# ATM-native Commands


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# encapsulation (ATM)

To configure the ATM adaptation layer (AAL) and encapsulation type for an ATM virtual circuit (VC), VC class , VC, bundle, or permanent virtual circuit (PVC) range, use the **encapsulation**command in the appropriate mode. To remove an encapsulation type, use the **no** form of this command.

**encapsulation** { **aal5mux** *protocol* | **aal5snap** }

**no encapsulation**

## Syntax Description

| | |
|---|---|
| **aal5mux** | Specifies the AAL and encapsulation type for multiplex (MUX)-type VCs. A protocol must be specified when you use this encapsulation type. |

| | |
|---|---|
| *protocol* | Protocol type being used by the multiplex (MUX)-encapsulated VC. Values for the *protocol*argument are as follows:<br>• **appletalk** --AppleTalk protocol.<br>• **bridge ieee8023** --Ethernet LAN protocol.<br>• **decnet** --DECnet protocol.<br>• **frame-relay** --Frame Relay-ATM Network Interworking (FRF.5) on the Cisco MC3810.<br>• **fr-atm-srv** --Frame Relay-ATM Service Interworking (FRF.8) on the Cisco MC3810.<br>• **ip** --IP protocol.<br>• **ipx** --Internet Packet Exchange (IPX) protocol.<br>• **ppp Virtual-Template** *template-number* - Internet Engineering Task Force (IETF)-compliant PPP over ATM. Use the **virtual-template** *template-number* option to identify the virtual template. This keyword is supported on ATM PVCs only.<br>• **pppoe** --PPP over Ethernet.<br>• **voice** --Voice over ATM. |
| **aal5snap** | Specifies the AAL and encapsulation type that supports Inverse Address Resolution Protocol (ARP). Logical link control/Subnetwork Access Protocol (LLC/SNAP) precedes the protocol datagram. |

## Command Default

The global default encapsulation option is **aal5snap**.

## Command Modes

ATM PVC configuration (config-if-pvc)

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE Catalyst SD-WAN Release 17.2.1v | Command qualified for use in Cisco vManage CLI templates. The **aal5snap** command option is qualified. |
| Cisco IOS XE Catalyst SD-WAN Release 17.3.1a | Command qualified for use in Cisco vManage CLI templates. The **aal5mux** *protocol* command option is qualified. |

## Usage Guidelines

For usage guidelines, see the Cisco IOS XE `encapsulation (ATM)` command.

### MUX-Type Encapsulation on a VC Example

```
Device(config)# interface ATM 0/3/0
Device(config-subif)# no shutdown
Device(config-subif)# pvc 0/1
Device(config-if-pvc)# encapsulation aal5mux ppp Virtual-Template 1
```

### SNAP Encapsulation Example

```
Device(config)# interface ATM 0/3/0.1 point-to-point

Device(config-subif)# ip address 10.0.0.0 255.255.255.252
Device(config-subif)# ip mtu 1496
Device(config-subif)# no shutdown
Device(config-subif)# pvc 0/100
Device(config-if-pvc)# bridge-dot1q encap 1
Device(config-if-pvc)# encapsulation aal5snap
```

### MUX Encapsulation Example

```
Device(config)# interface ATM 0/2/0.1 point-to-point
Device(config-subif)# pvc 0/1
Device(config-if-pvc)# encapsulation aal5mux ppp dialer
```

# interface ATM

To configure an ATM interface and enter interface configuration mode, use the **interface ATM** command in global configuration mode. To remove an ATM interface configuration, use the no form of this command.

**interface atm** *interface-number* [ **.** *subinterface-number* { **multipoint** | **point-to-point** } ]
**no interface ATM** *interface-number*

## Syntax Description

| | |
|---|---|
| *interface-number* | Specifies a (physical) ATM interface (for example, 3/0). |
| **.** *subinterface-number* | (Optional) Specifies a subinterface number. A dot (.) must be used to separate the *interface-number* from the *subinterface-number* (for example 2/0.1). |
| **multipoint** | (Optional) Specifies multipoint as the interface type for which a subinterface is to be created. |
| **point-to-point** | (Optional) Specifies point-to-point as the interface type for which a subinterface is to be created. |

## Command Default

No ATM interfaces are configured.

## Command Modes

Global configuration (config)

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE Catalyst SD-WAN Release 17.3.1a | Command qualified for use in Cisco vManage CLI templates. |

## Usage Guidelines

For usage guidelines, see the Cisco IOS XE `interface atm` command.

**Examples**

For physical ATM interface 3/0, the following command creates an ATM subinterface having subinterface number 1:

```
Device(config)# interface ATM 3/0.1
```

**Examples**

For physical ATM interface 0/2/0.1, the following command creates an ATM subinterface:

```
Device(config)# interface ATM 0/2/0.1
```

**Examples**

The following command specifies point-to-point as the interface type for which an ATM subinterface is created:

```
Device(config)# interface ATM 0/2/0.1 point-to-point
```

# oam-pvc

To enable end-to-end F5 Operation, Administration, and Maintenance (OAM) loopback cell generation and OAM management for an ATM permanent virtual circuit (PVC), virtual circuit (VC) class, or label-controlled ATM (LC-ATM) VC, use the **oam-pvc** command in the appropriate command mode. To disable generation of OAM loopback cells and OAM management, use the **no** form of this command.

**ATM VC**
**oam-pvc** [ *frequency* | **manage** [*frequency*] ]
**no oam-pvc** [ *frequency* | **manage** [*frequency*] ]

**Syntax Description**

| | |
|---|---|
| *frequency* | (Optional) Specifies the time delay between transmittals of OAM loopback cells, in seconds. For ATM VCs , the range is 0 to 600, and the default is 10. |
| **manage** | (Optional) for ATM VCs; Enables OAM management. The default is disabled. |

**Command Default**

OAM management is disabled.

**Command Modes**

ATM VC class configuration (config-vc-class)
ATM VC configuration (config-if-atm-vc)
ATM PVC configuration (config-if-pvc)
Control-VC configuration (cfg-mpls-atm-cvc)
PVC-in-range configuration (cfg-if-atm-range-pvc)

**Command History**

| Release | Modification |
|---|---|
| Cisco IOS XE Catalyst SD-WAN Release 17.3.1a | Command qualified for use in Cisco vManage CLI templates. |

**Usage Guidelines**

For usage guidelines, see the Cisco IOS XE oam-pvc command.

## Examples

The following example shows OAM management on an LC-ATM interface with a transmission frequency of 2 seconds:

```
Router(config)# interface ATM 0/2/0.1 point-to-point
Router(config-subif)# pvc 0/1
Router(config-if-pvc)# oam-pvc manage 2
```

# oam retry

To configure parameters related to Operation, Administration, and Maintenance (OAM) management for an ATM permanent virtual circuit (PVC), switched virtual circuit (SVC), VC class, or VC bundle, or label-controlled ATM (LC-ATM) VC, use the **oam retry** command in the appropriate command mode. To remove OAM management parameters, use the **no** form of this command.

**oam retry** *up-count down-count retry-frequency*
**no oam retry**

## Syntax Description

| | |
|---|---|
| *up-count* | Number of consecutive end-to-end F5 OAM loopback cell responses that must be received in order to change a connection state to up. This argument does not apply to SVCs. |
| *down-count* | Number of consecutive end-to-end F5 OAM loopback cell responses that are not received in order to change the state to down or tear down an SVC connection. |
| *retry-frequency* | The frequency (in seconds) at which end-to-end F5 OAM loopback cells are transmitted when a change in the up/down state is being verified. For example, if a PVC is up and a loopback cell response is not received after the *retry-frequency* (in seconds) argument is specified using the **oam-pvc** command, loopback cells are sent at the *retry-frequency* to verify whether the PVC is down. |

## Command Default

**ATM PVCs and SVCs**

*up-count* : 3*down-count*: 5*retry-frequency*: 1 second

**LC-ATM VCs**

*up-count* : 2*down-count*: 2*retry-frequency*: 2 seconds

## Command Modes

Bundle configuration mode (for a VC bundle)
Control-VC configuration (for an LC-ATM VC)
Interface-ATM-VC configuration (for an ATM PVC or SVC)
PVC range configuration (for an ATM PVC range)
PVC-in-range configuration (for an individual PVC within a PVC range)
VC-class configuration (for a VC class)

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE Catalyst SD-WAN Release 17.3.1a | Command qualified for use in Cisco vManage CLI templates. |

**Usage Guidelines**

For usage guidelines, see the Cisco IOS XE oam retry command.

**Examples**

The following example shows how to configure the OAM management parameters with an up count of 3, a down-count of 3, and the retry frequency set at 10 seconds:

```
Device(config)# interface ATM 0/2/0.1 point-to-point
Device(config-subif)# pvc 0/1
Device(config-if-pvc)# oam retry 3 3 10
```

# pvc

To create or assign a name to an ATM permanent virtual circuit (PVC), to specify the encapsulation type on an ATM PVC, and to enter ATM virtual circuit configuration mode, use the **pvc** command in interface configuration mode or subinterface configuration mode. To remove an ATM PVC from an interface, use the **no** form of this command.

**pvc** *vpi/vci*

**Syntax Description**

| | |
|---|---|
| *vpi* | Specifies the ATM network virtual path identifier (VPI) for this PVC. The slash is required. This value defaults to 0 if no value is given for *vpi/*.<br><br>The arguments *vpi* and *vci* cannot both be set to 0; if one is 0, the other cannot be 0. |
| *vci* | Specifies the ATM network virtual channel identifier (VCI) for this PVC. The range of valid values is 0 to 1 less than the maximum value set for this interface by the atm vc-per-vp command. Lower values from 0 to 31 are usually reserved for specific traffic such as: F4 Operation Administration and Maintenance (OAM), SSL VPN Client (SVC) signaling, Interim Local Management Interface (ILMI), and so on.; and should not be used.<br><br>The VCI value is a 16-bit field in the header of the ATM cell. The VCI value is unique only on a single link, not throughout the ATM network, because it has local significance only.<br><br>A value that is out of range causes an “unrecognized command” error message.<br><br>The arguments vpi and vci cannot both be set to 0; if one is 0, the other cannot be 0. |

**Command Default**

No PVC is defined.

**Command Modes**

Interface configuration (config-if)
Subinterface configuration (config-subif)

**Usage Guidelines**

This command is used to create or assign a name to an ATM permanent virtual circuit (PVC), to specify the encapsulation type on an ATM PVC, and to enter ATM virtual circuit configuration mode.

When a PVC is defined, the global default of the encapsulation command applies (aal5snap). Use the **pvc** command to configure a single ATM VC only, not a VC that is a bundle member.

**Command History**

| Release | Modification |
|---|---|
| Cisco IOS XE Catalyst SD-WAN Release 17.2.1v | Command qualified for use in Cisco vManage CLI templates. |

### Examples

The following example specifies the output PCR for an ATM PVC to be 100,000 kbps, the output SCR to be 50,000 kbps, and the output MBS to be 64:

```
Device# config-t
Device(config)# interface ATM 0/2/0
Device(config-if)# no shut
Device(config-if)# interface ATM 0/2/0.1 point-to-point
Device(config-subif)# pvc 0/32
```

# service-policy

To attach a policy map to an input interface or an output interface, use the **service-policy** command in the appropriate configuration mode. To remove a service policy from an input or output interface, use the **no** form of this command.

**service-policy output** *policy-map-name*
**no service-policy**

## Syntax Description

| | |
|---|---|
| **output** | Attaches the specified policy map to the output interface or output VC. |
| *policy-map-name* | The name of a service policy map (created using the **policy-map** command) to be attached. The name can be a maximum of 40 alphanumeric characters in length. |

## Command Default

No service policy is specified. A control policy is not applied to a context. No policy map is attached.

## Command Modes

Interface configuration (config-if)

Subinterface configuration (config-subif)

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE Catalyst SD-WAN Release 17.2.1v | Qualified for use in Cisco vManage CLI templates. |

## Usage Guidelines

For the usage guidelines, see service-policy.

## Examples

```
Device(config)# interface GigabitEthernet 1
Device(config-if)# service-policy output  policy_1
```

## Examples

```
Device(config)# interface ATM 0/2/0.1 point-to-point
Device(config-subif)# service-policy output  policy_1
```

# vbr-nrt

To configure the variable bit rate-nonreal time (VBR-NRT) quality of service (QoS) and specify output peak cell rate (PCR), output sustainable cell rate (SCR), and output maximum burst cell size for an ATM permanent virtual circuit (PVC), PVC range, switched virtual circuit (SVC), VC class, or VC bundle member, use the **vbr-nrt** command in the appropriate command mode. To remove the VBR-NRT parameters, use the **no** form of this command.

**vbr-nrt** *output-pcr output-scr* [*output-maxburstsize*] [*input-pcr*] [*input-scr*] [*input-maxburstsize*]
**no vbr-nrt** *output-pcr output-scr output-maxburstsize* [*input-pcr*] [*input-scr*] [*input-maxburstsize*]

## Syntax Description

| | |
|---|---|
| *output-pcr* | The output PCR, in kilobytes per second (kbps). |
| *output-scr* | The output SCR, in kbps. |
| *output-maxburstsize* | The output maximum burst cell size, expressed in number of cells. |
| *input-pcr* | (Optional for SVCs only) The input PCR, in kbps. |
| *input-scr* | (Optional for SVCs only) The input SCR, in kbps. |
| *input-maxburstsize* | (Optional for SVCs only) The input maximum burst cell size, expressed in number of cells. |

## Command Default

Unspecified bit rate (UBR) QoS at the maximum line rate of the physical interface is the default.

## Command Modes

ATM PVC-in-range configuration (for an individual PVC within a PVC range)
ATM PVC range configuration (for an ATM PVC range)
ATM PVP configuration
Bundle-vc configuration (for ATM VC bundle members)
Interface-ATM-VC configuration (for an ATM PVC or SVC)
VC-class configuration (for a VC class)

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE Catalyst SD-WAN Release 17.3.1a | Command qualified for use in Cisco vManage CLI templates. |

## Usage Guidelines

For usage guidelines, see the Cisco IOS XE vbr-nrt command.

## Examples

The following example specifies the output PCR for an ATM PVC to be 48 kbps, the output SCR to be 1 kbp:

```
Device(config)# interface ATM 0/2/0.1 point-to-point
Device(config-subif)# pvc 0/1
Device(config-if-pvc)# vbr-nrt 48 1
```

# Physical and Logical ATM Interface Commands

## bridge-dot1q encap

To add a VLAN ID to an ATM permanent virtual circuit (PVC) over an ATM xDSL link or a PVC configured using Route-Bridge Encapsulation (RBE), use the **bridge-dot1q encap** command in ATM PVC configuration mode. To prevent a VLAN ID from being sent across the link, use the **no** form of this command.

**bridge-dot1q encap** *outgoing-vlan-id*
**no bridge-dot1q encap** *outgoing-vlan-id*

**Syntax Description**

| | |
|---|---|
| *outgoing-vlan-id* | The VLAN ID to be carried over an ATM xDSL link. The valid value of the VLAN ID can range from 1 to 4094. |

**Command Default**

If this command is not used a VLAN ID is not added to an ATM PVC configured over an ATM xDSL link or a PVC configured using RBE.

**Command Modes**

ATM PVC configuration (config-if-pvc)

**Command History**

| Release | Modification |
|---|---|
| Cisco IOS XE Catalyst SD-WAN Release 17.2.1v | Command qualified for use in Cisco vManage CLI templates. |

**Usage Guidelines**

You can configure only one 802.1Q VLAN tag under a PVC.

If the incoming packet at the Fast Ethernet port contains an ingress 802.1Q tag, the ingress 802.1Q tag is replaced by the egress 802.1Q tag while the packet is forwarded over an ATM xDSL link.

The **bridge-dot1q encap** *outgoing-vlan-id* command can also be used to tag packets on a PVC that is configured on an RBE subinterface.

The Transporting 802.1Q Tag over PVC feature is supported only for ATM Adaptation Layer 5 Subnetwork Protocol Access Protocol (AAL5-SNAP) encapsulation.

**Examples**

```
Device(config)# interface ATM 0/3/0.1 point-to-point

Device(config-subif)# ip address 10.0.0.0 255.255.255.252
Device(config-subif)# ip mtu 1496
Device(config-subif)# no shutdown
Device(config-subif)# pvc 0/100
Device(config-if-pvc)# bridge-dot1q encap 1
```

## dialer pool-member

To configure a physical interface to be a member of a dialer profile dialing pool, use the **dialer pool-member** command in interface configuration mode. To remove the configuration, use the **no** form of this command.

**dialer pool-member** *number*

**no dialer pool-member**

**Syntax Description**

| | |
|---|---|
| *number* | Dialing pool number. Range is from 1 to 255. |

**Command Default**

The interface is not a member of a dialer profile dialing pool.

**Command Modes**

ATM PVC configuration (config-if-pvc)

**Command History**

| Release | Modification |
|---|---|
| Cisco IOS XE Catalyst SD-WAN Release 17.2.1v | Command qualified for use in Cisco vManage CLI templates. |

**Usage Guidelines**

The common dialing pool number used in the **dialer pool** command and in the **dialer pool-member** command links the physical interface and dialer interface configurations.

For more usage guidelines, see the Cisco IOS XE dialer pool-member command.

### Example

```
Device(config)# interface ATM 0/3/0/0.1 point-to-point
Device(config-subif)# pvc 0/100
Device(config-if-pvc)# dialer pool-member 1
```

# ip mtu

To set the maximum transmission unit (MTU) size of IP packets that are sent on an interface, use the **ip mtu** command in interface configuration mode. To restore the default MTU size, use the **no** form of this command.

**ip mtu** *bytes*
**no ip mtu**

**Syntax Description**

| | |
|---|---|
| *bytes* | MTU size, in bytes. |

**Command Default**

The default MTU value depends on the interface type.

***Table 1: Default MTU Values by Interface Type***

| Interface Type | Default MTU (Bytes) |
|---|---|
| ATM | 4470 |
| Ethernet | 1500 |
| FDDI | 4470 |
| High-Speed Serial Interface High Speed Access (HSSI HSA) | 4470 |

| Interface Type | Default MTU (Bytes) |
|---|---|
| Serial | 1500 |
| Token Ring | 4464 |
| VRF-Aware Service Infrastructure (VASI) | 9216 |

**Command Modes**

Interface configuration (config-if)
Subinterface configuration (config-subif)

**Command History**

| Release | Modification |
|---|---|
| Cisco IOS XE Catalyst SD-WAN Release 17.2.1v | Qualified for use in Cisco vManage CLI templates. |

**Usage Guidelines**

For the usage guidelines, see the IOS XE ip mtu command.

**Examples**

```
Device(config)# interface GigabitEthernet 1
Device(config-if)# ip mtu 1500
```

```
Device(config)# interface ATM 0/2/0.1 point-to-point
Device(config-if)# ip mtu 1500
```

# load-interval

To change the length of time for which data is used to compute load statistics, use the **load-interval** command in the interface or sub-interface configuration mode. To revert to the default setting, use the **no**form of this command.

**load-interval** *seconds*
**no load-interval** *seconds*

**Syntax Description**

| | |
|---|---|
| *seconds* | Length of time for which data is used to compute load statistics. Value is a multiple of 30, from 30 to 600 (30, 60, 90, 120, and so on). The default is 300 seconds. |

**Command Default**

Enabled

**Command Modes**

Interface configuration (config-if)

Sub-interface configuration (config-subif)

**Command History**

| Release | Modification |
|---|---|
| Cisco IOS XE Catalyst SD-WAN Release 17.2.1v | Command qualified for use in Cisco vManage CLI templates. |

**Usage Guidelines**

For the usage guidelines, see load-interval.

### Interface Example

```
Device(config)# interface ATM 0/3/0.1 point-to-point
Device(config-subif)# load-interval 30
```

# protocol (ATM)

To configure a static map for an ATM permanent virtual circuit (PVC), switched virtual circuit (SVC), or virtual circuit (VC) class or to enable Inverse Address Resolution Protocol (ARP) or Inverse ARP broadcasts on an ATM PVC, use the **protocol** command in the appropriate mode. To remove a static map or disable Inverse ARP, use the **no** form of this command.

**protocol** *protocol* **dialer**
**no protocol** *protocol*

**Syntax Description**

| | |
|---|---|
| *protocol* | Choose one of the following values:<br>• **aarp** —AppleTalk ARP<br>• **appletalk**—AppleTalk<br>• **arp**—IP ARP<br>• **bridge**—bridging<br>• **bstun**—block serial tunnel<br>• **cdp**—Cisco Discovery Protocol<br>• **clns**—ISO Connectionless Network Service (CLNS)<br>• **clns_es**—ISO CLNS end system<br>• **clns_is**—ISO CLNS intermediate system<br>• **cmns**—ISO CMNS<br>• **compressedtcp**—Compressed TCP<br>• **decnet**—DECnet<br>• **decnet_node**—DECnet node<br>• **decnet_prime_router**—DECnet prime router<br>• **decnet_router-l1**—DECnet router L1<br>• **decnet_router-l2**—DECnet router L2<br>• **dlsw**—data link switching<br>• **ip**—IP**ipx**—Novell IPX<br>• **llc2**—llc2<br>• **pad**—packet assembler/disassembler (PAD) links<br>• **ppp**—Point-to-Point Protocol carried on the VC<br>• **pppoe**—PPP over Ethernet<br>• **qllc**—Qualified Logical Link Control protocol<br>• **rsrb**—remote source-route bridging<br>• **snapshot**—snapshot routing support<br>• **stun**—serial tunnel |
| **dialer** | Specifies a dialer interface that an accept-dialout virtual private dialup network (VPDN) subgroup will use to dial out calls. |

**Command Default**

Inverse ARP is enabled for IP and IPX if the protocol is running on the interface and no static map is configured.

**Command Modes**

Interface-ATM-VC configuration (for an ATM PVC or SVC)

VC-class configuration (for a VC class)

PVC range configuration (for an ATM PVC range)

PVC-in-range configuration (for an individual PVC within a PVC range)

## Command History

| Release | Modification |
|---|---|
| Cisco IOS XE Catalyst SD-WAN Release 17.3.1a | Command qualified for use in Cisco vManage CLI templates. |

## Usage Guidelines

For usage guidelines, see the Cisco IOS XE `protocol (ATM)` command.

## Examples

The following example creates a static map on a VC, indicates that 192.0.2.2 is connected to this VC, and sends ATM pseudobroadcasts:

```
protocol ip 192.0.2.2 broadcast
```

The following example enables Inverse ARP for IPX and does not send ATM pseudobroadcasts:

```
protocol ipx inarp no broadcast
```

The following example removes a static map from a VC and restores the default behavior for Inverse ARP (see the “Command Default” section described above):

```
no protocol ip 192.0.2.2
```

In the following example, the VC carries PPP traffic and its associated parameters.

```
protocol ppp 192.0.2.2 virtual-template
```

In the following example, the VC carries PPP traffic to a dialer interface .

```
interface ATM 0/2/0.1 point-to-point
pvc 0/1
protocol ppp dialer
```