Configuration Commands

Generic Commands

description

Syntax	**description** *description-string* **no description**
Context	config>qos>>atm-td-profile
Description	This command creates a text description stored in the configuration file for a configuration context. The **description** command associates a text string with a configuration context to help identify the context in the configuration file. The **no** form of this command removes any description string from the context.
Default	No description is associated with the configuration context.
Parameters	*description-string* — A text string describing the entity. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters excluding double quotes. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

Operational Commands

copy

Syntax	**copy atm-td-profile** *src-prof dst-prof* [**overwrite**]
Context	config>qos
Description	This command copies the source atm profile into the destination atm profile. If the destination profile was already defined, the keyword 'overwrite' must be appended for the copy to complete.

The **copy** command is a configuration level maintenance tool used to create new profiles using existing profiles. It also allows bulk modifications to an existing profile with the use of the **overwrite** keyword.

Parameters   **atm-td-profile** *src-prof dst-prof* — Indicates that the source profile ID and the destination profile ID are atm-td-profile IDs. Specify the source ID that the copy command will copy and specify the destination ID to which the command will duplicate the profile to a new or different profile ID.

       Values   1 — 1000

overwrite — Specifies to replace the existing destination profile. Everything in the existing destination policy will be overwritten with the contents of the source policy. If **overwrite** is not specified, an error will occur if the destination profile ID exists.

```
A:ALA-48>config>qos# copy atm-td-profile 2 10
MINOR: CLI destination (10) exists use {overwrite}.
A:ALA-48>config>qos# copy atm-td-profile 2 10 overwrite
A:ALA-48>config>qos#
```

ATM QoS Policy Commands

atm-td-profile

Syntax [**no**] **atm-td-profile** *traffic-desc-profile-id*

Context config>qos

Description This command is used to configure an ATM traffic descriptor profile.

Traffic descriptor profiles are used to:

1. Define traffic management capabilities for ATM PVCCs.

2. Calculate the total bandwidth consumed on a given port by all ATM PVCC(s). The BW taken by a PVCC is equal to:

   a. PIR for CBR PVCCs

   b. SIR for rt-vbr and nrt-vbr PVCCs

   c. MIR for UBR PVCC

3. Define ATM-level SAR scheduling

The default traffic descriptor is pre-configured and non-modifiable. It cannot be deleted. All other traffic descriptor profiles must be explicitly created before use. The create keyword must follow each new profile configuration.

Any changes made to the existing profile, using any of the sub-commands are applied immediately to all objects where this profile is applied (a small traffic interruption in data traffic will occur during the data plane reprogramming with the newly modified profile).

When many changes are required on a profile, it is recommended that the profile be copied to a work area profile ID. That work-in progress profile can be modified until complete and then written over the original profile-id. Use the config qos copy command to maintain profiles in this manner.

The weight assigned to each non-shaped PVCC in the Deficit Round Robin Scheduler depends on the service category and traffic rates (see traffic command for more details).

The **no** form of the command deletes a given traffic profile. Note that the profile to be deleted must not be associated with any object (for example a SAP). If this condition is not met, the command will return an error.

Default 1 — Default Traffic Descriptor (UBR, no traffic, no shaping)

Parameters *traffic-desc-profile-id* — Index identifier for a traffic descriptor profile

   Values 1 — 1000

clp-tagging

Syntax	[**no**] **clp-tagging**
Context	config>qos>atm-td-profile
Description	This command controls the setting of the CLP bit in the ATM cell header for egress traffic on an IES or VPRN SAP.
	When enabled, traffic queued on expedited queues has the CLP bit set to zero, while traffic on non-expedited queues has the CLP bit set to one.
	The **no** form of the command sets the CLP bit set to zero.
Default	no clp-tagging

descriptor-type

Syntax	**descriptor-type** {*type*}
Context	config>qos>atm-td-profile
Description	This command is used to specify the type of the traffic descriptor profile as per ATM Forum Traffic Management Specification Version 4.1.
Parameters	**Values** P0_1, P0_1andS0_Tag, P0_1andS0, P0_1andS0_1

The descriptor type defines interpretation of traffic parameters that are specified for this profile. The following table details these rules:

Descriptor Type	Rates Interpretation	Applicable Service Categories
P0_1	PIR applies to CLP=0 and CLP=1 cell flows	CBR, UBR, UBR with MIR
P0_1andS0_1	PIR applies to CLP=0 and CLP=1 cell flows SCR applies to CLP=0 and CLP=1 cell flows	rt-VBR and nrt-VBR
P0_1andS0	PIR applies to CLP=0 and CLP=1 cell flows SCR applies to CLP=0 cell flow	rt-VBR and nrt-VBR

Setting descriptor type to a value not compatible with the service category (as defined in the above table) is an error.

Default	The following table defines default values of descriptor type based on a service category:

Service Category	Default Descriptor Type
CBR	P0_1
UBR	P0_1
UBR with MIR	P0_1
rt-VBR or nrt-VBR	P0_1andS0_1

policing

Syntax	[**no**] **policing**
Context	config>qos>atm-td-profile
Description	This command determines whether ingress traffic is policed. Policing is valid for CBR, RT-VBR and NRT-VBR. This is cell-based policing.
Default	disabled

service-category

Syntax	**service-category** *service-category*
Description	config>qos>atm-td-profile
Description	This command is used to configure an ATM service category attribute of an ATM traffic descriptor profile per ATM Forum Traffic Management Specification Version 4.1.
Parameters	The router supports the following ATM service categories on ATM-capable MDAs:

Service Category	Description
CBR	Constant Bit Rate
rt-VBR	real time Variable Bit Rate
nrt-VBR	non-real time Variable Bit Rate
UBR	Unspecified Bit Rate without Minimum Desired Cell Rate (defined by specifying service category to be ubr, and MIR of 0)
UBR (with MIR)	Unspecified Bit Rate with non-zero Minimum Desired Cell Rate (defined by specifying service category to be ubr, and MIR > 0)

Changing the service category of a profile will reset all traffic attributes to their defaults (see the traffic command) and will cause reprogramming of the data path (with a small impact on user traffic) and a reset of VC statistics for all VCs using this traffic descriptor profile.

Default	ubr

shaping

Syntax   [**no**] **shaping**

Context   config>qos>atm-td-profile

Description   This command enables cell level shaping when the ATM traffic descriptor profile is applied to an ATM SAP queue. Shaping is only applied in the egress queue of the ATM SAP. Shaping cannot be enabled on an ATM SAP with the UBR service category.

The **no** form of this command disables shaping.

Default   The default is determined by the service category. The following default applies for shaping depending upon a given service category:

Applicable Service Category	Default Shaping Value	Comments
UBR	disabled	Shaping cannot be enabled
CBR	enabled	Shaping cannot be disabled when the profile is applied to ATM SAP on ATM MDA
rt-VBR	enabled	Shaping cannot be disabled when applied to ATM SAP on ATM MDA
nrt-VBR	enabled	

traffic

Syntax   **traffic** [**sir** *sir-val* [**pir** *pir-val*] [**mir** *mir-val*] [**mbs** *mbs-val*] [**cdvt** *cdvt-val*]
no traffic

Context   config>qos>atm-td-profile

Description   This command is used to configure traffic attributes of an ATM traffic profile as per ATM Forum Traffic Management Specification Version 4.1.

The traffic parameters of a traffic descriptor that are configurable depends on the service category of this traffic descriptor profile (see the service-category command).

The following table defines which traffic descriptor parameters are applicable for what service category and what are configuration rules between the parameters. **Y** indicates the parameter can be configured for a given service category and will be defaulted if not provided, an **N/A** indicates the parameter cannot be configured for a given service category (an error will be returned). If an applicable parameter is not specified, the current value will be preserved.

Service Category	SIR	PIR	MBS	MIR	CDVT
CBR	N/A	Y	N/A	N/A	Y
rt-VBR	Y	Y (must be >=SIR)	Y	N/A	Y
Nrt-VBR	Y	Y (must be >=SIR)	Y	N/A	Y
UBR	N/A	Y	N/A	N/A	N/A
UBR with MIR	N/A	Y (must be >= MIR	N/A	Y (non-zero MIR specified)	N/A

Configuring PIR for traffic descriptor profiles for UBR and UBR with MIR service categories has no impact on a traffic contract when a PVCC using that profile resides on an m4-atmoc12/3-sfp MDA. On this MDA SAR ignores PIR (de-facto treating each UBR as it would have a PIR of max. line rate). The default pir value for UBR and UBR with MIR reflects this behavior.

When a traffic descriptor profile is used to define egress scheduling, the following describes how traffic rates are used to derive scheduling weight:

1. UBR PVCCs (i.e., MIR = 0) are assigned weight value of 1

2. UBR with MIR PVCCs are assigned weight value in the inclusive range from 1 to 255 based on the MIR rate.

3. rt-VBR and nrt-VBR PVCCs are assigned weight value in the inclusive range from 1 to 255 based on the SCR rate

4. CBR PVCCs are assigned weight value in the inclusive range from 1 to 255 based on the PIR rate

The scheduling weight is derived from the traffic rate based on the following formula:

If traffic rate <= 32 Kbps, then weight = 1

If 32 Kbps < traffic rate < 8160 Kbps, then weight = floor (traffic rate / 32)

If traffic rate >= 8160 Kbps, then weight = 255

The configuration of weight unit (32 Kbps) is left for future releases.

Since the SAR operates in cells/second with 1 cell granularity, PIR and SCR values programmed need to be converted to cells per second. When converting values to be used for scheduler, the result is rounded up to the next cell when required by conversion.

When any of SIR, PIR, or MIR is greater than the physical maximum port/channel capacity for a given PVCC, then the maximum physical port/channel capacity is used in BW accumulation and when configuring the H/W for that PVCC.

Hardware- enforceable mbs is in the inclusive range from 3 to 256 000 cells. Any value outside of that range will be accepted and rounded up/down to the minimum/maximum enforceable value.

The **no** form of the command restores traffic parameters to their defaults for a given service category.

By default ATM traffic parameters are, in kbps:

Service Category	Traffic Parameter Defaults
CBR:	
PIR	0
rt-VBR and nrt-VBR	
PIR	0
SCR	0
MBS	32
UBR (note by default UBR is without MIR)	
PIR	0
MIR	0

Parameters **sir** *value* **—** Sustained Information Rate (including cell overhead) in kilobits per second.

    Values 0 — 4294967295

pir *value* **—** Peak Information Rate (including cell overhead) in kilobits per second.

    Values 0 — 4294967295

mir *value* **—** Minimum Desired Information Rate (including cell overhead) in kilobits per second.

    Values 0 — 4294967295

mbs *value* **—** Maximum Burst Size in cells

    Values 0 — 4294967295

cdvt *cdvt-val* **—** "The Cell Delay Variation Tolerance (CDVT), in microseconds.

    Default Depending upon a given service category:

        CBR/RT-VBR/NRT-VBR 250

    Values 0 — 4294967295

Show Commands

atm-td-profile

Syntax   **atm-td-profile** [*traffic-desc-profile-id*] [**detail**]

Context   show>qos

Description   This command displays ATM traffic descriptor profile information.

Parameters   *traffic-desc-profile-id —* Displays the ATM traffic descriptor profile.

        Values   1 — 1000

    detail — Displays detailed policy information including policy associations.

Output   **ATM TD Profile Output —** The following table describes ATM traffic descriptor profile show command output.

Label	Description
Maximum Supported Profiles	Displays the maximum number of ATM traffic descriptor profiles that can be configured on this system.
Currently Configured Profiles	Displays the number of currently configured ATM traffic descriptor profiles on this system.
TDP-Id	The ID that uniquely identifies the traffic descriptor policy.
Description	A text string that helps identify the policy's context in the configuration file.
Service Category	Displays the ATM service category.
SCR	Displays the sustained cell rate in Kbps.
PIR	Displays the peak cell rate in Kbps.
MIR	Displays the Minimum Desired Cell Rate in Kbps.
MBS	Displays the maximum burst size in cells.
Shaping	Displays whether shaping is enabled or disabled for the traffic descriptor profile.
Entities using TDP-ID	Displays the number of entities using the ATM traffic descriptor.
-	Indicates that the parameter is not applicable for the configured service category.

```
A:ALA-48>config>qos>atm-td-profile# show qos atm-td-profile
===============================================================================
Traffic Descriptor Profiles
===============================================================================
Maximum Supported Profiles    : 1000
Currently Configured Profiles : 3
-------------------------------------------------------------------------------
TDP-id Description
       Service Category SCR         PIR         MIR         MBS
-------------------------------------------------------------------------------
1      Default Traffic Descriptor
       UBR              -           0           0           -
-------------------------------------------------------------------------------
2      Default Traffic Descriptor
       NRT_VBR          4000        5000        -           32
-------------------------------------------------------------------------------
10     Default Traffic Descriptor
       NRT_VBR          4000        5000        -           32
===============================================================================
A:ALA-48>config>qos>atm-td-profile#

A:ALA-48>config>qos>atm-td-profile# show qos atm-td-profile 10 detail
===============================================================================
Traffic Descriptor Profile (10)
===============================================================================
-------------------------------------------------------------------------------
TDP-id Description
       Service Category SCR         PIR         MIR         MBS
-------------------------------------------------------------------------------
10     Default Traffic Descriptor
       NRT_VBR          4000        5000        -           32
-------------------------------------------------------------------------------
TDP details
-------------------------------------------------------------------------------
Shaping      : disabled
-------------------------------------------------------------------------------
Entities using TDP-10
-------------------------------------------------------------------------------
===============================================================================
A:ALA-48>config>qos>atm-td-profile#
```

sap-using

Syntax	**sap-using** [**ingress** | **egress**] **atm-td-profile** *td-profile-id*
Context	show>service
Description	Displays **atm-td-profile** SAP information.
	If no optional parameters are specified, the command displays a summary of all defined SAPs.
	The optional parameters restrict output to only SAPs matching the specified properties.
Parameters	**ingress** — Specifies matching an ingress policy.
	egress — Specifies matching an egress policy.
	qos-policy *qos-policy-id* — The ingress or egress QoS Policy ID for which to display matching SAPs.

        Values   1 — 65535

filter *filter-id* — The ingress or egress Filer Policy ID for which to display matching SAPs.

        Values   1 — 65535

sap-id — Specifies the physical port identifier portion of the SAP definition.

Values: *sap-id*:

null	[*port-id* | *bundle-id* | *bpgrp-id* | *lag-id* | *aps-id*]	
dot1q	[*port-id* | *bundle-id* | *bpgrp-id* | *lag-id* | *aps-id*]:*qtag1*	
qinq	[*port-id* | *bundle-id* | *bpgrp-id* | *lag-id*]:*qtag1.qtag2*	
atm	[*port-id* | *aps-id*][:*vpi/vci*|*vpi*| *vpi1.vpi2*]	
frame	[*port-id* | *aps-id*]:*dlci*	
cisco-hdlc	*slot/mda/port.channel*	
cem	*slot/mda/port.channel*	
ima-grp	[*bundle-id*[:vpi/vci|vpi|*vpi1.vpi2*]	
port-id	*slot/mda/port*[*.channel*]	
bundle-id	bundle-*type-slot/mda.bundle-num*	
	bundle	keyword
	type	ima, ppp
	bundle-num	1 — 256
bpgrp-id	bpgrp-*type-bpgrp-num*	
	bpgrp	keyword
	type	ima, ppp
	bpgrp-num	1 — 1280
aps-id	aps-*group-id*[*.channel*]	
	aps	keyword
	group-id	1 — 64
ccag-id	ccag-*id.path-id*[*cc-type*]:*cc-id*	
	ccag	keyword
	id	1 — 8
	path-id	a, b
	cc-type	.sap-net, .net-sap
	cc-id	0 — 4094
lag-*id*	lag-*id*	

lag	keyword
id	1 — 200
qtag1	0 — 4094
qtag2	*, 0 — 4094
vpi	NNI: 0 — 4095
	UNI: 0 — 255
vci	1, 2, 5 — 65535
dlci	16 — 1022

interface — Specifies matching SAPs with the specified IP interface.

ip-addr — The IP address of the interface for which to display matching SAPs.

> **Values** 1.0.0.0 — 223.255.255.255

ip-int-name — The IP interface name for which to display matching SAPs.

td-profile-id — Profile ID that identifies a specific profile to display.

Output **Show Service SAP —** The following table describes show service SAP output fields:

Label	Description
Port ID	The ID of the access port where the SAP is defined.
Svc ID	The service identifier.
SapMTU	The SAP MTU value.
I.QoS	The SAP ingress QoS policy number specified on the ingress SAP.
I.MAC/IP	The MAC or IP filter policy ID applied to the ingress SAP.
E.QoS	The SAP egress QoS policy number specified on the egress SAP.
E.Mac/IP	The MAC or IP filter policy ID applied to the egress SAP.
A.Pol	The accounting policy ID assigned to the SAP.
Adm	The desired state of the SAP.
Opr	The actual state of the SAP.

Sample Output

```
A:ALA-48>config>service>ies# show service sap-using sap 1/3/2:244/1
===============================================================================
Service Access Points Using Port 1/3/2:15990785
===============================================================================
PortId           SvcId     I.QoS I.Fltr E.QoS E.Fltr A.Pol  Adm  Opr
-------------------------------------------------------------------------------
1/3/2:244/1      89        1     none   1     none   none   Up   Down
-------------------------------------------------------------------------------
Number of SAPs : 1
-------------------------------------------------------------------------------
===============================================================================
A:ALA-48>config>service>ies#
```

port

Syntax	**port** [*port-id*] **atm** **port** [*port-id*] **atm connections** **port** [*port-id*] **atm interface-connections** **port** [*port-id*] **atm pvc** **port** [*port-id*] **atm pvp** **port** [*port-id*] **atm pvt**
Context	show
Description	This command displays port or channel information.
Parameters	*port-id* — Specifies the physical port ID in the form *slot/mda/port*.

Syntax	*slot*[/*mda*[/*port*[.*sonet-sdh-index*]]]
Slot Values	7750 SR12: 1 - 10 7750 SR7: 1 - 5 7750 SR1: 1
MDA Values	7750 SR-c121, 2
Port Values	1 — 60 (depending on the MDA)
Channelized Port Values	(for channelized MDAs): M1-CHOC12-SFP: slot/mda/port. [1..4] . [1..3] . [1..28] . [..24] For example, 7/2/1.1.1.28.24 M12-DS3: slot/mda/port. [1..28] . [..24] For example, 7/1/1.1.1

connections — Display ATM connection information

interface-connection — Display ATM interface connection information

pvc — Displays ATM port PVC information

pvp — Displays ATM port PVP information

pvt — Displays ATM port PVT information

vpi — Specifies the ATM network virtual path identifier (VPI) for this PVC.

vci — Specifies the ATM network virtual channel identifier (VCI) for this PVC.

detail — Provides detailed information.

Output   **Port ATM PVC Detail Output —** The following table describes port ATM PVC detail output fields.

Table 52: Show Port ATM PVC VPI/VCI Detail Output Fields

Label	Description
Port Id	The port ID configured or displayed in the *slot/mda/port* format.
VPI/VCI	Displays the VPI/VCI values.
Admin State	Displays the administrative state of the interface connection.

Table 52: Show Port ATM PVC VPI/VCI Detail Output Fields (Continued)

Label	Description
Oper State	Indicates the status of the ATM interface.
OAM State	Indicates the OAM operational status of ATM connections. ETE indicates end-to-end connection. AIS denotes alarm indication signal. RDI denotes for remote defect indication. AIS-LOC indicates the alarm was due to loss of continuity of periodic loopbacks.
Encap Type	Indicates the encapsulation type.
Owner	Identifies the system entity that owns a specific ATM connection.
AAL Type	Displays ATM Adaptation Layer 5 (AAL5) information.
Endpoint Type	Displays the endpoint type.
Cast Type	Indicates the connection topology type.
Type	Indicates the connection type.
Ing. Td Idx	Specifies the ATM traffic descriptor profile that applies to the receive direction of the interface connection.
Egr. Td Idx	Specifies the ATM traffic descriptor profile that applies to the transmit direction of the interface connection.
Last Changed	Indicates the date and time when the interface connection entered its current operational state.
Octets	Displays the number of input and output octets. HEC discarded cells are not included in the input octet numbers.
Cells	Displays the number of input and output cells. HEC discarded cells are not included in the input cell numbers.
Packets	Displays the number of input and output packets. Packets discarded due to HEC or oversize discards are not counted. CRC errored are also in the packet counts and display on the VC level statistics but not on the port level.
Dropped Packets	Displays the number of packets dropped by the ATM SAR device.
CRC-32 Errors	Displays the number of valid AAL-5 SDUs and AAL-5 SDUs with CRC-32 errors received by the AAL-5 VCC.
Reassembly Time-outs	Displays the number of reassembly timeout occurrences.
Over Sized SDUs	Displays the total number of oversized SDU discards.
AIS	Displays the number of AIS cells transmitted and received on this connection for both end to end and segment.

Table 52: Show Port ATM PVC VPI/VCI Detail Output Fields (Continued)

Label	Description
RDI	Displays the number of RDI cells transmitted and received on this connection for both end to end and segment.
Loopback	Displays the number of loopback requests and responses transmitted and received on this connection for both end to end and segment.
CRC-10 Errors	Displays the number of cells discarded on this VPL with CRC 10 errors.
Other	Displays the number of OAM cells that are received but not identified.

Sample Output

```
A:ALA-1# show port 1/1/2 atm pvc 0/500 detail
===============================================================================
ATM Endpoint
===============================================================================
Port Id          : 1/1/2          VPI/VCI          : 0/500
Admin State      : up             Oper state       : down
OAM State        : ETE-AIS        Encap Type       : llc
Owner            : SAP            AAL Type         : AAL-5
Endpoint Type    : PVC            Cast Type        : P2P
Ing. Td Idx      : 5             Egr. Td Idx      : 3
Last Changed     : 02/14/2007 14:15:12
===============================================================================
ATM Statistics
===============================================================================
                                       Input                  Output
-------------------------------------------------------------------------------
Octets                                     0                       0
Cells                                      0                       0
===============================================================================
AAL-5 Packet Statistics
===============================================================================
                                       Input                  Output
-------------------------------------------------------------------------------
Packets                                    0                       0
Dropped Packets                            0                       0
CRC-32 Errors                              0
Reassembly Timeouts                        0
Over Sized SDUs                            0
===============================================================================
ATM OAM Statistics
===============================================================================
                                       Input                  Output
-------------------------------------------------------------------------------
AIS                                        0                       0
RDI                                        0                       0
Loopback                                   0                       0
CRC-10 Errors                              0
Other                                      0
===============================================================================
A:ALA-1#
```