

idle-timeout

To configure the idle timeout parameter for tearing down an ATM switched virtual circuit (SVC) connection, use the **idle-timeout** command in the appropriate command mode. To disable the timeout parameter, use the **no** form of this command.

idle-timeout *seconds* [*minimum-rate*]

no idle-timeout *seconds* [*minimum-rate*]

Syntax Description

<i>seconds</i>	Number of seconds that the SVC is idle, after which the ATM SVC is disconnected.
<i>minimum-rate</i>	(Optional) Minimum traffic rate, in kilobits per second (kbps), required on an ATM SVC to maintain the SVC connection.

Defaults

The default idle timeout is 300 seconds.
The default minimum rate is 0 kbps.

Command Modes

Interface-ATM-VC configuration (for ATM permanent virtual circuits [PVCs] or SVCs)
VC-class configuration (for virtual circuit [VC] classes)

Command History

Release	Modification
11.3	This command was introduced.

Usage Guidelines

If within the idle timeout period, both the input and output traffic rates are below the *minimum-rate*, the SVC connection is torn down. The input and output traffic rates are set using the **ubr**, **ubr+**, or **vbr-nrt** command.

If the **idle-timeout** command is not explicitly configured on an ATM SVC, the SVC inherits the following default configuration (listed in order of next highest precedence):

- Configuration of the **idle-timeout** command in a VC class assigned to the SVC itself.
- Configuration of the **idle-timeout** command in a VC class assigned to the SVC's ATM subinterface.
- Configuration of the **idle-timeout** command in a VC class assigned to the SVC's ATM main interface.
- Global default—The global idle timeout default is the value set using the **idle-timeout** interface configuration command. If the **idle-timeout** command is not configured, the default idle timeout is 300 seconds, and the *minimum-rate* is 0 kbps.

Examples

The following example configures an ATM SVC connection inactive after an idle period of 300 seconds. The SVC connection is also configured so that it is considered inactive if the traffic rate is less than 5 kbps.

```
idle-timeout 300 5
```

Related Commands	Command	Description
	ubr	Selects UBR QoS and configures the output peak cell rate for an ATM PVC, SVC, or VC class.
	ubr+	Selects UBR QoS and configures the output peak cell rate and output minimum guaranteed cell rate for an ATM PVC, SVC, or VC class.
	vbr-nrt	Configures the VBR-NRT QoS and specifies output peak cell rate, output sustainable cell rate, and output maximum burst cell size for an ATM PVC, SVC, or VC class.

idle-timeout (SSG)

To configure a host object timeout value, use the **idle-timeout** command in SSG-radius-proxy configuration mode. To disable the timeout value, use the **no** form of this command.

idle-timeout *timeout*

no idle-timeout *timeout*

Syntax Description	<i>timeout</i>	Timeout value in seconds. Valid range is from 30 to 65536.
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Defaults No timeout value is configured.

Command Modes SSG-radius-proxy configuration

Command History	Release	Modification
	12.2(4)B	This command was introduced.
	12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.

Usage Guidelines Use this command to configure a timeout value for a host object. Configuring this command prevents dangling host objects on the Service Selection Gateway (SSG). If a RADIUS client reloads and does not indicate its fault condition to the SSG, the SSG retains the host objects that are no longer valid. This command removes all host objects from a RADIUS client that has been idle for the time specified by the *timeout* argument. When configured, this timeout value is added to the host object.



Note

Timeout values configured in the user profile that appear in the Access-Accept take precedence over any timeout value configured by the **idle-timeout** command.

Examples The following example shows how to configure a timeout value of 60 seconds:

```

ssg radius-proxy
server-port auth 1645 acct 1646
client-address 10.1.2.2 key secret1
client-address 10.2.25.90 key secret2
client-address 10.0.0.1 key secret3
client-address 10.23.3.2 key secret4
idle-timeout 60
forward accounting-start-stop
address-pool 10.1.1.1 10.1.40.250
address-pool 10.1.5.1 10.1.5.30 domain ssg.com

```

Related Commands

Command	Description
address-pool	Defines local IP pools to be used by SSG to assign IP addresses to users for which SSG is acting as a RADIUS client.
clear ssg radius-proxy client-address	Clears all hosts connected to a specific RADIUS client.
clear ssg radius-proxy nas-address	Clears all hosts connected to a specific NAS.
forward accounting-start-stop	Proxies accounting start, stop, and update packets generated by any RADIUS clients to the AAA server.
server-port	Defines the ports for the SSG RADIUS proxy.
show ssg tcp-redirect group	Displays the pool of IP addresses configured for a router or for a specific domain.
ssg enable	Enables SSG.
ssg radius-proxy	Enables SSG RADIUS Proxy.

ilmi manage

To enable Integrated Local Management Interface (ILMI) management on an ATM permanent virtual circuit (PVC), use the **ilmi manage** command in the appropriate command mode. To disable ILMI management, use the **no** form of this command.

ilmi manage

no ilmi manage

Syntax Description

This command has no arguments or keywords.

Defaults

ILMI management is disabled.

Command Modes

Interface-ATM-VC configuration (for an ATM PVC)
 VC-class configuration (for a virtual circuit [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
11.3 T	This command was introduced.
12.1(5)T	This command was made available in PVC range and PVC-in-range configuration modes.

Usage Guidelines

If the **ilmi manage** command is not explicitly configured on an ATM PVC, the PVC inherits the following default configuration (listed in order of precedence):

- Configuration of the **ilmi manage** command in a VC class assigned to the PVC itself.
- Configuration of the **ilmi manage** command in a VC class assigned to the PVC's ATM subinterface.
- Configuration of the **ilmi manage** command in a VC class assigned to the PVC's ATM main interface.
- Global default: ILMI management is disabled.

Examples

The following example enables ILMI management on the ATM PVC with VPI 0 and VCI 60. The ILMI PVC is assigned the name routerA and the VPI and VCI are 0 and 16, respectively.

```
interface atm 0/0
 pvc routerA 0/16 ilmi
 exit
interface atm 0/0.1 multipoint
 pvc 0/60
 ilmi manage
```

ima active-links-minimum

To set the minimum number of links that must be operating in order for an ATM inverse multiplexing over ATM (IMA) group to remain in service, use the **ima active-links-minimum** interface configuration command. To remove the current configuration and set the value to the default, use the **no** form of this command.

ima active-links-minimum *number*

no ima active-links-minimum *number*

Syntax Description	<i>number</i>	Number of links; a value from 1 to 8.
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Defaults	Links: 1
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Command Modes	Interface configuration
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Command History	Release	Modification
	12.0(5)XK	This command was introduced on Cisco 2600 and 3600 series routers.
	12.0(5)T	This command was integrated into Cisco IOS Release 12.0(5)T.
	12.0(5)XE	Support for Cisco 7200 and 7500 series routers was added.
	12.0(7)XE1	Support for Cisco 7100 series routers was added.
	12.1(5)T	Support for Cisco 7100, 7200, and 7500 series routers was integrated into Cisco IOS Release 12.1(5)T.

Usage Guidelines	The minimum number of links that should be active for continued group operation depends upon the applications you are using and the speeds they require. ATM frame size and the number of links in a group affect the overhead required by ATM.
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Examples	The following example specifies that two links in IMA group 2 must be operational in order for the group to remain in service:
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```
interface atm 0/ima2
  ima active-links-minimum 2
```

Related Commands	Command	Description
	interface atm ima	Configures an ATM IMA group.

ima clock-mode

To set the transmit clock mode for an ATM inverse multiplexing over ATM (IMA) group, use the **ima clock-mode** command in interface configuration mode. To remove the current configuration, use the **no** form of this command.

```
ima clock-mode { common port | independent }
```

```
no ima clock-mode
```

Syntax Description

common	Sets the transmit clocks for all the links in the group to be derived from the same source.
<i>port</i>	Link that will provide clocking for the IMA group (called the command link). If the common link fails, the system automatically chooses one of the remaining active links to provide clocking.
independent	Sets the transmit clock source for at least one link in the IMA group to be different from the clock source used by the other links.

Defaults

The default value is **common**. If no port is specified, the system automatically chooses an active link to provide clocking.

Command Modes

Interface configuration

Command History

Release	Modification
12.0(5)XK	This command was introduced on Cisco 2600 and 3600 series routers.
12.0(5)T	This command was integrated into Cisco IOS Release 12.0(5)T
12.0(5)XE	This command was implemented on Cisco 7200 and 7500 series routers.
12.0(7)XE1	This command was implemented on Cisco 7100 series routers.
12.1(5)T	Support for Cisco 7100, 7200, and 7500 series routers was implemented in Cisco IOS Release 12.1(5)T.

Usage Guidelines

This command controls the clock for the IMA group as a whole. If all the links in the group share a clock source, use the **common** keyword. If all the links use different clock sources, use the **independent** clock source keyword.

When the **common** keyword is set, the **clock source** ATM interface configuration command for the common link determines clocking for all the links in the group. When the **independent** keyword is set, the **clock source** ATM interface configuration command is used under each interface to determine clocking individually.

Because the system automatically chooses a replacement for the common link when it fails, any link in an IMA group potentially can provide the recovered transmit clock. For this reason, even when the common keyword is set with a specific link stipulated by the port value, you should use the ATM interface configuration **clock source** command to make sure that the clock source is configured correctly on each interface in the IMA group.

Examples

The following example specifies that the links in IMA group 2 use a common clock source on link 0:

```
interface atm0/ima2
  ima clock-mode common 0
```

Related Commands

Command	Description
clock source	Configures the clock source of a DS1 link.
interface atm ima	Configures an ATM IMA group.
show ima interface atm	Provides information about all configured IMA groups or a specific IMA group.

ima differential-delay-maximum

To specify the maximum differential delay among the active links in an inverse multiplexing over ATM (IMA) group, use the **ima differential-delay-maximum** command in interface configuration mode. To restore the default setting, use the **no** form of this command.

ima differential-delay-maximum *milliseconds*

no ima differential-delay-maximum *milliseconds*

Syntax Description	<i>msec</i>	Specifies the differential delay in milliseconds (ms). The range of values depends on the type of card used. PA-A3-8T1IMA—25 to 250 milliseconds PA-A3-8E1IMA—25 to 190 milliseconds NM-8T1-IMA—25 to 200 milliseconds
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Defaults	25 milliseconds
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Command Modes	Interface configuration
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Command History	Release	Modification
	12.0(5)XK	This command was introduced on Cisco 2600 and 3600 series routers.
	12.0(5)T	This command was integrated into Cisco IOS Release 12.0(5)T.
	12.0(5)XE	This command was implemented on Cisco 7200 and 7500 series routers.
	12.0(7)XE1	This command was implemented on Cisco 7100 series routers.
	12.1(5)T	Support for Cisco 7100, 7200, and 7500 series routers was implemented in Cisco IOS Release 12.1(5)T.

Usage Guidelines This command helps control latency in ATM-layer traffic by setting a limit on how much latency the slowest link in the group is allowed to introduce (a slower link has a longer propagation delay—for example, due to a longer path through the network or less accurate physical layer clocking—than other links). Setting a high value allows a slow link to continue operating as part of the group, although such a setting means there is added delay to links across the group. A low setting may result in less latency for traffic across the group than a high setting, but it can mean that the system takes a slow link out of operation, reducing total bandwidth.

When a link has been removed from service, it is automatically placed back in service when it meets the delay differential standard. If a link delay exceeds the specified maximum, the link is dropped; otherwise, the IMA feature adjusts for differences in delays so that all links in a group are aligned and carry ATM-layer traffic.

ima differential-delay-maximum**Examples**

The following example specifies that the links in IMA group 2 have a maximum differential delay of 50 ms:

```
interface atm0/ima2
  ima differential-delay-maximum 50
```

Related Commands

Command	Description
show ima interface atm	Provides information about all configured IMA groups or a specific IMA group.

ima frame-length

To specify the number of cells in inverse multiplexing over ATM (IMA) frames, use the **ima frame-length** interface configuration command. To remove the current setting and restore the default value, use the **no** form of this command.

```
ima frame-length {32 | 64 | 128 | 256}
```

```
no ima frame-length {32 | 64 | 128 | 256}
```

Syntax Description

32	Specifies a value of 32 cells.
64	Specifies a value of 64 cells.
128	Specifies a value of 128 cells.
256	Specifies a value of 256 cells.

Defaults

The default value is 128 cells in a frame.

Command Modes

Interface configuration

Command History

Release	Modification
12.0(5)XE	This command was introduced.
12.0(7)XE1	Support for Cisco 7100 series routers added.
12.1(5)T	This command was integrated into Cisco IOS Release 12.1(5)T.

Usage Guidelines

IMA frames are numbered sequentially, and each contains an IMA Control Protocol (ICP) cell at a specific position.

Frame length can affect performance because the greater the total number of frames required to communicate a given number of cells, the greater the overhead for header and other control cells. In addition, shorter frame lengths might diminish performance when translated ATM-Frame Relay interworking occurs.

Examples

On Cisco 7100 and 7200 series routers, the following example specifies that the links in IMA group 2 have a frame length of 64 cells:

```
interface atm 1/ima2
  ima frame-length 64
```

ima test

To specify an interface and test pattern for verifying connectivity of all links in an inverse multiplexing over ATM (IMA) group, use the **ima test** command in interface configuration mode. To stop the test, use the **no** form of this .

```
ima test [link port] [pattern pattern-id]
```

```
no ima test [link port] [pattern pattern-id]
```

Syntax Description

<i>link port</i>	(Optional) The identifier for the interface where the physical link is located.
<i>pattern pattern-id</i>	(Optional) A value from 0 to 254, set in hexadecimal or decimal numbers, identifying a pattern to be sent to the far end of the link.

Defaults

There is no default for the *port* value. The default value for *pattern-id* is 106 (0x6A).

Command Modes

Interface configuration

Command History

Release	Modification
12.0(5)XK	This command was introduced on Cisco 2600 and 3600 series routers.
12.0(5)T	This command was integrated into Cisco IOS 12.0(5)T.
12.0(5)XE	Support for Cisco 7200 and 7500 series routers was added.
12.0(7)XE1	Support for Cisco 7100 series routers was added.
12.1(5)T	This command was integrated into Cisco IOS Release 12.1(5)T.

Usage Guidelines

To verify link and group connectivity, the pattern is sent from the specified link and looped back from the receiving end across all links belonging to the group as defined at the remote end. Verifying link and group connectivity can help troubleshoot physical link connectivity or configuration problems at the remote end. The local end verifies that the pattern is returned on all links belonging to the group at the local end, and testing is continuous. An IMA control protocol (ICP) cell in each frame identifies the pattern.

When a link is not transmitting or receiving a pattern correctly, the command reports the link number where the problem exists.

Examples

The following example configures link 4 to send test pattern 56:

```
interface atm 0/ima 2
  ima test link 2 pattern 56
```

Related Commands

Command	Description
show ima interface atm	Provides information about all configured IMA groups or a specific IMA group.

ima-group

To define physical links as inverse multiplexing over ATM (IMA) group members, use the **ima-group** command in interface configuration mode for each group member. To remove the port from the group, use the **no** form of this command.

ima-group *group-number*

no ima-group *group-number*

Syntax Description

<i>group-number</i>	Specifies an IMA group number from 0 to 3. IMA groups can span multiple ports on a port adapter but cannot span port adapters.
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Defaults

Physical links are not included in IMA groups.

Command Modes

Interface configuration

Command History

Release	Modification
12.0(5)XK	This command was introduced on Cisco 2600 and 3600 series routers.
12.0(5)T	This command was integrated into Cisco IOS 12.0(5)T.
12.0(5)XE	Support for Cisco 7200 and 7500 series routers was added.
12.0(7)XE1	Support for Cisco 7100 series routers was added.
12.1(5)T	Support for Cisco 7100, 7200, and 7500 series routers was integrated into Cisco IOS Release 12.1(5)T.

Usage Guidelines

When the configuration is first performed or when the group number is changed, the interface is automatically disabled, moved to the new group, and then enabled.

Examples

The following example makes interface 1 on the ATM module in slot 0 a member of IMA group 2:

```
interface atm0/1
  ima-group 2
```

Related Commands

Command	Description
interface atm	Configures an ATM interface.
interface atm ima	Configures an ATM IMA group.
show ima interface atm	Provides information about all configured IMA groups or a specific IMA group.
shutdown (interface)	Disables an interface.

inarp

To configure the Inverse Address Resolution Protocol (ARP) time period for an ATM permanent virtual circuit (PVC), virtual circuit (VC) class, or VC bundle, use the **inarp** command in the appropriate command mode. To restore the default Inverse ARP time period behavior, use the **no** form of this command.

inarp *minutes*

no inarp *minutes*

Syntax Description

minutes Number of minutes for the Inverse ARP time period.

Defaults

minutes: 15 minutes.

Command Modes

Interface-ATM-VC configuration (for an ATM PVC)
 VC-class configuration (for a VC class)
 Bundle configuration (for a VC bundle)
 PVC range configuration (for an ATM PVC range)
 PVC-in-range configuration (for an individual PVC within a PVC range)

Command History

Release	Modification
11.3 T	This command was introduced.
12.0(3)T	This command was enhanced to provide support to configure the Inverse ARP time period for an ATM VC bundle.
12.1(5)T	This command was made available in PVC range and PVC-in-range configuration modes.

Usage Guidelines

This command is supported for **aal5snap** encapsulation only when Inverse ARP is enabled. Refer to the **encapsulation** command for configuring **aal5snap** encapsulation and the **protocol** command for enabling Inverse ARP.

If the **inarp** command is not explicitly configured on an ATM PVC, the PVC inherits the following default configuration (listed in order of precedence):

- Configuration of the **inarp** command in a VC class assigned to the PVC itself.
- Configuration of the **inarp** command in a VC class assigned to the PVC's ATM subinterface.
- Configuration of the **inarp** command in a VC class assigned to the PVC's ATM main interface.
- Global default for the *minutes* argument is 15 minutes; this default assumes that Inverse ARP is enabled.

**Note**

As the inheritance rules imply, when a VC is a member of a VC bundle, configuration using the **inarp** command in VC-class configuration mode no longer applies to that VC. Bundle configuration takes precedence.

For ATM VC bundle management, the Inverse ARP parameter can only be enabled at the bundle level and applied to all VC members of the bundle—that is, it cannot be enabled in bundle-vc configuration mode for individual VC bundle members. To use this command in bundle configuration mode, first enter the **bundle** command to create the bundle and enter bundle configuration mode.

Examples

The following example sets the Inverse ARP time period to 10 minutes:

```
inarp 10
```

Related Commands

Command	Description
bundle	Creates a bundle or modifies an existing bundle to enter bundle configuration mode.
broadcast	Configures broadcast packet duplication and transmission for an ATM VC class, PVC, SVC, or VC bundle.
class-int	Assigns a VC class to an ATM main interface or subinterface.
class-vc	Assigns a VC class to an ATM PVC, SVC, or VC bundle member.
encapsulation atm-dxi	Configures the AAL and encapsulation type for an ATM PVC, SVC, or VC class.
oam-bundle	Enables end-to-end F5 OAM loopback cell generation and OAM management for a virtual circuit class that can be applied to a virtual circuit bundle.
oam retry	Configures parameters related to OAM management for an ATM PVC, SVC, VC class, or VC bundle.
protocol (ATM)	Configures a static map for an ATM PVC, SVC, VC class, or VC bundle. Enables Inverse ARP or Inverse ARP broadcasts on an ATM PVC by either configuring Inverse ARP directly on the PVC, on the VC bundle, or in a VC class (applies to IP and IPX protocols only).

inarp (Frame Relay VC-bundle-member)

To override the default permanent virtual circuit (PVC) bundle member used for Inverse Address Resolution Protocol (ARP) and specify a different PVC bundle member to handle the Inverse ARP packets, use the **inarp** command in Frame Relay VC-bundle-member configuration mode. To disable Inverse ARP on the PVC bundle member, use the **no** form of this command.

inarp

no inarp

Syntax Description This command has no arguments or keywords.

Defaults Inverse ARP is handled by the PVC that handles precedence or EXP level 6 or DSCP level 63.

Command Modes Frame Relay VC-bundle-member configuration

Release	Modification
12.2(13)T	This command was introduced.

Usage Guidelines In each Frame Relay PVC bundle, Inverse ARP by default is handled by the PVC that handles precedence or EXP level 6 or DSCP level 63. In the default case, if the PVC handling Inverse ARP traffic goes down, the Inverse ARP packets are diverted to the PVC that has been configured to handle the bumped traffic for precedence level 6 or DSCP level 63.

Inverse ARP packets arriving on PVCs that are not configured to handle Inverse ARP will be dropped.

If you override the default packet service levels and enable Inverse ARP on a PVC that handles a different precedence or DSCP level, and that PVC goes down, the Inverse ARP packets will be dropped even if another PVC accepts the bumped traffic from the failed PVC.

If the **inarp** command is entered on two different PVC bundle members, Inverse ARP traffic will be handled by the second entry.

Examples The following example shows Inverse ARP enabled on PVC 250, which handles DSCP level 60:

```
interface serial 1/4.1 multipoint
  frame-relay vc-bundle MP-4-dynamic
  match dscp
  pvc 100
    dscp other
  pvc 250
    dscp 60
  inarp
```

Related Commands	Command	Description
	dscp (Frame Relay VC-bundle-member)	Configures the DSCP value or values for a Frame Relay PVC bundle member.
	precedence (Frame Relay VC-bundle-member)	Configures the precedence levels for a Frame Relay PVC bundle member.

interface atm

To configure an ATM interface and enter interface configuration mode, use the **interface atm** command in global configuration mode.

```
interface atm interface-number [.subinterface-number { mpls | multipoint | point-to-point }]
```

Syntax Description

<i>interface-number</i>	Specifies a (physical) ATM interface (for example, 3/0).
<i>.subinterface-number</i>	(Optional) Specifies a subinterface number. A dot (.) must be used to separate the <i>interface-number</i> from the <i>subinterface-number</i> (for example 2/0.1).
mpls	(Optional) Specifies MPLS as the interface type for which a subinterface is to be created.
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.

Defaults

No default behavior or values.

Command Modes

Global configuration

Command History

Release	Modification
10.0	This command was introduced.
12.1(3)T	New optional subinterface types were introduced.

Usage Guidelines

The **interface atm** command enables you to define a subinterface for a specified type of ATM interface. The subinterface for the ATM interface is created the first time this command is issued with a specified subinterface number.

Examples

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

```
Router# interface atm 3/0.1 mpls
```

Related Commands

Command	Description
show interfaces atm	Displays information about the ATM interface.
show mpls interfaces	Displays information about one or more MPLS interfaces that have been configured for label switching.

interface atm ima

To configure an inverse multiplexing over ATM (IMA) group, use the **interface atm ima** global configuration command.

```
interface atm slot/imagroup-number
```

Syntax Description		
<i>slot/</i>		Specifies the slot location of the ATM IMA network module. The values range from 0 to 5 depending on the router.
<i>group-number</i>		Enter an IMA group number from 0 to 3. You can create up to four groups. Do not include a space before the group number.

Defaults By default there are no IMA groups, only individual ATM links.

Command Modes Global configuration

Command History	Release	Modification
	12.0(5)XK	This command was introduced on Cisco 2600 and 3600 series routers.
	12.0(5)T	This command was integrated into Cisco IOS 12.0(5)T.
	12.0(5)XE	Support for Cisco 7200 and 7500 series routers was added.
	12.0(7)XE1	Support for Cisco 7100 series routers was added.
	12.1(5)T	Support for Cisco 7100, 7200, and 7500 series routers was integrated into Cisco IOS Release 12.1(5)T.

Usage Guidelines If the group does not exist when the command is issued, the command automatically creates the group. When a port is configured for IMA functionality, it no longer operates as an individual ATM link. Specifying ATM links as members of a group by using the **ima group** interface command does not enable the group. You must use the **interface atm ima** command to create the group.

Examples The following example configures IMA group 0 on the module in slot 1:

```
interface atm 1/ima0
 ip address 10.18.16.121 255.255.255.192
```

Related Commands	Command	Description
	ima-group	Defines IMA group members.
	interface atm	Configures an ATM interface.

Command	Description
show ima interface atm	Provides information about all configured IMA groups or a specific IMA group.
shutdown (interface)	Disables an interface.

interface cbr

To specify the T1 or E1 constant bit rate interface on an ATM-CES port adapter, and to enter interface configuration mode, use the **interface cbr** command in global configuration mode.

interface cbr *slot/port*

Syntax Description	
<i>slot/</i>	Backplane slot number. The slash (/) must be typed.
<i>port</i>	Interface port number.

Defaults No default behavior or values

Command Modes Global configuration

Command History	Release	Modification
	11.1	This command was introduced.

Usage Guidelines The ATM-CES port adapter has four T1 (1.544 Mbps) or four E1 (2.048 Mbps) ports (75- or 120-ohm) that can support both structured (N x 64 kbps) and unstructured ATM Forum-compliant circuit emulation services (CES), and one port that supports an OC-3 (155 Mbps) single-mode intermediate reach interface or a T3 (45 Mbps) or E3 (34 Mbps) standards-based ATM interface.

Examples The following example specifies the first T1 or E1 port on the ATM-CES port adapter in slot 1:

```
interface cbr 1/0
```

Related Commands	Command	Description
	show ces interface cbr	Displays detailed CBR port information.
	show interface cbr	Displays the information about the CBR interface on the ATM-CES port adapter.

interface fr-atm

To create a Frame Relay-ATM Interworking interface on the Cisco MC3810 and to enter Frame Relay-ATM Interworking configuration mode, use the **interface fr-atm** global configuration command. To delete the Frame Relay-ATM Interworking interface, use the **no** form of this command.

interface fr-atm *number*

no interface fr-atm *number*

Syntax Description

<i>number</i>	The Frame Relay-ATM Interworking interface number. Range is from 0 to 20.
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Defaults

Frame Relay-ATM Interworking interface 20 is configured by default.

Command Modes

Global configuration

Command History

Release	Modification
11.3 MA	This command was introduced.

Usage Guidelines

This command applies to Frame Relay-ATM Interworking on the Cisco MC3810 only.

Use the **interface fr-atm** command to enter Frame Relay-ATM interworking interface configuration mode. When you issue this command for the first time, an interface number is created dynamically. You can configure up to 21 Frame Relay-ATM interworking interfaces.



Note

The Cisco MC3810 provides only *network interworking* (FRF.5). The Cisco MC3810 can be used with *service interworking* (FRF.8), which is provided by the carrier's ATM network equipment.

Examples

The following example configures Frame Relay-ATM Interworking interface number 20:

```
interface fr-atm 20
```

Related Commands

Command	Description
fr-atm connect dlci	Maps a Frame Relay DLCI to an ATM virtual circuit descriptor for FRF.5 Frame Relay-ATM internetworking.

interface mfr

To configure a multilink Frame Relay bundle interface, use the **interface mfr** command in global configuration mode. To remove the bundle interface, use the **no** form of this command.

interface mfr *number*

no interface mfr *number*

Syntax Description

<i>number</i>	Number that uniquely identifies this bundle interface. The range is from 0 to 2147483647.
---------------	---

Defaults

A bundle interface is not configured.
Frame Relay encapsulation is the default encapsulation type for multilink Frame Relay bundle interfaces.

Command Modes

Global configuration

Command History

Release	Modification
12.0(17)S	This command was introduced.
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T.

Usage Guidelines

A bundle interface is a virtual interface that serves as the Frame Relay data link and performs the same functions as a physical interface. The bundle is made up of physical serial links, called bundle links. The bundle links within a bundle function as one physical link and one pool of bandwidth. Functionality that you want to apply to the bundle links must be configured on the bundle interface.

The **no interface mfr** command will work only if all bundle links have been removed from the bundle by using the **no encapsulation frame-relay mfr** command.

Examples

The following example shows the configuration of a bundle interface called “mfr0”. The bundle identification (BID) name “BUNDLE-A” is assigned to the bundle. Serial interfaces 0 and 1 are assigned to the bundle as bundle links.

```
interface mfr 0
  frame-relay multilink bid BUNDLE-A
!
interface serial 0
  encapsulation frame-relay mfr0
!
interface serial 1
  encapsulation frame-relay mfr0
```

Related Commands

Command	Description
debug frame-relay multilink	Displays debug messages for multilink Frame Relay bundles and bundle links.
encapsulation frame-relay mfr	Creates a multilink Frame Relay bundle link and associates the link with a bundle.
frame-relay multilink bid	Assigns a BID name to a multilink Frame Relay bundle.
show frame-relay multilink	Displays configuration information and statistics about multilink Frame Relay bundles and bundle links.

interface serial multipoint

To define a logical subinterface on a serial interface to support multiple logical IP subnetworks over Switched Multimegabit Data Service (SMDS), use the **interface serial multipoint** interface configuration command.

interface serial { *interface* | *slot/port* }.*subinterface* **multipoint**

Syntax Description	
<i>interface</i>	Interface number.
<i>slot/port</i>	Slot and port number related to specified subinterface (for Cisco 7000 and 7500 series routers).
<i>.subinterface</i>	Number for this subinterface; values in the range 0 to 255.

Defaults This command has no default values.

Command Modes Interface configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Use this command only for routers that need knowledge of multiple IP networks. Other routers can be configured with information only about their own networks. A period must be used to separate the *interface* or *slot/port* from the *subinterface*.

Examples The following example configures serial interface 2 with multipoint logical subinterface 1:

```
interface serial 2.1 multipoint
```

The following example configures slot 2 port 0 with multipoint logical subinterface 1:

```
interface serial 2/0.1 multipoint
```

Related Commands	Command	Description
	ip address	Sets a primary or secondary IP address for an interface.
	smds address	Specifies the SMDS individual address for a particular interface.
	smds enable-arp	Enables dynamic ARP. The multicast address for ARP must be set before this command is issued.
	smds multicast	Assigns a multicast SMDS E.164 address to a higher-level protocol.

ip tcp adjust-mss

To adjust the maximum segment size (MSS) value of TCP SYN packets going through a router, use the **ip tcp adjust-mss** command in interface configuration mode. To return the MSS value to the default setting, use the **no** form of this command.

ip tcp adjust-mss *max-segment-size*

no ip tcp adjust-mss *max-segment-size*

Syntax Description

max-segment-size Maximum segment size, in bytes. The range is from 500 to 1460.

Defaults

If the **ip tcp adjust-mss** command is not configured, the MSS is determined by the originating host.

Command Modes

Interface configuration

Command History

Release	Modification
12.2(4)T	This command was introduced.
12.2(8)T	This command was changed from ip adjust-mss to ip tcp adjust-mss .
12.2(27)SBA	This command was integrated into Cisco IOS Release 12.2(27)SBA.

Usage Guidelines

When a host (usually a PC) initiates a TCP session with a server, it negotiates the IP segment size by using the MSS option field in the TCP SYN packet. The value of the MSS field is determined by the maximum transmission unit (MTU) configuration on the host. The default MSS value for a PC is 1500 bytes.

The PPP over Ethernet (PPPoE) standard supports a MTU of only 1492 bytes. The disparity between the host and PPPoE MTU size can cause the router in between the host and the server to drop 1500-byte packets and terminate TCP sessions over the PPPoE network. Even if the path MTU (which detects the correct MTU across the path) is enabled on the host, sessions may be dropped because system administrators sometimes disable the ICMP error messages that must be relayed from the host in order for path MTU to work.

The **ip tcp adjust-mss** command helps prevent TCP sessions from being dropped by adjusting the MSS value of the TCP SYN packets.

The **ip tcp adjust-mss** command is effective only for TCP connections passing through the router.

In most cases, the optimum value for the *max-segment-size* argument is 1452 bytes. This value plus the 20-byte IP header, the 20-byte TCP header, and the 8-byte PPPoE header add up to a 1500-byte packet that matches the MTU size for the Ethernet link.

If you are configuring the **ip mtu** command on the same interface as the **ip tcp adjust-mss** command, it is recommended that you use the following commands and values:

- **ip tcp adjust-mss 1452**
- **ip mtu 1492**

Examples

The following example shows the configuration of a PPPoE client with the MSS value set to 1452:

```

vpdn enable
no vpdn logging
!
vpdn-group 1
request-dialin
protocol pppoe
!
interface Ethernet0
 ip address 192.168.100.1.255.255.255.0
 ip tcp adjust-mss 1452
 ip nat inside
!
interface ATM0
 no ip address
 no atm ilmi-keepalive
 pvc 8/35
  pppoe client dial-pool-number 1
!
dsl equipment-type CPE
dsl operating-mode GSHDSL symmetric annex B
dsl linerate AUTO
!
interface Dialer1
 ip address negotiated
 ip mtu 1492
 ip nat outside
 encapsulation ppp
 dialer pool 1
 dialer-group 1
 ppp authentication pap callin
 ppp pap sent-username sohodyn password 7 141B1309000528
!
 ip nat inside source list 101 Dialer1 overload
 ip route 0.0.0.0.0.0.0.0 Dialer1
 access-list permit ip 192.168.100.0.0.0.0.255 any

```

Related Commands

Command	Description
ip mtu	Sets the MTU size of IP packets sent on an interface.

keepalive (LMI)

To enable the Local Management Interface (LMI) mechanism for serial lines using Frame Relay encapsulation, use the **keepalive** interface configuration command. To disable this capability, use the **no** form of this command.

keepalive *number*

no keepalive

Syntax Description	<i>number</i>	Number of seconds that defines the keepalive interval. The interval must be set as a positive integer that is less than the interval set on the switch; see the frame-relay lmi-t392dce command description earlier in this chapter.
---------------------------	---------------	---

Defaults	10 seconds
-----------------	------------

Command Modes	Interface configuration
----------------------	-------------------------

Command History	Release	Modification
	11.2	This command was introduced.

Usage Guidelines	The keepalive command enables the keepalive sequence, which is part of the LMI protocol.
-------------------------	---



Note

When booting from a network server over Frame Relay, you might need to disable keepalives.

Examples	The following example sets the keepalive timer on the server for a period that is two or three seconds faster (has a shorter interval) than the interval set on the keepalive timer of the Frame Relay switch. The difference in keepalive intervals ensures proper synchronization between the Cisco server and the Frame Relay switch.
-----------------	--

```
interface serial 3
  keepalive 8
```

Related Commands	Command	Description
	frame-relay lmi-t392dce	Sets the polling verification timer on a DCE or NNI interface.

lapb interface-outage

To specify the period for which a link will remain connected, even if a brief hardware outage occurs (partial Link Access Procedure, Balanced [LAPB] T3 timer functionality), use the **lapb interface-outage** interface configuration command.

lapb interface-outage *milliseconds*

Syntax Description

<i>milliseconds</i>	Number of milliseconds (ms) a hardware outage can last without the protocol disconnecting the service.
---------------------	--

Defaults

0 ms, which disables this feature.

Command Modes

Interface configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

If a hardware outage lasts longer than the LAPB hardware outage period you select, normal protocol operations will occur. The link will be declared down, and when it is restored, a link setup will be initiated.

Examples

The following example sets the interface outage period to 100 ms. The link remains connected for outages equal to or shorter than that period.

```
encapsulation lapb dte ip
lapb interface-outage 100
```

Related Commands

Command	Description
lapb n1	Sets the maximum number of bits a frame can hold (LAPB N1 parameter).
lapb n2	Specifies the maximum number of times a data frame can be sent (LAPB N2 parameter).
lapb t1	Sets the retransmission timer period (LAPB T1 parameter).
lapb t2	Sets the explicit acknowledge deferral timer (LAPB T2 parameter).
lapb t4	Sets the LAPB T4 idle timer, after which time a poll packet is sent to determine state of an un signaled failure on the link.

lapb k

To specify the maximum permissible number of outstanding frames, called the *window size*, use the **lapb k** interface configuration command.

lapb k *window-size*

Syntax Description	<i>window-size</i>	Frame count. It can be a value from 1 to the modulo size minus 1 (the maximum is 7 if the modulo size is 8; it is 127 if the modulo size is 128).
---------------------------	--------------------	---

Defaults	7 frames
-----------------	----------

Command Modes	Interface configuration
----------------------	-------------------------

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines If the window size is changed while the protocol is up, the new value takes effect only when the protocol is reset. You will be informed that the new value will not take effect immediately.

When using the Link Access Procedure, Balanced (LAPB) modulo 128 mode (extended mode), you must increase the window parameter *k* to send a larger number of frames before acknowledgment is required. This increase is the basis for the router's ability to achieve greater throughput on high-speed links that have a low error rate.

This configured value must match the value configured in the peer X.25 switch. Nonmatching values will cause repeated LAPB reject (REJ) frames.

Examples The following example sets the LAPB window size (the *k* parameter) to 10 frames:

```
interface serial 0
 lapb modulo
 lapb k 10
```

Related Commands	Command	Description
	lapb modulo	Specifies the LAPB basic (modulo 8) or extended (modulo 128) protocol mode.

lapb modulo

To specify the Link Access Procedure, Balanced (LAPB) basic (modulo 8) or extended (modulo 128) protocol mode, use the **lapb modulo** interface configuration command.

lapb modulo *modulus*

Syntax Description	<i>modulus</i>	Either 8 or 128. The value 8 specifies LAPB's basic mode; the value 128 specifies LAPB's extended mode.
--------------------	----------------	---

Defaults	Modulo 8
----------	----------

Command Modes	Interface configuration
---------------	-------------------------

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines

The modulo parameter determines which of LAPB's two modes is to be used. The modulo values derive from the fact that basic mode numbers information frames between 0 and 7, whereas extended mode numbers them between 0 and 127. Basic mode is widely available and is sufficient for most links. Extended mode is an optional LAPB feature that may achieve greater throughput on high-speed links that have a low error rate.

The LAPB operating mode may be set on X.25 links as well as LAPB links. The X.25 modulo is independent of the LAPB layer modulo. Both ends of a link must use the same LAPB mode.

When using modulo 128 mode, you must increase the window parameter *k* to send a larger number of frames before acknowledgment is required. This increase is the basis for the router's ability to achieve greater throughput on high-speed links that have a low error rate.

If the modulo value is changed while the protocol is up, the new value takes effect only when the protocol is reset. You will be informed that the new value will not take effect immediately.

Examples

The following example configures a high-speed X.25 link to use LAPB's extended mode:

```
interface serial 1
 encapsulation x25
 lapb modulo 128
 lapb k 40
 clock rate 2000000
```

Related Commands	Command	Description
	lapb k	Specifies the maximum permissible number of outstanding frames, called the window size.

lapb n1

To specify the maximum number of bits a frame can hold (the Link Access Procedure, Balanced [LAPB] N1 parameter), use the **lapb n1** interface configuration command.

lapb n1 *bits*

Syntax Description

<i>bits</i>	Maximum number of bits in multiples of eight. The minimum and maximum range is dynamically set. Use the question mark (?) to view the range.
-------------	--

Defaults

The largest (maximum) value available for the particular interface is the default. The Cisco IOS software dynamically calculates N1 whenever you change the maximum transmission unit (MTU), the L2/L3 modulo, or compression on a LAPB interface.

Command Modes

Interface configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

The Cisco IOS software uses the following formula to determine the minimum N1 value:

$$(128 \text{ (default packet size)} + \text{LAPB overhead} + \text{X.25 overhead} + 2 \text{ bytes of CRC}) * 8$$

The Cisco IOS software uses the following formula to determine for the maximum N1 value:

$$(\text{hardware MTU} + \text{LAPB overhead} + \text{X.25 overhead} + 2 \text{ bytes of CRC}) * 8$$

LAPB overhead is 2 bytes for modulo 8 and 3 bytes for modulo 128.

X.25 overhead is 3 bytes for modulo 8 and 4 bytes for modulo 128.

You need not set N1 to an exact value to support a particular X.25 data packet size. The N1 parameter prevents the processing of any huge frames that result from a “jabbering” interface, an unlikely event.

In addition, the various standards bodies specify that N1 be given in bits rather than bytes. While some equipment can be configured in bytes or will automatically adjust for some of the overhead information present, Cisco devices are configured using the true value, in bits, of N1.

You cannot set the N1 parameter to a value less than that required to support an X.25 data packet size of 128 bytes. All X.25 implementations must be able to support 128-byte data packets. Moreover, if you configure N1 to be less than 2104 bits, you receive a warning message that X.25 might have problems because some nondata packets can use up to 259 bytes.

You cannot set the N1 parameter to a value larger than the default unless the hardware MTU size is first increased.

The X.25 software accepts default packet sizes and calls that specify maximum packet sizes greater than those the LAPB layer supports, but negotiates the calls placed on the interface to the largest value that can be supported. For switched calls, the packet size negotiation takes place end-to-end through the router so the call will not have a maximum packet size that exceeds the capability of either of the two interfaces involved.

**Caution**

The LAPB N1 parameter provides little benefit beyond the interface MTU and can easily cause link failures if misconfigured. Cisco recommends that this parameter be left at its default value.

Examples

The following example shows how to use the question mark (?) command to display the minimum and maximum N1 value. In this example, X.25 encapsulation has both the LAPB and X.25 modulo set to 8. Any violation of this N1 range results in an “Invalid input” error message.

```
router(config)# interface serial 1
router(config-if)# lapb n1 ?

<1080-12056> LAPB N1 parameter (bits; multiple of 8)
```

The following example sets the N1 bits to 16440:

```
router(config)# interface serial 0
router(config-if)# lapb n1 16440
router(config-if)# mtu 2048
```

Related Commands

Command	Description
lapb interface-outage	Partial LAPB T3 timer function that sets the time-length a link will remain connected during a hardware outage.
lapb n2	Specifies the maximum number of times a data frame can be sent (LAPB N2 parameter).
lapb t1	Sets the retransmission timer period (LAPB T1 parameter).
lapb t2	Sets the explicit acknowledge deferral timer (LAPB T2 parameter).
lapb t4	Sets the LAPB T4 idle timer, after which time a poll packet is sent to determine state of an unsignaled failure on the link.
mtu	Adjusts the maximum packet size or MTU size.

lapb n2

To specify the maximum number of times a data frame can be sent (the Link Access Procedure, Balanced [LAPB] N2 parameter), use the **lapb n2** interface configuration command.

lapb n2 *tries*

Syntax Description	<i>tries</i>	Transmission count. It can be a value from 1 to 255.
---------------------------	--------------	--

Defaults	20 transmissions
-----------------	------------------

Command Modes	Interface configuration
----------------------	-------------------------

Command History	Release	Modification
	10.0	This command was introduced.

Examples The following example sets the N2 tries to 50:

```
interface serial 0
  lapb n2 50
```

Related Commands	Command	Description
	lapb interface-outage	Partial LAPB T3 timer function that sets the time-length a link will remain connected during a hardware outage.
	lapb n1	Sets the maximum number of bits a frame can hold (LAPB N1 parameter).
	lapb t1	Sets the retransmission timer period (LAPB T1 parameter).
	lapb t2	Sets the explicit acknowledge deferral timer (LAPB T2 parameter).
	lapb t4	Sets the LAPB T4 idle timer, after which time a poll packet is sent to determine state of an un signaled failure on the link.

lapb protocol

The **lapb protocol** command has been replaced by the [*protocol* | **multi**] option of the **encapsulation lapb** command. See the description of the [*protocol* | **multi**] option of the **encapsulation lapb** command earlier in this chapter for more information.

lapb t1

To set the retransmission timer period (the Link Access Procedure, Balanced [LAPB] T1 parameter), use the **lapb t1** interface configuration command.

lapb t1 *milliseconds*

Syntax Description	<i>milliseconds</i>	Time in milliseconds. It can be a value from 1 to 64000.
---------------------------	---------------------	--

Defaults	3000 ms
-----------------	---------

Command Modes	Interface configuration
----------------------	-------------------------

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines The retransmission timer determines how long a transmitted frame can remain unacknowledged before the LAPB software polls for an acknowledgment. The design of the LAPB protocol specifies that a frame is presumed to be lost if it is not acknowledged within T1; a T1 value that is too small may result in duplicated control information, which can severely disrupt service.

To determine an optimal value for the retransmission timer, use the **ping** privileged EXEC command to measure the round-trip time of a maximum-sized frame on the link. Multiply this time by a safety factor that takes into account the speed of the link, the link quality, and the distance. A typical safety factor is 1.5. Choosing a larger safety factor can result in slower data transfer if the line is noisy. However, this disadvantage is minor compared to the excessive retransmissions and effective bandwidth reduction caused by a timer setting that is too small.

Examples The following example sets the T1 retransmission timer to 2000 ms:

```
interface serial 0
 lapb t1 2000
```

Related Commands	Command	Description
		lapb interface-outage
	lapb n1	Sets the maximum number of bits a frame can hold (LAPB N1 parameter).
	lapb n2	Specifies the maximum number of times a data frame can be sent (LAPB N2 parameter).

Command	Description
lapb t2	Sets the explicit acknowledge deferral timer (LAPB T2 parameter).
lapb t4	Sets the LAPB T4 idle timer, after which time a poll packet is sent to determine state of an unsignaled failure on the link.

lapb t2

To set the explicit acknowledge deferral timer (the Link Access Procedure, Balanced [LAPB] T2 parameter), use the **lapb t2** interface configuration command.

lapb t2 *milliseconds*

Syntax Description

<i>milliseconds</i>	Time in milliseconds. It can be a value from 1 to 32000. Default is 0 ms (disabled) and the recommended setting.
---------------------	--

Defaults

0 ms (disabled), which means that the software will send an acknowledgement as quickly as possible.

Command Modes

Interface configuration

Command History

Release	Modification
12.0	This command was introduced.

Usage Guidelines

The explicit acknowledge deferral timer determines the time that the software waits before sending an explicit acknowledgement. The acknowledgement is piggybacked with the data, unless there is no data and then an explicit acknowledgement is sent when the timer expires.



Caution

It is usually not necessary (or recommended) to set the LAPB T2 timer, but if there is a requirement, it must be set to a value smaller than that set for the LAPB T1 timer; see the ITU X.25 specifications for details.

Related Commands

Command	Description
lapb interface-outage	Partial LAPB T3 timer function that sets the time-length a link will remain connected during a hardware outage.
lapb n1	Sets the maximum number of bits a frame can hold (LAPB N1 parameter).
lapb n2	Specifies the maximum number of times a data frame can be sent (LAPB N2 parameter).
lapb t1	Sets the retransmission timer period (LAPB T1 parameter).
lapb t4	Sets the LAPB T4 idle timer, after which time a poll packet is sent to determine state of an unsignaled failure on the link.

lapb t4

To set the T4 idle timer, after which the Cisco IOS software sends out a Poll packet to determine whether the link has suffered an unsignaled failure, use the **lapb t4** interface configuration command.

lapb t4 *seconds*

Syntax Description

<i>seconds</i>	Number of seconds between receipt of the last frame and transmission of the outgoing poll.
----------------	--

Defaults

0 seconds

Command Modes

Interface configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

Any non-zero T4 duration must be greater than T1, the Link Access Procedure, Balanced (LAPB) retransmission timer period.

Examples

The following example will poll the other end of an active link if it has been 10 seconds since the last frame was received. If the far host has failed, the service will be declared down after **n2** tries are timed out.

```
interface serial0
 encapsulation x25
 lapb t4 10
```

Related Commands

Command	Description
lapb interface-outage	Partial LAPB T3 timer function that sets the time-length a link will remain connected during a hardware outage.
lapb n1	Sets the maximum number of bits a frame can hold (LAPB N1 parameter).
lapb n2	Specifies the maximum number of times a data frame can be sent (LAPB N2 parameter).
lapb t1	Sets the retransmission timer period (LAPB T1 parameter).
lapb t4	Sets the LAPB T4 idle timer, after which time a poll packet is sent to determine state of an unsignaled failure on the link.

local-profile

To configure a local service profile and enter profile configuration mode, use the **local-profile** command in global configuration mode. To delete the local service profile, use the **no** form of this command.

local-profile *profile-name*

no local-profile *profile-name*

Syntax Description	<i>profile-name</i>	Name of profile to be configured.
--------------------	---------------------	-----------------------------------

Defaults	No default behavior or values
----------	-------------------------------

Command Modes	Global configuration
---------------	----------------------

Command History	Release	Modification
	12.0(3)DC	This command was introduced on the Cisco 6400 series node route processor.
	12.2(4)B	This command was integrated into Cisco IOS Release 12.2(4)B.
	12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.

Usage Guidelines	Use this command to configure local service profiles.
------------------	---

Examples	The following example shows how to configure a RADIUS profile called “fictitiousname.com” and enter profile configuration mode:
----------	---

```
Router(config)# local-profile fictitiousname.com
Router(config-prof)#
```

In the following example, two services called “og1” and “og2” are defined and added to the open garden:

```
!
ssg open-garden og1
ssg open-garden og2
!
local-profile og1
  attribute 26 9 251 "Oopengarden1.com"
  attribute 26 9 251 "D10.13.1.5"
  attribute 26 9 251 "R10.1.1.0;255.255.255.0"
local-profile og2
  attribute 26 9 251 "Oopengarden2.com"
  attribute 26 9 251 "D10.14.1.5"
  attribute 26 9 251 "R10.2.1.0;255.255.255.0"
  attribute 26 9 251 "R10.3.1.0;255.255.255.0"
!
ssg bind service og2 10.5.5.1
```

Related Commands	Command	Description
	attribute	Configures attributes in local RADIUS profiles.
	show ssg open-garden	Displays a list of all configured open garden services.
	ssg open-garden	Designates a service, defined in a local service profile, as an open garden service.
	ssg service-search-order	Specifies the order in which SSG searches for a service profile.

logging event frame-relay x25

To enable notification of X.25 Annex G session status changes to be displayed on a console or system log, use the **logging event frame-relay x25** command in interface configuration mode. To disable notification, use the **no** form of this command.

logging event frame-relay x25

no logging event frame-relay x25

Syntax Description

This command has no arguments or keywords.

Defaults

X.25 Annex G session status change notifications are not enabled.

Command Modes

Interface configuration

Command History

Release	Modification
12.2(2)T	This command was introduced.

Examples

The following example shows how to enable notification of X.25 Annex G session status changes to be displayed on a console or system log using the **logging event frame-relay x25** interface configuration command:

```
Router(config-if)# logging event frame-relay x25
```

The following is an example of the Annex G status change notifications:

```
%X25-5-UPDOWN: Interface <interface> - DLCI <dlci number> X.25 packet layer changed state to DOWN
%X25-5-UPDOWN: Interface <interface> - DLCI <dlci number> X25 packet layer changed state to UP
```

loopback

To loop packets back to the interface for testing, use the **loopback** interface configuration command with or without an optional keyword. To remove the loopback, use the **no** form of this command.

Cisco 2600 and 3600 Series

```
loopback [line | local | payload | remote]
```

```
no loopback [line | local | payload | remote]
```

Cisco 7100, 7200, and 7500 Series

For T1 lines:

```
loopback {diagnostic | local {payload | line} | remote {iboc | esf {payload | line}}}
```

For E1 lines:

```
loopback {diagnostic | local {payload | line}}
```

```
no loopback
```

Syntax Description

line	Places the interface into external loopback mode at the line.
local	Places the interface into local loopback mode.
payload	Places the interface into external loopback mode at the payload level.
remote	Keeps the local end of the connection in remote loopback mode.
diagnostic	Loops the outgoing transmit signal back to the receive signal.
iboc	Sends an in-band code to the far-end receiver to cause it to go into line loopback.
esf	Specifies the FDL loopbacks. FDL should be configured on the link.

Defaults

The **line** keyword is the default.
Loopback is disabled by default.

Command Modes

Interface configuration

Command History

Release	Modification
10.0	This command was introduced.
11.3 MA	This command was modified for the Cisco MC3810.
12.0(5)XK	Support for the Cisco 2600 and 3600 series routers was added.
12.0(5)T	Support for the Cisco 2600 and 3600 series routers was integrated into Cisco IOS Release 12.0(5)T.
12.0(5)XE	Support for the Cisco 720 0 and 7500 series routers was added.

Release	Modification
12.0(7)XE1	Support for the Cisco 7100 series routers was added.
12.1(5)T	Support for Cisco 7100, 7200, and 7500 series routers was integrated into Cisco IOS Release 12.1(5)T.

Usage Guidelines

You can use a loopback test on lines to detect and distinguish equipment malfunctions caused either by line and channel service unit/digital service unit (CSU/DSU) or by the interface. If correct data transmission is not possible when an interface is in loopback mode, the interface is the source of the problem.

The local loopback does not generate any packets automatically. Instead, the **ping** command is used.

Examples

The following example sets up local loopback diagnostics:

```
interface atm 1/0
 loopback local
```

loopback (ATM)

To configure the ATM interface into loopback mode, use the **loopback** interface configuration command. To remove the loopback, use the **no** form of this command.

loopback [cell | line | payload]

no loopback [cell | line | payload]

Syntax Description

cell	(Optional) Places the interface into external loopback at cell level.
line	(Optional) Places the interface into external loopback at the line.
payload	(Optional) Places the interface into external loopback at the payload level.

Defaults

line

Command Modes

Interface configuration

Command History

Release	Modification
11.0	This command was introduced.
11.1	The following keywords were removed: <ul style="list-style-type: none"> • diagnostic • test

Usage Guidelines

This command is useful for testing because it loops all packets from the ATM interface back to the interface as well as directing the packets to the network.

Use the **loopback line** command to check that the PA-A3 port adapter is working by looping the receive data back to the transmit data.

Examples

The following example loops all packets back to the ATM interface:

```
interface atm 4/0
 loopback
```

Related Commands

Command	Description
ces dsx1 loopback	Enables a loopback for the CBR interface.