid Values
Port (cannot be modified)	Lists the ports available	Available ports will depend on the device model
Policy	Specifies the policy to associate with the port	Select from a list of available policies

6.3.6 Scheduling

Column Name	Description	Valid Values
Queue (cannot be modified)	Lists the hardware CoS queues available.	Range: 0-3
Max Packets	Maximum number of packets able to be transmitted from this queue before the control is passed to the next queue.	Range: 0-255
Max Latency	Maximum permissible elapsed time between packets transmitted from this queue.	Range: 0, 16-4080

6.3.7 Quick Setup

Property Name	Description	Valid Values
Source UDP Port	Specifies the UDP source port of an UDP/IP packet.	Range: 0-65535 or a port range (n-m). Default for VOICE: 1719 Default for VIDEO: 1024
Priority	Specifies the priority that will be assigned for this setup.	Range: none, 0-7 Default for VOICE: 7 Default for VIDEO: 4
Maximum Bandwidth	Specifies the maximum bandwidth available to this setup.	<ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) Default for VOICE: 128kbps Default for VIDEO: 256kbps

Property Name	Description	Valid Values
Port Assignment	Specifies a list of ports that will be affected by this setup.	Select from a list of available Ports. Default for VOICE: no ports Default for VIDEO: no ports

6.3.8 Notes

- Values entered for the Max Bandwidth traffic class property are rounded to the nearest 1000kbps.

6.4 AT-9000/24

Topics:

- [General](#)
- [Traffic Class](#)
- [Port Priority](#)

6.4.1 General

Setting	Description	Value
QoS Status	Enables/Disables quality of service (QoS) on the device	<ul style="list-style-type: none"> • enabled • disabled

6.4.2 Traffic Class

Column Name	Description	Value
Traffic Class (cannot be modified)	Lists the CoS values available	Range: 0-7
Queue	Specifies the queue number to which the CoS value is mapped	Range: 0-3

6.4.3 Port Priority

Column Name	Description	Value
Port (cannot be modified)	Lists the available ports	Range: 1-24
Trunk (cannot be modified)	Displays the trunk number if the port is a member of a trunk	<ul style="list-style-type: none"> • None • Range: 0-3
Queue	Specifies the number of the egress queue where untagged packets are to be stored	Range: 0-3
Override	Specifies whether the CoS value of ingress tagged packets is to be used or not	<ul style="list-style-type: none"> • enabled - tagged packets are stored in the egress queue specified in the Queue field • disabled - packet CoS value is used to determine the egress queue

6 Device Support

6.5 AT-9400 Series

Topics:

- [Classifiers](#)
- [Flow Groups](#)
- [Traffic Classes](#)
- [Policies](#)
- [Ports](#)
- [Scheduling](#)
- [Quick Setup](#)
- [Notes](#)

6.5.1 Classifiers

6.5.1.1 QoS Information Window

Column Name	Description
Classifier ID	Lists the Rule ID of packet-matching rules available

6.5.1.2 Add/Modify Classifier

Property Name	Description	Valid Values
Rule ID (cannot be modified)	Uniquely identifies the packet-matching rule	Range: 1-9999
Description	Specifies a brief description of the Classifier.	This can be set by entering an alphanumeric string of 1 - 15 characters.
Source MAC Address	Specifies the source MAC address of the packet.	This can be set by entering a MAC address string using the following formats: <ul style="list-style-type: none"> • XX:XX:XX:XX:XX:XX • XXXXXXXXXXXXX This can also be set to "any".
Destination MAC Address	Specifies the destination MAC address of the packet.	This can be set by entering a MAC address string using the following formats: <ul style="list-style-type: none"> • XX:XX:XX:XX:XX:XX • XXXXXXXXXXXXX This can also be set to "any".
Ethernet Format	Specifies the Ethernet encapsulation	<ul style="list-style-type: none"> • EthII-Untagged

Property Name	Description	Valid Values
	type of the packet.	<ul style="list-style-type: none"> EthII-Tagged 802.2-Untagged 802.2-Tagged
Priority	Specifies the priority level of a tagged Ethernet frame.	Range: 0-7
VLAN	Specifies the VID number and name of a tagged or port-based VLAN.	This can be set by selecting from a list of available VLANs or "any"
Protocol	Specifies the protocol specified in the Ethertype field of the MAC header in an Ethernet frame.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> IP ARP RARP <p>This can also be set by entering an integer from 1-255.</p>
IP Type of Service	Specifies the value of the precedence field within the TOS (Type of Service) byte of an IP packet.	Range: 0-7
IP DSCP	Specifies the Code Point bits of the DiffServ field of an IP packet.	Range: 0-63
IP Protocol	Specifies the Layer 3 protocol type.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> TCP UDP ICMP IGMP <p>This can also be set by entering an integer from 1-255.</p>
Source IP Address	Specifies the source IP Address (either host or host/subnet) of an IP packet.	<p>This can be set by entering an IP Address in dotted decimal notation with an optional mask</p> <ul style="list-style-type: none"> NNN.NNN.NNN.NNN NNN.NNN.NNN.NNN/M <p>Where M = 0-32.</p>
Destination IP Address	Specifies the destination IP Address (either host or host/subnet) of an IP packet.	This can be set by entering an IP Address in dotted decimal notation with an optional mask

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • NNN.NNN.NNN.NNN • NNN.NNN.NNN.NNN/M Where M = 0-32.
Source TCP Port	Specifies the TCP source port of a TCP/IP packet.	Range: 0-65535
Destination TCP Port	Specifies the TCP destination port of a TCP/IP packet.	Range: 0-65535
Source UDP Port	Specifies the UDP source port of an UDP/IP packet.	Range: 0-65535
Destination UDP Port	Specifies the UDP destination port of an UDP/IP packet.	Range: 0-65535
TCP Flags	Specifies the TCP flags of a TCP/IP packet.	This can be set by selecting any of the following values: <ul style="list-style-type: none"> • URG • ACK • RST • PSH • SYN • FIN

6.5.2 Flow Groups

6.5.2.1 QoS Information Window

Column Name	Description
Flow Group ID	Lists the ID of Flow Groups available
Description	A brief description of the Flow Group.
Classifiers	List of Classifiers associated with this Flow Group

6.5.2.1 Add/Modify Flow Group

Property Name	Description	Valid Values
Flow Group ID (cannot be modified)	Specifies the unique identifier for the Flow Group.	Range: 0-1023
Description	Specifies a brief description of the Flow Group.	To set this value, enter an alphanumeric string from 1-15 characters.
Mark Value	Specifies a replacement value to write into the DSCP (TOS) field for all packets.	Range: any, 0-63
Priority	Specifies the priority that traffic	Range: none, 0-7

Property Name	Description	Valid Values
	belonging to this Flow Group has.	
Remark Priority	Specifies whether the value of the priority parameter is used to set the egress queue selection for a frame and also to replace the 802.Ip priority value in the frame, or just to select the egress queue for the frame.	<ul style="list-style-type: none"> • yes • no
Type of Service	Specifies the replacement value to write in the Type of Service field of IPv4 packets.	Range: none, 0-7
Move TOS to Priority	Specifies whether or not the value in the 802.Ip priority field will be replaced with the value in the ToS priority field on IPv4 packets.	<ul style="list-style-type: none"> • yes • no
Move Priority to TOS	Specifies whether or not the value in the ToS priority field will be replaced with the value in the 802.Ip priority field on IPv4 packets.	<ul style="list-style-type: none"> • yes • no
Classifier List	Specifies a list of the Classifiers currently assigned to this Flow Group.	Select from a list of available classifier IDs.

6.5.3 Traffic Classes

6.5.3.1 QoS Information Window

Column Name	Description
Traffic Class ID	Lists the ID of Traffic Classes available
Description	A brief description of the Traffic Class
Flow Groups	List of the Flow Groups associated with this Traffic Class

6.5.3.1 Add/Modify Traffic Class

Property Name	Description	Valid Values
Traffic Class ID (cannot be modified)	Specifies the unique identifier for this Traffic Class.	Range: 0-511
Description	Specifies a brief description of the Traffic Class.	To set this value, enter an alphanumeric string from 1-15 characters.
Exceed Action	Specifies the action to take if the traffic classes maxbandwidth is exceeded.	<ul style="list-style-type: none"> • drop • remark
Exceed Remark	Specifies the DSCP replacement	Range: 0-63

Property Name	Description	Valid Values
Value	value for traffic that exceeds the maxbandwidth.	
Mark Value	Specifies a replacement value to write into the DSCP (TOS) field for all packets.	Range: 0-63
Maximum Bandwidth	Specifies the maximum bandwidth available to the traffic class.	Range: none, 0-1016
Burst Size	Specifies the size of a token bucket for the Traffic Class.	Range: none, 4-512
Priority	Specifies the priority value in the IEEE Standard 802.Ip tag control field that traffic belonging to this traffic class is assigned.	Range: 0-7
Remark Priority	Specifies whether the value of the priority parameter is used to set the egress queue selection for a frame and also to replace the 802.Ip priority value in the frame, or just to select the egress queue for the frame.	<ul style="list-style-type: none"> • yes • no
Type of Service	Specifies the replacement value to write in the Type of Service field of IPv4 packets.	Range: none, 0-7
Move TOS to Priority	Specifies whether or not the value in the 802.Ip priority field will be replaced with the value in the ToS priority field on IPv4 packets.	<ul style="list-style-type: none"> • yes • no
Move Priority to TOS	Specifies whether or not the value in the ToS priority field will be replaced with the value in the 802.Ip priority field on IPv4 packets.	<ul style="list-style-type: none"> • yes • no
Flow Group List	Specifies a list of the Flow Groups currently assigned to this Traffic Class.	Select from a list of available Flow Group IDs.

6.5.4 Policies

6.5.4.1 QoS Information Window

Column Name	Description
Policy ID	Lists the ID of Policies available
Description	A brief description of the Policy
Traffic Classes	List of Traffic Classes associated with this Policy

6.5.4.2 Add/Modify Policy

Property Name	Description	Valid Values
Policy ID (cannot be modified)	Specifies the unique identifier for the Policy.	Range: 0-255
Description	Specifies a brief description of the Policy.	To set this value, enter an alphanumeric string from 1-15 characters.
Ingress DSCP Overwrite	Specifies a replacement value to write into the DSCP (TOS) field of the packets.	Range: none, 0-63
Remark Ingress DSCP	Specifies whether the DSCP value in ingress packets is overwritten.	<ul style="list-style-type: none"> • all • none
Type of Service	Specifies a replacement value to write into the Type of Service (ToS) field of IPv4 packets.	Range: none, 0-7
Move TOS to Priority	Replaces the value in the 802.Ip priority field with the value in the ToS priority field on IPv4 packets.	<ul style="list-style-type: none"> • yes • no
Move Priority to TOS	Replaces the value in the ToS priority field with the 802.Ip priority field on IPv4 packets.	<ul style="list-style-type: none"> • yes • no
Send to Mirror	Copies the traffic that meets the criteria of the classifiers to a destination mirror port.	<ul style="list-style-type: none"> • yes • no
Ingress Port	Specifies a list of the Ingress Ports currently assigned to this Policy.	Select from a list of available Port IDs.
Egress Port	Specifies a list of the Egress Ports currently assigned to this Policy.	Select from a list of available Port IDs.
Traffic Class List	Specifies a list of the Traffic Classes currently assigned to this Policy.	Select from a list of available Traffic Class IDs.

6.5.5 Ports

6.5.5.1 QoS Information Window

Column Name	Description
Port (cannot be modified)	Lists the ports available
Policy	Lists the policies associated with each port

6.5.4.1 Modify Ports

Property Name	Description	Valid Values
Ingress	Specifies the Ingress policy to associate with the port	Select from a list of available Policy IDs
Egress	Specifies the Egress policy to associate with the port	Select from a list of available Policy IDs

6.5.6 Scheduling

Column Name	Description	Value
Scheduling	Specifies the scheduling method to use.	<ul style="list-style-type: none"> • Strict - higher priority queues are emptied before any packets are transmitted from lower priority queues • WRR - packets are transmitted from all queues in a round-robin fashion based on the queue weights
Q0-Q7	Specifies the maximum latency in microseconds between packet transmissions for the specified CoS queue.	Range: 1-15

6.5.7 Quick Setup

Property Name	Description	Valid Values
Source UDP Port	Specifies the UDP source port of a UDP/IP packet.	Range: 0-65535 Default for VOICE: 1719 Default for VIDEO: 1024
Priority	Specifies the priority that will be assigned for this setup.	Range: none, 0-7 Default for VOICE: 7 Default for VIDEO: 4
Maximum Bandwidth	Specifies the maximum bandwidth available to this setup.	<ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) Default for VOICE: 128kbps Default for VIDEO: 256kbps
Port Assignment	Specifies a list of ports that will be affected by this setup.	Select from a list of available Ports. Default for VOICE: no ports Default for VIDEO: no ports

6.5.8 Notes

- Although Flow Group ID, Traffic Class ID and Policy ID can range from 0 to more than 64, the current firmware version only allows up to a maximum of 64 instances to be created for Flow Group, Traffic Class and Policy.
- Ports cannot be assigned to a Policy unless the Policy is connected to a Classifier through Flow Groups and Traffic Classes.
- The current firmware version does not allow the Exceed Remark Value traffic class property to be set to 'none'.

6.6 AT-9900 Series

Topics:

- [Classifiers](#)
- [Flow Groups](#)
- [Traffic Classes](#)
- [Policies](#)
- [Ports](#)
- [Scheduling](#)
- [Quick Setup](#)
- [Notes](#)

6.6.1 Classifiers

6.6.1.1 QoS Information Window

Column Name	Description
Classifier ID	Lists the Rule ID of packet-matching rules available

6.6.1.2 Add/Modify Classifier

Property Name	Description	Valid Values
Rule ID (cannot be modified)	Uniquely identifies the packet-matching rule	Range: 1-9999
Source MAC Address	Specifies the source MAC address of the packet.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> • XX-XX-XX-XX-XX-XX This can also be set to "any" or "dhcpsnooping".
Destination MAC Address	This parameter specifies the destination MAC address of the packet.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> • XX-XX-XX-XX-XX-XX This can also be set to "any".
Source MAC Address Mask	Specifies the masks to be used on the Source MAC Address. When a bit is set to 1 in the mask, the value of the bit at the same position in the	This can be set by entering a MAC address string using the following format:

Property Name	Description	Valid Values
	byte value of the MAC address is used to determine a match. If a bit in the Source MAC Address parameter is 0, the corresponding bit in the Source MAC Address parameters is ignored.	<ul style="list-style-type: none"> XX-XX-XX-XX-XX-XX This can also be set to "any".
Destination MAC Address Mask	Specifies the masks to be used on the Destination MAC Address. When a bit is set to 1 in the mask, the value of the bit at the same position in the byte value of the MAC address is used to determine a match. If a bit in the Destination MAC Address parameter is 0, the corresponding bit in the Destination MAC Address parameters is ignored.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> XX-XX-XX-XX-XX-XX This can also be set to "any".
MAC Type	Specifies whether the packet is a Layer 2 unicast (L2UCAST), Layer 2 multicast (L2MCAST) or Layer 2 broadcast Ethernet (L2BCAST).	<ul style="list-style-type: none"> L2UCAST L2MCAST L2BCAST any
Tag Protocol ID	Specifies the Tag Protocol Identifier field in the packet.	This can be set by entering a 4 digit hex number from 0000-FFFF. This can also be set to "any".
VLAN Priority	Specifies the 802.1P priority in the VLAN tag.	Range: any, 0-7
VLAN	Specifies: <ul style="list-style-type: none"> For IPv4 packets and switched Layer 2 IPv6 packets, the source VLAN that the packet was associated with at the time of classification. For accelerated IPv6 packets at the Layer 2 processor of the accelerator card, the destination VLAN. 	This can be set by selecting from a list of available VLANs or "any".
Inner Tag Protocol ID	Specifies the TPID in the second 802.1Q tag in the packet.	This can be set by entering a 4-byte hex number from 0000-FFFF. This can also be set to "any".
Inner VLAN Priority	Specifies the second 802.1P field in the packet.	Range: any, 0-7

Property Name	Description	Valid Values
Inner VLAN	Specifies the tunnelled VLAN ID in the second 802.1Q tag in the packet.	This can be set by selecting from a list of available VLANs or "any".
Ethernet Format	This parameter specifies the Ethernet encapsulation type of the packet.	<ul style="list-style-type: none"> • 802.2-Tagged • 802.2-Untagged • EthII-Tagged • EthII-Untagged • NetwareRaw-Tagged • NetwareRaw-Untagged • SNAP-Tagged • SNAP-Untagged • any
Protocol	Specifies the protocol of the packet.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • IP • IPX • IPv6 • SNA PATH CONTROL • PROWAY-LAN • EIA-RS • PROWAY • IPX 802.2 • NETBEUI • ISO CLNS IS • IP ETHII • X.75 INTERNET • NBS INTERNET • ECMA INTERNET • CHAOSNET • X.25 LEVEL3 • ARP • XNS COMPAT • BANYAN SYSTEMS • BBN SIMNET • DEC MOP DUMP/LD • DEC MOP REM CONS • DEC DECNET • DEC LAT • DEC DIAGNOSTIC • DEC CUSTOMER • DEC LAVC • RARP • DEC LANBRIDGE • DEC ENCRYPTION

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • APPLETALK • IBM SNA • IPX ETHII • APPLETALK AARP • SNMP • IPV6 ETHII • IPX 802.3 • ETHERTALK 2 • ETHERTALK 2 AARP • IPX SNAP • any <p>This can also be set by entering a 1- to 5-byte hexadecimal value (00-FFFFFFFF).</p>
IP DSCP	Specifies the Code Point bits of the DiffServ field of an IP packet.	<p>This can be set by entering one or more integers from 0-63. Input can be a comma separated list or a range (specified as m-n) or a combination of both. (e.g. 2, 4-7)</p> <p>This value can also be set to "any".</p>
IP Type of Service	Specifies the value of the precedence field within the TOS (Type of Service) byte of an IP packet.	Range: any, 0-7
IP Protocol	Specifies a Layer 4 IP protocol of an IP packet. For IPv6 packets, this parameter matches against the Next Header field of the IPv6 packet header.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • TCP • UDP • ICMP • IGMP • OSPF • any <p>This can also be set by entering an integer from 0-255.</p>
Source IP Address	Specifies the source IP address (either host or subnet) of an IP packet.	<p>This can be set by entering an IPV4 or IPV6 address using the following format:</p> <ul style="list-style-type: none"> • IPv4 address[/mask] - IPv4 is in dotted decimal notation, mask is 0..32. • IPv6 address[/mask] - IPv6 is in colon separated hex digit

Property Name	Description	Valid Values
		<p>notation, mask is 0..128.</p> <p>This value can also be set to "any".</p>
Destination IP Address	Specifies the destination IP address (either host or subnet) of an IP packet.	<p>This can be set by entering an IPV4 or IPV6 address using the following format:</p> <ul style="list-style-type: none"> • IPv4 address[/mask] - IPv4 is in dotted decimal notation, mask is 0..32. • IPv6 address[/mask] - IPv6 is in colon separated hex digit notation, mask is 0..128. <p>This value can also be set to "any".</p>
Destination IPX Address	Specifies the destination network address of an IPX packet.	<p>This can be set by entering an 8 digit hexadecimal value. (00000001-FFFFFFFF)</p> <p>This can also be set to "any".</p>
Source IPX Socket	Specifies the source IPX socket number of an IPX packet.	<p>This can be set by entering a 4-byte hexadecimal value (0000-FFFF) or by selecting one of the following:</p> <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any
Destination IPX Socket	Specifies the destination IPX socket number of an IPX packet.	<p>This can be set by entering a 4-byte hexadecimal value (0000-FFFF) or by selecting one of the following:</p> <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any

Property Name	Description	Valid Values
Source TCP Port	Specifies the TCP source port of a TCP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Destination TCP Port	Specifies the TCP destination port of a TCP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Source UDP Port	Specifies the UDP source port of a UDP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Destination UDP Port	Specifies the UDP destination port of an UDP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Source L4 Mask	Specifies the mask or range of TCP/UDP source ports in the packet, when you also specify a single TCP or UDP destination port number.	This can be set by entering a 4-byte hex value from 0000-FFFF
Destination L4 Mask	Specifies the mask or range of TCP/UDP destination ports in the packet, when you also specify a single TCP or UDP destination port number.	This can be set by entering a 4-byte hex value from 0000-FFFF
L5 Byte Mask 01-16	<p>These parameters each specify the properties of a single byte field to match in the Layer 5 part of IP packets, which is the TCP or UDP payload. For each byte field you want to match, specify:</p> <ul style="list-style-type: none"> byteoffset, which is a decimal number in the range 0 to 37. This specifies the location of the byte to match. It refers to the offset from the start of Layer 5, after the UDP or TCP header. bytevalue, which is a 2-digit hexadecimal number. This specifies the value of the byte at the position in the frame that is determined by byteoffset. The classifier matches packets that have this value at this location. (optionally) bytemask, which is a 2-digit hexadecimal number. This specifies an eight-bit binary mask to apply to the field. When a bit is set to 1 in the mask, the 	Each L5 Byte Mask entry can be set by entering the following value: <0-37>, <00-FF>, <00-FF> (e.g. 3,AA,FF)

Property Name	Description	Valid Values
	<p>value of the bit at the same position in the byte value is used to determine a match. A 0 in the mask means that the corresponding bit is ignored. The default is ff, which means the classifier matches against all bits in the byte.</p>	
TCP Flags	<p>Specifies the TCP flags of an IPv4 or IPv6 packet.</p>	<p>This can be set by selecting one or more of the following values:</p> <ul style="list-style-type: none"> • URG • ACK • RST • SYN • FIN <p>This can also be set to "any".</p>
ICMP Type	<p>Specifies the ICMP type of an IPv4 packet.</p>	<p>This can be set by selecting any one of the following values:</p> <ul style="list-style-type: none"> • ECHORPLY • UNREACHABLE • QUENCH • REDIRECT • ECHO • ADVERTISEMENT • SOLICITATION • TIMEECXCEED • PARAMETER • TSTAMP • TSTAMPRPLY • INFOREQ • INFOREP • ADDRREQ • ADDRREP • NAMEREQ • NAMERPLY • any <p>This can also be set by entering a value from 0-255.</p>
ICMP Code	<p>Specifies the ICMP code of an IPv4 packet.</p>	<p>This can be set by selecting any one of the following values:</p>

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • any • FILTER • FRAGMENT • FRAGREASSM • HOSTCOMM • HOSTISOLATED • HOSTPREC • HOSTREDIRECT • HOSTRTOS • HOSTTOS • HOSTUNKNOWN • HOSTUNREACH • NETCOMM • NETREDIRECT • NETRTOS • NETTOS • NETUNKNOWN • NETUNREACH • NOPTR • PORTUNREACH • PRECEDENT • PROTUNREACH • PTRPROBLEM • SOURCEROUTE • TTL <p>This can also be set by entering a value from 0-255.</p>
IGMP Type	Specifies the IGMP type of an IPv4 packet.	<p>This can be set by selecting any one of the following values:</p> <ul style="list-style-type: none"> • QUERY • VIREPORT • DVMRP • PIMVI • CTRACE • V2REPORT • V2LEAVE • MCTRACERESPONSE • MCTRACE • V3REPORT • MRADVERT • MRSOLICIT • MRTERMINATION • any

Property Name	Description	Valid Values
		This can also be set by entering a 2-byte hexadecimal number 00-FF.
EIPByte01-16	<p>These parameters each specify the properties of a single byte field to match in the Layer 3 header and data of a non-IPv4 and non-IPv6 packet. The eipbyte01 parameter must be used as the first byte field, and additional byte fields must increment sequentially, for example eipbyte01, eipbyte02, eipbyte03. Each field must have a greater offset than the field that precedes it. For each byte field you want to match, specify a byteoffset and a bytevalue, and optionally, a bytemask.</p> <ul style="list-style-type: none"> • byteoffset is a decimal number in the range 0 to 65. This specifies the location of the byte to match. It refers to the offset from the start of Layer 3, after the Layer 2 encapsulation format of an Ethernet frame. • bytevalue is a 2-digit hexadecimal number. This specifies the value of the byte at the frame position determined by the byteoffset. The classifier matches packets that have this value at this location. • (optional) bytemask is a 2-digit hexadecimal number. This specifies an eight-bit binary mask to apply to the field. When a bit is set to 1 in the mask, the value of the bit at the same position in the byte is used to determine a match. If the bytemask is 0, the corresponding bit is ignored. The default is ff, which 	Each entry can be set by entering the following value: <00-65>, <00-FF>, <00-FF> (e.g. 3,AA,FF)

Property Name	Description	Valid Values
	means the classifier matches against all bits in the byte.	

6.6.2 Flow Groups

6.6.2.1 QoS Information Window

Column Name	Description
Flow Group ID	Lists the ID of Flow Groups available
Description	A brief description of the Flow Group.
Classifiers	List of Classifiers associated with this Flow Group

6.6.2.2 Add/Modify Flow Group

Property Name	Description	Valid Values
Flow Group ID (cannot be modified)	Specifies the unique identifier for the Flow Group.	Range: 0-1023
Description	Specifies a brief description of the Flow Group.	To set this value, enter an alphanumeric string from 1-15 characters.
Mark Value	This parameter specifies a replacement value to write into the DSCP (TOS) field for all packets.	Range: none, 0-63
Action	Specifies the action to be performed on traffic belonging to the Flow Group.	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> FORWARD FORWARD,SENDMIRROR DISCARD SENDMIRROR SENDMIRROR,SENDVLANPORT SENDVLANPORT none
Port	Specifies the port where traffic is sent when action=sendvlanport. The port must belong to the VLAN specified by the vlan parameter	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> port 1 - n (n = number of ports available) none
Premarking	Specifies the action to take on the flow group before traffic class	<ul style="list-style-type: none"> USEMARKVALUE USEDSCP

Property Name	Description	Valid Values
	bandwidth metering is applied. Values for premarking and markvalue in a Flow Group override the setting for the Traffic Class.	<ul style="list-style-type: none"> • none
VLAN	Specifies where traffic is sent when action=sendvlanport. Traffic is sent out the port specified by the port parameter, so the VLAN must contain this port.	This can be set by selecting from a list of available VLANs.
Classifier List	Specifies a list of the Classifiers currently assigned to this Flow Group.	Select from a list of available classifier IDs.

6.6.3 Traffic Classes

6.6.3.1 QoS Information Window

Column Name	Description
Traffic Class ID	Lists the ID of Traffic Classes available
Description	A brief description of the Traffic Class
Flow Groups	List of the Flow Groups associated with this Traffic Class

6.6.3.2 Add/Modify Traffic Class

Property Name	Description	Valid Values
Traffic Class ID	Specifies the unique identifier for this Traffic Class.	Range: 0-511
Description	Specifies a brief description of the Traffic Class.	To set this value, enter an alphanumeric string from 1-15 characters.
Action	Specifies the action to be performed on traffic belonging to this traffic class.	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> • FORWARD • FORWARD,SENDMIRROR • DISCARD • SENDMIRROR • SENDMIRROR,SENDVLANPORT • SENDVLANPORT
Drop Bandwidth	Determines whether or not to drop frames exceeding the traffic	<ul style="list-style-type: none"> • NO

Property Name	Description	Valid Values
Class	class maxbandwidth setting.	<ul style="list-style-type: none"> • YES
Ignore Bandwidth Class	Determines whether or not the metering stage acknowledges any previous bandwidth class assigned to flows processed by the default traffic class.	<ul style="list-style-type: none"> • NO • YES
Mark Value	Specifies an explicit value to use as an index into the DSCP MAP table when the premarking parameter is usemarkvalue.	<ul style="list-style-type: none"> • 0-63 • none
Maximum Bandwidth	Specifies the maximum bandwidth available to the traffic class.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) • none
Max Burst Size	Specifies the burst tolerance for the Maximum Bandwidth parameter.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16777216 bytes • 0~16384 KB (decimal point supported) • 0~16 MB (decimal point supported) • 0~0.015628 GB (decimal point supported) <p>Note - Byte measures can have the value b,k,kb,m,mb,g,gb (case insensitive)</p>
Minimum Bandwidth	Specifies the minimum bandwidth reserved for the traffic class.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) • none
Min Burst Size	Specifies the burst tolerance for	This can be set by entering a value using

Property Name	Description	Valid Values
	the Minimum Bandwidth, or for the Maximum Bandwidth when the Minimum Bandwidth is none.	<p>one the following formats:</p> <ul style="list-style-type: none"> • 0-16777216 bytes • 0~16384 KB (decimal point supported) • 0~16 MB (decimal point supported) • 0~0.015628 GB (decimal point supported) <p>Note - Byte measures can have the value b,k,kb,m,mb,g,gb (case insensitive)</p>
Premarking	Specifies the QoS action to take on the traffic class before bandwidth metering is applied.	<ul style="list-style-type: none"> • USEMARKVALUE • USEDSCP • none
Remarking	Specifies the action to take after the metering stage.	<ul style="list-style-type: none"> • USEDSCPMAP • BWCLASS • none
Storm Status	Determines whether or not Storm Protection is enabled for the default traffic class.	<ul style="list-style-type: none"> • enabled • disabled
Storm Window	Specifies the time between the polling of traffic class counters that checks whether storm protection should be activated. Required when storm protection is enabled.	<p>This value can be set by entering a number from 100-60000.</p> <p>This value can also be set to "none".</p>
Storm Rate	Storm protection is activated when this rate of traffic is exceeded. Required when storm protection is enabled.	<p>This value can be set by entering a value from 1Kbps up to 10Gbps.</p> <p>The value may contain decimal fractions up to 3 decimal places.</p> <p>This value can also be set to "none".</p>
Storm Action	Specifies the action QoS takes when a storm is detected on a port.	<ul style="list-style-type: none"> • PORTDISABLE • LINKDOWN • VLANDISABLE
Storm Timeout	Specifies the length of time the port remains disabled after a storm is detected.	<p>This value can be set by entering a number from 1-86400.</p> <p>This value can also be set to "none".</p>
VLAN	Specifies the VLAN where unclassified traffic is sent when action is sendvlanport. Traffic is	<p>This can be set by selecting from a list of available VLANs.</p>

Property Name	Description	Valid Values
	sent over the port specified by the port parameter so the VLAN must contain that port.	
Port	Specifies the port where unclassified traffic is sent when action is sendvlanport. The port must belong to the VLAN specified by the vlan parameter.	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> port 1 - n (n = number of ports available) none
Flow Group List	Specifies a list of the Flow Groups currently assigned to this Traffic Class.	Select from a list of available Flow Group IDs.

6.6.4 Policies

6.6.4.1 QoS Information Window

Column Name	Description
Policy ID	Lists the ID of Policies available
Description	A brief description of the Policy
Traffic Classes	List of Traffic Classes associated with this Policy

6.6.4.2 Add/Modify Policy

Property Name	Description	Valid Values
Policy ID (cannot be modified)	Specifies the unique identifier for the Policy.	Range: 0-255
Description	Specifies a brief description of the Policy.	To set this value, enter an alphanumeric string from 1-15 characters.
Default Traffic Class Action	Specifies the action to be performed on traffic that is processed by the default traffic class.	This can be set by selecting any one of the following: <ul style="list-style-type: none"> FORWARD FORWARD,SENDMIRROR DISCARD SENDMIRROR SENDMIRROR,SENDVLANPORT SENDVLANPORT
Default Traffic Class Drop Bandwidth	Determines whether or not to drop frames exceeding the default traffic class maximum bandwidth	<ul style="list-style-type: none"> yes no

Property Name	Description	Valid Values
Class3	setting.	
Default Traffic Class Ignore Bandwidth Class3	Determines whether or not the metering stage acknowledges any previous bandwidth class assigned to flows processed by the default traffic class.	<ul style="list-style-type: none"> • yes • no
Default Traffic Class Max Bandwidth	Specifies the maximum bandwidth available to the default traffic class.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) • none
Default Traffic Class Max Burst Size	Specifies the burst tolerance for the default traffic class maximum bandwidth parameter.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16777216 bytes • 0~16384 KB (decimal point supported) • 0~16 MB (decimal point supported) • 0~0.015628 GB (decimal point supported) <p>Note - Byte measures can have the value b,k,kb,m,mb,g,gb (case insensitive)</p>
Default Traffic Class Min Bandwidth	Specifies the minimum bandwidth reserved for the traffic class.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) • none
Default Traffic Class Min Burst Size	Specifies the burst tolerance for the default traffic class minimum bandwidth, or for the default traffic class maximum bandwidth when the default traffic class minimum bandwidth is none.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16777216 bytes • 0~16384 KB (decimal point supported)

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> 0~16 MB (decimal point supported) 0~0.015628 GB (decimal point supported) <p>Note - Byte measures can have the value b,k,kb,m,mb,g,gb (case insensitive)</p>
Default Traffic Class Premarking	Specifies the QoS action to take on the default traffic class before bandwidth metering is applied.	<ul style="list-style-type: none"> USEMARKVALUE USEDSCP none
Default Traffic Class Remarking	Specifies the action to take after the metering stage.	<ul style="list-style-type: none"> USEDSCPMAP BWCLASS none
Default Traffic Class Storm Status	Determines whether or not storm protection is enabled for the default traffic class.	<ul style="list-style-type: none"> enabled disabled
Default Traffic Class Storm Window	Specifies time between the polling of traffic class counters that checks whether storm protection should be activated.	This value can be set by entering a number from 100-60000. This can also be set to "none".
Default Traffic Class Storm Rate	Storm protection is activated when this rate of traffic is exceeded. Required when storm protection is enabled.	This value can be set by entering a value from 1Kbps up to 10Gbps. The value may contain decimal fractions up to 3 decimal places. This can also be set to "none".
Default Traffic Class Storm Action	Specifies the action QoS takes when a storm is detected on a port.	<ul style="list-style-type: none"> PORTDISABLE LINKDOWN VLANDISABLE
Default Traffic Class Storm Timeout	Specifies the length of time the port remains disabled after a storm is detected.	This value can be set by entering a number from 1-86400. This can also be set to "none".
Mark Value	This parameter specifies an explicit value to use as an index into the DSCPMAP table when the dtcpremarking parameter is usemarkvalue.	Range: none, 0-63
Port	Specifies the port where unclassified traffic is sent when the default traffic class action is sendvlanport. The port must belong to the VLAN specified by	<p>This can be set by selecting any one of the following values:</p> <ul style="list-style-type: none"> port 1 - n (n = number of ports available)

Property Name	Description	Valid Values
	the VLAN parameter.	<ul style="list-style-type: none"> • none
VLAN	Specifies the VLAN where unclassified traffic is sent when the default traffic class action is sendvlanport. Traffic is sent over the port specified by the port parameter so the VLAN must contain that port.	This can be set by selecting from a list of available VLANs.
Traffic Class List	Specifies a list of the Traffic Classes currently assigned to this Policy.	Select from a list of available Traffic Class IDs.

6.6.5 Ports

Column Name	Description	Valid Values
Port (cannot be modified)	Lists the ports available	Available ports will depend on the device model
Policy	Specifies the policy to associate with the port	Select from a list of available policies

6.6.6 Scheduling

Column Name	Description	Valid Values
Port (cannot be modified)	Specifies the port ID.	<p>This can be set by selecting any one of the following values:</p> <ul style="list-style-type: none"> • port 1 - n (n = number of ports available) • none
Max Bandwidth	Specifies the maximum bandwidth permitted on the port.	<p>This value can be set by entering a number from 0-16000000. Alternatively a value from 0-16000Mbps can be specified. 0-16Gbps can also be specified.</p>
Scheduler	<p>Specifies the method by which frames on each egress queue is allocated bandwidth for transmission onto the line. The following options are possible:</p> <ul style="list-style-type: none"> • strict to schedule based on queue number. Queues with 	<ul style="list-style-type: none"> • Strict • WRR1 • WRR2

Column Name	Description	Valid Values
	<p>higher numbers are served first-before lower numbered queues in the strict priority group and WRR, if there is a mix of the two types.</p> <ul style="list-style-type: none"> • wrr1 to schedule weighted round robin. The queue shares bandwidth with other queues in the WRR1 group according to their relative values of wwrweight. The WRR1 group can transmit frames when the strict scheduling group is empty. • wrr2 to schedule weighted round robin. The queue shares bandwidth with other queues in the WRR2 group according to their relative values of wwrweight. The WRR2 group can transmit frames when both the strict and WRR1 scheduling groups are empty. The initial value is strict. 	
WRR Weight	Specifies the weight to use for the queue when it is configured to use one of the WRR groups.	<p>This value can be set by entering a number from 6-255.</p> <p>Note - If the Scheduler is set to "Strict", then the application will ignore the value for this field.</p>
Length	Specifies the length to set for the specified egress queue, measured in frames.	<p>This value can be set by entering a number from 16~3648.</p> <p>Note - The maximum length is still dependent on the port type:</p> <ul style="list-style-type: none"> • 10/100 Mbytes max length is 128 • 1 Gigabit max length is 896 • 10 Gigabit max length is 3648

6.6.7 Quick Setup

Property Name	Description	Valid Values
Source UDP Port	Specifies the UDP source port of an UDP/IP packet.	Range: 0-65535 or a port range (n-m). Default for VOICE: 1719 Default for VIDEO: 1024
Priority	Specifies the priority that will be assigned for this setup.	Range: 0-7 Default for VOICE: 7 Default for VIDEO: 4
Maximum Bandwidth	Specifies the maximum bandwidth available to this setup.	<ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) Default for VOICE: 128kbps Default for VIDEO: 256kbps
Port Assignment	Specifies a list of ports that will be affected by this setup.	Select from a list of available Ports. Default for VOICE: no ports Default for VIDEO: no ports

6.6.8 Notes

- Configuring the Port and VLAN properties of a Flow Group, Traffic Class or Policy will have no effect unless the Action or Default Traffic Class Action property is set to 'SENDVLANPORT'.
- Values entered for the Maximum Bandwidth traffic class property are rounded up to the nearest multiple of 648.
- When the Protocol property is configured, the Ethernet Format property should also be configured.
- To configure the Storm Status property, the switch must be in enhanced mode.
- When the Storm Status property is configured, the Storm Window and Storm Rate properties should also be configured.
- Values entered for the Storm Window property are automatically rounded off to the nearest hundreds.
- When the IP Protocol classifier property is configured to '0', the current firmware version automatically converts this value to 'NONTCPUDP'.
- Valid values for the VLAN Priority classifier property are 'any' and values in the range [0-7] inclusive. However, when VLAN Priority is set to 'any', the current firmware version automatically converts the 'any' value to '4294967295'. When this

happens, any attempt to modify the classifier will result in the error message:
"Parameter VLANPRIORITY, value too high; maximum is 7."

- When the TAG Protocol ID classifier property is not set to any value and the VLAN classifier property is set to 'any', the current firmware version automatically sets the TAG Protocol ID to '8100'.
- Values entered for the Length scheduling property are rounded up to the nearest multiple of 16.
- When the Maximum Bandwidth and Minimum Bandwidth traffic class properties are set to any of the following values, the current firmware version automatically converts these values to '16998400 kbps':
 - 1600000kbps
 - 16000mbps
 - 16gbps

When this happens, any attempt to modify the traffic class will result in the error message: "Invalid value."

- If the Premarking traffic class property is set to 'USEMARKVALUE' and the Mark Value traffic class property is set to an integer value, they cannot be configured to 'none' at the same time. Premarking must be configured to 'none' first before Mark Value can be configured to 'none'.
- If the Default Traffic Class Premarking policy property is set to 'USEMARKVALUE' and the Mark Value policy property is set to an integer value, they cannot be configured to 'none' at the same time. Default Traffic Class Premarking must be configured to 'none' first before Mark Value can be configured to 'none'.
- The actual value of bytevalue that is configured for the EIPByte01-16 classifier properties is computed by performing a bitwise AND operation between the bytevalue and bytemask values supplied.

Ex.

```
bytevalue = 25 (00100101)
bytemask = 3B (00111011)
AND = 21 (00100001)
```

The hexadecimal value 21 will be the actual value configured.

- The current firmware version does not allow Minimum and Maximum bandwidth value of '0kbps', '0mbps' or '0gbps'. Attempting to assign these values will result in the error message "Parameter MINBANDWIDTH, value too low; minimum is 1kbps." and "Parameter MAXBANDWIDTH, value too low; minimum is 1kbps."
- The current firmware version recognizes 'DEC MOP REM CDONS' as valid protocol attribute of classifier property instead of 'DEC MOP REM CONS' value. As a result, both CLI and QoS Manager will return an error when set to latter value.

- The current firmware version returns the Protocol parameter as a numeric value. However, QoS Manager provides descriptive names to make it easier for users to set the appropriate value.
- The current firmware version does not allow 'Source L4 Mask' and 'Destination L4 Mask' classifier properties to accept its minimum value of '0000'. As a result, both CLI and QoS Manager only accept '0001' as its minimum value.
- Values entered for the DTC Storm Rate attribute of policy property are automatically rounded off to the nearest multiple of 1,000 kbps for 'Mbps' and 1,000,000 kbps for 'Gbps'.
- Values entered for the Storm Rate attribute of policy property are automatically rounded off to the nearest multiple of 1,000 kbps for 'Mbps' and 1,000,000 kbps for 'Gbps'.
- Values entered for the Maximum and Minimum Burst Size attribute of policy property are automatically rounded off.
- Values entered for the Default Traffic Class Maximum and Minimum Burst Size attribute of policy property are automatically round off to bytes.
- Values entered for the Default Traffic Class Maximum and Minimum Bandwidth of policy property are automatically round off.
- When setting the Default Traffic Class Action policy property to 'FORWARD,SENDMIRROR', the current firmware version omits the value 'FORWARD'. As a result, both CLI and QoS Manager return the value 'SENDMIRROR' when retrieved.

6.7 AT-x900-24X Series

Topics:

- [Classifiers](#)
- [Flow Groups](#)
- [Traffic Classes](#)
- [Policies](#)
- [Ports](#)
- [Scheduling](#)
- [Quick Setup](#)
- [Notes](#)

6.7.1 Classifiers

6.7.1.1 QoS Information Window

Column Name	Description
Classifier ID	Lists the Rule ID of packet-matching rules available

6.7.1.2 Add/Modify Classifier

Property Name	Description	Valid Values
Rule ID (cannot be modified)	Uniquely identifies the packet-matching rule	Range: 1-9999
Source MAC Address	Specifies the source MAC address of the packet.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> • XX-XX-XX-XX-XX-XX This can also be set to "any" or "dhcpsnooping".
Destination MAC Address	This parameter specifies the destination MAC address of the packet.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> • XX-XX-XX-XX-XX-XX This can also be set to "any".
Source MAC Address Mask	Specifies the masks to be used on the Source MAC Address. When a bit is set to 1 in the mask, the value of the bit at the same position in the	This can be set by entering a MAC address string using the following format:

Property Name	Description	Valid Values
	byte value of the MAC address is used to determine a match. If a bit in the Source MAC Address parameter is 0, the corresponding bit in the Source MAC Address parameters is ignored.	<ul style="list-style-type: none"> XX-XX-XX-XX-XX-XX This can also be set to "any".
Destination MAC Address Mask	Specifies the masks to be used on the Destination MAC Address. When a bit is set to 1 in the mask, the value of the bit at the same position in the byte value of the MAC address is used to determine a match. If a bit in the Destination MAC Address parameter is 0, the corresponding bit in the Destination MAC Address parameters is ignored.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> XX-XX-XX-XX-XX-XX This can also be set to "any".
MAC Type	Specifies whether the packet is a Layer 2 unicast (L2UCAST), Layer 2 multicast (L2MCAST) or Layer 2 broadcast Ethernet (L2BCAST).	<ul style="list-style-type: none"> L2UCAST L2MCAST L2BCAST any
Tag Protocol ID	Specifies the Tag Protocol Identifier field in the packet.	This can be set by entering a 4 digit hex number from 0000-FFFF. This can also be set to "any".
VLAN Priority	Specifies the 802.1P priority in the VLAN tag.	Range: any, 0-7
VLAN	Specifies: <ul style="list-style-type: none"> For IPv4 packets and switched Layer 2 IPv6 packets, the source VLAN that the packet was associated with at the time of classification. For accelerated IPv6 packets at the Layer 2 processor of the accelerator card, the destination VLAN. 	This can be set by selecting from a list of available VLANs or "any".
Inner Tag Protocol ID	Specifies the TPID in the second 802.1Q tag in the packet.	This can be set by entering a 4-byte hex number from 0000-FFFF. This can also be set to "any".
Inner VLAN Priority	Specifies the second 802.1P field in the packet.	Range: any, 0-7

Property Name	Description	Valid Values
Inner VLAN	Specifies the tunnelled VLAN ID in the second 802.1Q tag in the packet.	This can be set by selecting from a list of available VLANs or "any".
Ethernet Format	This parameter specifies the Ethernet encapsulation type of the packet.	<ul style="list-style-type: none"> • 802.2-Tagged • 802.2-Untagged • EthII-Tagged • EthII-Untagged • NetwareRaw-Tagged • NetwareRaw-Untagged • SNAP-Tagged • SNAP-Untagged • any
Protocol	Specifies the protocol of the packet.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • IP • IPX • IPv6 • SNA PATH CONTROL • PROWAY-LAN • EIA-RS • PROWAY • IPX 802.2 • NETBEUI • ISO CLNS IS • IP ETHII • X.75 INTERNET • NBS INTERNET • ECMA INTERNET • CHAOSNET • X.25 LEVEL3 • ARP • XNS COMPAT • BANYAN SYSTEMS • BBN SIMNET • DEC MOP DUMP/LD • DEC MOP REM CONS • DEC DECNET • DEC LAT • DEC DIAGNOSTIC • DEC CUSTOMER • DEC LAVC • RARP • DEC LANBRIDGE • DEC ENCRYPTION

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • APPLETALK • IBM SNA • IPX ETHII • APPLETALK AARP • SNMP • IPV6 ETHII • IPX 802.3 • ETHERTALK 2 • ETHERTALK 2 AARP • IPX SNAP • any <p>This can also be set by entering a 1- to 5-byte hexadecimal value (00-FFFFFFFF).</p>
IP DSCP	Specifies the Code Point bits of the DiffServ field of an IP packet.	<p>This can be set by entering one or more integers from 0-63. Input can be a comma separated list or a range (specified as m-n) or a combination of both. (e.g. 2, 4-7)</p> <p>This value can also be set to "any".</p>
IP Type of Service	Specifies the value of the precedence field within the TOS (Type of Service) byte of an IP packet.	Range: any, 0-7
IP Protocol	Specifies a Layer 4 IP protocol of an IP packet. For IPv6 packets, this parameter matches against the Next Header field of the IPv6 packet header.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • TCP • UDP • ICMP • IGMP • OSPF • any <p>This can also be set by entering an integer from 0-255.</p>
Source IP Address	Specifies the source IP address (either host or subnet) of an IP packet.	<p>This can be set by entering an IPV4 or IPV6 address using the following format:</p> <ul style="list-style-type: none"> • IPv4 address[/mask] - IPv4 is in dotted decimal notation, mask is 0..32. • IPv6 address[/mask] - IPv6 is in colon separated hex digit

Property Name	Description	Valid Values
		<p>notation, mask is 0..128.</p> <p>This value can also be set to "any".</p>
Destination IP Address	Specifies the destination IP address (either host or subnet) of an IP packet.	<p>This can be set by entering an IPV4 or IPV6 address using the following format:</p> <ul style="list-style-type: none"> • IPv4 address[/mask] - IPv4 is in dotted decimal notation, mask is 0..32. • IPv6 address[/mask] - IPv6 is in colon separated hex digit notation, mask is 0..128. <p>This value can also be set to "any".</p>
Destination IPX Address	Specifies the destination network address of an IPX packet.	<p>This can be set by entering an 8 digit hexadecimal value. (00000001-FFFFFFFF)</p> <p>This can also be set to "any".</p>
Source IPX Socket	Specifies the source IPX socket number of an IPX packet.	<p>This can be set by entering a 4-byte hexadecimal value (0000-FFFF) or by selecting one of the following:</p> <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any
Destination IPX Socket	Specifies the destination IPX socket number of an IPX packet.	<p>This can be set by entering a 4-byte hexadecimal value (0000-FFFF) or by selecting one of the following:</p> <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any

Property Name	Description	Valid Values
Source TCP Port	Specifies the TCP source port of a TCP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Destination TCP Port	Specifies the TCP destination port of a TCP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Source UDP Port	Specifies the UDP source port of a UDP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Destination UDP Port	Specifies the UDP destination port of an UDP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Source L4 Mask	Specifies the mask or range of TCP/UDP source ports in the packet, when you also specify a single TCP or UDP destination port number.	This can be set by entering a 4-byte hex value from 0000-FFFF
Destination L4 Mask	Specifies the mask or range of TCP/UDP destination ports in the packet, when you also specify a single TCP or UDP destination port number.	This can be set by entering a 4-byte hex value from 0000-FFFF
L5 Byte Mask 01-16	<p>These parameters each specify the properties of a single byte field to match in the Layer 5 part of IP packets, which is the TCP or UDP payload. For each byte field you want to match, specify:</p> <ul style="list-style-type: none"> • byteoffset, which is a decimal number in the range 0 to 37. This specifies the location of the byte to match. It refers to the offset from the start of Layer 5, after the UDP or TCP header. • bytevalue, which is a 2-digit hexadecimal number. This specifies the value of the byte at the position in the frame that is determined by byteoffset. The classifier matches packets that have this value at this location. • (optionally) bytemask, which is a 2-digit hexadecimal number. This specifies an eight-bit binary mask to apply to the field. When a bit is set to 1 in the mask, the 	<p>Each L5 Byte Mask entry can be set by entering the following value:</p> <p>, , (e.g. 3,AA,FF)</p>

Property Name	Description	Valid Values
	<p>value of the bit at the same position in the byte value is used to determine a match. A 0 in the mask means that the corresponding bit is ignored. The default is ff, which means the classifier matches against all bits in the byte.</p>	
TCP Flags	<p>Specifies the TCP flags of an IPv4 or IPv6 packet.</p>	<p>This can be set by selecting one or more of the following values:</p> <ul style="list-style-type: none"> • URG • ACK • RST • SYN • FIN <p>This can also be set to "any".</p>
ICMP Type	<p>Specifies the ICMP type of an IPv4 packet.</p>	<p>This can be set by selecting any one of the following values:</p> <ul style="list-style-type: none"> • ECHORPLY • UNREACHABLE • QUENCH • REDIRECT • ECHO • ADVERTISEMENT • SOLICITATION • TIMEECXCEED • PARAMETER • TSTAMP • TSTAMPRPLY • INFOREQ • INFOREP • ADDRREQ • ADDRREP • NAMEREQ • NAMERPLY • any <p>This can also be set by entering a value from 0-255.</p>
ICMP Code	<p>Specifies the ICMP code of an IPv4 packet.</p>	<p>This can be set by selecting any one of the following values:</p>

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • any • FILTER • FRAGMENT • FRAGREASSM • HOSTCOMM • HOSTISOLATED • HOSTPREC • HOSTREDIRECT • HOSTRTOS • HOSTTOS • HOSTUNKNOWN • HOSTUNREACH • NETCOMM • NETREDIRECT • NETRTOS • NETTOS • NETUNKNOWN • NETUNREACH • NOPTR • PORTUNREACH • PRECEDENT • PROTUNREACH • PTRPROBLEM • SOURCEROUTE • TTL <p>This can also be set by entering a value from 0-255.</p>
IGMP Type	Specifies the IGMP type of an IPv4 packet.	<p>This can be set by selecting any one of the following values:</p> <ul style="list-style-type: none"> • QUERY • VIREPORT • DVMRP • PIMVI • CTRACE • V2REPORT • V2LEAVE • MCTRACERESPONSE • MCTRACE • V3REPORT • MRADVERT • MRSOLICIT • MRTERMINATION • any

Property Name	Description	Valid Values
		This can also be set by entering a 2-byte hexadecimal number 00-FF.
EIPByte01-16	<p>These parameters each specify the properties of a single byte field to match in the Layer 3 header and data of a non-IPv4 and non-IPv6 packet. The eipbyte01 parameter must be used as the first byte field, and additional byte fields must increment sequentially, for example eipbyte01, eipbyte02, eipbyte03. Each field must have a greater offset than the field that precedes it. For each byte field you want to match, specify a byteoffset and a bytevalue, and optionally, a bytemask.</p> <ul style="list-style-type: none"> • byteoffset is a decimal number in the range 0 to 65. This specifies the location of the byte to match. It refers to the offset from the start of Layer 3, after the Layer 2 encapsulation format of an Ethernet frame. • bytevalue is a 2-digit hexadecimal number. This specifies the value of the byte at the frame position determined by the byteoffset. The classifier matches packets that have this value at this location. • (optional) bytemask is a 2-digit hexadecimal number. This specifies an eight-bit binary mask to apply to the field. When a bit is set to 1 in the mask, the value of the bit at the same position in the byte is used to determine a match. If the bytemask is 0, the corresponding bit is ignored. The default is ff, which 	<p>Each entry can be set by entering the following value:</p> <p>, , (e.g. 3,AA,FF)</p>

Property Name	Description	Valid Values
	means the classifier matches against all bits in the byte.	

6.7.2 Flow Groups

6.7.2.1 QoS Information Window

Column Name	Description
Flow Group ID	Lists the ID of Flow Groups available
Description	A brief description of the Flow Group.
Classifiers	List of Classifiers associated with this Flow Group

6.7.2.2 Add/Modify Flow Group

Property Name	Description	Valid Values
Flow Group ID (cannot be modified)	Specifies the unique identifier for the Flow Group.	Range: 0-1023
Description	Specifies a brief description of the Flow Group.	To set this value, enter an alphanumeric string from 1-15 characters.
Mark Value	This parameter specifies a replacement value to write into the DSCP (TOS) field for all packets.	Range: none, 0-63
Action	Specifies the action to be performed on traffic belonging to the Flow Group.	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> FORWARD FORWARD,SENDMIRROR DISCARD SENDMIRROR SENDMIRROR,SENDVLANPORT SENDVLANPORT none
Port	Specifies the port where traffic is sent when action=sendvlanport. The port must belong to the VLAN specified by the vlan parameter	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> port 1 - n (n = number of ports available) none
Premarking	Specifies the action to take on the flow group before traffic class	<ul style="list-style-type: none"> USEMARKVALUE USEDSCP

Property Name	Description	Valid Values
	bandwidth metering is applied. Values for premarking and markvalue in a Flow Group override the setting for the Traffic Class.	<ul style="list-style-type: none"> • none
VLAN	Specifies where traffic is sent when action=sendvlanport. Traffic is sent out the port specified by the port parameter, so the VLAN must contain this port.	This can be set by selecting from a list of available VLANs.
Classifier List	Specifies a list of the Classifiers currently assigned to this Flow Group.	Select from a list of available classifier IDs.

6.7.3 Traffic Classes

6.7.3.1 QoS Information Window

Column Name	Description
Traffic Class ID	Lists the ID of Traffic Classes available
Description	A brief description of the Traffic Class
Flow Groups	List of the Flow Groups associated with this Traffic Class

6.7.3.2 Add/Modify Traffic Class

Property Name	Description	Valid Values
Traffic Class ID	Specifies the unique identifier for this Traffic Class.	Range: 0-511
Description	Specifies a brief description of the Traffic Class.	To set this value, enter an alphanumeric string from 1-15 characters.
Action	Specifies the action to be performed on traffic belonging to this traffic class.	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> • FORWARD • FORWARD,SENDMIRROR • DISCARD • SENDMIRROR • SENDMIRROR,SENDVLANPORT • SENDVLANPORT
Drop Bandwidth	Determines whether or not to drop frames exceeding the traffic	<ul style="list-style-type: none"> • NO

Property Name	Description	Valid Values
Class	class maxbandwidth setting.	<ul style="list-style-type: none"> • YES
Ignore Bandwidth Class	Determines whether or not the metering stage acknowledges any previous bandwidth class assigned to flows processed by the default traffic class.	<ul style="list-style-type: none"> • NO • YES
Mark Value	Specifies an explicit value to use as an index into the DSCPMAP table when the premarking parameter is usemarkvalue.	<ul style="list-style-type: none"> • 0-63 • none
Maximum Bandwidth	Specifies the maximum bandwidth available to the traffic class.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) • none
Max Burst Size	Specifies the burst tolerance for the Maximum Bandwidth parameter.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16777216 bytes • 0~16384 KB (decimal point supported) • 0~16 MB (decimal point supported) • 0~0.015628 GB (decimal point supported) <p>Note - Byte measures can have the value b,k,kb,m,mb,g,gb (case insensitive)</p>
Minimum Bandwidth	Specifies the minimum bandwidth reserved for the traffic class.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) • none
Min Burst Size	Specifies the burst tolerance for	This can be set by entering a value using

Property Name	Description	Valid Values
	the Minimum Bandwidth, or for the Maximum Bandwidth when the Minimum Bandwidth is none.	<p>one of the following formats:</p> <ul style="list-style-type: none"> • 0-16777216 bytes • 0-16384 KB (decimal point supported) • 0-16 MB (decimal point supported) • 0-0.015628 GB (decimal point supported) <p>Note - Byte measures can have the value b,k,kb,m,mb,g,gb (case insensitive)</p>
Premarking	Specifies the QoS action to take on the traffic class before bandwidth metering is applied.	<ul style="list-style-type: none"> • USEMARKVALUE • USEDSCP • none
Remarking	Specifies the action to take after the metering stage.	<ul style="list-style-type: none"> • USEDSCPMAP • BWCLASS • none
Storm Status	Determines whether or not Storm Protection is enabled for the default traffic class.	<ul style="list-style-type: none"> • enabled • disabled
Storm Window	Specifies the time between the polling of traffic class counters that checks whether storm protection should be activated. Required when storm protection is enabled.	<p>This value can be set by entering a number from 100-60000.</p> <p>This value can also be set to "none".</p>
Storm Rate	Storm protection is activated when this rate of traffic is exceeded. Required when storm protection is enabled.	<p>This value can be set by entering a value from 1Kbps up to 10Gbps.</p> <p>The value may contain decimal fractions up to 3 decimal places.</p> <p>This value can also be set to "none".</p>
Storm Action	Specifies the action QoS takes when a storm is detected on a port.	<ul style="list-style-type: none"> • PORTDISABLE • LINKDOWN • VLANDISABLE
Storm Timeout	Specifies the length of time the port remains disabled after a storm is detected.	<p>This value can be set by entering a number from 1-86400.</p> <p>This value can also be set to "none".</p>
VLAN	Specifies the VLAN where unclassified traffic is sent when action is sendvlanport. Traffic is	<p>This can be set by selecting from a list of available VLANs.</p>

Property Name	Description	Valid Values
	sent over the port specified by the port parameter so the VLAN must contain that port.	
Port	Specifies the port where unclassified traffic is sent when action is sendvlanport. The port must belong to the VLAN specified by the vlan parameter.	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> port 1 - n (n = number of ports available) none
Flow Group List	Specifies a list of the Flow Groups currently assigned to this Traffic Class.	Select from a list of available Flow Group IDs.

6.7.4 Policies

6.7.4.1 QoS Information Window

Column Name	Description
Policy ID	Lists the ID of Policies available
Description	A brief description of the Policy
Traffic Classes	List of Traffic Classes associated with this Policy

6.7.4.2 Add/Modify Policy

Property Name	Description	Valid Values
Policy ID (cannot be modified)	Specifies the unique identifier for the Policy.	Range: 0-255
Description	Specifies a brief description of the Policy.	To set this value, enter an alphanumeric string from 1-15 characters.
Default Traffic Class Action	Specifies the action to be performed on traffic that is processed by the default traffic class.	This can be set by selecting any one of the following: <ul style="list-style-type: none"> FORWARD FORWARD,SENDMIRROR DISCARD SENDMIRROR SENDMIRROR,SENDVLANPORT SENDVLANPORT
Default Traffic Class Drop Bandwidth	Determines whether or not to drop frames exceeding the default traffic class maximum bandwidth	<ul style="list-style-type: none"> yes no

Property Name	Description	Valid Values
Class3	setting.	
Default Traffic Class Ignore Bandwidth Class3	Determines whether or not the metering stage acknowledges any previous bandwidth class assigned to flows processed by the default traffic class.	<ul style="list-style-type: none"> • yes • no
Default Traffic Class Max Bandwidth	Specifies the maximum bandwidth available to the default traffic class.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) • none
Default Traffic Class Max Burst Size	Specifies the burst tolerance for the default traffic class maximum bandwidth parameter.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16777216 bytes • 0~16384 KB (decimal point supported) • 0~16 MB (decimal point supported) • 0~0.015628 GB (decimal point supported) <p>Note - Byte measures can have the value b,k,kb,m,mb,g,gb (case insensitive)</p>
Default Traffic Class Min Bandwidth	Specifies the minimum bandwidth reserved for the traffic class.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) • none
Default Traffic Class Min Burst Size	Specifies the burst tolerance for the default traffic class minimum bandwidth, or for the default traffic class maximum bandwidth when the default traffic class minimum bandwidth is none.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16777216 bytes • 0~16384 KB (decimal point supported)

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> 0~16 MB (decimal point supported) 0~0.015628 GB (decimal point supported) <p>Note - Byte measures can have the value b,k,kb,m,mb,g,gb (case insensitive)</p>
Default Traffic Class Premarking	Specifies the QoS action to take on the default traffic class before bandwidth metering is applied.	<ul style="list-style-type: none"> USEMARKVALUE USEDSCP none
Default Traffic Class Remarking	Specifies the action to take after the metering stage.	<ul style="list-style-type: none"> USEDSCPMAP BWCLASS none
Default Traffic Class Storm Status	Determines whether or not storm protection is enabled for the default traffic class.	<ul style="list-style-type: none"> enabled disabled
Default Traffic Class Storm Window	Specifies time between the polling of traffic class counters that checks whether storm protection should be activated.	This value can be set by entering a number from 100-60000. This can also be set to "none".
Default Traffic Class Storm Rate	Storm protection is activated when this rate of traffic is exceeded. Required when storm protection is enabled.	This value can be set by entering a value from 1Kbps up to 10Gbps. The value may contain decimal fractions up to 3 decimal places. This can also be set to "none".
Default Traffic Class Storm Action	Specifies the action QoS takes when a storm is detected on a port.	<ul style="list-style-type: none"> PORTDISABLE LINKDOWN VLANDISABLE
Default Traffic Class Storm Timeout	Specifies the length of time the port remains disabled after a storm is detected.	This value can be set by entering a number from 1-86400. This can also be set to "none".
Mark Value	This parameter specifies an explicit value to use as an index into the DSCPMAP table when the dtcpremarking parameter is usemarkvalue.	Range: none, 0-63
Port	Specifies the port where unclassified traffic is sent when the default traffic class action is sendvlanport. The port must belong to the VLAN specified by	<p>This can be set by selecting any one of the following values:</p> <ul style="list-style-type: none"> port 1 - n (n = number of ports available)

Property Name	Description	Valid Values
	the VLAN parameter.	<ul style="list-style-type: none"> • none
VLAN	Specifies the VLAN where unclassified traffic is sent when the default traffic class action is sendvlanport. Traffic is sent over the port specified by the port parameter so the VLAN must contain that port.	This can be set by selecting from a list of available VLANs.
Traffic Class List	Specifies a list of the Traffic Classes currently assigned to this Policy.	Select from a list of available Traffic Class IDs.

6.7.5 Ports

Column Name	Description	Valid Values
Port (cannot be modified)	Lists the ports available	Available ports will depend on the device model
Policy	Specifies the policy to associate with the port	Select from a list of available policies

6.7.6 Scheduling

Column Name	Description	Valid Values
Port (cannot be modified)	Specifies the port ID.	<p>This can be set by selecting any one of the following values:</p> <ul style="list-style-type: none"> • port 1 - n (n = number of ports available) • none
Max Bandwidth	Specifies the maximum bandwidth permitted on the port.	<p>This value can be set by entering a number from 0-16000000. Alternatively a value from 0-16000Mbps can be specified. 0-16Gbps can also be specified.</p>
Scheduler	<p>Specifies the method by which frames on each egress queue is allocated bandwidth for transmission onto the line. The following options are possible:</p> <ul style="list-style-type: none"> • strict to schedule based on queue number. Queues with 	<ul style="list-style-type: none"> • Strict • WRR1 • WRR2

Column Name	Description	Valid Values
	<p>higher numbers are served first-before lower numbered queues in the strict priority group and WRR, if there is a mix of the two types.</p> <ul style="list-style-type: none"> • wrr1 to schedule weighted round robin. The queue shares bandwidth with other queues in the WRR1 group according to their relative values of wwrweight. The WRR1 group can transmit frames when the strict scheduling group is empty. • wrr2 to schedule weighted round robin. The queue shares bandwidth with other queues in the WRR2 group according to their relative values of wwrweight. The WRR2 group can transmit frames when both the strict and WRR1 scheduling groups are empty. The initial value is strict. 	
WRR Weight	Specifies the weight to use for the queue when it is configured to use one of the WRR groups.	<p>This value can be set by entering a number from 6-255.</p> <p>Note - If the Scheduler is set to "Strict", then the application will ignore the value for this field.</p>
Length	Specifies the length to set for the specified egress queue, measured in frames.	<p>This value can be set by entering a number from 16~3648.</p> <p>Note - The maximum length is still dependent on the port type:</p> <ul style="list-style-type: none"> • 10/100 Mbytes max length is 128 • 1 Gigabit max length is 896 • 10 Gigabit max length is 3648

6.7.7 Quick Setup

Property Name	Description	Valid Values
Source UDP Port	Specifies the UDP source port of an UDP/IP packet.	Range: 0-65535 or a port range (n-m). Default for VOICE: 1719 Default for VIDEO: 1024
Priority	Specifies the priority that will be assigned for this setup.	Range: 0-7 Default for VOICE: 7 Default for VIDEO: 4
Maximum Bandwidth	Specifies the maximum bandwidth available to this setup.	<ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) Default for VOICE: 128kbps Default for VIDEO: 256kbps
Port Assignment	Specifies a list of ports that will be affected by this setup.	Select from a list of available Ports. Default for VOICE: no ports Default for VIDEO: no ports

6.7.8 Notes

- Configuring the Port and VLAN properties of a Flow Group, Traffic Class or Policy will have no effect unless the Action or Default Traffic Class Action property is set to 'SENDVLANPORT'.
- Values entered for the Maximum Bandwidth traffic class property are rounded up to the nearest multiple of 648.
- When the Protocol property is configured, the Ethernet Format property should also be configured.
- To configure the Storm Status property, the switch must be in enhanced mode.
- When the Storm Status property is configured, the Storm Window and Storm Rate properties should also be configured.
- Values entered for the Storm Window property are automatically rounded off to the nearest hundreds.
- When the IP Protocol classifier property is configured to '0', the current firmware version automatically converts this value to 'NONTCPUDP'.
- Valid values for the VLAN Priority classifier property are 'any' and values in the range [0-7] inclusive. However, when VLAN Priority is set to 'any', the current firmware version automatically converts the 'any' value to '4294967295'. When this

happens, any attempt to modify the classifier will result in the error message:
"Parameter VLANPRIORITY, value too high; maximum is 7."

- When the TAG Protocol ID classifier property is not set to any value and the VLAN classifier property is set to 'any', the current firmware version automatically sets the TAG Protocol ID to '8100'.
- Values entered for the Length scheduling property are rounded up to the nearest multiple of 16.
- When the Maximum Bandwidth and Minimum Bandwidth traffic class properties are set to any of the following values, the current firmware version automatically converts these values to '16998400 kbps':
 - 1600000kbps
 - 16000mbps
 - 16gbps

When this happens, any attempt to modify the traffic class will result in the error message: "Invalid value."

- If the Premarking traffic class property is set to 'USEMARKVALUE' and the Mark Value traffic class property is set to an integer value, they cannot be configured to 'none' at the same time. Premarking must be configured to 'none' first before Mark Value can be configured to 'none'.
- If the Default Traffic Class Premarking policy property is set to 'USEMARKVALUE' and the Mark Value policy property is set to an integer value, they cannot be configured to 'none' at the same time. Default Traffic Class Premarking must be configured to 'none' first before Mark Value can be configured to 'none'.
- The actual value of bytevalue that is configured for the EIPByte01-16 classifier properties is computed by performing a bitwise AND operation between the bytevalue and bytemask values supplied.

Ex.

```
bytevalue = 25 (00100101)
bytemask = 3B (00111011)
AND = 21 (00100001)
```

The hexadecimal value 21 will be the actual value configured.

- The current firmware version does not allow the Source MAC Address classifier property to be set to 'dhcpsnooping'.
- The current firmware version does not allow Minimum and Maximum bandwidth value of '0kbps', '0mbps' or '0gbps'. Attempting to assign these values will result in the error message "Parameter MINBANDWIDTH, value too low; minimum is 1kbps." and "Parameter MAXBANDWIDTH, value too low; minimum is 1kbps."

- The current firmware version recognizes 'DEC MOP REM CDONS' as valid protocol attribute of classifier property instead of 'DEC MOP REM CONS' value. As a result, both CLI and QoS Manager will return an error when set to latter value.
- The current firmware version returns the Protocol parameter as a numeric value. However, QoS Manager provides descriptive names to make it easier for users to set the appropriate value.
- The current firmware version does not allow 'Source L4 Mask' and 'Destination L4 Mask' classifier properties to accept its minimum value of '0000'. As a result, both CLI and QoS Manager only accept '0001' as its minimum value.
- Values entered for the DTC Storm Rate attribute of policy property are automatically rounded off to the nearest multiple of 1,000 kbps for 'Mbps' and 1,000,000 kbps for 'Gbps'.
- Values entered for the Default Traffic Class Maximum and Minimum Burst Size attribute of policy property are automatically round off to bytes.
- Values entered for the Default Traffic Class Maximum and Minimum Bandwidth of policy property are automatically round off.
- When setting the Default Traffic Class Action policy property to 'FORWARD,SENDMIRROR', the current firmware version omits the value 'FORWARD'. As a result, both CLI and QoS Manager return the value 'SENDMIRROR' when retrieved.
- Values entered for the Storm Rate attribute of policy property are automatically rounded off to the nearest multiple of 1,000 kbps for 'Mbps' and 1,000,000 kbps for 'Gbps'.
- Values entered for the Maximum and Minimum Burst Size attribute of policy property are automatically rounded off.

6.8 AT-x900-48 Series

Topics:

- [Classifiers](#)
- [Flow Groups](#)
- [Traffic Classes](#)
- [Policies](#)
- [Ports](#)
- [Scheduling](#)
- [Quick Setup](#)
- [Notes](#)

6.8.1 Classifiers

6.8.1.1 QoS Information Window

Column Name	Description
Classifier ID	Lists the Rule ID of packet-matching rules available

6.8.1.2 Add/Modify Classifier

Property Name	Description	Valid Values
Rule ID (cannot be modified)	Uniquely identifies the packet-matching rule	Range: 1-9999
Source MAC Address	Specifies the source MAC address of the packet.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> • XX-XX-XX-XX-XX-XX This can also be set to "any" or "dhcpsnooping".
Destination MAC Address	This parameter specifies the destination MAC address of the packet.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> • XX-XX-XX-XX-XX-XX This can also be set to "any".
Source MAC Address Mask	Specifies the masks to be used on the Source MAC Address. When a bit is set to 1 in the mask, the value	This can be set by entering a MAC address string using the following format:

Property Name	Description	Valid Values
	of the bit at the same position in the byte value of the MAC address is used to determine a match. If a bit in the Source MAC Address parameter is 0, the corresponding bit in the Source MAC Address parameters is ignored.	<ul style="list-style-type: none"> XX-XX-XX-XX-XX-XX This can also be set to "any".
Destination MAC Address Mask	Specifies the masks to be used on the Destination MAC Address. When a bit is set to 1 in the mask, the value of the bit at the same position in the byte value of the MAC address is used to determine a match. If a bit in the Destination MAC Address parameter is 0, the corresponding bit in the Destination MAC Address parameters is ignored.	This can be set by entering a MAC address string using the following format: <ul style="list-style-type: none"> XX-XX-XX-XX-XX-XX This can also be set to "any".
MAC Type	Specifies whether the packet is a Layer 2 unicast (L2UCAST), Layer 2 multicast (L2MCAST) or Layer 2 broadcast Ethernet (L2BCAST).	<ul style="list-style-type: none"> L2UCAST L2MCAST L2BCAST any
Tag Protocol ID	Specifies the Tag Protocol Identifier field in the packet.	This can be set by entering a 4 digit hex number from 0000-FFFF. This can also be set to "any".
VLAN Priority	Specifies the 802.1P priority in the VLAN tag.	Range: any, 0-7
VLAN	Specifies: <ul style="list-style-type: none"> For IPv4 packets and switched Layer 2 IPv6 packets, the source VLAN that the packet was associated with at the time of classification. For accelerated IPv6 packets at the Layer 2 processor of the accelerator card, the destination VLAN. 	This can be set by selecting from a list of available VLANs or "any".
Inner Tag Protocol ID	Specifies the TPID in the second 802.1Q tag in the packet.	This can be set by entering a 4-byte hex number from 0000-FFFF. This can also be set to "any".
Inner VLAN	Specifies the second 802.1P field in	Range: any, 0-7

Property Name	Description	Valid Values
Priority	the packet.	
Inner VLAN	Specifies the tunnelled VLAN ID in the second 802.1Q tag in the packet.	This can be set by selecting from a list of available VLANs or "any".
Ethernet Format	This parameter specifies the Ethernet encapsulation type of the packet.	<ul style="list-style-type: none"> • 802.2-Tagged • 802.2-Untagged • EthII-Tagged • EthII-Untagged • NetwareRaw-Tagged • NetwareRaw-Untagged • SNAP-Tagged • SNAP-Untagged • any
Protocol	Specifies the protocol of the packet.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • IP • IPX • IPv6 • SNA PATH CONTROL • PROWAY-LAN • EIA-RS • PROWAY • IPX 802.2 • NETBEUI • ISO CLNS IS • IP ETHII • X.75 INTERNET • NBS INTERNET • ECMA INTERNET • CHAOSNET • X.25 LEVEL3 • ARP • XNS COMPAT • BANYAN SYSTEMS • BBN SIMNET • DEC MOP DUMP/LD • DEC MOP REM CONS • DEC DECNET • DEC LAT • DEC DIAGNOSTIC • DEC CUSTOMER • DEC LAVC • RARP • DEC LANBRIDGE

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • DEC ENCRYPTION • APPLETALK • IBM SNA • IPX ETHII • APPLETALK AARP • SNMP • IPV6 ETHII • IPX 802.3 • ETHERTALK 2 • ETHERTALK 2 AARP • IPX SNAP • any <p>This can also be set by entering a 1- to 5-byte hexadecimal value (00-FFFFFFFF).</p>
IP DSCP	Specifies the Code Point bits of the DiffServ field of an IP packet.	<p>This can be set by entering one or more integers from 0-63. Input can be a comma separated list or a range (specified as m-n) or a combination of both. (e.g. 2, 4-7)</p> <p>This value can also be set to "any".</p>
IP Type of Service	Specifies the value of the precedence field within the TOS (Type of Service) byte of an IP packet.	Range: any, 0-7
IP Protocol	Specifies a Layer 4 IP protocol of an IP packet. For IPv6 packets, this parameter matches against the Next Header field of the IPv6 packet header.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • TCP • UDP • ICMP • IGMP • OSPF • any <p>This can also be set by entering an integer from 0-255.</p>
Source IP Address	Specifies the source IP address (either host or subnet) of an IP packet.	<p>This can be set by entering an IPV4 or IPV6 address using the following format:</p> <ul style="list-style-type: none"> • IPv4 address[/mask] - IPv4 is in dotted decimal notation, mask is 0..32. • IPv6 address[/mask] - IPv6 is

Property Name	Description	Valid Values
		<p>in colon separated hex digit notation, mask is 0..128.</p> <p>This value can also be set to "any".</p>
Destination IP Address	Specifies the destination IP address (either host or subnet) of an IP packet.	<p>This can be set by entering an IPV4 or IPV6 address using the following format:</p> <ul style="list-style-type: none"> • IPv4 address[/mask] - IPv4 is in dotted decimal notation, mask is 0..32. • IPv6 address[/mask] - IPv6 is in colon separated hex digit notation, mask is 0..128. <p>This value can also be set to "any".</p>
Destination IPX Address	Specifies the destination network address of an IPX packet.	<p>This can be set by entering an 8 digit hexadecimal value. (00000001-FFFFFFFF)</p> <p>This can also be set to "any".</p>
Source IPX Socket	Specifies the source IPX socket number of an IPX packet.	<p>This can be set by entering a 4-byte hexadecimal value (0000-FFFF) or by selecting one of the following:</p> <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any
Destination IPX Socket	Specifies the destination IPX socket number of an IPX packet.	<p>This can be set by entering a 4-byte hexadecimal value (0000-FFFF) or by selecting one of the following:</p> <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> any
Source TCP Port	Specifies the TCP source port of a TCP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Destination TCP Port	Specifies the TCP destination port of a TCP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Source UDP Port	Specifies the UDP source port of a UDP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Destination UDP Port	Specifies the UDP destination port of an UDP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Source L4 Mask	Specifies the mask or range of TCP/UDP source ports in the packet, when you also specify a single TCP or UDP destination port number.	This can be set by entering a 4-byte hex value from 0000-FFFF
Destination L4 Mask	Specifies the mask or range of TCP/UDP destination ports in the packet, when you also specify a single TCP or UDP destination port number.	This can be set by entering a 4-byte hex value from 0000-FFFF
L5 Byte Mask 01-16	<p>These parameters each specify the properties of a single byte field to match in the Layer 5 part of IP packets, which is the TCP or UDP payload. For each byte field you want to match, specify:</p> <ul style="list-style-type: none"> byteoffset, which is a decimal number in the range 0 to 37. This specifies the location of the byte to match. It refers to the offset from the start of Layer 5, after the UDP or TCP header. bytevalue, which is a 2-digit hexadecimal number. This specifies the value of the byte at the position in the frame that is determined by byteoffset. The classifier matches packets that have this value at this location. (optionally) bytemask, which is a 2-digit hexadecimal number. This specifies an 	<p>Each L5 Byte Mask entry can be set by entering the following value:</p> <p>, , (e.g. 3,AA,FF)</p>

Property Name	Description	Valid Values
	<p>eight-bit binary mask to apply to the field. When a bit is set to 1 in the mask, the value of the bit at the same position in the byte value is used to determine a match. A 0 in the mask means that the corresponding bit is ignored. The default is ff, which means the classifier matches against all bits in the byte.</p>	
TCP Flags	<p>Specifies the TCP flags of an IPv4 or IPv6 packet.</p>	<p>This can be set by selecting one or more of the following values:</p> <ul style="list-style-type: none"> • URG • ACK • RST • SYN • FIN <p>This can also be set to "any".</p>
ICMP Type	<p>Specifies the ICMP type of an IPv4 packet.</p>	<p>This can be set by selecting any one of the following values:</p> <ul style="list-style-type: none"> • ECHORPLY • UNREACHABLE • QUENCH • REDIRECT • ECHO • ADVERTISEMENT • SOLICITATION • TIMEEXCEED • PARAMETER • TSTAMP • TSTAMPRLY • INFOREQ • INFOREP • ADDRREQ • ADDRREP • NAMEREQ • NAMERPLY • any <p>This can also be set by entering a</p>

Property Name	Description	Valid Values
		value from 0-255.
ICMP Code	Specifies the ICMP code of an IPv4 packet.	<p>This can be set by selecting any one of the following values:</p> <ul style="list-style-type: none"> • any • FILTER • FRAGMENT • FRAGREASSM • HOSTCOMM • HOSTISOLATED • HOSTPREC • HOSTREDIRECT • HOSRTOS • HOSTTOS • HOSTUNKNOWN • HOSTUNREACH • NETCOMM • NETREDIRECT • NETRTOS • NETTOS • NETUNKNOWN • NETUNREACH • NOPTR • PORTUNREACH • PRECEDENT • PROTUNREACH • PTRPROBLEM • SOURCEROUTE • TTL <p>This can also be set by entering a value from 0-255.</p>
IGMP Type	Specifies the IGMP type of an IPv4 packet.	<p>This can be set by selecting any one of the following values:</p> <ul style="list-style-type: none"> • QUERY • VIREPORT • DVMRP • PIMVI • CTRACE • V2REPORT • V2LEAVE • MCTRACERESPONSE • MCTRACE • V3REPORT • MRADVERT • MRSOLICIT

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • MRTERMINATION • any <p>This can also be set by entering a 2-byte hexadecimal number 00-FF.</p>
EIPByte01-16	<p>These parameters each specify the properties of a single byte field to match in the Layer 3 header and data of a non-IPv4 and non-IPv6 packet. The eipbyte01 parameter must be used as the first byte field, and additional byte fields must increment sequentially, for example eipbyte01, eipbyte02, eipbyte03. Each field must have a greater offset than the field that precedes it. For each byte field you want to match, specify a byteoffset and a bytevalue, and optionally, a bytemask.</p> <ul style="list-style-type: none"> • byteoffset is a decimal number in the range 0 to 65. This specifies the location of the byte to match. It refers to the offset from the start of Layer 3, after the Layer 2 encapsulation format of an Ethernet frame. • bytevalue is a 2-digit hexadecimal number. This specifies the value of the byte at the frame position determined by the byteoffset. The classifier matches packets that have this value at this location. • (optional) bytemask is a 2-digit hexadecimal number. This specifies an eight-bit binary mask to apply to the field. When a bit is set to 1 in the mask, the value of the bit at the same position in the byte is used to determine a match. If the 	<p>Each entry can be set by entering the following value:</p> <p>, , (e.g. 3,AA,FF)</p>

Property Name	Description	Valid Values
	bytemask is 0, the corresponding bit is ignored. The default is ff, which means the classifier matches against all bits in the byte.	

6.8.2 Flow Groups

6.8.2.1 QoS Information Window

Column Name	Description
Flow Group ID	Lists the ID of Flow Groups available
Description	A brief description of the Flow Group.
Classifiers	List of Classifiers associated with this Flow Group

6.8.2.2 Add/Modify Flow Group

Property Name	Description	Valid Values
Flow Group ID (cannot be modified)	Specifies the unique identifier for the Flow Group.	Range: 0-1023
Description	Specifies a brief description of the Flow Group.	To set this value, enter an alphanumeric string from 1-15 characters.
Mark Value	This parameter specifies a replacement value to write into the DSCP (TOS) field for all packets.	Range: none, 0-63
Action	Specifies the action to be performed on traffic belonging to the Flow Group.	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> FORWARD FORWARD,SENDMIRROR DISCARD SENDMIRROR SENDMIRROR,SENDVLANPORT SENDVLANPORT none
Port	Specifies the port where traffic is sent when action=sendvlanport. The port must belong to the VLAN specified by the vlan parameter	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> port 1 - n (n = number of ports available)

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • none
Premarking	Specifies the action to take on the flow group before traffic class bandwidth metering is applied. Values for premarking and markvalue in a Flow Group override the setting for the Traffic Class.	<ul style="list-style-type: none"> • USEMARKVALUE • USEDSCP • none
VLAN	Specifies where traffic is sent when action=sendvlanport. Traffic is sent out the port specified by the port parameter, so the VLAN must contain this port.	This can be set by selecting from a list of available VLANs.
Classifier List	Specifies a list of the Classifiers currently assigned to this Flow Group.	Select from a list of available classifier IDs.

6.8.3 Traffic Classes

6.8.3.1 QoS Information Window

Column Name	Description
Traffic Class ID	Lists the ID of Traffic Classes available
Description	A brief description of the Traffic Class
Flow Groups	List of the Flow Groups associated with this Traffic Class

6.8.3.2 Add/Modify Traffic Class

Property Name	Description	Valid Values
Traffic Class ID	Specifies the unique identifier for this Traffic Class.	Range: 0-1023
Description	Specifies a brief description of the Traffic Class.	To set this value, enter an alphanumeric string from 1-15 characters.
Action	Specifies the action to be performed on traffic belonging to this traffic class.	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> • FORWARD • FORWARD,SENDMIRROR • DISCARD • SENDMIRROR • SENDMIRROR,SENDVLANPORT

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> SENDVLANPORT
Drop Bandwidth Class	Determines whether or not to drop frames exceeding the traffic class maxbandwidth setting.	<ul style="list-style-type: none"> NO YES
Ignore Bandwidth Class	Determines whether or not the metering stage acknowledges any previous bandwidth class assigned to flows processed by the default traffic class.	<ul style="list-style-type: none"> NO YES
Mark Value	Specifies an explicit value to use as an index into the DSCP MAP table when the premarking parameter is usemarkvalue.	<ul style="list-style-type: none"> 0-63 none
Maximum Bandwidth	Specifies the maximum bandwidth available to the traffic class.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> 0-16000000 kbps 0-16000 Mbps (decimal point supported) 0-16 Gbps (decimal point supported) none
Max Burst Size	Specifies the burst tolerance for the Maximum Bandwidth parameter.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> 0-16777216 bytes 0~16384 KB (decimal point supported) 0~16 MB (decimal point supported) 0~0.015628 GB (decimal point supported) <p>Note - Byte measures can have the value b,k,kb,m,mb,g,gb (case insensitive)</p>
Minimum Bandwidth	Specifies the minimum bandwidth reserved for the traffic class.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> 0-16000000 kbps 0-16000 Mbps (decimal point supported) 0-16 Gbps (decimal point supported)

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • none
Min Burst Size	Specifies the burst tolerance for the Minimum Bandwidth, or for the Maximum Bandwidth when the Minimum Bandwidth is none.	<p>This can be set by entering a value using one of the following formats:</p> <ul style="list-style-type: none"> • 0-16777216 bytes • 0~16384 KB (decimal point supported) • 0~16 MB (decimal point supported) • 0~0.015628 GB (decimal point supported) <p>Note - Byte measures can have the value b,k,kb,m,mb,g,gb (case insensitive)</p>
Premarking	Specifies the QoS action to take on the traffic class before bandwidth metering is applied.	<ul style="list-style-type: none"> • USEMARKVALUE • USEDSCP • none
Remarking	Specifies the action to take after the metering stage.	<ul style="list-style-type: none"> • USEDSCPMAP • BWCLASS • none
Storm Status	Determines whether or not Storm Protection is enabled for the default traffic class.	<ul style="list-style-type: none"> • enabled • disabled
Storm Window	Specifies the time between the polling of traffic class counters that checks whether storm protection should be activated. Required when storm protection is enabled.	<p>This value can be set by entering a number from 100-60000. This value can also be set to "none".</p>
Storm Rate	Storm protection is activated when this rate of traffic is exceeded. Required when storm protection is enabled.	<p>This value can be set by entering a value from 1Kbps up to 10Gbps. The value may contain decimal fractions up to 3 decimal places. This value can also be set to "none".</p>
Storm Action	Specifies the action QoS takes when a storm is detected on a port.	<ul style="list-style-type: none"> • PORTDISABLE • LINKDOWN • VLANDISABLE
Storm Timeout	Specifies the length of time the port remains disabled after a storm is detected.	<p>This value can be set by entering a number from 1-86400. This value can also be set to "none".</p>

Property Name	Description	Valid Values
VLAN	Specifies the VLAN where unclassified traffic is sent when action is sendvlanport. Traffic is sent over the port specified by the port parameter so the VLAN must contain that port.	This can be set by selecting from a list of available VLANs.
Port	Specifies the port where unclassified traffic is sent when action is sendvlanport. The port must belong to the VLAN specified by the vlan parameter.	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> port 1 - n (n = number of ports available) none
Flow Group List	Specifies a list of the Flow Groups currently assigned to this Traffic Class.	Select from a list of available Flow Group IDs.

6.8.4 Policies

6.8.4.1 QoS Information Window

Column Name	Description
Policy ID	Lists the ID of Policies available
Description	A brief description of the Policy
Traffic Classes	List of Traffic Classes associated with this Policy

6.8.4.2 Add/Modify Policy

Property Name	Description	Valid Values
Policy ID (cannot be modified)	Specifies the unique identifier for the Policy.	Range: 0-255
Description	Specifies a brief description of the Policy.	To set this value, enter an alphanumeric string from 1-15 characters.
Default Traffic Class Action	Specifies the action to be performed on traffic that is processed by the default traffic class.	This can be set by selecting any one of the following: <ul style="list-style-type: none"> FORWARD FORWARD,SENDMIRROR DISCARD SENDMIRROR SENDMIRROR,SENDVLANPORT SENDVLANPORT

Property Name	Description	Valid Values
Default Traffic Class Drop Bandwidth Class3	Determines whether or not to drop frames exceeding the default traffic class maximum bandwidth setting.	<ul style="list-style-type: none"> • yes • no
Default Traffic Class Ignore Bandwidth Class3	Determines whether or not the metering stage acknowledges any previous bandwidth class assigned to flows processed by the default traffic class.	<ul style="list-style-type: none"> • yes • no
Default Traffic Class Max Bandwidth	Specifies the maximum bandwidth available to the default traffic class.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) • none
Default Traffic Class Max Burst Size	Specifies the burst tolerance for the default traffic class maximum bandwidth parameter.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16777216 bytes • 0~16384 KB (decimal point supported) • 0~16 MB (decimal point supported) • 0~0.015628 GB (decimal point supported) <p>Note - Byte measures can have the value b,k,kb,m,mb,g,gb (case insensitive)</p>
Default Traffic Class Min Bandwidth	Specifies the minimum bandwidth reserved for the traffic class.	<p>This can be set by entering a value using one the following formats:</p> <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) • none
Default Traffic Class Min Burst Size	Specifies the burst tolerance for the default traffic class minimum bandwidth, or for the default	<p>This can be set by entering a value using one the following formats:</p>

Property Name	Description	Valid Values
	traffic class maximum bandwidth when the default traffic class minimum bandwidth is none.	<ul style="list-style-type: none"> • 0-16777216 bytes • 0~16384 KB (decimal point supported) • 0~16 MB (decimal point supported) • 0~0.015628 GB (decimal point supported) <p>Note - Byte measures can have the value b,k,kb,m,mb,g,gb (case insensitive)</p>
Default Traffic Class Premarking	Specifies the QoS action to take on the default traffic class before bandwidth metering is applied.	<ul style="list-style-type: none"> • USEMARKVALUE • USEDSCP • none
Default Traffic Class Remarking	Specifies the action to take after the metering stage.	<ul style="list-style-type: none"> • USEDSCPMAP • BWCLASS • none
Default Traffic Class Storm Status	Determines whether or not storm protection is enabled for the default traffic class.	<ul style="list-style-type: none"> • enabled • disabled
Default Traffic Class Storm Window	Specifies time between the polling of traffic class counters that checks whether storm protection should be activated.	This value can be set by entering a number from 100-60000. This can also be set to "none".
Default Traffic Class Storm Rate	Storm protection is activated when this rate of traffic is exceeded. Required when storm protection is enabled.	This value can be set by entering a value from 1Kbps up to 10Gbps. The value may contain decimal fractions up to 3 decimal places. This can also be set to "none".
Default Traffic Class Storm Action	Specifies the action QoS takes when a storm is detected on a port.	<ul style="list-style-type: none"> • PORTDISABLE • LINKDOWN • VLANDISABLE
Default Traffic Class Storm Timeout	Specifies the length of time the port remains disabled after a storm is detected.	This value can be set by entering a number from 1-86400. This can also be set to "none".
Mark Value	This parameter specifies an explicit value to use as an index into the DSCPMAP table when the dtcpremarking parameter is usemarkvalue.	Range: none, 0-63
Port	Specifies the port where	This can be set by selecting any one of

Property Name	Description	Valid Values
	unclassified traffic is sent when the default traffic class action is sendvlanport. The port must belong to the VLAN specified by the VLAN parameter.	the following values: <ul style="list-style-type: none"> port 1 - n (n = number of ports available) none
VLAN	Specifies the VLAN where unclassified traffic is sent when the default traffic class action is sendvlanport. Traffic is sent over the port specified by the port parameter so the VLAN must contain that port.	This can be set by selecting from a list of available VLANs.
Traffic Class List	Specifies a list of the Traffic Classes currently assigned to this Policy.	Select from a list of available Traffic Class IDs.

6.8.5 Ports

Column Name	Description	Valid Values
Port (cannot be modified)	Lists the ports available	Available ports will depend on the device model
Policy	Specifies the policy to associate with the port	Select from a list of available policies

6.8.6 Scheduling

Column Name	Description	Valid Values
Port (cannot be modified)	Specifies the port ID.	This can be set by selecting any one of the following values: <ul style="list-style-type: none"> port 1 - n (n = number of ports available) none
Max Bandwidth	Specifies the maximum bandwidth permitted on the port.	This value can be set by entering a number from 0-16000000. Alternatively a value from 0-16000Mbps can be specified. 0-16Gbps can also be specified.
Scheduler	Specifies the method by which frames on each egress queue is allocated bandwidth for transmission onto the line.	<ul style="list-style-type: none"> Strict WRR1 WRR2

Column Name	Description	Valid Values
	<p>The following options are possible:</p> <ul style="list-style-type: none"> • strict to schedule based on queue number. Queues with higher numbers are served first-before lower numbered queues in the strict priority group and WRR, if there is a mix of the two types. • wrr1 to schedule weighted round robin. The queue shares bandwidth with other queues in the WRR1 group according to their relative values of wrrweight. The WRR1 group can transmit frames when the strict scheduling group is empty. • wrr2 to schedule weighted round robin. The queue shares bandwidth with other queues in the WRR2 group according to their relative values of wrrweight. The WRR2 group can transmit frames when both the strict and WRR1 scheduling groups are empty. The initial value is strict. 	
WRR Weight	Specifies the weight to use for the queue when it is configured to use one of the WRR groups.	<p>This value can be set by entering a number from 6-255.</p> <p>Note - If the Scheduler is set to "Strict", then the application will ignore the value for this field.</p>
Length	Specifies the length to set for the specified egress queue, measured in frames.	<p>This value can be set by entering a number from 16~3648.</p> <p>Note - The maximum length is still dependent on the port type:</p> <ul style="list-style-type: none"> • 10/100 Mbytes max length is 128 • 1 Gigabit max length is 896 • 10 Gigabit max length is

Column Name	Description	Valid Values
		3648

6.8.7 Quick Setup

Property Name	Description	Valid Values
Source UDP Port	Specifies the UDP source port of an UDP/IP packet.	Range: 0-65535 or a port range (n-m). Default for VOICE: 1719 Default for VIDEO: 1024
Priority	Specifies the priority that will be assigned for this setup.	Range: 0-7 Default for VOICE: 7 Default for VIDEO: 4
Maximum Bandwidth	Specifies the maximum bandwidth available to this setup.	<ul style="list-style-type: none"> 0-16000000 kbps 0-16000 Mbps (decimal point supported) 0-16 Gbps (decimal point supported) Default for VOICE: 128kbps Default for VIDEO: 256kbps
Port Assignment	Specifies a list of ports that will be affected by this setup.	Select from a list of available Ports. Default for VOICE: no ports Default for VIDEO: no ports

6.8.8 Notes

- Values entered for the Maximum Bandwidth traffic class property are rounded up to the nearest multiple of 648.
- When the Protocol property is configured, the Ethernet Format property should also be configured.
- When the IP Protocol classifier property is configured to '0', the current firmware version automatically converts this value to 'NONTCPUDP'.
- Valid values for the VLAN Priority classifier property are 'any' and values in the range [0-7] inclusive. However, when VLAN Priority is set to 'any', the current firmware version automatically converts the 'any' value to '4294967295'. When this happens, any attempt to modify the classifier will result in the error message: "Parameter VLANPRIORITY, value too high; maximum is 7."
- When the TAG Protocol ID classifier property is not set to any value and the VLAN classifier property is set to 'any', the current firmware version automatically sets the TAG Protocol ID to '8100'.

- Values entered for the Length scheduling property are rounded up to the nearest multiple of 16.
- When the Maximum Bandwidth and Minimum Bandwidth traffic class properties are set to any of the following values, the current firmware version automatically converts these values to '16998400 kbps':
 - 1600000kbps
 - 16000mbps
 - 16gbps

When this happens, any attempt to modify the traffic class will result in the error message: "Invalid value."

- If the Premarking traffic class property is set to 'USEMARKVALUE' and the Mark Value traffic class property is set to an integer value, they cannot be configured to 'none' at the same time. Premarking must be configured to 'none' first before Mark Value can be configured to 'none'.
- If the Default Traffic Class Premarking policy property is set to 'USEMARKVALUE' and the Mark Value policy property is set to an integer value, they cannot be configured to 'none' at the same time. Default Traffic Class Premarking must be configured to 'none' first before Mark Value can be configured to 'none'.
- The actual value of bytevalue that is configured for the EIPByte01-16 classifier properties is computed by performing a bitwise AND operation between the bytevalue and bytemask values supplied.

Ex.

```
bytevalue = 25 (00100101)
bytemask = 3B (00111011)
AND = 21 (00100001)
```

The hexadecimal value 21 will be the actual value configured.

- The current firmware version does not allow Minimum and Maximum bandwidth value of '0kbps', '0mbps' or '0gbps'. Attempting to assign these values will result in the error message "Parameter MINBANDWIDTH, value too low; minimum is 1kbps." and "Parameter MAXBANDWIDTH, value too low; minimum is 1kbps."
- The current firmware version recognizes 'DEC MOP REM CDONS' as valid protocol attribute of classifier property instead of 'DEC MOP REM CONS' value. As a result, both CLI and QoS Manager will return an error when set to latter value.
- The current firmware version returns the Protocol parameter as a numeric value. However, QoS Manager provides descriptive names to make it easier for users to set the appropriate value.
- The current firmware version does not allow 'Source L4 Mask' and 'Destination L4 Mask' classifier properties to accept its minimum value of '0000'. As a result, both CLI and QoS Manager only accept '0001' as its minimum value.

- Values entered for the DTC Storm Rate attribute of policy property are automatically rounded off to the nearest multiple of 1,000 kbps for 'Mbps' and 1,000,000 kbps for 'Gbps'.
- Values entered for the Default Traffic Class Maximum and Minimum Burst Size attribute of policy property are automatically round off to bytes.
- Values entered for the Default Traffic Class Maximum and Minimum Bandwidth of policy property are automatically round off.
- When setting the Default Traffic Class Action policy property to 'FORWARD,SENDMIRROR', the current firmware version omits the value 'FORWARD'. As a result, both CLI and QoS Manager return the value 'SENDMIRROR' when retrieved.
- Values entered for the Storm Rate attribute of policy property are automatically rounded off to the nearest multiple of 1,000 kbps for 'Mbps' and 1,000,000 kbps for 'Gbps'.
- Values entered for the Maximum and Minimum Burst Size attribute of policy property are automatically rounded off.

6.9 Rapier

Topics:

- [Classifiers](#)
- [Flow Groups](#)
- [Traffic Classes](#)
- [Policies](#)
- [Ports](#)
- [Scheduling](#)
- [Quick Setup](#)
- [Notes](#)

6.9.1 Classifiers

6.9.1.1 QoS Information Window

Column Name	Description
Classifier ID	Lists the Rule ID of packet-matching rules available

6.8.1.2 Add/Modify Classifier

Property Name	Description	Valid Values
Rule ID (cannot be modified)	Uniquely identifies the packet-matching rule	Range: 1-9999
Egress Port	Specifies the egress port on the switch to match for each frame.	This can be set by selecting any of the following values: <ul style="list-style-type: none"> • 1-N (where N is the number of ports available on the device) <p>This value can also be set to "any".</p>
Ingress Port	Specifies the ingress port on the switch to match for each frame.	This can be set by selecting any of the following values: <ul style="list-style-type: none"> • 1-N (where N is the number of ports available on the device) <p>This value can also be set to "any".</p>
Ingress Interface	Specifies the interface through	This can be set by selecting the

Property Name	Description	Valid Values
	which the frame arrives at the switch.	name of a pre-defined interface on the device. This can also be set to "none".
Source VLAN	Specifies the VLAN associated with the frame when it arrives at the switch. Only valid in classifiers for software QoS on egress interfaces.	This can be set by selecting from a list of available VLANs or "any".
Destination VLAN	Specifies the VLAN that the frame will be transmitted to. Only valid in classifiers for software QoS on egress interfaces.	This can be set by selecting from a list of available VLANs or "any".
VLAN	Specifies the Destination VLAN that the packet will be transmitted on.	This can be set by selecting from a list of available VLANs or "any".
VLAN Priority	Specifies the 802.Ip VLAN priority value in the frame.	Range: any, 0-7
Ethernet Format	Specifies the Ethernet encapsulation type of the packet.	<ul style="list-style-type: none"> • 802.2 • 802.2-Tagged • 802.2-Untagged • EthII • EthII-Tagged • EthII-Untagged • NetwareRaw • NetwareRaw-Tagged • NetwareRaw-Untagged • SNAP • SNAP-Tagged • SNAP-Untagged • any
Source MAC Address	Specifies the source MAC Address of a packet.	<p>This can be set by entering a MAC address string using the following format:</p> <ul style="list-style-type: none"> • XX-XX-XX-XX-XX-XX <p>This value can also be set to "any".</p>
Destination MAC Address	This parameter is the destination MAC Address of a packet.	<p>This can be set by entering a MAC address string using the following format:</p> <ul style="list-style-type: none"> • XX-XX-XX-XX-XX-XX <p>This value can also be set to "any".</p>
MAC Type	Specifies the type of destination MAC address on the frame.	<ul style="list-style-type: none"> • L2UCAST • L2BMCAST • any

Property Name	Description	Valid Values
Protocol	Specifies the protocol of the packet	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • IP • IPv6 • ARP • IPX • NONIPIX • SNA Path Control • PROWAY-LAN • EIA-RS • PROWAY • IPX 802.2 • NetBEUI • ISO CLNS IS • IP ETHII • X.75 Internet • NBS Internet • ECMA Internet • Chaosnet • X.25 Level 3 • ARP • XNS Compat • Banyan Systems • BBN Simnet • DEC MOP Dump/Ld • DEC MOP Rem Cons • DEC DECNET • DEC LAT • DEC Diagnostic • DEC Customer • DEC LAVC • RARP • DEC LANBridge • DEC Encryption • AppleTalk • IBM SNA • IPX EthII • AppleTalk AARP • SNMP • IPv6 ETHII • IPX 802.3 • ETHERTALK 2 • ETHERTALK 2 AARP • IPX SNAP • any

Property Name	Description	Valid Values
		This can also be set by entering a 1- to 5- byte hexadecimal value (00-FFFFFFFF).
Frame Relay Data Link Connection ID	Specifies the identification number of a Frame Relay Data Link Connection (DLC).	Range: any, 0-1023
PPP Index	Specifies the PPP interface number.	This can be set by selecting a pre-defined PPP interface ID number.
PPP Protocol ID	Specifies the network layer protocol of the PPP encapsulated packet.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • IP • OSI • DEC • APP • IPX • VJC • VJU • BRI • MP • IP6HC • ENC • IPv6 • SINGLE • Compressed • any <p>This can also be set by entering a 4-byte hexadecimal value (00000000-FFFFFFFF).</p>
Source IP Address	Specifies the source IP Address (either host or host/subnet) of an IP packet	<p>This can be set by entering an IPV4 or IPV6 address using the following format:</p> <ul style="list-style-type: none"> • IPv4 address[/mask] - IPv4 is in dotted decimal notation, mask is 0..32. • IPv6 address[/mask] - IPv6 is in colon separated hex digit notation, mask is 0..128. <p>This value can also be set to "any".</p>
Destination IP Address	Specifies the destination IP Address (either host or host/subnet) of an IP packet	This can be set by entering an IPV4 or IPV6 address using the following format:

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> IPv4 address[/mask] - IPv4 is in dotted decimal notation, mask is 0..32. IPv6 address[/mask] - IPv6 is in colon separated hex digit notation, mask is 0..128. <p>This value can also be set to "any".</p>
IP DSCP	This the Code Point bits of the DiffServ field of an IP packet	This can be set by entering one or more integers from 0-63. Input can be a comma separated list or a range (specified as m-n) or a combination of both. (e.g. 2, 4-7) This value can also be set to "any".
IP Type of Service	Specifies the value of the precedence field within the TOS (Type of Service) byte of an IP packet	Range: any, 0-7
IP Fragmented	Determines if the IPv4 packets are fragmented.	<ul style="list-style-type: none"> yes no any
IP Options	Determines if the IPv4 header options will be included.	<ul style="list-style-type: none"> yes no any
IP Flow Label	Specifies the IPv6 Flow Label in an IPv6 Packet.	Range: any, 0-1048575
Destination IPX Address	Specifies the destination network address of an IPX packet.	This can be set by entering a 4-byte hexadecimal value. (00000001-FFFFFFFF) This can also be set to "any".
IPX Packet	Specifies the value of the Packet Type field of an IPX packet.	This can be set by selecting any of the following values: <ul style="list-style-type: none"> NLSP RIP SAP SPX NCP NETBIOS any

Property Name	Description	Valid Values
		This can also be set by entering a 4-byte hexadecimal value (00-FF).
IP Protocol	Specifies a Layer 4 IP protocol of an IP packet	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • TCP • UDP • NONTCPUDP • ICMP • IGMP • OSPF • any <p>This can also be set by entering an integer from 0-255.</p>
ICMP Type	Specifies the ICMP message type to match against the ICMP type field in an ICMP packet header.	Range: any, 0-65535
ICMP Code	Specifies the ICMP message reason code to match against the ICMP code field in an ICMP packet header.	Range: any, 0-65535
TCP Flags	Specifies the TCP flags of the TCP/IP packet.	<p>This can be set by selecting one or more of the following values:</p> <ul style="list-style-type: none"> • URG • ACK • RST • SYN • FIN <p>This can also be set to "any".</p>
Source TCP Port	Specifies the TCP source port of a TCP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Destination TCP Port	Specifies the TCP destination port of a TCP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Source UDP Port	Specifies the UDP source port of a TCP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Destination UDP Port	Specifies the UDP destination port of a TCP/IP packet.	Range: any, 0-65535 or a port range (n-m).
Source IPX Socket	Specifies the source IPX socket number of an IPX packet	<p>This can be set by entering a 4-byte hexadecimal value (0000-FFFF) or by selecting one of the following:</p> <ul style="list-style-type: none"> • NCP

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any
Destination IPX Socket	Specifies the destination IPX socket number of an IPX packet	<p>This can be set by entering a 4-byte hexadecimal value (0000-FFFF) or by selecting one of the following:</p> <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any
Match1	Specifies the actual data to match	This can be set by entering a 4-byte hex number. (0000-FFFF)
Mask1	Specifies whether the corresponding bit in the Match1 parameter is "on" for a match or "don't care" for a match.	This can be set by entering a 4-byte hex number. (0000-FFFF)
Offset1	Specifies the location or offset where the pattern for Match1 is to be checked.	Range: 0-62
Match2	Specifies the actual data to match	This can be set by entering a 4-byte hex number. (0000-FFFF)
Mask2	Specifies whether the corresponding bit in the Match2 parameter is "on" for a match or "don't care" for a match.	This can be set by entering a 4-byte hex number. (0000-FFFF)
Offset2	Specifies the location or offset where the pattern for Match2 is to be checked.	Range: 0-62
Match3	Specifies the actual data to match	This can be set by entering a 4-byte hex number. (0000-FFFF)
Mask3	Specifies whether the corresponding bit in the Match3 parameter is "on" for a match or "don't care" for a match.	This can be set by entering a 4-byte hex number. (0000-FFFF)

Property Name	Description	Valid Values
Offset3	Specifies the location or offset where the pattern for Match3 is to be checked.	Range: 0-62

6.9.2 Flow Groups

6.9.2.1 QoS Information Window

Column Name	Description
Flow Group ID	Lists the ID of Flow Groups available
Description	A brief description of the Flow Group.
Classifiers	List of Classifiers associated with this Flow Group

6.9.2.1 Add/Modify Flow Group

Property Name	Description	Valid Values
Flow Group ID (cannot be modified)	Specifies the unique identifier for the Flow Group.	Range: 0-1023
Description	Specifies a brief description of the Flow Group.	To set this value, enter an alphanumeric string from 1-15 characters.
Mark Value	This parameter specifies a replacement value to write into the DSCP (TOS) field for all packets.	Range: none, 0-63
Priority	This parameter specifies the priority that traffic belonging to this Flow Group has.	Range: none, 0-7
Remark Priority	Specifies whether the value of the priority parameter is used to set the egress queue selection for a frame and also to replace the 802.1p priority value in the frame, or just to select the egress queue for the frame.	<ul style="list-style-type: none"> • yes • no
Classifier List	Specifies a list of the Classifiers currently assigned to this Flow Group.	Select from a list of available classifier IDs.

6.9.3 Traffic Classes

6.9.3.1 QoS Information Window

Column Name	Description
Traffic Class ID	Lists the ID of Traffic Classes available
Description	A brief description of the Traffic Class

Flow Groups	List of the Flow Groups associated with this Traffic Class
-------------	--

6.9.3.2 Add/Modify Traffic Class

Property Name	Description	Valid Values
Traffic Class ID (cannot be modified)	Specifies the unique identifier for this Traffic Class.	Range: 0-511
Description	Specifies a brief description of the Traffic Class.	To set this value, enter an alphanumeric string from 1-15 characters.
Exceed Action	Specifies the action to take if the traffic classes maxbandwidth is exceeded.	<ul style="list-style-type: none"> • drop • remark
Exceed Remark Value	Specifies the DSCP replacement value for traffic that exceeds the maxbandwidth.	Range: 0-63
Mark Value	Specifies a replacement value to write into the DSCP (TOS) field for all packets.	Range: none, 0-63
Maximum Bandwidth	Specifies the maximum bandwidth available to the traffic class.	This can be set by entering a value using one the following formats: <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported)
Priority	Specifies the priority value in the IEEE Standard 802.1p tag control field that traffic belonging to this traffic class is assigned.	Range: none, 0-7
Remark Priority	Specifies whether the value of the priority parameter is used to set the egress queue selection for a frame and also to replace the 802.1p priority value in the frame, or just to select the egress queue for the frame.	<ul style="list-style-type: none"> • yes • no
Flow Group List	Specifies a list of the Flow Groups currently assigned to this Traffic Class.	Select from a list of available Flow Group IDs.

6.9.4 Policies

6.9.4.1 QoS Information Window

Column Name	Description
Policy ID	Lists the ID of Policies available
Description	A brief description of the Policy
Traffic Classes	List of Traffic Classes associated with this Policy

6.9.4.2 Add/Modify Policy

Property Name	Description	Valid Values
Policy ID (cannot be modified)	Specifies the unique identifier for the Policy.	Range: 0-255
Description	Specifies a brief description of the Policy.	To set this value, enter an alphanumeric string from 1-15 characters.
Ingress DSCP Overwrite	Specifies the DSCP value used to overwrite the DSCP value on the ingress queue.	Range; none, 0-63
Remark Ingress DSCP	Specifies the conditions under which the ingress DSCP value is overwritten.	<ul style="list-style-type: none"> • zero • all • none
Traffic Class List	Specifies a list of the Traffic Classes currently assigned to this Policy.	Select from a list of available Traffic Class IDs.

6.9.5 Ports

The following table is available under the Port tab:

Column Name	Description	Valid Values
Port (cannot be modified)	Lists the ports available	Available ports will depend on the device model
Policy	Specifies the policy to associate with the port	Select from a list of available policies

6.9.6 Scheduling

Column Name	Description	Valid Values
Queue	Lists the hardware CoS queues	Range: 0-3

Column Name	Description	Valid Values
(cannot be modified)	available.	
Max Packets	Maximum number of packets able to be transmitted from this queue before the control is passed to the next queue.	Range: 0-255
Max Latency	Maximum permissible elapsed time between packets transmitted from this queue.	Range: 0, 16-4080

6.9.7 Quick Setup

Property Name	Description	Valid Values
Source UDP Port	Specifies the UDP source port of an UDP/IP packet.	Range: 0-65535 or a port range (n-m). Default for VOICE: 1719 Default for VIDEO: 1024
Priority	Specifies the priority that will be assigned for this setup.	Range: none, 0-7 Default for VOICE: 7 Default for VIDEO: 4
Maximum Bandwidth	Specifies the maximum bandwidth available to this setup.	<ul style="list-style-type: none"> 0-16000000 kbps 0-16000 Mbps (decimal point supported) 0-16 Gbps (decimal point supported) Default for VOICE: 128kbps Default for VIDEO: 256kbps
Port Assignment	Specifies a list of ports that will be affected by this setup.	Select from a list of available Ports. Default for VOICE: no ports Default for VIDEO: no ports

6.9.8 Notes

- The current firmware version only allows values in the range [0-255] inclusive for the ICMP Type and ICMP Code classifier properties.
- Values entered for the Max Bandwidth traffic class property are rounded to the nearest 1000kbps.
- If the software release version is 2.9.1-12 and lower: Valid values for the PPP Index classifier property are in the range [0-1024] inclusive for the CLI and [0-1023] inclusive for QoS Manager. As such, setting a classifier's PPP Index property to 1024 using the CLI will result in an error message appearing when an attempt is made to modify that classifier through QoS Manager.

- When the IP Protocol classifier property is configured to '0', the current firmware version automatically converts this value to 'NONTCPUDP'.
- The current firmware version does not allow PPP Protocol ID classifier property to accept its maximum allowable 4 byte hexadecimal value of 'FFFFFFFF'. As a result, both CLI and QoS Manager only accept '000000FD' as its maximum value.
- The current firmware version does not allow PPP Protocol ID classifier property to be set to 'any' or '0'.
- The current firmware version does not return the correct value of Frame Relay Data Link Connection ID classifier property when set to value 'any'.
- The current firmware version allows Protocol 'IPX 802.3' classifier property to accept 'ETHII', 'ETHII-TAGGED' and 'ETHII-UNTAGGED' as valid Ethformat values. As a result, both CLI and QoS Manager accept these values as valid values.
- The current firmware version does not allow Minimum and Maximum bandwidth value of '0kbps', '0mbps' or '0gbps'. Attempting to assign these values will result in the error message "Parameter MINBANDWIDTH, value too low; minimum is 1kbps." and "Parameter MAXBANDWIDTH, value too low; minimum is 1kbps.".
- The current firmware version recognizes 'DEC MOP REM CDONS' as valid protocol attribute of classifier property instead of 'DEC MOP REM CONS' value. As a result, both CLI and QoS Manager will return an error when set to latter value.
- Valid maximum value for ICMP Code classifier property is '65535'. However, the current firmware version allows the user to enter values up to '255' only for both CLI and QoS Manager.
- Values entered for the Max Latency scheduling property are automatically rounded off to the nearest 16.
- Values entered for the Maximum Bandwidth trafficclass property and quick set-up property are automatically rounded off to 'Gbps'.

6.10 SwitchBlade Series

Topics:

- [Classifiers](#)
- [Flow Groups](#)
- [Traffic Classes](#)
- [Policies](#)
- [Ports](#)
- [Scheduling](#)
- [Quick Setup](#)
- [Notes](#)

6.10.1 Classifiers

6.10.1.1 QoS Information Window

Column Name	Description
Classifier ID	Lists the Rule ID of packet-matching rules available

6.10.1.2 Add/Modify Classifier

Property Name	Description	Valid Values
Rule ID (cannot be modified)	Uniquely identifies the packet-matching rule	Range: 1-9999
Source VLAN	Specifies the source VLAN that the packet was associated with when the packet was received by the switch.	This can be set by selecting from a list of available VLANs or "any".
Destination VLAN	Specifies the destination VLAN that the packet will be transmitted on.	This can be set by selecting from a list of available VLANs or "any".
Ethernet Format	This parameter specifies the Ethernet encapsulation type of the packet.	<ul style="list-style-type: none"> • 802.2 • EthII • NetwareRaw • SNAP • any
Source IP Address	Specifies the source IP address (either host or subnet) of an IP packet.	This can be set by entering an IP Address in dotted decimal notation with an optional mask <ul style="list-style-type: none"> • NNN.NNN.NNN.NNN • NNN.NNN.NNN.NNN/M

Property Name	Description	Valid Values
		Where M = 0-32.
Destination IP Address	Specifies the destination IP address (either host or subnet) of an IP packet.	<p>This can be set by entering an IP Address in dotted decimal notation with an optional mask</p> <ul style="list-style-type: none"> • NNN.NNN.NNN.NNN • NNN.NNN.NNN.NNN/M <p>Where M = 0-32.</p>
IP DSCP	Specifies the Code Point bits of the DiffServ field of an IP packet.	<p>This can be set by entering one or more integers from 0-63. Input can be a comma separated list or a range (specified as m-n) or a combination of both. (e.g. 2, 4-7) This value can also be set to "any".</p>
IP Protocol	Specifies a Layer 4 IP protocol of an IP packet.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • TCP • UDP • ICMP • IGMP • NONTCPUDP • any <p>This can also be set by entering an integer from 1-255.</p>
IP Type of Service	Specifies the value of the precedence field within the TOS (Type of Service) byte of an IP packet.	Range: any, 0-7
Destination IPX Address	Specifies the destination network address of an IPX packet.	This can be set by entering an a 4-byte hexadecimal value. (00000001-FFFFFFF)
Source IPX Socket	Specifies the source IPX socket number of an IPX packet.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any

Property Name	Description	Valid Values
		This can also be set by entering a 2-byte hexadecimal value (0000-FFFF).
Destination IPX Socket	Specifies the destination IPX socket number of an IPX packet.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • NCP • SAP • RIP • NNB • DIAG • NLSP • IPXWAN • any <p>This can also be set by entering a 2-byte hexadecimal value (0000-FFFF).</p>
MAC Type	Specifies whether the packet is a Layer 2 unicast (L2UCAST) or any other packet (L2BMCAST).	<ul style="list-style-type: none"> • L2UCAST • L2MBCAST • any
Protocol	Specifies the protocol of the packet.	<p>This can be set by selecting any of the following values:</p> <ul style="list-style-type: none"> • IP • IPX • NONIPIX • SNA PATH CONTROL • PROWAY-LAN • EIA-RS • PROWAY • IPX 802.2 • NETBEUI • ISO CLNS IS • IP ETHII • X.75 INTERNET • NBS INTERNET • ECMA INTERNET • CHAOSNET • X.25 LEVEL 3 • ARP • XNS COMPAT • BANYAN SYSTEMS • BBN SIMNET • DEC MOP DUMP/LD • DEC MOP REM CONS • DEC DECNET

Property Name	Description	Valid Values
		<ul style="list-style-type: none"> • DEC LAT • DEC DIAGNOSTIC • DEC CUSTOMER • DEC LAVC • RARP • DEC LANBRIDGE • DEC ENCRYPTION • APPLETALK • IBM SNA • IPX ETHII • APPLETALK AARP • SNMP • IPV6 ETHII • IPX 802.3 • ETHERTALK 2 • ETHERTALK 2 AARP • IPX SNAP • any <p>This can also be set by entering a 1 to 5 byte hexadecimal value (00-FFFFFFFF).</p>
Source TCP Port	Specifies the TCP source port of a TCP/IP packet.	Enter an integer value from 0-65535. The value "any" is also accepted.
Destination TCP Port	Specifies the TCP destination port of a TCP/IP packet.	Range: any, 0-65535
Source UDP Port	Specifies the UDP source port of an UDP/IP packet.	Range: any, 0-65535
Destination UDP Port	Specifies the UDP destination port of an UDP/IP packet.	Range: any, 0-65535

6.10.2 Flow Groups

6.10.2.1 QoS Information Window

Column Name	Description
Flow Group ID	Lists the ID of Flow Groups available
Description	A brief description of the Flow Group.
Classifiers	List of Classifiers associated with this Flow Group

6.10.2.2 Add/Modify Flow Group

Property Name	Description	Valid Values
Flow Group ID (cannot be	Specifies the unique identifier for the flow group.	Range: 0-1023

Property Name	Description	Valid Values
modified)		
Description	Specifies a brief description of the Flow Group.	To set this value, enter an alphanumeric string from 1-15 characters.
Mark Value	This parameter specifies a replacement value to write into the DSCP (TOS) field for all packets.	Range: none, 0-63
Priority	Specifies the priority that traffic belonging to this Flow Group has.	Range: none, 0-7
RED ID	Specifies the Random Early Detection Curve to be used by the Random Early Detection algorithm when dropping packets to avoid congestion.	Range: none, 0-47
Classifier List	Specifies a list of the Classifiers currently assigned to this Flow Group.	Select from a list of available classifier IDs.

6.10.3 Traffic Classes

6.10.3.1 QoS Information Window

Column Name	Description
Traffic Class ID	Lists the ID of Traffic Classes available
Description	A brief description of the Traffic Class
Flow Groups	List of the Flow Groups associated with this Traffic Class

6.10.3.2 Add/Modify Traffic Class

Property Name	Description	Valid Values
Traffic Class ID (cannot be modified)	Specifies the unique identifier for this Traffic Class.	Range: 0-511
Description	Specifies a brief description of the Traffic Class.	To set this value, enter an alphanumeric string from 1-15 characters.
Fair Hash Limit	Specifies the limit used to classify hashed flow groups as "fair" or "aggressive", relative to the most "aggressive" hashed flow group.	<ul style="list-style-type: none"> • low • modlow • modhigh • high
Mark Value	Specifies a replacement value to write into the DSCP (TOS) field for all packets.	Range: none, 0-63

Property Name	Description	Valid Values
Maximum Bandwidth	Specifies the maximum bandwidth available to the traffic class.	This can be set by entering a value using one the following formats: <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported)
Minimum Bandwidth	Specifies the minimum bandwidth available to the traffic class.	This can be set by entering a value using one the following formats: <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported)
Number of Hashed Flows	This parameter specifies the number of hashed flow groups to be used by the traffic class.	<ul style="list-style-type: none"> • 1 • 2 • 8 • 32 • 64 • 128 • 256 • 512 • none
Priority	This parameter specifies the priority that traffic belonging to this traffic class has.	Range: none, 0-7
RED ID	Specifies the Random Early Detection Curve to be used by the Random Early Detection algorithm when dropping packets to avoid congestion.	Range: none, 0-47
Statistics Counter	Specifies whether the statistics counter for the traffic class counts either accepted cells or discarded cells.	<ul style="list-style-type: none"> • accept • discard
Weight	Specifies the weighting given to this traffic class when distributing the bandwidth available on a QoS policy amongst all traffic classes within the policy.	<ul style="list-style-type: none"> • 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 14, 16, 20, 24, 28, 32, 40, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 640, 768, 896, or 1024

Property Name	Description	Valid Values
Flow Group List	Specifies a list of the Flow Groups currently assigned to this Traffic Class.	Select from a list of available Flow Group IDs.

6.10.4 Policies

6.10.4.1 QoS Information Window

The following table is available under the Policy tab:

Column Name	Description
Policy ID	Lists the ID of Policies available
Description	A brief description of the Policy
Traffic Classes	List of Traffic Classes associated with this Policy

6.10.4.2 Add/Modify Policy

Property Name	Description	Valid Values
Policy ID (cannot be modified)	Specifies the unique identifier for the Policy.	Range: 0-255
Description	Specifies a brief description of the Policy.	To set this value, enter an alphanumeric string from 1-15 characters.
DTC Percent	Specifies the percentage of port bandwidth allocated to the default traffic class for the policy.	Range: 0-100
Traffic Class List	Specifies a list of the Traffic Classes currently assigned to this Policy.	Select from a list of available Traffic Class IDs.

6.10.5 Ports

Column Name	Description	Valid Values
Port (cannot be modified)	Lists the ports available	Available ports will depend on the device model
Policy	Specifies the policy to associate with the port	Select from a list of available policies

6.10.6 Scheduling

Column Name	Description	Valid Values
Hardware Scheduler	Controls the method in which packets are removed from the egress queues and subsequently processed.	<ul style="list-style-type: none"> • Strict • Lower Priority • Internal Memory

6.10.7 Quick Setup

Property Name	Description	Valid Values
Source UDP Port	Specifies the UDP source port of a TCP/IP packet.	Range: 0-65535. Default for VOICE: 1719 Default for VIDEO: 1024
Priority	Specifies the priority that will be assigned for this setup.	Range: none, 0-7 Default for VOICE: 7 Default for VIDEO: 4
Maximum Bandwidth	Specifies the maximum bandwidth available to this setup.	This can be set by entering a value using one the following formats: <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) Default for VOICE: 128kbps Default for VIDEO: 256kbps
Minimum Bandwidth	Specifies the minimum bandwidth available to this setup.	This can be set by entering a value using one the following formats: <ul style="list-style-type: none"> • 0-16000000 kbps • 0-16000 Mbps (decimal point supported) • 0-16 Gbps (decimal point supported) Default for VOICE: 64kbps Default for VIDEO: 128kbps
Weight	Specifies the weight given to this traffic when distributing the bandwidth available on a QoS policy amongst all traffic classes within this setup.	This can be set by selecting one of the following values: <ul style="list-style-type: none"> • 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 14, 16, 20, 24, 28, 32, 40, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 640, 768, 896, or 1024 Default for VOICE: 1 Default for VIDEO: 1
Port Assignment	Specifies a list of the ports that will be affected by this setup.	Select from a list of available Ports. Default for VOICE: no ports Default for VIDEO: no ports

6.10.8 Notes

- The current firmware version does not allow the MAC Type classifier property to be set to 'L2BMCAST'.
- When the Protocol property is configured, the Ethernet Format property should also be configured.
- The current firmware version returns the Protocol parameter as a numeric value. However, QoS Manager provides descriptive names to make it easier for users to set the appropriate value.



© 1998-2008 Allied Telesis K. K.

All rights reserved. No part of this publication may be reproduced without prior written permission from Allied Telesis, K. K.

Microsoft is a registered trademark of Microsoft Corporation. Netscape Navigator is a registered trademark of Netscape Communications Corporation. All other product names, company names, logos or other designations mentioned herein are trademarks or registered trademarks of their respective owners.

Allied Telesis K. K. reserves the right to make changes in specifications and other information contained in this document without prior written notice. The information provided herein is subject to change without notice. In no event shall Allied Telesis K. K. be liable for any incidental, special, indirect, or consequential damages whatsoever, including but not limited to lost profits, arising out of or related to this manual or the information contained herein, even if Allied Telesis K. K. has been advised of, known, or should have known, the possibility of such damages.

613-000800 Rev C