



Configuring ATM Accounting and ATM RMON

This chapter describes the ATM accounting and Remote Monitoring (RMON) features used with the ATM switch router.



Note

This chapter provides advanced configuration instructions for the Catalyst 8540 MSR, Catalyst 8510 MSR, and LightStream 1010 ATM switch routers. For complete descriptions of the commands mentioned in this chapter, refer to the *ATM Switch Router Command Reference* publication.

This chapter includes the following sections:

- Configuring ATM Accounting on page 14-1
- Configuring ATM RMON on page 14-14



Note

The ATM accounting and ATM RMON features both require a minimum of 32 MB of dynamic random access memory (DRAM) installed on the multiservice route processor. If you want to run both ATM accounting and ATM RMON features together, you must have 64 MB of DRAM.

Configuring ATM Accounting

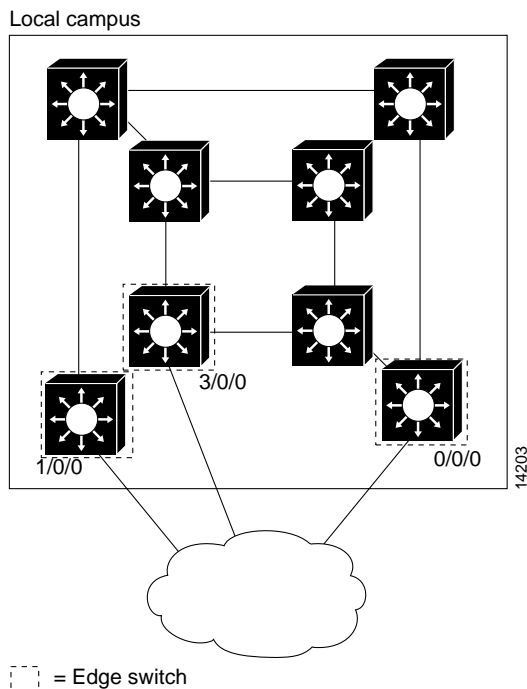
The following sections describe the process used to enable and configure the ATM accounting feature on the ATM switch router:

- ATM Accounting Overview on page 14-2
- Configuring Global ATM Accounting on page 14-3
- Enabling ATM Accounting on an Interface on page 14-4
- Configuring the ATM Accounting Selection Table on page 14-5
- Configuring ATM Accounting Files on page 14-7
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ATM Accounting Overview

The ATM accounting feature provides accounting and billing services for virtual circuits (VCs) used on the ATM switch router. You enable ATM accounting on an edge switch to monitor call setup and traffic activity. A specific interface can be configured to monitor either incoming or outgoing or incoming and outgoing VC use. Figure 14-1 shows a typical ATM accounting environment.

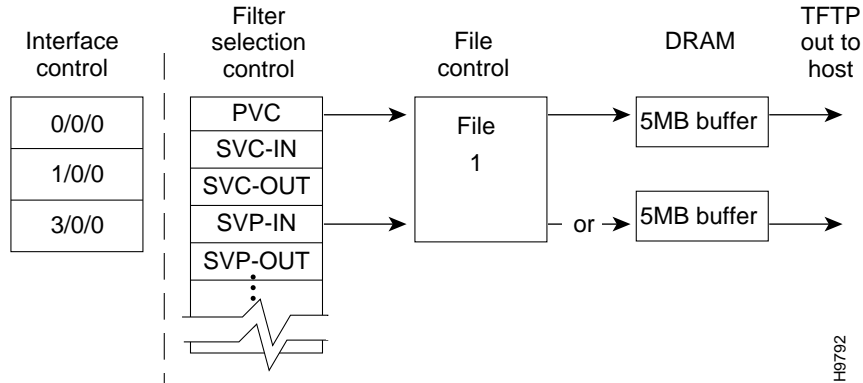
Figure 14-1 ATM Accounting Environment



The edge switches, connected to the exterior Internet, are connections that require monitoring for accounting and billing purposes.

Switching speeds and number of VCs supported by the ATM switch router while monitoring virtual circuit use for accounting purposes can cause the amount of data to be gathered to reach the megabyte range. With such a large amount of data in the ATM accounting files, using traditional Simple Network Management Protocol (SNMP) methods of data retrieval is not feasible. You can store the collected accounting information in a file that you can retrieve using a file transfer protocol. SNMP provides management control of the selection and collection of accounting data. Figure 14-2 shows an interface, filtering, and file configuration example.

Figure 14-2 Interface and File Management for ATM Accounting



A file used for data collection actually corresponds to two memory buffers on the multiservice route processor. One buffer is actively saving data, while the second is passive and ready to have its data either retrieved using Trivial File Transport Protocol (TFTP) or overwritten when the currently active file reaches its maximum capacity. Alternatively, the file can be written to a remotely connected PC over a TCP connection.

Configuring Global ATM Accounting

The ATM accounting feature must be enabled to start gathering ATM accounting virtual circuit call setup and use data. The ATM accounting feature runs in the background and captures configured accounting data for VC changes such as calling party, called party, or start time and connection type information for specific interfaces to a file.



Caution

Enabling ATM accounting could slow the basic operation of the ATM switch router.



Note

Even when ATM accounting is disabled globally, other ATM accounting commands, both global and for individual interfaces, remain in the configuration file.

To enable the ATM accounting feature, use the following command in global configuration mode:

Command	Purpose
<code>atm accounting enable</code>	Enables ATM accounting for the ATM switch router.

Displaying the ATM Accounting Configuration

To display the ATM accounting status, use the following privileged EXEC command:

Command	Purpose
<code>more system:running-config</code>	Displays the ATM accounting status.

Enabling ATM Accounting on an Interface

After you enable ATM accounting, you must configure specific ingress or egress interfaces, usually on edge switches connected to the external network, to start gathering the ATM accounting data.

To enable ATM accounting on a specific interface, perform the following tasks, beginning in global configuration mode:

	Command	Purpose
Step 1	Switch(config)# interface atm <i>card/subcard/port</i> Switch(config-if)#	Selects the interface to be configured.
Step 2	Switch(config-line)# privilege level <i>number</i>	Configures the default privilege level.

Example

The following example shows how to enable ATM accounting on ATM interface 1/0/3:

```
Switch(config)# interface atm 1/0/3
Switch(config-if)# atm accounting
```

Displaying the ATM Accounting Interface Configuration

To display the ATM accounting status, use the following privileged EXEC command:

Command	Purpose
more system:running-config	Displays the ATM accounting status.

Example

The following display shows that ATM accounting is enabled on ATM interface 1/0/3:

```
Switch# more system:running-config
Building configuration...

Current configuration:
!
<information deleted>

!
interface ATM1/0/3
  no keepalive
  atm accounting
!
<information deleted>
```

Configuring the ATM Accounting Selection Table

The ATM accounting selection table determines the connection data to be gathered from the ATM switch router. To configure the ATM accounting selection entries, perform the following tasks, beginning in global configuration mode:

	Command	Purpose
Step 1	Switch(config)# atm accounting selection <i>index</i> Switch(config-acct-sel)#	Specifies the ATM accounting selection index number and changes to accounting selection mode.
Step 2	Switch(config-acct-sel)# default [connection-type list]	Resets the ATM accounting selection table configuration to the default.
Step 3	Switch(config-acct-sel)# connection-types [pvc pvp spvc-originator spvc-target spvp-originator spvp-target svc-in svc-out svp-in svp-out]	Specifies the connection type(s) for which you want to collect accounting records.
Step 4	Switch(config-acct-sel)# list <i>hex-bitmap</i>	Configures the list of ATM accounting MIB objects to collect. ¹

1. The MIB objects are listed in the *ATM Accounting Information MIB* publication.

The **atm accounting selection** command creates or modifies an entry in the selection table by specifying the fields of the entry.



Note

A default selection entry is automatically configured during initial startup and cannot be deleted.

Some features of the ATM accounting selection table configuration include:

- An entry in the selection table points to a data collection file.
- A selection entry cannot be deleted when data collection is active.
- A selection entry can point to a nonexistent file, in which case the entry is considered inactive.
- One selection entry can apply to more than one type of VC (or example, SVC and PVC).
- If you modify a selection entry list, the new value is used the next time the data collection cycle begins, (for example, the next time the ATM accounting collection file swap occurs).



Note

The following ATM accounting MIB objects are **not** supported:

- atmAcctngTransmittedClp0Cells (object number 16)
- atmAcctngReceivedClp0Cells (object number 18)
- atmAcctngCallingPartySubAddress (object number 31)
- atmAcctngCalledPartySubAddress (object number 32)
- atmAcctngRecordCrc16 (object number 33)

Examples

The following example shows how to change to ATM accounting selection configuration mode and add the SPVC originator connection type entry to selection entry 1:

```
Switch(config)# atm accounting selection 1
Switch(config-acct-sel)# connection-types spvc-originator
```

The following example shows how to change to ATM accounting selection configuration mode and reset the connection types for selection entry 1:

```
Switch(config)# atm accounting selection 1
Switch(config-acct-sel)# default connection-types
```

The following example shows how to change to ATM accounting selection configuration mode and configure the selection list to include all objects:

```
Switch(config)# atm accounting selection 1
Switch(config-acct-sel)# default list
```

The following example shows how to change to ATM accounting selection configuration mode and configure the selection list to include object number 20 (atmAcctngTransmitTrafficDescriptorParam1):

```
Switch(config)# atm accounting selection 1
Switch(config-acct-sel)# list 00001000
```

Displaying ATM Accounting Selection Configuration

To display the ATM accounting status, use the following EXEC command:

Command	Purpose
show atm accounting	Displays the ATM accounting selection configuration.

Example

The following example shows the ATM accounting status using the **show atm accounting** EXEC command:

```
Switch# show atm accounting
ATM Accounting Info:      AdminStatus - UP;      OperStatus : UP
Trap Threshold - 90 percent (4500000 bytes)
Interfaces:
File Entry 1: Name acctng_file1
  Descr: atm accounting data
  Min-age (seconds): 3600
  Failed_attempt : C0
  Sizes: Active 69 bytes (#records 0); Ready 73 bytes (#records 0)
→ selection Entry -
→   Selection entry 1, subtree - 1.3.6.1.4.1.9.10.18.1.1
→   Selection entry 1, list - 00.00.10.00
→   Selection entry 1, connType - F0.00
Active selection -
  Selection entry 1, subtree - 1.3.6.1.4.1.9.10.18.1.1
  Selection entry 1, list - FF.FE.BF.FC
  Selection entry 1, connType - F0.00

Debug output
<information deleted>
```

Configuring ATM Accounting Files

Direct the ATM accounting data being gathered from the configured selection control table to a specific ATM accounting file. To configure the ATM accounting files and change to ATM accounting file configuration mode, perform the following tasks, beginning in global configuration mode:

	Command	Purpose
Step 1	Switch(config)# atm accounting file acctng_file1 Switch(config-acct-file)#	Specifies the ATM accounting file and enters accounting file configuration mode.
Step 2	Switch(config-acct-file)# collection-modes [on-release] [periodic]	Configures when to write to the accounting file.
Step 3	Switch(config-acct-file)# default [min-age]	Resets the ATM accounting file configuration to the default.
Step 4	Switch(config-acct-file)# description string	Configures a short description for the ATM accounting file.
Step 5	Switch(config-acct-file)# enable	Enables ATM accounting for a specific file.
Step 6	Switch(config-acct-file)# failed-attempts [none] [regular] [soft]	Configures whether to record failed connection attempts.
Step 7	Switch(config-acct-file)# interval seconds	Configures the interval for periodic collection, in seconds.
Step 8	Switch(config-acct-file)# min-age seconds	Configures the ATM accounting file minimum age of the VC.



Note Only one ATM accounting file can be configured and that file cannot be deleted.

Examples

The following example shows how to enable ATM accounting file configuration mode for `acctng_file1` and reconfigure the collection mode on release of a connection:

```
Switch(config)# atm accounting file acctng_file1
Switch(config-acct-file)# collection-mode on-release
```

The following example shows how to enable ATM accounting file configuration mode for `acctng_file1` and reconfigure the minimum age to the default value:

```
Switch(config)# atm accounting file acctng_file1
Switch(config-acct-file)# default min-age
```

The following example shows how to enable ATM accounting file configuration mode for `acctng_file1` and configure a short description to be displayed in the **show atm accounting file** display and the file header:

```
Switch(config)# atm accounting file acctng_file1
Switch(config-acct-file)# description Main accounting file for engineering
```

The following example shows how to enable ATM accounting file configuration mode for acctng_file1:

```
Switch(config)# atm accounting file acctng_file1
Switch(config-acct-file)# enable
```

The following example shows how to enable ATM accounting file configuration mode for acctng_file1 to collect connection data every hour:

```
Switch(config)# atm accounting file acctng_file1
Switch(config-acct-file)# interval 3600
```

Displaying the ATM Accounting File Configuration

To display the ATM accounting status, use the following EXEC command:

Command	Purpose
show atm accounting	Displays the ATM accounting.

Example

The following example shows the ATM accounting file status using the **show atm accounting** EXEC command:

```
Switch# show atm accounting
ATM Accounting Info:      AdminStatus - UP;          OperStatus : UP
Trap Threshold - 90 percent (4500000 bytes)
Interfaces:
-> File Entry 1: Name acctng_file1
->   Descr: atm accounting data
->   Min-age (seconds): 3600
->   Failed_attempt : C0
->   Sizes: Active 69 bytes (#records 0); Ready 73 bytes (#records 0)
selection Entry -
  Selection entry 1, subtree - 1.3.6.1.4.1.9.10.18.1.1
  Selection entry 1, list - FF.FE.BF.FC
  Selection entry 1, connType - F0.00
Active selection -
  Selection entry 1, subtree - 1.3.6.1.4.1.9.10.18.1.1
  Selection entry 1, list - FF.FE.BF.FC
  Selection entry 1, connType - F0.00

Debug output
Sig API: Err - 0
New_Conn: OK - 0; Err - 0
Rel_Conn: OK - 0; Err - 0
New_Leg: OK - 0; Err - 0
Rel_Leg: OK - 0; Err - 0
New_Party: OK - 0; Err - 0
Rel_Party: OK - 0; Err - 0
```


Controlling ATM Accounting Data Collection

To configure the behavior of the buffers used for ATM accounting collection, use the following command in privileged EXEC mode:

Command	Purpose
atm accounting collection { collect-now swap } <i>filename</i>	Configures the ATM accounting data collection.

Examples

The following example specifies that all VCs that meet the minimum age requirement should be collected:

```
Switch# atm accounting collection collect-now acctng_file1
```

The following example swaps the buffers used to store accounting records; the old buffer is now ready to download:

```
Switch# atm accounting collection swap acctng_file1
```

Displaying the ATM Accounting Data Collection Configuration and Status

To display the ATM accounting file configuration status, use the following EXEC command:

Command	Purpose
show atm accounting	Displays the ATM accounting status.

Example

The following example shows the ATM accounting status using the **show atm accounting files** EXEC command:

```
Switch# show atm accounting
ATM Accounting Info:      AdminStatus - UP;      OperStatus : DOWN
Trap Threshold - 90 percent (4500000 bytes)
Interfaces:
File Entry 1: Name acctng_file1
      Descr: atm accounting data
      Min-age (seconds): 3600
      Failed_attempt : C0
→ No file buffers initialized
selection Entry -
  Selection entry 1, subtree - 1.3.6.1.4.1.9.10.18.1.1
  Selection entry 1, list - FF.FE.BF.FC
  Selection entry 1, connType - F0.00
Active selection -
  Selection entry 1, subtree - 1.3.6.1.4.1.9.10.18.1.1
  Selection entry 1, list - FF.FE.BF.FC
  Selection entry 1, connType - F0.00
<Information deleted>
```

Configuring ATM Accounting SNMP Traps

You can configure SNMP traps to be generated when the ATM accounting file reaches a specified threshold. You can use these traps to alert you when a file is full and needs to be downloaded.

Configuring ATM Accounting Trap Generation

To configure ATM accounting SNMP traps, use the following command in global configuration mode:

Command	Purpose
atm accounting trap threshold <i>percent-value</i>	Configures the ATM accounting file threshold to generate an SNMP trap when it reaches a percentage of the maximum size.

Example

The following example shows how to configure ATM accounting SNMP traps to be sent when the file size reaches 85 percent full:

```
Switch(config)# atm accounting trap threshold 85
```

Displaying ATM Accounting Trap Threshold Configuration

To display the ATM accounting trap threshold configuration, use the following EXEC command:

Command	Purpose
show atm accounting	Displays the ATM accounting trap configuration.

Example

The following example shows the ATM accounting trap threshold configuration using the **show atm accounting** command:

```
Switch# show atm accounting
ATM Accounting Info:      AdminStatus - UP;      OperStatus : UP
→ Trap Threshold - 90 percent (4500000 bytes)
Interfaces:
File Entry 1: Name acctng_file1
  Descr: atm accounting data
  Min-age (seconds): 3600
  Failed_attempt : C0
  Sizes: Active 69 bytes (#records 0); Ready 73 bytes (#records 0)
selection Entry -
  Selection entry 1, subtree - 1.3.6.1.4.1.9.10.18.1.1
  Selection entry 1, list - FF.FE.BF.FC
  Selection entry 1, connType - F0.00
Active selection -
  Selection entry 1, subtree - 1.3.6.1.4.1.9.10.18.1.1
  Selection entry 1, list - FF.FE.BF.FC
  Selection entry 1, connType - F0.00

<information deleted>
```

Configuring SNMP Server for ATM Accounting

To enable SNMP ATM accounting trap generation and specify an SNMP server, perform the following steps in global configuration mode:

	Command	Purpose
Step 1	Switch(config)# snmp-server enable traps atm-accounting	Enables SNMP server ATM accounting trap generation.
Step 2	Switch(config)# snmp-server host host community-string atm-accounting	Configures SNMP server host IP address and community string for ATM accounting.

Example

The following example shows how to enable SNMP server ATM accounting traps and configure the SNMP server host at IP address 1.2.3.4 with community string *public* for ATM accounting:

```
Switch(config)# snmp-server enable traps atm-accounting
Switch(config)# snmp-server host 1.2.3.4 public atm-accounting
```

Displaying SNMP Server ATM Accounting Configuration

To display the SNMP server ATM accounting configuration, use the following privileged EXEC command:

Command	Purpose
more system:running-config	Displays the SNMP server ATM accounting configuration.

Example

The following example shows the SNMP server ATM accounting configuration using the **more system:running-config** privileged EXEC command:

```
Switch# more system:running-config
Building configuration...

Current configuration:
!
<information deleted>
!
ip rcmd rcp-enable
ip rcmd remote-host dplatz 171.69.194.9 dplatz
ip rcmd remote-username dplatz
atm template-alias byte_wise 47.9*f8.33...
atm template-alias bit_set 47.9f9(1*0*)88ab...
atm template-alias training 47.1328...
atm accounting enable
atm accounting trap threshold 85
!
<information deleted>

no ip classless
atm route 47.0091.8100.0000.0000.0ca7.ce01... ATM3/0/0
```

```
snmp-server enable traps chassis-fail
snmp-server enable traps chassis-change
snmp-server enable traps atm-accounting
snmp-server host 1.2.3.4 public atm-accounting
!
<information deleted>
```

Using TFTP to Copy the ATM Accounting File

After the ATM accounting file is written to DRAM, you must configure TFTP to allow network requests to copy the accounting information to a host for processing. To do this, use the following command in global configuration mode:

	Command	Purpose
Step 1	Switch(config)# access-list <i>access-list-number</i> {deny permit} {source [<i>source-wildcard</i>] any}	Defines a standard IP access list using a source address and wildcard or the any option default source 0.0.0.0 and source mask 255.255.255.255.
Step 2	Switch(config)# tftp-server { atm-acct-active:acctng_file1 atm-acct-ready:acctng_file1 } <i>ip-access-list</i>	Allows TFTP to copy the ATM accounting file to an IP host in response to a read request.

Example

The following example shows how to allow TFTP service to copy the ATM accounting file *acctng_file1* to the IP access list of requesting host number 1:

```
Switch(config)# access-list 1 permit 10.1.1.1
Switch(config)# tftp-server atm-acct-ready:acctng_file1 1
```

For more information about access lists, refer to the “Filtering IP Packets at the IP Interfaces” section on page 11-9.

Configuring Remote Logging of ATM Accounting Records

You can collect ATM accounting records to a remotely connected PC or UNIX workstation. You can use this method in place of, or in addition to, collecting ATM accounting records as a file into the switch’s memory.

The remote logging method requires a server daemon to be running on a PC or a UNIX workstation that is reachable from the switch using IP. The server daemon listens to the TCP port specified in the switch side remote logging configuration. When the ATM accounting process on the switch sends a TCP connect request, the daemon accepts the connection. After connection has been established, the switch side ATM accounting process sends accounting records, as they are created, to the remote host. The remote host then receives the records and stores them in a local file. The collected ATM accounting records are in ASN1 format. The first record contains the format of the following records.

To configure remote logging, perform the following steps in global configuration mode:

	Command	Purpose
Step 1	Switch(config)# atm accounting file acctng_file1	Configures the ATM accounting file and changes to accounting file configuration mode.
Step 2	Switch(config)# remote-log [only] primary-host hostname1 tcp-port1 [alternate-host hostname2 tcp-port2]	Specifies the main and optional backup hostname or IP address and TCP port number.

The PC or workstation configured as backup takes over collection of ATM accounting records if the primary fails. Using the keyword **only** causes only remote logging to be performed, freeing the ATM switch router's memory for other purposes.

Example

The following example shows how to configure remote logging to a PC named eagle on port 2001, with port 2002 as a backup:

```
Switch(config)# atm accounting file acctng_file1
Switch(config-acct-file)# remote-log primary-host eagle 2001 alternate-host eagle 2002
```

Displaying the Remote Logging Configuration

To display the remote logging configuration, use the following privileged EXEC command:

Command	Purpose
show atm accounting	Displays the remote logging configuration.

The following example shows the remote logging configuration using the **show atm accounting** EXEC command:

```
Switch# show atm accounting
ATM Accounting Info:      AdminStatus - UP;          OperStatus : UP
Trap Threshold - 90 percent (4500000 bytes)
Interfaces:
  AT1/0/0
  AT2/0/0
File Entry 1 -
  Name: acctng_file1
  Descr: atm accounting data
  Min-age (seconds): 0
  Failed_attempt : soft regular
  Interval (seconds) : 60
  Collect Mode : on-release periodic
  Sizes: Active 68 bytes (#records 0); Ready 74 bytes (#records 0)
  Remote Log and local storage are enabled.
  Primary Log Host: eagle, TCP listen port: 2001, OperStatus: DOWN
  Alternate Log Host: eagle, TCP listen port: 2002, OperStatus: DOWN
Selection Entry 1 -
  Subtree OID : 1.3.6.1.4.1.9.10.18.1.1
  List Bitmap : FF.FE.BF.FC
  Conn Type : svc-in svc-out pvc pvp spvc-originator spvc-target
  Active List Bitmap - FF.FE.BF.FC
```

Configuring ATM RMON

This section describes the process you use to configure ATM RMON on the ATM switch router. The following sections describe the process:

- RMON Overview on page 14-14
- Configuring Port Select Groups on page 14-14
- Configuring Interfaces into a Port Select Group on page 14-16
- Enabling ATM RMON Data Collection on page 14-17
- Configuring an RMON Event on page 14-18
- Configuring an RMON Alarm on page 14-19

RMON Overview

The ATM RMON feature allows you to monitor network traffic for reasons such as fault monitoring or capacity planning. The ATM RMON feature is an extension of an existing, well-known RMON standard and provides high-level per-host and per-conversation statistics in a standards-track MIB similar to the following RMON MIBs:

- RMON-1 MIB—RFC 1757
- RMON-2 MIB—RFC 2021 and 2074

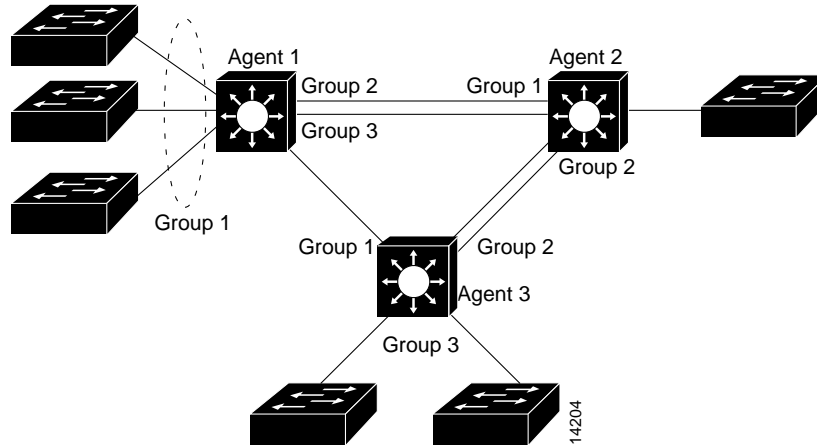
The ATM-RMON counter uses the per-VC counters already maintained in the hardware and polled by the software. The ATM RMON agent can report cell traffic statistics by monitoring connection management activity. At connection setup and release time, some ATM-RMON bookkeeping code is executed. The amount of information varies, depending on the ATM RMON configuration. The ATM-RMON bookkeeping capability significantly reduces the processing requirements for ATM-RMON, and allows collecting statistics on many or all the of ATM switch router ports at once.

The ATM-RMON agent uses the 64-bit version of each cell counter if 64-bit counter support is present in the SNMP master-agent library.

Configuring Port Select Groups

Previously, RMON allowed collection of connection information on a per-interface basis only. ATM RMON allows a group of ports to be configured as an aggregate. The port select group defines this *collection unit* used by the ATM RMON agent to gather host and matrix connection data. For example, in Figure 14-3, agent 1 has a port selection group 1 made up of ports.

Figure 14-3 ATM RMON Port Select Group Examples



An active port select group must be defined before any data collection can begin. You can use the command-line interface (CLI) and Simple Network Management Protocol (SNMP) modules to configure and access port select group structures.

To configure an RMON port selection group, use the following command in global configuration mode:

Command	Purpose
atm rmon portselgrp <i>number</i> [descr <i>string</i> host-prio <i>number</i> host-scope <i>number</i> matrix-prio <i>number</i> matrix-scope <i>number</i> maxhost <i>number</i> maxmatrix nostats owner <i>string</i>]	Configures the ATM RMON port selection group.

Example

The following example shows how to configure port selection group 7 with the a maximum host count of 500, maximum matrix count of 2000, host priority of 1, and owner name "nms 3".

```
Switch(config)# atm rmon portselgrp 7 maxhost 500 maxmatrix 2000 host-prio 1 owner "nms 3"
```

Displaying the ATM RMON Port Select Group

To display the ATM RMON port select group statistics, use the following EXEC command:

Command	Purpose
show atm rmon stats number	Displays the ATM RMON port select group statistics.

Example

The following example shows how to display the configuration of port selection group 3 using the **show atm rmon stats** command from EXEC mode:

```
Switch# show atm rmon stats 3
PortSelGrp: 3    Collection: Enabled    Drops: 0
  CBR/VBR: calls: 0/0    cells: 0 connTime: 0 days 00:00:00
  ABR/UBR: calls: 0/0    cells: 0 connTime: 0 days 00:00:00
```

Configuring Interfaces into a Port Select Group

Before the port selection group can begin gathering host and matrix connection information, an interface or group of interfaces must be added to the port selection group.

To configure an interface to an ATM RMON port selection group, perform the following steps, beginning in global configuration mode:

	Command	Purpose
Step 1	Switch(config)# interface atm card/subcard/port Switch(config-if)#	Selects the interface to be configured.
Step 2	Switch(config-if)# atm rmon collect port_sel_group	Configures the interface to an ATM RMON port selection group.

Example

The following example shows how to configure ATM interface 0/1/3 to ATM RMON port selection group 6:

```
Switch(config)# interface atm 0/1/3
Switch(config-if)# atm rmon collect 6
```

Displaying the Interface Port Selection Group Configuration

To display the ATM RMON port configuration status, use the following EXEC command:

Command	Purpose
show atm rmon {host number matrix number stats number status}	Displays the interface port selection group configuration.

Examples

The following example shows how to display the ATM RMON host configuration for port selection group 6 using the **show atm rmon host** command from user EXEC mode:

```
Switch# show atm rmon host 6
PortSelGrp: 6   Collection: Enabled   Drops: 0
```

The following example shows how to display the ATM RMON matrix configuration for port selection group 6 using the **show atm rmon matrix** command from user EXEC mode:

```
Switch# show atm rmon matrix 6
PortSelGrp: 6   Collection: Enabled   Drops: 0
```

The following example shows how to display the ATM RMON statistics configuration for port selection group 6 using the **show atm rmon stats** command from user EXEC mode:

```
Switch# show atm rmon stats 6
PortSelGrp: 6   Collection: Enabled   Drops: 0
   CBR/VBR: calls: 0/0   cells: 0 connTime: 0 days 00:00:00
   ABR/UBR: calls: 0/0   cells: 0 connTime: 0 days 00:00:00
```

The following example shows how to display the ATM RMON status for all port selection groups using the **show atm rmon status** command from user EXEC mode:

```
Switch# show atm rmon status
PortSelGrp: 1 Status: Enabled Hosts: 4/no-max Matrix: 4/no-max
   ATM0/0/0   ATM0/0/2
PortSelGrp: 2 Status: Enabled Hosts: 0/no-max Matrix: 0/no-max
   ATM0/0/3
PortSelGrp: 3 Status: Enabled Hosts: 0/no-max Matrix: 0/no-max
   ATM0/1/0   ATM0/1/1
PortSelGrp: 4 Status: Enabled Hosts: 0/1 Matrix: 0/5
   ATM0/0/1
PortSelGrp: 5 Status: Enabled Hosts: 0/no-max Matrix: 0/no-max
   ATM0/1/2
PortSelGrp: 6 Status: Enabled Hosts: 0/no-max Matrix: 0/no-max
   ATM0/1/3
PortSelGrp: 7 Status: Enabled Hosts: 0/no-max Matrix: 0/no-max
   ATM2/0/0
PortSelGrp: 8 Status: Enabled Hosts: 0/no-max Matrix: 0/no-max
PortSelGrp: 9 Status: Enabled Hosts: 0/no-max Matrix: 0/no-max
```

Enabling ATM RMON Data Collection

Use the **atm rmon enable** command to start ATM RMON data collection.



Note

If you disable ATM RMON the configuration remains but becomes inactive (similar to using the **shutdown** command on an interface).

To enable ATM RMON data collection, use the following command in global configuration mode:

Command	Purpose
atm rmon enable	Enables ATM RMON.

Displaying the ATM RMON Configuration

To display the ATM RMON configuration, use the following privileged EXEC command:

Command	Purpose
more system:running-config	Displays the ATM RMON configuration.

Example

The following example shows the ATM RMON configuration using the **more system:running-config** privileged EXEC command:

```
Switch# more system:running-config
Building configuration...

Current configuration:
!

<information deleted>

ip default-gateway 172.20.53.206
no ip classless
snmp-server community public RW
snmp-server location racka-cs:2016
snmp-server contact abierman
atm rmon portselgrp 1 host-scope 3 matrix-scope 3
atm rmon portselgrp 2 host-scope 3 matrix-scope 3 descr "router port 2" owner
rubble"
atm rmon portselgrp 3 host-scope 3 matrix-scope 3 descr "test" owner "bam_bam"
atm rmon portselgrp 4 maxhost 1 maxmatrix 5 host-scope 1 descr "no active ports" owner "wilma"
atm rmon portselgrp 5
atm rmon portselgrp 6 matrix-prio 1
atm rmon portselgrp 7 host-scope 3 matrix-scope 3 descr "CPU port" owner "pebbles"
atm rmon portselgrp 8
atm rmon portselgrp 9
atm rmon enable
!
<information deleted>
```

Configuring an RMON Event

To configure an RMON event being generated, use the following command in global configuration mode:

Command	Purpose
rmon event <i>number</i> [log] [trap <i>community</i>] [description <i>string</i>] [owner <i>string</i>]	Configures an RMON event.

Example

The following example shows how to configure a generated RMON event with an assigned name, description string, owner, and SNMP trap with community string:

```
Switch(config)# rmon event 1 description test owner nms_3 trap test
```

Displaying the Generated RMON Events

To display the generated RMON events, use the following EXEC command:

Command	Purpose
show rmon events	Displays generated RMON events.

Example

The following example shows the RMON events generated using the **show rmon events** EXEC command:

```
Switch# show rmon events
Event 1 is active, owned by nms_3
  Description is test
  Event firing causes trap to community test, last fired 00:00:00
```

Configuring an RMON Alarm

You can configure RMON alarm generation if any of the configured parameters are met.



Note

Refer to the *Configuration Fundamentals Configuration Guide* for general SNMP RMON configuration information.

To configure RMON alarms, use the following command in global configuration mode:

Command	Purpose
rmon alarm <i>number variable interval</i> { delta absolute } rising-threshold <i>value</i> [<i>event-number</i>] falling-threshold <i>value</i> [<i>event-number</i>] [owner <i>string</i>]	Configures the ATM RMON alarm.

Example

The following example shows how to configure RMON alarm number 1 to generate an alarm under the following conditions:

- If the MIB atmHostHCCells exceed 500
- If each sample, in absolute mode, shows:
 - Rising threshold exceeding 10,000
 - Falling threshold falling below 1000
- The RMON alarm number 1 sends the alarm to the owner “nms 3”

```
Switch(config)# rmon alarm 1 atmHostInHCCells 500 absolute rising-threshold 10000 falling-threshold 1000
owner "nms 3"
```

Displaying the Generated RMON Alarms

To display the RMON alarm event, use the following EXEC command:

Command	Purpose
show rmon alarms events	Displays RMON alarms.

Example

The following example shows the RMON alarms and events using the **show rmon alarms events** EXEC command:

```
Switch# show rmon alarms events
Event 1 is active, owned by nms 3
  Description is test
  Event firing causes trap to community test, last fired 00:00:00
Alarm table is empty
```