Management Software

AT-S39

Command Line User's Guide

AT-8016F, AT-8024, AT-8024M, AT-8024GB, AND
AT-8026FC FAST ETHERNET SWITCHES

VERSION 3.0

PN 613-50354-00 Rev B

Allied Telesyn

Simply connecting the IP world

Table of Contents

Preface

This guide contains instructions on how configure an AT-8000 Series Fast Ethernet Switch using the AT-S39 command line interface.

The Fast Ethernet switches in the AT-8000 Series include:

- ❑ AT-8016F
- ❑ AT-8024
- ❑ AT-8024M
- ❑ AT-8024GB
- ❑ AT-8026FC

Document Conventions

This document uses the following conventions:

Note
Notes provide additional information.

Warning
Warnings inform you that performing or omitting a specific action may result in bodily injury.

Caution
Cautions inform you that performing or omitting a specific action may result in equipment damage or loss of data.

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Chapter 1
Starting a Command Line Management Session

This chapter contains the following sections:

Starting a Management Session

In order to manage an AT-8000 Series switch using the command line commands, you must first start a local, Telnet, or web management session. All of the instructions for starting a management session are described in the **AT-S39 User's Guide**. Refer there for directions.

Once you have started a local or Telnet management session, you will see the AT-S39 Main Menu. This menu will have the following option as one of its selections:

```
C - Command Line Interface
```

Typing **C** displays the command line prompt, "$". You are now ready to begin to manage the switch using the command line commands.

Starting a web browser management session displays the AT-S39 Home Page. In the left-hand menu will be the button CLI. Clicking the button opens a new window with the command line prompt.

Key Features

The following features are supported in the command line interface:

- ❑ Command history using the up and down arrow keys.
- ❑ Context-specific help - Press the question mark key at any time to see a list of legal next parameters.
- ❑ Keyword completion - Type a partial keyword and press the Tab key. The rest of the keyword will be entered automatically.
- ❑ Keyword abbreviations - Any keyword can be recognized just by typing an unambiguous prefix (e.g., “sh” for “show”). These prefixes are indicated by capital letters in the screen text representation of the commands.

Command Formatting

The following formatting conventions are used in this manual:

- `screen text font` - This font is used to illustrate the format of a command and command examples.
- *`screen text font`* - Italicized screen text indicates a variable that you must enter.
- [ ] - Brackets indicate optional parameters.
- | - This symbol is used between different parameter options from which you must choose.

Chapter 2
Basic Command Line Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

SAVE CONFIGURATION

Syntax

```
save configuration
```

Parameters

None.

Description

This command saves your changes to the switch's flash memory for permanent storage.

Whenever you make a change one of the operating parameters of the switch, such as enter an IP address or create a new VLAN, the change is stored in temporary memory. It will be lost the next time you reset the switch or power cycle the unit.

To save your changes, you must use this command. The change is saved to flash memory and is retained even when the switch is reset or powered off.

Example

The following command saves your configuration:

```
save configuration
```

SET PROMPT

Syntax

set prompt=*prompt*

Parameter

Prompt	Specifies the command line prompt. The prompt can be from one to seven alphanumeric characters. Spaces and special characters are allowed. The default command prompt is a dollar sign ($).

Description

This command changes the command prompt. Assigning each switch a different command prompt can make it easier for you to determine which switch you are managing when you are managing multiple switches in an enhanced stack.

Example

The following command changes the command prompt to “Switch7”.

```
set prompt=Switch7
```

CLEAR SCREEN

Syntax

```
clear screen
```

Parameters

None.

Description

This command clears the screen.

Example

The following command clears the screen:

```
clear screen
```

MENU

Syntax

```
menu
```

Parameters

None.

Description

Entering this command at the command prompt displays the AT-S39 Main Menu. For instructions on how to use the management menus, refer to the **AT-S39 User's Guide**.

Example

The following command displays the AT-S39 Main Menu:

```
menu
```

SET SWITCH CONSOLEMODE

Syntax

```
set switch consolemode=cli|menu
```

Parameter

consolemode — Specifies the mode you want management sessions to start in. Options are:

- cli — A management session starts with the command line prompt.
- menu — A management session starts with the AT-S39 Main Menu.

Description

You use this command to specify whether you want your management sessions to display the command line interface or the AT-S39 Main Menu when a session is started. The default is the menu system.

Example

The following command configures the management software to always display the command line prompt when you start a management session:

```
set switch consolemode=cli
```

LOGOFF and QUIT

Syntax

```
logoff
quit
```

Parameters

None.

Description

Both commands perform the same function. They end a management session. If you are managing a slave switch, the commands return you to the master switch on which you started the management session.

Example

The following command ends a management session:

```
logoff
```

Chapter 3
Basic Switch Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

SHOW DHCPBOOTP

Syntax

```
show dhcpbootp
```

Parameters

None.

Description

This command displays the status of DHCP and BOOTP on the switch. The status will be either “enabled” or “disabled.”

Example

The following command displays the status of DHCP and BOOTP:

```
show dhcpbootp
```

ENABLE DHCPBOOTP

Syntax

```
enable dhcpbootp
```

Parameters

None.

Description

This command activates DHCP and BOOTP on the switch. When activated, these protocols instruct the switch to obtain its IP configuration from a DHCP or BOOTP server on your network, whenever the unit is power cycled or reset. The protocols make continuous requests for the IP configuration until a DHCP or BOOTP server responds.

If you have assigned the switch an IP address manually, the address is discarded when DHCP and BOOTP are activated.

The default setting for DHCP and BOOTP is disabled.

Note
You cannot manually assign an IP address or subnet mask to a switch once DHCP and BOOTP have been activated. To disable DHCP and BOOTP, refer to the DISABLE DHCPBOOTP command.

Example

The following command activates DHCP and BOOTP:

```
enable dhcpbootp
```

DISABLE DHCPBOOTP

Syntax

```
disable dhcpbootp
```

Parameters

None.

Description

This command deactivates DHCP and BOOTP on the switch.

Example

The following command deactivates DHCP and BOOTP:

```
disable dhcpbootp
```

SHOW IP

Syntax

```
show ip interface=1
```

Parameters

interface	Specifies the interface number. This value is always "1".

Description

This command displays the current values for the following switch parameters:

- IP address
- Subnet mask
- Default gateway

Note
To set these parameters, refer to the SET IP and the SET IP ROUTE commands.

Example

The following command displays the values of several switch parameters:

```
show ip interface=1
```

SET IP

Syntax

```
set ip interface=1 ipaddress=IPaddress|DHCP
netmask=subnetmask
```

Parameters

interface	Specifies the interface number. This value is always "1".
ipaddress	Specifies an IP address for the switch or activates DHCP and BOOTP. For background information on when to assign a switch an IP address, refer to the **AT-S39 User's Guide**.
netmask	Specifies the subnet mask for the switch. You must specify a subnet mask if you manually assigned the switch an IP address.

Description

This command configures the following switch parameters:

- ❑ IP address
- ❑ Subnet mask

This command can also be used to activate DHCP and BOOTP on the switch. Activating DHCP and BOOTP with this command is equivalent to using the ENABLE DHCPBOOTP command. (You cannot deactivate DHCP and BOOTP with the SET IP command. That is accomplished with the DISABLE DHCPBOOTP command.)

Note
You cannot assign an IP address to the switch if DHCP and BOOTP are activated. They must first be deactivated before an address can be assigned.

To return the IP address and subnet mask to the default values, refer to the PURGE IP command.

Examples

The following command sets a switch's IP address to 140.35.22.22 and the subnet mask to 255.255.255.0:

```
set ip interface=1 ipaddress=140.35.22.22
netmask=255.255.255.0
```

The following command sets just the subnet mask:

```
set ip interface=1 netmask=255.255.255.210
```

The following command activates DHCP and BOOTP:

```
set ip interface=1 ipaddress=dhcp
```

To deactivate DHCP and BOOTP, use the DISABLE DHCPBOOTP command.

SHOW IP ROUTE

Syntax

```
show ip route
```

Parameters

None.

Description

This command displays the switch's default gateway address.

Example

The following command displays the default gateway address:

```
show ip route
```

SET IP ROUTE

Syntax

```
set ip route ipaddress=ipaddress
```

Parameter

ipaddress	Specifies the IP address of the default gateway for the switch.

Description

This command specifies the IP address of the default gateway for the switch. This is required if a remote management station is separated from the switch by a router. The default value is 0.0.0.0.

Example

The following command sets the default gateway to 140.35.22.12:

```
set ip route ipaddress=140.35.22.12
```

RESET IP

Syntax

```
reset ip interface=1
```

Parameter

interface	Specifies the interface number. This value is always "1".

Description

This command returns a switch's IP address, subnet mask, and gateway address to the default values.

To return just one of these parameters to its default value, refer to the PURGE IP command.

Example

The following command returns the IP address, subnet mask, and gateway address to their default values:

```
reset ip interface=1
```

PURGE IP

Syntax

```
purge ip [ipaddress] [netmask] [route]
```

Parameters

ipaddress	Returns the switch's IP address to the default setting 0.0.0.0.
netmask	Returns the subnet mask to the default setting 255.255.0.0.
route	Returns the gateway address to the default setting 0.0.0.0.

Description

This command returns the switch's IP address, subnet mask, and default gateway address to the default settings. This command is similar in function to the RESET IP command. Where they differ is that with this command you can specify which parameter to reset, while you cannot with the RESET IP command.

Example

The following command returns the IP address and subnet mask to the default values:

```
purge ip ipaddress netmask
```

SHOW SYSTEM

Syntax

```
show system
```

Parameters

None.

Description

This command displays the following information:

- ❑ Application software version and build date
- ❑ Bootloader version and build date
- ❑ Serial number
- ❑ Model name
- ❑ Switch's name
- ❑ Name of the network administrator responsible for managing the unit
- ❑ Location of the unit.

Note
For instructions on how to set this information, see the SET SYSTEM command. For instructions on how to remove the information, see the RESET SYSTEM command.

Example

The following command displays information about the switch:

```
show system
```

SET SYSTEM

Syntax

```
set system [name="name"] [contact="contact"]
[location="location"]
```

Parameters

The parameters are defined below:

name — Specifies the name of the switch. The name can be from 1 to 15 alphanumeric characters in length and must be enclosed in quotes (" ").

contact — Specifies the name of the network administrator responsible for managing the switch. The contact can be from 1 to 15 alphanumeric characters in length and must be enclosed in quotes (" ").

location — Specifies the location of the switch. The location can be from 1 to 15 alphanumeric characters in length and must be enclosed in quotes (" ").

Description

This command sets a switch's name, the name of the network administrator responsible for managing the unit, and the location of the unit.

Example

The following command sets a switch's information:

```
set system name="Sales" contact="Jane Smith"
location "Bldg 3, rm 212"
```

The following command sets just the system's name:

```
set system name="PR Office"
```

RESET SYSTEM

Syntax

```
reset system [name] [contact] [location]
```

Parameters

name	Deletes the name of the switch.
contact	Deletes the name of the network administrator responsible for managing the unit.
location	Deletes the location of the switch.

Description

This command deletes the information listed above in Parameters.

> **Note**
> For instructions on how to set the name, contact and location of a switch, refer to the SET SYSTEM command.

Examples

The following command deletes all three items:

```
reset system name contact location
```

The following command deletes just the location:

```
reset system location
```

SHOW SWITCH

Syntax

```
show switch
```

Parameters

None.

Description

This command displays the following switch parameters:

- MAC aging time
- Console timer
- Broadcast timers
- VLAN mode
- Stack mode
- Enhanced stacking status
- Port mirror

Example

The following command displays switch parameters:

```
show switch
```

RESTART SWITCH

Syntax

```
restart switch
```

Parameter

None.

Description

This command resets the switch. The system reset will take only a few seconds. The unit will not forward traffic during the few seconds required to reload the operating software and run its internal diagnostics.

> **Caution**
> Be sure to use the SAVE CONFIGURATION command to save your changes before resetting the switch. Any changes not saved will be discarded.

Example

The following command resets the switch:

```
restart switch
```

RESTART REBOOT

Syntax

```
restart reboot
```

Parameters

None.

Description

This command returns the switch's operating parameters to the default settings.

Example

The following command returns the switch's operating parameters to the default settings:

```
restart reboot
```

SHOW CONFIG

Syntax

```
show config
```

Parameters

None.

Description

This command displays overall information on the switch and the ports.

Example

The following command displays information about the switch and the ports:

```
show config
```

PING

Syntax

```
ping ipaddress
```

Parameter

ipaddress	Specifies the IP address of an end node you want the switch to ping.

Description

This command instructs the switch to ping an end node. You can use this command to determine whether a valid link exists between the switch and another device.

Example

The following command pings an end node with the IP address 149.245.22.22

```
ping 149.245.22.22
```

Chapter 4
Enhanced Stacking Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

Note
Refer to the **AT-S39 User's Guide** for background information on enhanced stacking.

SET SWITCH STACKMODE

Syntax

```
set switch stackmode=master|slave|unavailable
```

Parameter

stackmode	Specifies the enhanced stacking mode of the switch. Possible settings are:	
	master	Specifies the switch's stacking mode as master. A master switch must be assigned an IP address and subnet mask.
	slave	Specifies the switch's stacking mode as slave. A slave does not need an IP address. This is the default setting for a switch.
	unavailable	Specifies the switch's stacking mode as unavailable. A switch with this status cannot be managed from an enhanced stack. It can be managed locally through its RS232 Terminal Port or remotely if it is assigned an IP address and subnet mask.

Description

This command sets a switch's enhanced stacking status.

Example

The following command sets the switch's stacking status to master:

```
set switch stackmode=master
```

Note
To determine the master or slave status of your switch, use the SHOW SWITCH command.

SHOW REMOTELIST

Syntax

```
show remotelist [sorted by=macaddress|name]
```

Parameters

sorted by	Sorts the list either by MAC address or by name. The default is by MAC address.

Description

This command displays a lists of the switches in an enhanced stack. This command can only be performed from a management session on a master switch. The list does not include the master switch on which you started the management session.

Note
You must perform the SHOW REMOTELIST command from a management session of a master switch. This command will not work from a management session of a slave switch.

Note
To determine the master or slave status of your switch, use the SHOW SWITCH command.

Example

The following command displays the switches in an enhanced stack, sorted by MAC address, the default sorting method:

```
show remotelist
```

The following command displays the switches sorted by name:

```
show remotelist sort by=name
```

ACCESS SWITCH

Syntax

```
access switch number=number|macaddress=macaddress
```

Parameters

number	Specifies the number of the switch in an enhanced stack that you want to manage. You can view this number using the SHOW REMOTELIST command.
macaddress	Specifies the MAC address of the switch you want to manage. This can also be displayed using the SHOW REMOTELIST command. The address can be entered in either of the following formats: xxxxxxxxxxxx or xx:xx:xx:xx:xx:xx

Description

You use this command to start a management session on another switch in an enhanced stack. You can specify the switch to be managed by switch number or by MAC address, both displayed by the SHOW REMOTELIST command.

Note
You must perform the ACCESS SWITCH command from a management session of a master switch. This command will not work from a management session of a slave switch.

Note
You must perform the SHOW REMOTELIST command before you can access a switch with the ACCESS SWITCH command.

Note
To determine the master or slave status of your switch, use the SHOW SWITCH command.

Examples

The following command starts a management session on switch number 12:

```
access switch number=12
```

The following command starts a management session on switch with the MAC address 00:30:84:52:02:11

```
access switch macaddress=003084520211
```

EXIT

Syntax

```
exit
```

Parameters

None.

Description

Ends a management session. The menu or screen that is displayed as a result of this command depends on whether your switch is a master or slave as well as the configuration of the console mode on your switch. If you have configured your switch with the command line as the console mode, entering the EXIT command ends the management session. For a master switch, this command actually disconnects the session. However, for a slave switch, the EXIT command ends the slave session and displays the Stacking Services Menu on the master switch.

If you have left the console mode configured as menu, when you enter the EXIT command the AT-S39 Main Menu is displayed. For a master switch, the AT-S39 Main Menu of the master switch is displayed. For a slave switch, the AT-S39 Main Menu of the slave switch is displayed.

> **Note**
> To determine the master or slave status of your switch, use the SHOW SWITCH command.

Example

The following command end a management session:

```
exit
```

Chapter 5
SNMP Community Strings and Trap Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

SHOW SNMP

Syntax

```
show snmp
```

Parameters

None.

Description

This command displays the community strings for SNMP Read and Write access on the switch. The default community string for Read access is Public and the default string for Write access is Private.

This command also displays the IP addresses of management workstations that are to receive traps from the switch. To add IP address of management stations, refer to the ADD SNMP COMMUNITY TRAPHOST command in this chapter.

Example

The following command displays the community strings for SNMP.

```
show snmp
```

DESTROY SNMP COMMUNITY

Syntax

```
destroy snmp community=community
```

Parameter

community	Specifies the community string you want to delete from the switch.

Description

This command deletes the Read or Write community string from the switch. You must delete a community string prior to assigning a new string. For example, to change the Read community string from its default "public" to something else, you would first need to delete the "public" community string using this command, and then create the new string using the CREATE SNMP command.

Example

The following command deletes the community string "public":

```
destroy snmp community=public
```

CREATE SNMP COMMUNITY

Syntax

```
create snmp community=community access=read|write
```

Parameter

community	Specifies the new community string.
access	Specifies which community string you are changing. Options are Read and Write.

Description

This command creates a new Read or Write community string on the switch. You cannot assign a new Read or Write community string until after you have deleted the current community string using the DESTROY SNMP command.

Once you have created the new community string, you must use the SET SNMP COMMUNITY command to activate your change.

Example

The following command changes the Read community sting to "serv12":

```
create snmp community=serv12 access=read
```

SET SNMP COMMUNITY

Syntax

```
set snmp community=community access=read|write
```

Parameter

community	Specifies the new community string you created with the CREATE SNMP COMMUNITY command.
access	Specifies which community string you changed. Options are Read and Write.

Description

This command activates a new Read or Write community string on the switch. You perform this command after creating the new string using the CREATE SNMP COMMUNITY command.

Example

The following command activates the new Read community sting "serv12":

```
set snmp community=serv12 access=read
```

RESET SNMP

Syntax

```
reset snmp
```

Parameters

None.

Description

This command performs the following functions:

- Returns the SNMP community strings to the default values, which are "public" for Read access and "private" for Write access.
- Disables SNMP access so that the switch cannot be managed using an SNMP application.
- Deletes IP addresses of management workstations to receive traps from the switch.

Example

The following command resets SNMP:

```
reset snmp
```

ADD SNMP COMMUNITY TRAPHOST

Syntax

`add snmp community=`*`community`* `traphost=`*`ipaddress`*

Parameters

community	Specifies the switch's SNMP Read or Write community string.
traphost	Specifies the IP address of a management workstation you want to receive management traps from the switch.

Description

You can use this command to specify the IP addresses of up to four management workstations you want to receive management traps from the switch.

In using this command, you must specify the switch's Read or Write community string. You can specify either string. It does not matter which you use. (To view the community strings or to see if any management workstation IP addresses have already been entered, use the SHOW SNMP command.)

Example

The following command adds the IP address 149.212.11.22 of a management workstation to receive traps from the switch. It uses the default SNMP Read access community string "public".

```
add snmp community=public traphost=149.212.11.22
```

As mentioned previously, you can use either community string to add IP addresses of management workstations. The above command could just as well have been performed using the SNMP Write community string. The result would have been the same.

DELETE SNMP COMMUNITY TRAPHOST

Syntax

```
delete snmp community=community
traphost=ipaddress
```

Parameters

community	Specifies the switch's SNMP Read or Write community string.
traphost	Specifies the IP address of a management workstation you want to delete from the switch.

Description

You can use this command to delete the IP address of a management workstation that you no longer want to receive trap from the switch.

In using this command, you must specify the switch's Read or Write community string. You can specify either string. It does not matter which you use. (To view the community strings or to see the management workstation IP addresses that have already been entered, use the SHOW SNMP command.)

Example

The following command deletes the IP address 149.212.11.22 of a management workstation that is to no longer receive traps from the switch. It uses the default SNMP Read access community string "public".

```
add snmp community=public traphost=149.212.11.22
```

As mentioned previously, you can use either community string to delete IP addresses of management workstations. The above command could just as well have been performed using the SNMP Write community string. The result would have been the same.

Chapter 6
Management Security Commands

Note
Remember to use the SAVE CONFIGURATION command to save your changes.

SET PASSWORD MANAGER

Syntax

```
set password manager
```

Parameters

None.

Description

This command sets the manager's password. The default password is "admin". The password can be from 10 to 20 alphanumeric characters. The password can contain spaces and special characters, such as asterisks or exclamation points, but it is not recommended since some web browsers reject special characters in passwords. The password is case sensitive.

Example

The following command changes the manager's password:

```
set password manager
```

Follow the prompts to enter the new password.

SET PASSWORD OPERATOR

Syntax

```
set password operator
```

Parameters

None.

Description

This command sets the operator's password. The default password is "friend". The password can be from 10 to 20 alphanumeric characters. The password can contain spaces or special characters, such as asterisks or exclamation points, but it is not recommended since some web browsers reject special characters in passwords. The password is case sensitive.

Example

The following command changes the operator's password:

```
set password operator
```

Follow the prompts to enter the new password.

SHOW HTTP SERVER

Syntax

```
show http server
```

Parameters

None.

Description

This command displays the status of the HTTP server on the switch. If the status is ENABLED, the device can be managed from a web browser. If the status is DISABLED, the device cannot be managed from a web browser.

Example

The following command displays the status of the HTTP server:

```
show http server
```

ENABLE HTTP SERVER

Syntax

```
enable http server
```

Parameters

None.

Description

This command activates the HTTP server on the switch so that the device can be managed from a web browser.

Example

The following command activates the HTTP server:

```
enable http server
```

DISABLE HTTP SERVER

Syntax

```
disable http server
```

Parameters

None.

Description

This command disables the HTTP server on the switch so that the device cannot be managed from a web browser.

Example

The following command disables the HTTP server:

```
disable http server
```

ENABLE SNMP

Syntax

```
enable snmp
```

Parameters

None.

Description

This command enables SNMP on the switch so that the device can be managed from a SNMP application program.

Example

The following command enables SNMP:

```
enable snmp
```

DISABLE SNMP

Syntax

```
disable snmp
```

Parameters

None.

Description

This command disables SNMP on the switch so that the device cannot be managed from a SNMP application program.

Example

The following command disables SNMP:

```
disable snmp
```

SET SWITCH CONSOLETIMER

Syntax

```
set switch consoletimer=value
```

Parameter

consoletimer	Specifies the console timer in minutes. The range is 1 to 60 minutes. The default is 10 minutes.

Description

This command sets the console timer. The management software automatically ends a management session if it does not detect any activity from the local or remote management station after the specified period of time set by the console timer. This security feature can prevent unauthorized individuals from using your management station should you step away from your system while configuring a switch.

Example

The following command sets the console timer to 25 minutes:

```
set switch consoletimer=25
```

Chapter 7
Port Parameter Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

SHOW SWITCH PORT

Syntax

```
show switch port=port
```

Parameters

port	Specifies the port whose parameter settings you want to view. You can specify more than one port at a time. You can specify the ports individually (e.g., 2,3,5), as a range (e.g., 7-9), or both (e.g., 2,5,7-9). To view all ports, do not specify a port.

Description

This command displays a port's operating parameters, such as speed and duplex mode.

Examples

The following command displays the operating settings for Port 4:

```
show switch port=4
```

The following command displays the operating settings for all ports:

```
show switch port
```

SET SWITCH PORT

Syntax

```
set switch port=port|all
[status=forwarding|disabled]
[flowcontrol=none|transmit|recieve|both]
[bclimit=broadcastlimit]
[mdimode=mdi|mdix|auto]
[mirror=yes|no|all|none] [renegotiation=auto]
[softreset=yes|no]
[speed=autonegotiate|10mhalf|10mfull|10mhauto|
10mfauto|100mhalf|100mfull|100mhauto|100mfauto|
1000mfull|1000mfauto] [PVID=pvid]
[priority=priority] [overridepriority=yes|no]
```

Parameters

port — Specifies the port you want to configure. You can specify more than one port at a time. You can specify the ports individually (e.g., 2,3,5), as a range (e.g., 7-9), or both (e.g., 2,5,7-9). To specify all ports on the switch, use ALL.

status — Specifies the operating status of the port. Possible settings are:

- forwarding — The port will accept and transmit Ethernet frames. This is the default setting for all ports on the switch.
- disabled — The port will not accept or transmit frames.

flowcontrol — Specifies the flow control on the port. Possible values for this parameter are:

- none — No flow control.
- transmit — Flow control when transmitting frames.
- receive — Flow control when receiving frames.
- both — Flow control when both transmitting and receiving frames.

bclimit — Specifies the maximum number of broadcast frames the port will transmit during the interval specified by the broadcast timer. The default is "0", which disables frame control on the port. For background

information on broadcast frame control, refer to the **AT-S39 User's Guide**. To set the broadcast timer interval, refer to the SET SWITCH BROADCAST command.

mdimode — This parameter sets the wiring configuration of the port. Possible values are:

- mdi — Sets the port's configuration to MDI.
- mdix — Sets the port's configuration to MDI-X.
- auto — Sets the port's wiring configuration to either MDI or MDI-X, depending on the end node connected to the port. This is the default setting.

mirror — Adds or removes the port as a source port from an existing port mirror. Options are:

- yes or all — Adds the port as a source port to a port mirror.
- no or none — Removes the port as a source port from a port mirror.

renogotiation — Prompts the port to renegotiate speed and duplex mode with the end node. This parameter is effective only when the port is configured for Auto-Negotiation and is useful if you believe the port needs to renegotiate speed and duplex mode with the end node

softreset — Resets the port.

speed — Sets the speed and duplex mode of the port. Setting for this parameter are:

- autonegotiate — The port Auto-Negotiates both speed and duplex mode.This is the default setting.
- 10mhalf — 10 Mbps and half-duplex mode.
- 10mfull — 10 Mbps and full-duplex mode.
- 10mhauto — 10 Mbps and half-duplex mode with autonegotiation.
- 10mfauto — 10 Mbps and full-duplex mode with autonegotiation.
- 100mhalf — 100 Mbps and half-duplex mode.
- 100mfull — 100 Mbps and full-duplex mode.
- 100mhauto — 100 Mbps and half-duplex mode with autonegotiation.

100mfauto	100 Mbps and full-duplex mode with autonegotiation.
1000mfull	1000 Mbps and full-duplex mode.
1000mfauto	1000 Mbps and full-duplex mode with autonegotiation.

Note
The selections 10mfauto, 100mhauto, 100mfauto, and 1000mfauto will Auto-Negotiate to a lower speed and/or to half duplex mode if required by the end node.

pvid	Sets the PVID. This number is automatically assigned by the management software when the port is made an untagged member of a VLAN. This number matches the VID of the VLAN in which the port is an untagged member. The default value is "1", meaning that the port is an untagged member of the Default_VLAN, which has a VID of "1". For background information, refer to the descriptions of port-based and tagged VLANs in the **AT-S39 User's Guide**.
priority	Specifies the port's priority. Entering a value of 0 to 3 directs all tagged frames received on the port to the low priority queue. Entering a value of 4 to 7 directs all tagged frames to the high priority queue. For background information, refer to the description of Class of Service in the **AT-S39 User's Guide**.
overridepriority	Selecting Yes for this parameter causes the port to ignore the tagged header in tagged frames. Specifying No causes the port to determine a frame's priority from its tagged header. The default is No.

Description

This command sets a port's operating parameters.

Note
You can set only one operating parameter at a time with this command.

Examples

The following command configures Port 11 to operate at 10 Mbps, half duplex:

```
set switch port=11 speed=10mhalf
```

The following command sets the wiring configuration for Ports 12 to 16 to MDI-X:

```
set switch port=12-16 mdimode=mdix
```

The following command resets Ports 2:

```
set switch port=2 softreset=yes
```

The following command disables Ports 12 to 16:

```
set switch port=12-16 status=disabled
```

RESET SWITCH PORT

Syntax

```
reset switch port=port
```

Parameter

port	Specifies the port to be reset. You can specify more than one port at a time. You can specify the ports individually (e.g., 2,3,5), as a range (e.g., 7-9), or both (e.g., 2,5,7-9).

Description

This command resets a port. None of the operating parameters of a port are changed by this command. The reset takes less that a second to complete. You might reset a port if you believe the port has failed to Auto-Negotiate correctly with its end node.

Example

The following command resets Port 5:

```
reset switch port=5
```

Chapter 8
Port Security Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

Note
Refer to the **AT-S39 User's Guide** for background information on port security.

SET SWITCH SECURITYMODE

Syntax

```
set switch
securitymode=automatic|limited|secure|locked
```

Parameter

securitymode — Specifies the switch's security mode. Options are:

- automatic — Disables port security on the switch. A switch operating in Automatic mode does not restrict the number of MAC addresses learned by the ports. The switch continues to learn addresses so long as there is available space in the MAC address table. This is the default setting.
- limited — Sets the switch to the Limited security mode. This mode allows you to specify a maximum number of MAC addresses each port can learn. To specify a port limit, use the SET SWITCH THRESHOLD command.
- secure — Sets the switch to the Secure security mode. In this mode the switch forwards frames based only on static MAC addresses. After activating this security mode, you must enter the static MAC addresses of the nodes with frames the switch is to forward. To add static MAC addresses, use the ADD SWITCH FDB command.
- locked — Sets the switch to the Local All Ports security mode. This mode causes the switch to stop learning new dynamic MAC addresses. The switch forwards frames based only on static MAC addresses and on those dynamic addresses it has already learned.

Description

This command sets a switch's port security mode. Only one mode can be active on a switch at a time.

> **Note**
> To view the current security mode settings, use the SHOW CONFIGURATION command.

Example

The following command sets the switch's port security mode to limited:

```
set switch securitymode=limited
```

SET SWITCH THRESHOLD

Syntax

```
set switch threshold=threshold port=port|all
```

Parameters

threshold	Specifies the maximum number of dynamic MAC addresses a port on the switch can learn. The range is 1 to 150 addresses. The default is 100.
port	Specifies the port whose threshold you want to change. You can specify more than one port at a time. You can specify the ports individually (e.g., 2,3,5), as a range (e.g., 7-9), or both (e.g., 2,5,7-9). To assign the same threshold to all ports on the switch, use ALL.

Description

This command is used when the switch is operating in the Limited security mode. The Limited security mode allows you to set a maximum number of dynamic MAC addresses each port on a switch can learn. Once a port has learned its maximum number of MAC addresses, it discards frames with new source MAC addresses.

You can assign the same threshold limit to all ports or different limits to different ports.

Example

The following command sets a threshold limit of 75 dynamic MAC addresses on Ports 5 through 7:

```
set switch threshold=75 port=5-7
```

SHOW SWITCH THRESHOLD

Syntax

```
show switch threshold
```

Parameters

None.

Description

This command displays the threshold limit for all the ports. The threshold limit applies when the switch is operating in the Limited Security Mode and specifies the maximum number of dynamic MAC address each port will learn. A port that has learned its maximum number of MAC addresses will discard frames from end nodes with MAC addresses it has not already learned.

Example

The following command displays the threshold:

```
show switch threshold
```

Chapter 9
Port Trunking Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

Note
Refer to the **AT-S39 User's Guide** for background information on port trunking and load distribution methods.

SHOW SWITCH TRUNK

Syntax

```
show switch trunk
```

Parameters

None.

Description

This command displays the ports of a port trunk and the load distribution method.

Example

The following command displays the ports and load distribution method:

```
show switch trunk
```

CREATE SWITCH TRUNK

Syntax

```
create switch trunk=name port=ports
[select=macsrc|macboth]
```

Parameters

trunk	Specifies the name of the trunk. The name can be up to 10 alphanumeric characters. No spaces or special characters are allowed.	
port	Specifies the ports of the trunk. A trunk can have up to 4 ports. The ports can be specified individually (e.g., 1,2,5,8), as a range (e.g., 2-5), or both (e.g., 11-13,18).	
select	Specifies the load distribution method. Options are:	
	macsrc	Source address (SA) trunking
	macboth	Source address / destination address (SA/DA) trunking
	You can specify only one load distribution method. The default is SA/DA.	

Description

This command creates a port trunk. To create the trunk, you specify the ports on the switch that will constitute the trunk and the load distribution method.

Examples

The following command creates a port trunk of Ports 3 through 6 on the switch and assigns it the name "load22." Since no load distribution is specified, SA/DA is assigned by default:

```
create switch trunk=load22 port=3-6
```

The following command creates a port trunk of Ports 11 through 14 on the switch and assigns it the name "rm44." The load distribution is SA:

```
create switch trunk=rm44 port=11-14 select=macsrc
```

ADD SWITCH TRUNK

Syntax

```
add switch trunk=name port=ports
```

Parameters

trunk	Specifies the name of the trunk to be modified. (You can enter any alphanumeric character for the name and this command will still work. This is extremely useful if you forgot the name you assigned the trunk.)
port	Specifies the ports to be added to the existing port trunk. The ports can be specified individually (e.g., 1,2,) or as a range (e.g.,1- 2). A port trunk cannot have more than four ports.

Description

You can use this command to add one or more ports to an existing port trunk. For example, if the switch has a port trunk of Port 5 and 9 and you want to Port 7, you could use this command to add the port to the trunk.

Note
To initially create a port trunk, see the CREATE SWITCH TRUNK command.

Example

The following command adds Port 5 to an existing port trunk:

```
add switch trunk=a port=5
```

DELETE SWITCH TRUNK

Syntax

```
delete switch trunk=name port=ports
```

Parameters

trunk	Specifies the name of the trunk to be modified. (You can enter any alphanumeric character for the name and this command will still work. This is extremely useful if you forgot the name you assigned the trunk.)
port	Specifies the ports to be removed from the existing port trunk. The ports can be specified individually (e.g., 1,4) or as a range (e.g.,1-2).

Description

This command removes ports from a port trunk.

Note
To completely remove a port trunk from a switch, see the DESTROY TRUNK command.

Example

The following command removes Port 9 from a port trunk:

```
delete switch trunk=a port=9
```

DESTROY SWITCH TRUNK

Syntax

```
destroy switch trunk=name
```

Parameter

trunk	Specifies the name of the trunk to be deleted. (You can enter any alphanumeric character for the name and this command will still work. This is extremely useful if you forgot the name you assigned the trunk.)

Description

This command deletes a port trunk from a switch. Once a port trunk has been deleted, the ports that made up the trunk can be connected to different end nodes.

Example

The following command deletes the trunk from the switch:

```
destroy switch trunk=a
```

Chapter 10
Port Mirroring Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

Note
For background information on port mirroring, refer to the **AT-S39 User's Guide**.

CREATE SWITCH MIRROR

Syntax

```
create switch mirror destport=destinationport
srcport=sourceport
```

Parameters

destport	Specifies the destination port where the data will be copied to and where the network analyzer will be connected. You can specify only one port.
srcport	Specifies the port whose traffic is to be mirrored. You can specify more that one port. The ports can be specified individually (e.g., 1,4,6), as a range (e.g., 11-14), or both (1,4,7-9).

Description

This command creates a port mirror.

> **Note**
> To view whether the switch already has a port mirror, use the SHOW CONFIG command.

Examples

The following command creates a port mirror where the traffic on Port 12 (source port) is copied to Port 11 (destination port):

```
create switch mirror destport=11 srcport=12
```

The following command creates a port mirror where the traffic on Ports 1 to 3 (source ports) is copied to Port 4 (destination port):

```
create switch mirror destport=4 srcport=1-3
```

ADD SWITCH MIRROR

Syntax

```
add switch mirror srcport=port
```

Parameter

srcports	Specifies the port(s) whose data are to the copied to the destination port. You can specify more than one port. The ports can be specified individually (e.g., 1,2), as a range (e.g., 2-3), or both (1,4,7-9).

Description

This command adds source ports to an existing port mirror. For example, if you were mirroring the traffic on Ports 1 to 4 and you wanted to add port 11 as another source port, you could use this command to add the port to the mirror.

Note
To view the ports of a port mirror, use the SHOW CONFIG command.

Note
If you want to change the destination port (that is, the port where the traffic is being copied to), use the SET SWITCH MIRROR command.

Example

The following command adds Port 3 and 4 as additional source ports to an existing port mirror:

```
add switch mirror srcport=3-4
```

DELETE SWITCH MIRROR

Syntax

```
delete switch mirror srcport=port
```

Parameters

srcports	Specifies the port(s) to be removed from an existing port mirror. The ports can be specified individually (e.g., 1,2), a range (e.g., 2-3), or both (1,4,7-9).

Description

This command removes a source port(s) from a port mirror. For example, if you were mirroring the traffic on Ports 1 to 4 and you no longer wanted to mirror the traffic on Port 4, you could use this command to remove the port from the mirror.

Note
To view the ports of a port mirror, use the SHOW CONFIG command.

Note
If you want to change the destination port (that is, the port where the traffic is being copied to), use the SET SWITCH MIRROR command.

Example

The following command removes Port 9 from a port mirror:

```
delete switch mirror port=9
```

SET SWITCH MIRROR

Syntax

```
set switch mirror=port
```

Parameter

mirror	Specifies the new destination port for the mirrored traffic. You can specify only one port.

Description

This command specifies a new destination port of an existing port mirror.

Example

The following command makes Port 11 the new destination port of the port mirror.

```
set switch mirror=11
```

DESTROY SWITCH MIRROR

Syntax

```
destroy switch mirror
```

Parameters

None.

Description

This command deletes a port mirror. Once a port mirror has been deleted, the port that was functioning as the destination (mirror) port can be disconnected from the network analyzer and connected to an end node for normal network operations.

Example

The following command deletes a port mirror:

```
destroy switch mirror
```

Chapter 11
STP Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

Note
Refer to the **AT-S39 User's Guide** for background information on the Spanning Tree Protocol (STP).

SHOW STP

Syntax

```
show stp [port=port]
```

Parameters

port	Specifies the port whose STP parameters you want to view. You can specify more than one port at a time. The ports can be specified individually (e.g., 1,2,5,8), as a range (e.g., 2-5), or both (e.g., 11-13,18).

Description

You can use this command to display the parameter settings for STP. Values are displayed for the following parameters:

- ❑ STP status
- ❑ Bridge identifier
- ❑ Bridge priority
- ❑ Hello time
- ❑ Forwarding delay
- ❑ Maximum age timer

You can also use this command to view the following STP parameter settings for a switch port:

- ❑ Path cost
- ❑ Port priority
- ❑ Port STP state

Examples

The following command displays the switch's STP settings:

```
show stp
```

The following command displays the STP settings for Ports 12 to 14:

```
show stp port=12-14
```

ACTIVATE STP

Syntax

```
activate stp
```

Parameters

None

Description

Use this command to designate STP as the active spanning tree on the switch. Once you have selected STP, you can enable or disable it using the ENABLE STP and DISABLE STP commands. A spanning tree protocol is active on a switch only if you designate it as the active spanning tree and enable it.

> **Note**
> A change to the active spanning tree protocol with this command will reboot the switch.

Example

The following command designates STP as the active spanning tree:

```
activate stp
```

ENABLE STP

Syntax

```
enable stp
```

Parameters

None.

Description

This command activates the Spanning Tree Protocol on the switch. The default setting for STP is disabled.

Example

The following command activates STP:

```
enable stp
```

DISABLE STP

Syntax

```
disable stp
```

Parameters

None.

Description

This command deactivates the Spanning Tree Protocol on the switch. The default setting for STP is disabled.

Example

The following command deactivates STP:

```
disable stp
```

SET STP

Syntax

```
set stp [default] [priority=priority]
[hellotime=hellotime] [forwarddelay=forwarddelay]
[maxage=maxage]
```

Parameters

default	Disables STP and returns all bridge and port STP settings to the default values. (This option performs the same function as the RESET STP command.)
priority	Specifies the priority number for the bridge. This number is used in determining the root bridge for STP. The bridge with the lowest priority number is selected as the root bridge. If two or more bridges have the same priority value, the bridge with the numerically lowest MAC address becomes the root bridge. When a root bridge goes off-line, the bridge with the next priority number automatically takes over as the root bridge. This parameter can be from 0 (zero) to 65,535, with 0 being the highest priority. The default is 32,768.
hellotime	Specifies the time interval between generating and sending configuration messages by the bridge. This parameter can be from 1 to 10 seconds. The default is 2 seconds.
forwarddelay	Specifies the waiting period before a bridge changes to a new state, for example, becomes the new root bridge after the topology changes. If the bridge transitions too soon, not all links may have yet adapted to the change, resulting in network loops. The default is 15 seconds.
maxage	Specifies the length of time after which stored bridge protocol data units (BPDUs) are deleted by the bridge. All bridges in a bridged LAN use this aging time to test the age of stored configuration messages called bridge protocol data units (BPDUs). For example, if you use the default 20, all bridges delete current configuration messages after 20 seconds. This parameter can be from 6 to 40 seconds. The default is 20 seconds.

Note
The value for the maxage parameter must be less than (2 x (hellotime +1)) and less than (2 x (forwarddelay -1)).

Description

This command is used to activate and deactivate STP on the switch. It is also used to set the following STP parameters

- Bridge priority
- Hello time
- Forwarding delay
- Maximum age time

Examples

The following command activates STP on the switch:

```
set stp status=enabled
```

The following command sets the hello time to 7 seconds and the forwarding delay to 25 seconds:

```
set stp hellotime=7 forwarddelay=25
```

The following command returns all STP settings on the switch to their default values:

```
set stp default
```

SET STP PORT

Syntax

```
set stp port=port|all [default]
[pathcost=pathcost] [portpriority=portpriority]
[fastmode=enabled|disabled][participate=yes|no]
```

Parameters

port — Specifies the port you want to configure. You can specify more than one port at a time. The ports can be specified individually (e.g., 1,2,5,8), as a range (e.g., 2-5), or both (e.g., 11-13,18). To configure all ports, specify ALL.

default — Returns the port's STP settings to their default values.

pathcost — Specifies the port's path cost. The spanning tree algorithm uses the cost parameter to decide which port provides the lowest cost path to the root bridge for that LAN. The default values for this parameter are 100 for a 10 Mbps port, 10 for a 100 Mbps port, and 4 for a 1 Gbps port. The range is 1 to 65535.

portpriority — Specifies the port's priority. This parameter is used as a tie breaker when two or more ports are determined to have equal costs to the root bridge. The default value for priority is 128. The range is 0-255.

fastmode — Used to specify edge ports that are not connected to other nodes that are actively running STP. A port where fast mode is enabled skips the STP Listening and Learning states, and goes directly from Blocking to Forwarding. Options for this parameter are:

- enabled — Fast mode is enabled. The port skips Listening and Learning states.
- disabled — Fast mode is disabled.

participate — Activates and deactivates STP on the port. If you select Yes, which is the default, the port will participate in the spanning tree. If you select No, the port will continue to receive and transmit Ethernet frames, but it will not participate in spanning tree.

Note
A port that is not participating in spanning tree is immediately placed in the forwarding state. It cannot be placed in the blocking state by STP should there be a loop in the network topology. Consequently, it is incumbent on the network administrator to insure that no loop will develop should STP be disabled on a port.

Description

This command is used to set the following parameter settings for STP on the switch ports:

- Path cost
- Port priority
- Fast mode

Examples

The following command sets the path cost to 15 and the port priority to 100 on Port 6:

```
set stp port=6 pathcost=15 portpriority=100
```

The following command activates fast mode on Port 10:

```
set stp port=10 fastmode=enabled
```

RESET STP

Syntax

```
reset stp
```

Parameters

None.

Description

This command disables STP and returns all bridge and port STP parameters to the default settings.

Example

The following command disables STP:

```
reset stp
```

Chapter 12
RSTP Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

Note
Refer to the **AT-S39 User's Guide** for background information on the Rapid Spanning Tree Protocol (RSTP).

SHOW RSTP

Syntax

```
show rstp [portconfig=ports|portstate=port]
```

Parameters

portconfig	Displays the RSTP port settings. You can specify more than one port at a time.
portstate	Displays the RSTP port status. You can specify more than one port at a time.

Description

You can use this command to display the parameter settings for RSTP. Values are displayed for the following parameters:

- ❑ STP status
- ❑ Bridge identifier
- ❑ Bridge priority
- ❑ Hello time
- ❑ Forwarding delay

You can also use this command to view the following RSTP parameter settings for a switch port:

- ❑ Path cost
- ❑ Port priority
- ❑ Edge and point-to-point status

Examples

The following command displays the bridges RSTP settings:

```
show rstp
```

The following command displays the RSTP port settings for ports 1 to 4:

```
show rstp portconfig=1-4
```

The following command displays RSTP port status for port 5:

```
show rstp portconfig=5
```

ACTIVATE RSTP

Syntax

```
activate rstp
```

Parameters

None

Description

Use this command to designate RSTP as the active spanning tree on the switch. Once you have selected RSTP, you can enable or disable it using the ENABLE RSTP and DISABLE RSTP commands. A spanning tree protocol is active on a switch only if you designate it as the active spanning tree and enable it.

> **Note**
> A change to the active spanning tree protocol with this command will reboot the switch.

Example

The following command designates RSTP as the active spanning tree:

```
activate rstp
```

DISABLE RSTP

Syntax

```
disable rstp
```

Parameters

None

Description

This command disables the Rapid Spanning Tree Protocol on the switch. The default setting for RSTP is disabled.

Example

The following command disables RSTP:

```
disable rstp
```

ENABLE RSTP

Syntax

```
enable rstp
```

Parameters

None

Description

This command enables the Rapid Spanning Tree Protocol on the switch. The default setting for RSTP is disabled.

Example

The following command enables RSTP:

```
enable rstp
```

RESET RSTP

Syntax

```
reset rstp
```

Parameters

None.

Description

This command returns all bridge and port RSTP parameters to the default settings.

Example

The following command resets RSTP:

```
reset rstp
```

SET RSTP

Syntax

```
set rstp [default] [priority=priority]
[hellotime=hellotime] [forwarddelay=forwarddelay]
[maxage=maxage]
[forceversion=forcestpcompatible|normalrstp]
```

Parameters

default — Disables RSTP and returns all bridge and port RSTP settings to the default values. (This option performs the same function as the RESET RSTP command.)

priority — Specifies the priority number for the bridge. This number is used in determining the root bridge for RSTP. The bridge with the lowest priority number is selected as the root bridge. If two or more bridges have the same priority value, the bridge with the numerically lowest MAC address becomes the root bridge. The range is 0 to 61440 in increments of 4096. The range is divided into sixteen increments, as shown in the following table. You specify the increment that represents the desired bridge priority value. The default value is 32768 (increment 8).

Table 1 RSTP Bridge Priority Value Increments

Increment	Bridge Priority	Increment	Bridge Priority
0	0	8	32768
1	4096	9	36864
2	8192	10	40960
3	12288	11	45056
4	16384	12	49152
5	20480	13	53248
6	24576	14	57344
7	28672	15	61440

hellotime	Specifies the time interval between generating and sending configuration messages by the bridge. This parameter can be from 1 to 10 seconds. The default is 2 seconds.
forwarddelay	Specifies the waiting period before a bridge changes to a new state, for example, becomes the new root bridge after the topology changes. If the bridge transitions too soon, not all links may have yet adapted to the change, resulting in network loops. The default is 15 seconds. This parameter effects only those ports operating in the STP compatible mode.
maxage	Specifies the length of time after which stored bridge protocol data units (BPDUs) are deleted by the bridge. All bridges in a bridged LAN use this aging time to test the age of stored configuration messages called bridge protocol data units (BPDUs). For example, if you use the default 20, all bridges delete current configuration messages after 20 seconds. This parameter can be from 6 to 40 seconds. The default is 20 seconds.

Note
The value for the maxage parameter must be less than (2 x (hellotime +1)) and less than (2 x (forwarddelay -1)).

forceversion	The forceversion parameter lets you choose between	
	forcestpcompatible	The bridge will use the RSTP parameter settings, but will transmit only STP BPDU packets out the ports.
	normalrspt	The bridge will use RSTP. This is the default setting.

Description

This command is used to configure the following RSTP parameter settings.

- ❑ Bridge priority
- ❑ Hello time
- ❑ Forwarding delay

- Maximum age time
- Port priority
- Force version of STP or normal RSTP

Examples

The following command returns all RSTP parameter settings to their default values:

```
set rstp default
```

The following command sets the bridge priority to 20480 (increment 5), the hello time to 5 seconds, and the forwarding delay to 20 seconds:

```
set rstp priority=5 hellotime=5 forwarddelay=20
set rstp default
```

The following command uses the FORCEVERSION parameter to configure the bridge to use the RSTP parameters but to transmit only STP BPDU packets:

```
set rstp forceversion=forcestpcompatible
```

SET RSTP PORT

Syntax

```
set rstp port=port|all [default]
[pathcost=pathcost]
[portpriority=portpriority][edgeport=yes|no]
[pointtopoint=yes|no|autoupdate]
[migrationcheck=yes|no]
```

Parameters

port — Specifies the port you want to configure. You can specify more than one port at a time. The ports can be specified individually (e.g., 1,2,5,8), as a range (e.g., 2-5), or both (e.g., 11-13,18). To configure all ports, specify ALL.

default — Returns the port's RSTP settings to their default values. This parameter performs the same function as the RESET RSTP command.

pathcost — Specifies the port's path cost. The spanning tree algorithm uses the cost parameter to decide which port provides the lowest cost path to the root bridge for that LAN. The range is 0 to 20 000 000. The default setting is Auto-Detect, which automatically sets port cost according to the speed of the port Table 2 lists the ports cost with Auto-Detect.

Table 2 RSTP Auto-Detect Port Costs

Port Speed	Port Cost
10 Mbps	2 000 000
100 Mbps	200 000
1000 Mbps	20 000

portpriority — Specifies the port's priority. This parameter is used as a tie breaker when two or more ports are determined to have equal costs to the root bridge. The range is 0 to 240 in increments of 16. There are sixteen increments. You specify the increment of the desired value. The default is 128 (increment 8).

Table 3 RSTP Port Priority Value Increments

Increment	Bridge Priority	Increment	Bridge Priority
0	0	8	128
1	16	9	144
2	32	10	160
3	48	11	176
4	64	12	192
5	80	13	208
6	96	14	224
7	112	15	240

edgeport — Defines whether the port is functioning as an edge port. An edge port is connected to a device operating at half-duplex mode and is not connected to any device running STP or RSTP. Selections are:

- yes — The port is an edge port. This is the default.
- no — The port is not an edge port.

pointtopoint — Defines whether the port is functioning as a point-to-point port. This type of port is connected to a device operating at full-duplex mode. Selections are:

- yes — The port is an point-to-point port.
- no — The port is not an point-to-point port.
- autoupdate — The port's status is determined automatically. This is the default.

migrationcheck — Instructs the switch to send out RSTP BPDU packets for several seconds from the selected port. The purpose is to determine if there are any RSTP or STP

bridges connected to the port. If the port receives STP BPDU packets in response, the port changes to STP compatible mode. If the port receives RSTP BPDU packets, it operates in RSTP.

Description

This command sets a port's RSTP settings.

Examples

The following command sets Port 4's path cost to 1 000 000 and it's port priority to 224:

```
set rstp port=4 pathcost=1000000 portpriority=14
```

The following command changes Ports 7 to 10 so they are not considered as edge ports:

```
set rstp port=7-10 edgeport=no
```

The following command returns Port 11 to the default RSTP settings:

```
set rstp port=1 default
```

Chapter 13
VLAN Commands

Note
Remember to use the SAVE CONFIGURATION command to save your changes on the switch.

Note
Refer to the **AT-S39 User's Guide** for background information on tagged and port-based VLANs, the Basic VLAN mode, and ingress filtering.

SHOW VLAN

Syntax

```
show vlan=name|vid
```

Parameters

vlan	Specifies the name or VID of the VLAN.

Description

This command displays all the port-based and tagged VLANs on a switch. The information includes the names of the VLANs, the VIDs, and the port members.

Examples

The following command displays all the VLANs on the switch:

```
show vlan
```

The following command displays information on the Sales VLAN:

```
show vlan=sales
```

CREATE VLAN

Syntax 1

```
create vlan=name vid=vid ports=ports|ALL
frame=untagged|tagged [mirrorport=mirrorport]
```

Syntax 2

```
create vlan=name vid=vid
taggedports=taggedports|ALL
untaggedports=untaggedports|ALL
[mirrorport=mirrorport]
```

Parameters

vlan — Specifies the name of the VLAN. A VLAN must be assigned a name.

The name can be from one to ten characters in length. The name should reflect the function of the nodes that will be a part of the VLAN (for example, Sales or Accounting). The name cannot contain spaces or special characters, such as asterisks (*) or exclamation points (!).

The name cannot be the same as the name of an existing VLAN on the switch.

If the VLAN will be unique in your network, then the name should be unique as well. If the VLAN will be part of a larger VLAN that spans multiple switches, then the name for the VLAN should be the same on each switch where nodes of the VLAN are connected.

vid — Specifies the VLAN identifier. The range is 2 to 4094. The VLAN must be assigned a VID.

You cannot use the VID 1; that value is reserved for the Default VLAN.

The VID cannot be the same as the VID of an existing VLAN on the switch.

If this VLAN will be unique in your network, then its VID must also be unique. If this VLAN will be part of a larger VLAN that spans multiple switches, then the VID value for the VLAN should be the same on each

	switch. For example, if you are creating a VLAN called Sales that will span three switches, you should assign the Sales VLAN on each switch the same VID value.
ports	Specifies the ports on the switch that are to be either tagged or untagged members of the new VLAN. You can specify the ports individually (e.g., 2,3,5), as a range (e.g., 7-9), or both (e.g., 2,5,7-9). To specify all ports on the switch, use ALL. This parameter must be followed by the FRAME parameters.
frame	Specifies whether the ports of the VLAN are to be tagged or untagged. This parameter must be used with the PORTS parameter.
taggedports	Specifies the ports on the switch to serve as tagged ports in the VLAN. You can specify the ports individually (e.g., 2,3,5), as a range (e.g., 7-9), or both (e.g., 2,5,7-9). To specify all ports on the switch, use ALL. Omit this parameter if the VLAN will not contain tagged ports.
untaggedports	Ports on the switch to function as untagged ports in the VLAN. You can specify the ports individually (e.g., 2,3,5), as a range (e.g., 7-9), or both (e.g., 2,5,7-9). To specify all ports on the switch, use ALL. Omit this parameter if the VLAN will not contain untagged ports.
MirrorPort	A port on the switch where all traffic on the VLAN will be mirrored. This function is useful in troubleshooting a VLAN. It allows you to mirror the VLAN traffic on another port where you can connect a network analyzer. The mirror port can be a member of the same VLAN it will be used to monitor or a member of another VLAN. In most situations you will probably not use this parameter.

Description

This command creates a port-based or tagged VLAN.

As shown at the start of this section, this command features two syntaxes. You can use either syntax when creating a port-based or tagged VLAN. The difference between the two is how you go about specifying which ports will be members of the VLAN and whether the

ports will be tagged or untagged. Syntax 1 is limited in that it allows you to specify either tagged or untagged ports, but not both at the same time. Syntax 2 on the other hand can create a VLAN that has both types of ports. This will be illustrated in the section **Examples** below.

When you create a new VLAN, untagged ports of the new VLAN are automatically removed from their current untagged VLAN assignment. This is because a port can be an untagged member of only one VLAN at a time. For example, creating a new VLAN with untagged Ports 1 to 4 automatically removes these ports from whichever VLAN they are currently untagged members.

The PVID of an untagged port is automatically changed to match the VID number of the VLAN to which it is added. For instance, if you make Port 4 an untagged member of a VLAN with a VID of 15, Port 4's PVID is changed to 15 automatically.

Tagged ports of the new VLAN remain as tagged and untagged members of their current VLAN assignments. No change is made to a tagged port's current VLAN assignments, other than its addition to the new VLAN. This is because a tagged port can belong to more than one VLAN at a time. For example, if you add Port 6 as an tagged port to a new VLAN, Port 6 remains a member of any current VLAN assignments as a untagged and tagged member.

Examples

The following command uses Syntax 1 to create a port-based VLAN called Sales with a VID of 3 and untagged ports 4-9 and 14:

```
create vlan name=Sales vid=3 ports=4-9,14
frame=untagged
```

The following command uses Syntax 2 to create the very same VLAN:

```
create vlan name=Sales vid=3 untaggedports=4-9,14
```

Here's another example. The following command uses Syntax 1 to create a tagged VLAN called Production with a VID of 22 and tagged ports 3 and 6:

```
create vlan name=Production vid=22 ports=3,6
frame=tagged
```

The following command uses Syntax 2 to create the very same VLAN:

```
create vlan name=Sales vid=22 taggedports=3,6
```

Now let's try creating an tagged VLAN that contains both untagged and tagged ports. Suppose you wanted to create a VLAN called Service with a VID of 16 and untagged ports 1, 4, 5-7 and tagged ports 11 and 14. You could not create this VLAN using Syntax 1 with just one command. It would actually take two commands. You would first create the VLAN, specifying either the untagged or tagged ports. For example:

```
create vlan name=Service vid=16 ports=1,4,5-7
frame=untagged
```

Then, to add the other ports (in this case tagged ports), you would need to use the ADD VLAN command, which is explained in the next section.

Syntax 2 allows you to create a VLAN of both tagged and untagged ports all in one command. Here is the command that would create our example:

```
create vlan name=Service vid=16
untaggedports=1,4,5-7 taggedports=11,14
```

That's the advantage of Syntax 2 over Syntax 1. You can create VLANs containing both types of ports in one rather than two commands.

ADD VLAN

Syntax 1

```
add vlan=name|vid ports=ports
frame=untagged|tagged [mirrorport=mirrorport]
```

Syntax 2

```
add vlan=name|vid taggedports=taggedports
untaggedports=untaggedports
[mirrorport=mirrorport]
```

Parameters

vlan	Specifies the name or VID of the VLAN to which you want to add tagged or untagged ports.
ports	Specifies the ports to be added to the VLAN. This parameter must be used with the FRAME parameter.
frame	Specifies whether the ports to be added will be tagged or untagged.
taggedports	Specifies the ports on the switch that you want to add as tagged ports to the VLAN. You can specify the ports individually (e.g., 2,3,5), as a range (e.g., 7-9), or both (e.g., 2,5,7-9). Specifying ALL adds all ports on the switch as tagged ports to the VLAN.
untaggedports	Specifies the ports on the switch that you want to add as untagged ports to the VLAN. You can specify the ports individually (e.g., 2,3,5), as a range (e.g., 7-9), or both (e.g., 2,5,7-9). Specifying ALL adds all ports on the switch as untagged ports to the VLAN.
mirrorport	Specifies a port on the switch where all traffic on the VLAN will be mirrored. This function is useful in troubleshooting a VLAN. It allows you to mirror the VLAN traffic on another port where you can connect a network analyzer. In most situations you will probably not use this parameter.

Description

This command adds tagged and untagged ports to an existing VLAN. You can also use this command to have the traffic on the VLAN mirrored to another port on the switch.

Note
To remove ports from a VLAN, see the command DELETE VLAN.

This command has two syntaxes, just like the CREATE VLAN command. You can use either command to add ports to a VLAN. The difference between the two is that Syntax 1 can add only one type of port, tagged or untagged, at a time to a VLAN, while Syntax 2 can add both in the same command. This is illustrated in **Examples** below.

When you add untagged ports of a VLAN, the ports are automatically removed from their current untagged VLAN assignment. This is because a port can be an untagged member of only one VLAN at a time. For example, if you add Port 4 as an untagged port to a VLAN, the port is automatically removed from whichever VLAN it is currently an untagged member.

Adding a tagged port to a VLAN does not change the port's current tagged and untagged VLAN assignments. This is because a tagged port can belong to more than one VLAN at a time. For instance, if you add Port 6 as an tagged port to a new VLAN, Port 6 remains a member of any current VLAN assignments as a tagged and untagged member.

Examples

The following command uses Syntax 1 to add Ports 4 and 7 as untagged members to a VLAN called Sales:

```
add vlan name=sales port=4,7 frame=untagged
```

The following command does the same thing using Syntax 2:

```
add vlan name=sales untaggedports=4,7
```

The following command uses Syntax 1 to add Port 3 as a tagged member to a VLAN called Production:

```
add vlan name=production port=3 frame=tagged
```

The following command does the same thing using Syntax 2:

```
add vlan name=production untaggedports=3
```

To add both tagged and untagged ports to a VLAN using Syntax 1 takes two commands. For example, if you had a VLAN called Service and you wanted to add Port 5 as a tagged port and Ports 10 to 12 as untagged ports, the commands would be:

```
add vlan name=Service ports=5 frame=tagged
add vlan name=Service ports=10-12 frame=untagged
```

Using Syntax 2, you can do the whole thing with just one command:

```
add vlan name=Service untaggedports=10-12
taggedports=5
```

DELETE VLAN

Syntax 1

```
delete vlan=name|vid ports=ports
frame=untagged|tagged [mirrorport=mirrorport]
```

Syntax 2

```
delete vlan=name|vid taggedports=taggedports
untaggedports=untaggedports
[mirrorport=mirrorport]
```

Parameters

vlan	Specifies the name or VID of the VLAN from which ports are to be removed.
ports	Specifies the ports to be removed from the VLAN. This parameter must be used with the FRAME parameter.
frame	Specifies whether the ports to be removed are tagged or untagged.
taggedports	Specifies the tagged ports on the switch that you want to remove from the VLAN. You can specify the ports individually (e.g., 2,3,5), as a range (e.g., 7-9), or both (e.g., 2,5,7-9). Specifying ALL removes all tagged ports from the VLAN.
untaggedports	Specifies the untagged ports on the switch that you want to remove from the VLAN. You can specify the ports individually (e.g., 2,3,5), as a range (e.g., 7-9), or both (e.g., 2,5,7-9). Specifying ALL removes all untagged ports from the VLAN.
mirrorport	The port on the switch which you want to have stop functioning as a mirror port of the VLAN.

Description

This command removes tagged and untagged ports from a VLAN. You can also use this command to cancel a port functioning as a VLAN mirror.

This command has two syntaxes, just like the CREATE VLAN command. You can use either command to delete ports from a VLAN. The difference between the two is that Syntax 1 can remove only one type of port, tagged or untagged, at a time from a VLAN, while Syntax 2 can remove both in the same command. This is illustrated in **Examples** below.

Note
To delete a VLAN, see the command DESTROY VLAN.

Note
You cannot use this command to change the name or VID of a VLAN.

When an untagged port is deleted from a VLAN, it is automatically returned to the Default_VLAN as an untagged member. If the port is also functioning as a tagged member of other VLANs, it remains a member of the other VLANs. For example, if you remove Port 4 from a VLAN, the port is automatically returned as an untagged port to the Default VLAN. If Port 4 is functioning as a tagged member in one or more other VLANs, it remains as a tagged member of those VLANs.

If you remove an untagged port from the Default_VLAN without assigning it to another VLAN, the port is excluded as an untagged member from all VLANs on the switch.

When a tagged port is removed from a VLAN, all of its other tagged and untagged VLAN assignments remain unchanged.

Examples

The following command uses Syntax 1 to delete untagged Ports 4 and 7 from a VLAN called Sales:

```
delete vlan name=sales port=4,7 frame=untagged
```

The following command does the same thing using Syntax 2:

```
delete vlan name=sales untaggedports=4,7
```

The following command uses Syntax 1 to delete tagged Port 3 from a VLAN called Production:

```
delete vlan name=production port=3 frame=tagged
```

The following command does the same thing using Syntax 2:

```
delete vlan name=production untaggedports=3
```

To delete both tagged and untagged ports from a VLAN using Syntax 1 takes two commands. For example, if you had a VLAN called Service and you wanted to delete tagged Port 5 and untagged Ports 10 to 12, the commands would be:

```
delete vlan name=Service ports=5 frame=tagged
delete vlan name=Service ports=10-12
frame=untagged
```

Using Syntax 2, you can do the whole thing with just one command:

```
delete vlan name=Service untaggedports=10-12
taggedports=5
```

DESTROY VLAN

Syntax

```
destroy vlan=name|vid
```

Parameter

vlan	Specifies the name or VID of the VLAN to be deleted.

Description

This command deletes a VLAN from a switch. All untagged ports in a deleted VLAN are automatically returned to the Default_VLAN.

You cannot delete the Default_VLAN.

Examples

The following command deletes the VLAN Sales from the switch:

```
destroy vlan=sales
```

The following command deletes a VLAN with a VID of 2001 from the switch:

```
destroy vlan=2001
```

RESET VLAN

Syntax

```
reset vlan
```

Parameters

none

Description

This command deletes all port-based and tagged VLANs on a switch, except for the Default_VLAN. All ports are returned to the Default_VLAN as untagged ports.

Example

The following command deletes VLANs on a switch:

```
reset vlan
```

SET SWITCH VLANMODE

Syntax

```
set switch vlanmode=tagged|basic
```

Parameters

vlanmode — Specifies the switch's VLAN mode. Specifying TAGGED means the switch will support tagged and untagged VLANs. Specifying BASIC means the switch will support the Basic VLAN mode. The default is tagged and untagged VLANs. Only one mode can be active on a switch at a time.

Description

This command configures a switch to support either port-based and tagged VLANs or the Basic VLAN mode.

Note
This command performs exactly the same function as the SET SWITCH VLANSTATUS command.

Example

The following command configures the switch to support the Basic VLAN mode:

```
set switch vlanmode=basic
```

SET SWITCH VLANSTATUS

Syntax

```
set switch vlanstatus=enabled|disabled
```

Parameters

vlanstatus	Specifies the switch's VLAN mode. Specifying ENABLED means the switch will support tagged and untagged VLANs. Specifying DISABLED means the switch will support the Basic VLAN mode. The default is tagged and untagged VLANs. Only one mode can be active on a switch at a time.

Description

This command configures a switch to support either port-based and tagged VLANs or the Basic VLAN mode.

Note
This command performs exactly the same function as the SET SWITCH VLANMODE command.

Example

The following command configures the switch to support the Basic VLAN mode:

```
set switch vlanstatus=disabled
```

SET SWITCH INFILTERING

Syntax

```
set switch infiltering=on|off
```

Parameter

infiltering — Specifies the status of ingress filtering. Options are:

- on — Ingress filtering is activated.
- off — Ingress filtering is deactivated.

Description

This command controls the status of ingress filtering. When ingress filtering is activated, which is the default, tagged frames are filtered when they are received on a port. When ingress filtering is deactivated, tagged frames are filtered before they are transmitted out a port.

Example

The following command deactivates ingress filtering:

```
set switch infiltering=off
```

Chapter 14
MAC Address Table Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

SHOW SWITCH FDB

Syntax

```
show switch fdb [address=macaddress] [port=port]
[status=static|dynamic|multicast] [vlan=name|VID]
```

Parameters

address — Specifies a MAC address. Use this parameter to determine the port on the switch on which a particular MAC address was learned (dynamic) or assigned (static). The address can be entered in either of the following formats:

xxxxxxxxxxxx or xx:xx:xx:xx:xx:xx

port — Specifies a port on the switch. Use this parameter to view all the addresses learned on a particular port on the switch. You can specify only one port.

status — Specifies the type of MAC addresses you want to view. Choices are static, dynamic, and multicast.

vlan — Specifies a VLAN. Use this parameter to view the MAC addresses learned on the ports of a particular VLAN on the switch. The VLAN can be identified by name or VID.

Note
You can specify only one parameter at a time with this command.

Description

This command displays the dynamic, static, and multicast MAC addresses stored in a switch's MAC address table.

Examples

The following command displays all MAC addresses in the switch's MAC address table:

```
show switch fdb
```

The following command displays just the multicast addresses:

```
show switch fdb status=multicast
```

The following command displays the port number on which the MAC address 00:A0:D2:18:1A:11 was learned (dynamic) or added (static):

```
show switch fdb address=00A0D2181A11
```

The following command displays the MAC addresses learned on Port 11:

```
show switch fdb port=11
```

The following command displays the MAC addresses learned on the ports in the Sales VLAN:

```
show switch fdb vlan=sales
```

ADD SWITCH FDB

Syntax

```
add switch fdb macaddress=macaddress port=port
```

Parameters

macaddress	Specifies the static or multicast address to the added to the switch's MAC address table. The address can be entered in either of the following formats: xxxxxxxxxxxx or xx:xx:xx:xx:xx:xx
port	Specifies the port to which the MAC address is to be assigned. You can specify only one port.

Description

This command adds static and multicast MAC addresses to the switch's MAC address table. A MAC address added with this command is never timed out from the MAC address table, even when the end node, or in the case of a multicast address, the multicast application is inactive.

Examples

The following command adds the static MAC address 00:A0:D2:18:1A:11 to Port 7:

```
add switch fdb macaddress=00A0D2181A11 port=7
```

The following command adds the multicast MAC address 01:00:51:00:00 10 to Port 9:

```
add switch fdb macaddress=010051000010 port=9
```

DELETE SWITCH FDB

Syntax

```
delete switch fdb macaddress=macaddress
[vlan=name|VID]
```

Parameters

address — Specifies the dynamic, static, or multicast MAC address to delete from the MAC address table. The address can be entered in either of the following formats:

xxxxxxxxxxxx or xx:xx:xx:xx:xx:xx

vlan — Specifies the VLAN containing the port where the address was learned or assigned. The VLAN can be specified by name or VID. This parameter is optional.

Description

This command deletes dynamic, static, and multicast addresses from the switch's MAC address table.

Examples

The following command deletes the static MAC address 00:A0:D2:18:1A:11 from the table:

```
delete switch fdb macaddress=00A0D2181A11
```

The following command deletes the multicast MAC address 01:00:51:00:00:11 from the table:

```
delete switch fdb macaddress=010051000011
```

SET SWITCH AGINGTIMER

Syntax

```
set switch agingtimer=value
```

Parameter

agingtimer	Specifies the aging timer for the MAC address table. The value is in seconds. The range is 1 to 1048575. The default is 300 seconds (5 minutes).

Description

The switch uses the aging time to delete inactive dynamic MAC addresses from the MAC address table. When the switch detects that no packets have been sent to or received from a particular MAC address in the table after the period specified by the aging time, the switch deletes the address. This prevents the table from becoming full of addresses of nodes that are no longer active.

Example

The following command sets the aging timer to 120 seconds (2 minutes):

```
set switch agingtimer=120
```

Chapter 15
IGMP Snooping Commands

Note
For background information on IGMP snooping, refer to the **AT-S39 User's Guide**.

Note
Remember to use the SAVE CONFIGURATION command to save your changes on the switch.

SET IP IGMP

Syntax

```
set ip igmp [snoopingstatus=enabled|disabled]
[hoststatus=singlehost|multihost]
[timeout=timeout] [numbermulticastgroups=number]
[routerport=portnumber|auto]
```

Parameters

snoopingstatus	Activates and deactivates IGMP snooping on the switch. Possible settings are: enabled — Activates IGMP snooping. disabled — Deactivates IGMP snooping. This is the default setting
hoststatus	Specifies the IGMP host node topology. Options are: singlehost — Activates the Single-Host/Port setting, which is appropriate when there is only one host node connected to a port on the switch. This is the default setting. multihost — Activates the Multi-Host setting, which is appropriate if there is more than one host node connected to a switch port.
timeout	Specifies the time period in seconds used by the switch in determining inactive host nodes. An inactive host node is a node that has not sent an IGMP reports during the specified time interval. The range is 1 to 86,400 seconds (24 hours). The default is 260 seconds.
numbermulticastgroups	Specifies the maximum number of multicast addresses the switch will learn. This parameter is useful with networks that contain a large number of multicast groups. You can use the parameter to prevent the switch's MAC address table

	from filling up with multicast addresses, leaving no room for dynamic or static MAC addresses. The range is 1 to 2048 addresses. The default is 256 addresses.
routerport	Specifies the port(s) on the switch connected to a multicast router. Specifying AUTO activates auto-detect, where the switch automatically determines the ports with multicast routers. Auto-detect is the default setting.

Description

This command configures the IGMP snooping parameters.

Example

The following command activates IGMP snooping, sets the IGMP topology to Multi-Host, and sets the timeout value to 120 seconds:

```
set ip igmp snoopingstatus=enabled
hoststatus=multihost timeout=120
```

SHOW IP IGMP

Syntax

```
show ip igmp [hostlist|routerlist]
```

Parameters

hostlist	Displays a list of the multicast groups learned by the switch, as well as the ports on the switch that are connected to host nodes.
routerlist	Displays the ports on the switch that are connected to multicast routers.

Description

Displays the IGMP parameter settings. This command can also display a list of host nodes as well as a list of switch ports connected to multicast routers.

> **Note**
> For instructions on how to set the IGMP parameters, refer to the SET IGMP command.

Examples

The following command displays the current IGMP parameter settings:

```
show ip igmp
```

The following command displays a list of host nodes:

```
show ip igmp hostlist
```

Chapter 16
Broadcast Frame Control Command

Note
Remember to save your changes with the SAVE CONFIGURATION command.

Note
For background information on broadcast frame control, refer to the **AT-S39 User's Guide**.

SET SWITCH BROADCAST

Syntax

```
set switch broadcast timer10_100mbps=integer
timer1000mbps=integer
```

Parameters

timer10_100mbps	Specifies the broadcast timer interval for ports operating at 10 Mbps and 100 Mbps. The range is 10 to 120 milliseconds with a default of 10 milliseconds.
timer1000mbps	Specifies the length of time, in microseconds, for ports operating at 1000 Mbps. The range is 100 to 12,000 microseconds with a default of 100 microseconds.

Description

This command specifies the broadcast interval timer which defines the time period used in counting the number of forwarded broadcast frames on a port. There are two interval timers. One timer is for ports operating at 10 Mbps and 100 Mbps. The second timer is for 1000 Mbps ports. The timer interval for 10 and 100 Mbps ports is measured in milliseconds. The timer interval for 1000 Mbps ports is measured in microseconds. A time interval setting applies to all ports operating at the corresponding speed on the switch.

Both timers round down your input. For the timer interval for 10 and 100 Mbps ports, values you enter are rounded down to the nearest multiple of 10. For the 1000 Mbps timer, values you enter are rounded down to the nearest multiple of 100 microseconds.

Note
The 1000 Mbps speed applies only to GBIC modules in an AT-8024GB switch and expansion modules in an AT-8024M or AT-8016F Series switch.

Note
To activate and deactivate broadcast control as well as set the maximum number of broadcast frames a port will transmit, refer to the SET SWITCH PORT command.

Examples

The following command sets a broadcast timer of 500 milliseconds for ports operating at 10 Mbps and 100 Mbps:

```
set switch broadcast timer10_100mbps=500
```

The following command sets a broadcast timer of 200 microseconds for ports operating at 1000 Mbps:

```
set switch broadcast timer1000mbps=200
```

Chapter 17
TACACS+ and RADIUS Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

DISABLE AUTHENTICATION

Syntax

```
disable authentication
```

Parameters

None.

Description

Use this command to disable TACACS+ and RADIUS authentication on your switch. When you disable authentication you retain your current authentication parameter settings.

Example

The following command disables TACACS+ and RADIUS authentication on your switch:

```
disable authentication
```

ENABLE AUTHENTICATION

Syntax

```
enable authentication
```

Parameters

None.

Description

Use this parameter to enable TACACS+ and RADIUS authentication on your switch.

Example

The following command enables authentication on your switch:

```
enable authentication
```

RESET AUTHENTICATION

Syntax

```
reset authentication
```

Parameter

None.

Description

This command disables authentication. When you reset authentication, you retain your current command settings, including server IP addresses and encryption keys (both local and global). This command performs the same function as the DISABLE AUTHENTICATION command.

Example

The following command resets authentication on your switch:

```
reset authentication
```

SET AUTHENTICATION

Syntax

```
set authentication method=[tacacs|radius]
[secret=string] [timeout=integer]
```

Parameter

method	Specify either the TACACS+ or RADIUS protocol to run on your switch.
secret	Specify the global encryption key that is used for all of your TACACS+ or RADIUS servers. If the servers use different encryption keys, you can leave this parameter blank and set individual encryption keys with the ADD TACACSSERVER or ADD RADIUSSERVER commands.
timeout	Specifies the maximum amount of time the switch waits for a response from either the TACACS+ or RADIUS server before the switch assumes the server cannot respond. If the timeout expires and the server has not responded, the switch queries the next server in the list. Once the switch has exhausted the list of servers or if there isn't a list of servers, the switch defaults to the standard Manager and Operator accounts. The default is 30 seconds. The range is 1 to 300 seconds.

Description

Use this command to select the authentication protocol. You may specify a global encryption code and the maximum number of seconds the switch waits for a response from either the TACACS+ or RADIUS server.

Examples

The following command selects TACACS+ as the authentication protocol on your switch:

```
set authentication method=tacacs
```

The following command selects TACACS+ as the authentication protocol with a global encryption key of tiger54:

```
set authentication method=tacacs secret=tiger54
```

The following command selects RADIUS as the authentication protocol with a global encryption key of leopard09 and a timeout of 15 seconds:

```
set authentication method=radius secret=leopard09
timeout=15
```

SHOW AUTHENTICATION

Syntax

```
show authentication
```

Parameters

None.

Description

Use this command to display the following information about the authenticated protocols on the switch:

- The status of your authenticated protocol: enabled or disabled.
- The authentication protocol activated on your switch. Either TACACS+ or RADIUS protocols may be active. The TACACS+ protocol is the default.
- The IP addresses of up to 3 authentication servers.
- The encryption key for each individual server, if defined.
- The global encryption code that applies to all authentication servers.
- The length of the time, in seconds, before the switch assumes the server cannot respond.

Example

The following command displays authentication protocol information on your switch:

```
show authentication
```

ADD TACACSSERVER

Syntax

```
add tacacsserver ipaddress=ipaddress
order=integer [secret=string]
```

Parameters

ipaddress	Specifies an IP address of a TACACS+ server.
order	Specifies the order that your TACACS+ server is queried by the switch. You can assign order to up to 3 servers with 1 being the first server queried.
secret	Specifies the optional encryption key used on this server.

Description

Use this command to add the IP address of a TACACS+ server to your switch along with order the TACACS+ server is queried and an optional encryption key.

Examples

The following command adds a TACACS+ server with an IP address 149.245.22.20 and an order value of 1:

```
add tacacsserver ipaddress=149.245.22.20 order=1
```

The following command adds a TACACS+ server with an IP address of 149.245.22.24, an order of 2, and lioness54 as the encryption code.

```
add tacacsserver ipaddress=149.245.22.24 order=2
secret=lioness54
```

The following command adds a TACACS+ server with an IP address 149.245.22.26 and specifies that this TACACS+ server is the third TACACS+ server queried by the switch.

```
add tacacsserver ipaddress=149.245.22.26 order=3
```

DELETE TACACSSERVER

Syntax

```
delete tacacsserver ipaddress=ipaddress
```

Parameters

ipaddress Specifies the IP address of the TACACS+ server that you want to delete.

Description

Use this command to delete the IP address of a TACACS+ server from your switch.

Example

The following command deletes the TACACS+ server with the IP address of 149.245.22.20:

```
delete tacacsserver ipaddress=149.245.22.20
```

ADD RADIUSSERVER

Syntax

```
add radiusserver ipaddress=ipaddress
order=integer [secret=string] [port=integer]
```

Parameters

ipaddress	Specifies an IP address of a RADIUS server.
order	Specifies the order that your RADIUS server is queried by the switch. You can assign order to up to 3 servers with 1 being the first server queried.
secret	Specifies the encryption key used for this server.
port	Specifies the UDP (User Datagram Protocol) port of the RADIUS server.

Description

Use this command to specify the IP address of a RADIUS server and the order it is queried by the switch. You may specify an encryption key and a UDP port.

Examples

The following command adds a RADIUS server with the 149.245.22.22 IP address and specifies it is the first server in the list.

```
add radiusserver ipaddress=149.245.22.22 order=1
```

The following command adds the RADIUS server with the 149.245.22.22 IP address. In addition, it specifies your server is the third RADIUS server to be queried by the switch and it has a UDP port of 3.

```
add radiusserver ipaddress=149.245.22.22 order=2
port=3
```

The following command adds a RADIUS server with an IP address of 149.245.22.22. In addition, it specifies the order is 2, the encryption key is tiger74, and the UDP port is 1.

```
add radiusserver ipaddress=149.245.22.22 order=2
secret=tiger74 port=1
```

DELETE RADIUSSERVER

Syntax

```
delete radiusserver ipaddress=ipaddress
```

Parameters

ipaddress	Specifies the IP address of your RADIUS server to be deleted.

Description

Use this command to delete a RADIUS server with the specified IP address from your switch.

Example

The following command deletes the RADIUS server with the IP address 149.245.22.22:

```
delete radiusserver ipaddress=149.245.22.22
```

Chapter 18
Statistics Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

SHOW SWITCH COUNTER

Syntax

```
show switch counter
```

Parameters

None.

Description

This command displays switch operating statistics, such as the number of packets received and transmitted, and the number of CRC errors. For definitions of the statistics, refer to the **AT-S39 User's Guide**.

Example

The following command displays switch operating statistics:

```
show switch counter
```

SHOW SWITCH PORT COUNTER

Syntax

```
show switch port=port counter
```

Parameters

port	Specifies the port whose statistics you want to view. You can view more than one port at a time. The ports can be specified individually (e.g., 1,2,5,8), as a range (e.g., 2-5), or both (e.g., 11-13,18). To view all ports, do not specify a port.

Description

This command displays the operating statistics for a port on the switch. Examples of the statistics include the number of packets transmitted and received, and the number of CRC errors. For definitions of the statistics, refer to the **AT-S39 User's Guide**.

Examples

The following command displays the operating statistics for Port 4:

```
show switch port=4 counter
```

The following command displays the operating statistics for all ports:

```
show switch port counter
```

RESET SWITCH COUNTER

Syntax

```
reset switch counter
```

Parameters

None.

Description

This command returns all statistic counters on the switch to zero (0).

Example

The following command resets the statistic counters:

```
reset switch counter
```

RESET SWITCH PORT COUNTER

Syntax

```
reset switch port=port|all counter
```

Parameters

port	Specifies the port whose statistics counter you want to return to zero. You can specify more than one port at a time. The ports can be specified individually (e.g., 1,2,5,8), as a range (e.g., 2-5), or both (e.g., 11-13,18). To specify all ports, use ALL.

Description

This command returns the statistics counter for a port to zero.

Example

The following command returns the counters on Ports 4 and 5 to zero.

```
reset switch port=4,5 counter
```

Chapter 19
Download and Upload Commands

Note
Remember to save your changes with the SAVE CONFIGURATION command.

Note
For background information on downloading and uploading software images and configuration files, refer to the **AT-S39 User's Guide**.

LOAD

Syntax

```
load method=tftp|xmodem|remoteswitch
type=image|config|bootloader
switchnumber=switches
```

Parameters

method	Specifies the method of the download. Options are:	
	tftp	Indicates that the download will be performed using TFTP. To use this option, you must have TFTP server software on a network node. The file to download onto the switch must be stored on the TFTP server.
	xmodem	Indicates that the download will be from the management workstation to the switch via a local management session. This option can be used only to upgrade the switch on which the management station is connected. You cannot use this option to upgrade other switches in an enhanced stack.
	remoteswitch	Indicates that the download will be from a master switch to other switches in an enhanced stack. This option must be used with the SWITCHNUMBER option. (The REMOTESWITCH option can only be used from a master switch.)

type	Specifies the file to be downloaded. Options are:	
	image	Downloads both the AT-S39 software image and bootloader.
	config	Downloads a configuration file.
	bootloader	Downloads just the bootloader.
	You can specify only one file type at a time.	
switchnumber	Specifies the switch in an enhanced stack to which you want to download a new version of AT-S39 software or a configuration file. This option, which must be used with the METHOD=REMOTESWITCH option, instructs the master switch to download its AT-S39 software or configuration file onto the specified switch. Switch numbers are displayed with the SHOW REMOTELIST command. You can specify more than one switch at a time (e.g., 1,3,4).	

Description

This command is used to download a new version of the AT-S39 software image or a configuration file onto an AT-8000 Series switch. This command can download files as follows:

- From a management workstation to a switch via a local management session
- From a master switch to other switches in an enhanced stack

Note
For instructions on how to obtain new AT-S39 software images, refer to **Management Software Updates** on page 11.

Before downloading files, note the following:

- This command can only be performed from a local management session. This command is not available from a Telnet or web browser management session.
- All switch models in the AT-8000 Series use the same AT-S39 software image.
- If you are downloading files switch-to-switch, you should always use the SHOW REMOTELIST command first to determine the switch numbers. (This also allows the management software to determine which remote switches are in the enhanced stack.)

- A switch running AT-S39 Version 1.4 or earlier must first be ungraded to Version 1.4.1 or 1.4.2 before you can install a new AT-S39 image.
- In networks consisting of several AT-8000 switches, you can simplify an upgrade procedure by first upgrading a master switch to the latest software version via a local management session and then downloading the new software switch-to-switch from the master switch to the slave switches, provided that the slave switches are running Version 1.4.1 or later.
- The image file and bootloader were offered as two separate files in several earlier software versions. In this version, the two files are combined into one file.
- It is not recommended that you download the bootloader by itself. If the bootloader on a switch needs to be updated, you should download the entire AT-S39 software image.
- A configuration file cannot be edited with a text editor or word processor.

Caution
Once an AT-S39 image file has been downloaded onto a switch, the unit must initialize the software, a process that can take from 4 to 5 minutes to complete. The Fault light on the front of the switch will be ON during part of the process. The initialization process is complete when the Fault light goes OFF. Do not interrupt the initialization process by resetting or power cycling the switch.

Examples

The following command downloads a new AT-S39 software image from the management workstation to the switch:

```
load method=xmodem type=image
```

After you have entered the command, the management software will display a confirmation prompt followed by another prompt instructing you to begin the file transfer. To begin the transfer, use your terminal emulation program to specify the location of the AT-S39 software image file stored on your workstation.

The following command downloads a new AT-S39 configuration from the management workstation to the switch:

```
load method=xmodem type=config
```

After entering this command, you must specify the location of the AT-S39 configuration file stored on your workstation using your terminal emulation program.

The following command downloads the AT-S39 image file on the master switch to switches 1 and 4 in an enhanced stack. (Switch numbers are displayed using the SHOW REMOTELIST command.)

```
load method=remoteswitch type=image
switchnumber=1,4
```

The following command downloads the AT-S39 configuration file on the master switch to switch 2 in an enhanced stack.

```
load method=remoteswitch type=config
switchnumber=2
```

The following command downloads a configuration file using TFTP:

```
load method=tftp type=config
```

You are prompted for the IP address of the TFTP server and the name of the file to download.

UPLOAD

Syntax

```
upload method=tftp|xmodem type=image|config
```

method — Specifies the method of the upload. Only one option is available:

- tftp — Indicates that the upload will be performed using TFTP. To use this option, you must have TFTP server software on a network node.
- xmodem — Indicates that the upload will be from the switch to the management workstation.

type — Specifies the file to be uploaded. Options are:

- image — Uploads both the AT-S39 software image and bootloader.
- config — Uploads the switch's configuration file.

You can specify only one file at a time.

Description

This command is used to upload the AT-S39 software image and bootloader from a switch to a management workstation. This command can also be used to upload a switch's configuration file to a management workstation.

Before uploading files, note the following:

- ❑ This command can only be performed from a local management session. This command is not available from a Telnet or web browser management session.
- ❑ A configuration file cannot be edited with a text editor or word processor.

Examples

The following command uploads the switch's configuration file to the management workstation:

```
upload method=xmodem type=config
```

After entering the command, use your terminal emulator program to indicate where you want to store the file on your workstation and the filename.

The following command uploads the switch's AT-S39 image to the management workstation:

```
upload method=xmodem type=image
```

The following command uploads a switch's configuration file using TFTP:

```
upload method=tftp type=config
```

You are prompted for the IP address of the TFTP server.

ENABLE TFTPSERVER

Syntax

```
enable tftpserver
```

Parameters

None.

Description

This command activates the TFTP server software on the switch. When TFTP is enabled, you can upload and download files switch-to-switch. The default setting is enabled.

Example

The following command activates the TFTP server software:

```
enable tftpserver
```

DISABLE TFTPSERVER

Syntax

```
disable tftpserver
```

Parameters

None.

Description

This command disables the TFTP server software on the switch. When TFTP is disabled, you cannot upload or download files switch-to-switch. The default setting is enabled.

Example

The following command disables the TFTP server software:

```
disable tftpserver
```

SHOW TFTPSERVER

Syntax

```
show tftpserver
```

Parameters

None.

Description

This command displays the status of the TFTP server software on the switch. The status will be enabled or disabled.

Example

The following command displays the status of the TFTP server software:

```
show tftpserver
```

Chapter 20
Command Reference

Basic Command Line Commands

SAVE CONFIGURATION

```
save configuration
```

Saves your changes to the switch's flash memory for permanent storage.

SET PROMPT

```
set prompt=prompt
```

Changes the command line prompt.

CLEAR SCREEN

```
clear screen
```

Clears the screen.

MENU

```
menu
```

Displays the AT-S39 Main Menu.

SET SWITCH CONSOLEMODE

```
set switch consolemode=cli|menu
```

Specifies whether management sessions are to start with the command line interface or with the AT-S39 Main Menu.

LOGOFF and QUIT

```
logoff
quit
```

Ends a management session.

Basic Switch Commands

SHOW IP

```
show ip interface=1
```

Displays the IP address, subnet mask, and default gateway.

SET IP

```
set ip interface=1 ipaddress=IPaddress|DHCP
netmask=subnetmask
```

Configures the IP address and subnet mask, and activates and deactivates DHCP and BOOTP.

SHOW IP ROUTE

```
show ip route
```

Displays the switch's default gateway address.

SET IP ROUTE

```
set ip route ipaddress=ipaddress
```

Specifies the IP address of the default gateway for the switch.

RESET IP

```
reset ip interface=1
```

Returns a switch's IP address, subnet mask, and gateway address to the default values.

PURGE IP

```
purge ip [ipaddress] [netmask] [route]
```

Returns a switch's IP address, subnet mask, or default gateway address to its default value.

SHOW SYSTEM

```
show system
```

Displays a switch's name, the name of the network administrator responsible for managing the unit, and the location of the unit.

SET SYSTEM

```
set system [name="name"] [contact="contact"]
[location="location"]
```

Sets a switch's name, the name of the network administrator responsible for managing the unit, and the location of the unit.

RESET SYSTEM

```
reset system [name] [contact] [location]
```

Deletes a switch's name, the name of the network administrator responsible for managing the unit, and the location of the unit.

SHOW DHCPBOOTP

```
show dhcpbootp
```

Displays the status of DHCP and BOOTP on the switch.

ENABLE DHCPBOOTP

```
enable dhcpbootp
```

Activates DHCP and BOOTP on the switch.

DISABLE DHCPBOOTP

```
disable dhcpbootp
```

Deactivates DHCP and BOOTP on the switch.

SHOW SWITCH

```
show switch
```

Displays a variety of switch information, including the MAC aging time, console timer, broadcast timers, and VLAN mode.

RESTART SWITCH

```
restart switch
```

Resets the switch.

RESTART REBOOT

```
restart reboot
```

Returns the switch's operating parameters to the default settings.

SHOW CONFIG

```
show config
```

Displays overall information on the switch and the ports.

PING

```
ping ipaddress
```

Instructs the switch to ping an end node.

Enhanced Stacking Commands

SET SWITCH STACKMODE

```
set switch stackmode=master|slave|unavailable
```

Sets a switch's stacking status.

SHOW REMOTELIST

```
show remotelist [sorted by=macaddress|name]
```

Displays a lists of all the switches of an enhanced stack.

ACCESS SWITCH

```
access switch number=number|macaddress=macaddress
```

Start a management session on another switch in an enhanced stack.

EXIT

```
exit
```

Ends a management session and returns you back to the master switch from which you started the session or, if you enter this command from a master switch, exits you from the command line prompt and displays the AT-S39 Main Menu.

SNMP Community Strings and Trap Commands

SHOW SNMP

```
show snmp
```

Displays the community strings for SNMP Read and Write access on the switch.

DESTROY SNMP COMMUNITY

```
destroy snmp community=community
```

Deletes the Read or Write community string from the switch.

CREATE SNMP COMMUNITY

```
create snmp community=community access=read|write
```

Creates a new Read or Write community string on the switch.

SET SNMP COMMUNITY

```
set snmp community=community access=read|write
```

Activates a new Read or Write community string on the switch.

RESET SNMP

```
reset snmp
```

Returns the SNMP community strings to the default values, disables SNMP access, and deletes the IP addresses of management workstations that were receiving traps from the switch.

ADD SNMP COMMUNITY TRAPHOST

```
add snmp community=community traphost=ipaddress
```

Specifies the IP addresses of a management workstation you want to receive management traps from the switch.

DELETE SNMP COMMUNITY TRAPHOST

```
delete snmp community=community
traphost=ipaddress
```

Deletes the IP address of a management workstation you no longer want to receive traps from the switch.

Management Security Commands

SET PASSWORD MANAGER

```
set password manager
```

Sets the manager's password.

SET PASSWORD OPERATOR

```
set password operator
```

Sets the operator's password.

SHOW HTTP SERVER

```
show http server
```

Displays the status of the HTTP server on the switch.

ENABLE HTTP SERVER

```
enable http server
```

Enables the HTTP server on the switch so that the device can be managed from a web browser.

DISABLE HTTP SERVER

```
disable http server
```

Disables the HTTP server on the switch so that the device cannot be managed from a web browser.

ENABLE SNMP

```
enable snmp
```

Enables SNMP on the switch so that the device can be managed from a SNMP application program.

DISABLE SNMP

```
disable snmp
```

Disables SNMP on the switch so that the device cannot be managed from a SNMP application program.

SET SWITCH CONSOLETIMER

```
set switch consoletimer=value
```

Sets the console timer.

Port Parameter Commands

SHOW SWITCH PORT

```
show switch port=port
```

Displays a port's operating parameters, such as speed and duplex mode.

SET SWITCH PORT

```
set switch port=port|all
[status=forwarding|disabled]
[flowcontrol=none|transmit|recieve|both]
[bclimit=broadcastlimit]
[mdimode=mdi|mdix|auto]
[mirror=yes|no|all|none] [renegotiation=auto]
[softreset=yes|no]
[speed=autonegotiate|10mhalf|10mfull|10mhauto|
10mfauto|100mhalf|100mfull|100mhauto|100mfauto|
1000mfull|1000mfauto] [PVID=pvid]
[priority=priority] [overridepriority=yes|no]
```

Sets a port's operating parameters. (You can set only one port operating parameter at a time with this command.)

RESET SWITCH PORT

```
reset switch port=port
```

Resets a port.

Port Security Commands

SET SWITCH SECURITYMODE

```
set switch
securitymode=automatic|limited|secure|locked
```

Sets the port security mode.

SET SWITCH THRESHOLD

```
set switch threshold=threshold port=ports|all
```

Sets the maximum number of dynamic MAC addresses a port can learn when the switch is operating in the Limited security mode.

SHOW SWITCH THRESHOLD

```
show switch threshold
```

Displays the threshold limit for each port when the switch is operating in the Limited security mode.

Port Trunking Commands

SHOW SWITCH TRUNK

```
show switch trunk
```

Displays the ports of a port trunk and the load distribution method.

CREATE SWITCH TRUNK

```
create switch trunk=name port=ports
[select=macsrc|macdest|macboth]
```

Creates a port trunk.

ADD SWITCH TRUNK

```
add switch trunk=name port=ports
```

Add one or more ports to an existing port trunk.

DELETE SWITCH TRUNK

```
delete switch trunk=name port=ports
```

Removes ports from a port trunk.

DESTROY SWITCH TRUNK

```
destroy switch trunk=name
```

Deletes a port trunk from a switch.

Port Mirroring Commands

CREATE SWITCH MIRROR

```
create switch mirror destport=destinationport
srcport=sourceport
```

Creates a port mirror.

ADD SWITCH MIRROR

```
add switch mirror srcport=port
```

Adds a source port(s) to an existing port mirror.

DELETE SWITCH MIRROR

```
delete switch mirror srcport=port
```

Removes a source port(s) from a port mirror.

SET SWITCH MIRROR

```
set switch mirror=port
```

Specifies a new destination port of an existing port mirror.

DESTROY SWITCH MIRROR

```
destroy switch mirror
```

Deletes a port mirror, making it possible to connect the destination (mirror) port to an end node for normal network operations.

Spanning Tree Protocol Commands

SHOW STP

```
show stp [port=port]
```

Displays the STP parameter settings.

ACTIVATE STP

```
activate stp [port=port]
```

Designates STP as the active spanning tree.

ENABLE STP

```
enable stp
```

Activates STP on the switch.

DISABLE STP

```
disable stp
```

Deactivates STP on the switch.

SET STP

```
set stp [default] [priority=priority]
[hellotime=hellotime] [forwarddelay=forwarddelay]
[maxage=maxage] [status=enabled|disabled]
```

Activate and deactivates STP on the switch and sets the STP parameter settings.

SET STP PORT

```
set stp [port=port|all] [default]
[pathcost=pathcost] [portpriority=portpriority]
[status=enabled|disabled]
```

Sets the port STP parameter settings.

RESET STP

```
reset stp
```

Disables STP and returns all bridge and port parameters to the default settings.

Rapid Reconfiguration Spanning Tree Commands

SHOW RSTP

```
show rstp [portconfig=ports|portstate=port]
```

Displays the RSTP parameter settings.

ACTIVATE RSTP

```
activate rstp
```

Designates RSTP as the active spanning tree on the switch.

DISABLE RSTP

```
disable rstp
```

Deactivates RSTP on the switch.

ENABLE RSTP

```
enable rstp
```

Enables RSTP on the switch.

RESET RSTP

```
reset rstp
```

Returns all bridge and port RSTP parameters to the default settings.

SET RSTP

```
set rstp [default] [priority=priority]
[hellotime=hellotime] [forwarddelay=forwarddelay]
[maxage=maxage]
[forceversion=forcestpcompatible|normalrstp]
```

Activate and deactivates RSTP on the switch and sets the RSTP parameter settings.

SET RSTP PORT

```
set rstp [port=port|all] [default]
[pathcost=pathcost] [portpriority=portpriority]
[edgeport=yes|no]
[pointtopoint=yes|no|autoupdate]
[migrationcheck=yes|no]
```

Sets a port's RSTP parameter settings.

VLAN Commands

SHOW VLAN

```
show vlan
```

Displays all the VLANs on a switch.

CREATE VLAN

Syntax 1

```
create vlan=name vid=vid ports=ports|ALL
frame=untagged|tagged [mirrorport=mirrorport]
```

Syntax 2

```
create vlan=name vid=vid
taggedports=taggedports|ALL
untaggedports=untaggedports|ALL
[mirrorport=mirrorport]
```

Creates a port-based or tagged VLAN.

ADD VLAN

Syntax 1

```
add vlan=name [vid=vid] ports=ports
frame=untagged|tagged [mirrorport=mirrorport]
```

Syntax 2

```
add vlan=name [vid=vid] taggedports=taggedports
untaggedports=untaggedports
[mirrorport=mirrorport]
```

Adds tagged and untagged ports to an existing VLAN.

DELETE VLAN

Syntax 1

```
delete vlan=name [vid=vid] ports=ports
frame=untagged|tagged [mirrorport=mirrorport]
```

Syntax 2

```
delete vlan=name [vid=vid]
taggedports=taggedports
untaggedports=untaggedports
[mirrorport=mirrorport]
```

Removes tagged and untagged ports from a VLAN.

DESTROY VLAN

```
destroy vlan=name [vid=vid]
```

Deletes a VLAN from a switch.

RESET VLAN

```
reset vlan
```

Deletes all port-based and tagged VLANs on a switch, except for the Default_VLAN.

SET SWITCH VLANMODE

```
set switch vlanmode=tagged|basic
```

Configures a switch to support either port-based and tagged VLANs or the Basic VLAN mode.

SET SWITCH VLANSTATUS

```
set switch vlanstatus=enabled|disabled
```

Configures a switch to support either port-based and tagged VLANs or the Basic VLAN mode.

SET SWITCH INFILTERING

```
set switch infiltering=on|off
```

Activates and deactivates ingress filtering.

MAC Address Table Commands

SHOW SWITCH FDB

```
show switch fdb [address=macaddress] [port=port]
[status=static|dynamic|multicast] [vlan=name|VID]
```

Displays the dynamic, static, and multicast MAC addresses stored in a switch's MAC address table.

ADD SWITCH FDB

```
add switch fdb macaddress=macaddress port=port
```

Adds static and multicast MAC addresses to the switch's MAC address table.

DELETE SWITCH FDB

```
show switch fdb macaddress=macaddress [port=port]
[vlan=name|VID]
```

Deletes dynamic, static, and multicast addresses from the switch's MAC address table.

SET SWITCH AGINGTIMER

set switch agingtimer=*value*

Specifies the aging timer for the MAC address table.

IGMP Snooping Commands

SET IP IGMP

```
set ip igmp [snoopingstatus=enabled|disabled]
[hoststatus=singlehost|multihost]
[timeout=timeout] [numbermulticastgroups=number]
[routerport=portnumber|auto]
```

Configures the IGMP snooping parameters.

SHOW IP IGMP

```
show ip igmp [hostlist|routerlist]
```

Displays the IGMP parameter settings, host nodes, and multicast router ports.

Broadcast Frame Control Command

SET SWITCH BROADCAST

```
set switch broadcast limit=limit
porttype=10Mbps|100Mbps|1000Mbps
```

Specifies the broadcast interval timer.

TACACS+ and RADIUS Commands

DISABLE AUTHENTICATON

```
disable authentication
```

Disables TACACS+ and RADIUS authentication on your switch.

ENABLE AUTHENTICATON

```
enable authentication
```

Enables TACACS+ and RADIUS authentication on your switch.

RESET AUTHENTICATON

```
reset authentication
```

Resets authentication on your TACACS+ and RADIUS switch.

SET AUTHENTICATON

```
set authentication method=[tacacs|radius]
[secret=string] [timeout=integer]
```

Selects the authentication protocol.

SHOW AUTHENTICATON

```
show authentication
```

Displays information about the authenticated protocols on the switch.

ADD TACACSSERVER

```
add tacacsserver ipaddress=ipaddress
order=integer [secret=string]
```

Adds the IP address of a TACACS+ server to your switch.

DELETE TACACSSERVER

```
delete tacacsserver ipaddress=ipaddress
```

Deletes the IP address of a TACACS+ server from your switch.

ADD RADIUSSERVER

```
add radiusserver ipaddress=ipaddress
order=integer [secret=string] [port=integer]
```

Adds the IP address of a RADIUS server to your switch.

DELETE RADIUSSERVER

```
delete radiusserver ipaddress=ipaddress
```

Deletes the IP address of a RADIUS server from your switch.

Statistics Commands

SHOW SWITCH COUNTER

```
show switch counter
```

Displays a switch's operating statistics, such as the number of packets received and transmitted, and the number of CRC errors.

SHOW SWITCH PORT COUNTER

```
show switch port=port counter
```

Displays the operating statistics for a port on the switch.

RESET SWITCH COUNTER

```
reset switch counter
```

Returns all statistics counters on the switch to zero (0).

RESET SWITCH PORT COUNTER

```
reset switch port=port|all counter
```

Returns the statistics counter for a port to zero.

Download and Upload Commands

LOAD

```
load method=xmodem|remoteswitch
type=image|config|bootloader
switchnumber=switches
```

Download a new version of the AT-S39 software image or a configuration file onto an AT-8000 Series switch.

UPLOAD

```
upload method=xmodem type=image|config
```

Uploads the AT-S39 software image or configuration file from a switch to a management workstation.

ENABLE TFTPSERVER

```
enable tftpserver
```

Activates the TFTP server software on the switch.

DISABLE TFTPSERVER

```
disable tftpserver
```

Disables the TFTP server software on the switch.

SHOW TFTPSERVER

```
show tftpserver
```

Displays the status of the TFTP server software.