



LAN Emulation Commands

This chapter describes the commands available to configure LAN emulation (LANE) in Cisco 7500 series routers, Cisco 4700 routers, and Cisco 4500 routers that contain an ATM Interface Processor (AIP) or an NP-1A ATM Network Processor Module (NPM) and are connected to a Cisco ATM switch.

Note In Cisco IOS Release 11.3, all commands supported on the Cisco 7500 series routers are also supported on Cisco 7000 series routers.

For LANE configuration information and examples, refer to the chapter entitled “Configuring LAN Emulation” in the *Cisco IOS Switching Services Configuration Guide*.

Note Because some LANE commands are used often and others are used very rarely, the command descriptions identify the commands you are most likely to use. See the “Usage Guidelines” section for the following indicator: “This command is ordinarily used.”

clear atm vc

To release a specified switched virtual circuit (SVC), use the **clear atm vc** EXEC command.

clear atm vc *vcd*

Syntax Description

vcd Virtual channel descriptor of the channel to be released.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

For multicast or control VCCs, this command causes the LANE client to exit and rejoin an emulated LAN.

For data VCCs, this command also removes the associated LANE Address Resolution Protocol (LE ARP) table entries.

Example

The following example releases SVC 1024:

```
clear atm vc 1024
```

clear lane le-arp

To clear the dynamic LANE Address Resolution Protocol (LE ARP) table or a single LE ARP entry of the LANE client configured on the specified subinterface or emulated LAN, use the **clear lane le-arp** EXEC command.

clear lane le-arp [**interface** *slot/port*[*.subinterface-number*] | **name** *elan-name*] [**mac-address** *mac-address* | **route-desc segment** *segment-number* **bridge** *bridge-number*] (for the Cisco 7500 series)

clear lane le-arp [**interface** *number*[*.subinterface-number*] | **name** *elan-name*] [**mac-address** *mac-address* | **route-desc segment** *segment-number* **bridge** *bridge-number*]] (for the Cisco 4500 and 4700 routers)

Syntax Description

interface <i>slot/port</i> [<i>.subinterface-number</i>]	(Optional) Interface or subinterface for the LANE client whose LE ARP table or entry is to be cleared for the Cisco 7500 series routers. The space between the interface keyword and the <i>slot</i> argument is optional.
interface <i>number</i> [<i>.subinterface-number</i>]	(Optional) Interface or subinterface for the LANE client whose LE ARP table or entry is to be cleared for the Cisco 4500 or 4700 routers. The space between the interface keyword and the <i>number</i> argument is optional.
name <i>elan-name</i>	(Optional) Name of the emulated LAN for the LANE client whose LE ARP table or entry is to be cleared. Maximum length is 32 characters.
mac-address <i>mac-address</i>	(Optional) Media access control (MAC) address of the entry to be cleared from the LE ARP table.
route-desc segment <i>segment-number</i>	(Optional) LANE segment number. The segment number ranges from 1 to 4095.
<i>bridge-number</i>	(Optional) Bridge number that is contained in the route descriptor. The bridge number ranges from 1 to 15.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command removes dynamic LE ARP table entries only. It does not remove static LE ARP table entries.

If you do not specify an interface or an emulated LAN, this command clears all the LE ARP tables of any LANE client in the router.

If you specify a major interface (not a subinterface), this command clears all the LE ARP tables of every LANE client on all the subinterfaces of that interface.

This command also removes the fast-cache entries built from the LE ARP entries.

Examples

The following example clears all the LE ARP tables for all clients on the router:

```
clear lane le-arp
```

The following example clears all the LE ARP tables for all LANE clients on all the subinterfaces of interface 1/0:

```
clear lane le-arp interface 1/0
```

The following example clears the entry corresponding to MAC address 0800.AA00.0101 from the LE ARP table for the LANE client on the emulated LAN *red*:

```
clear lane le-arp name red 0800.aa00.0101
```

The following example clears all dynamic entries from the LE ARP table for the LANE client on the emulated LAN *red*:

```
clear lane le-arp name red
```

The following example clears the dynamic entry from the LE ARP table for the LANE client on segment number 1, bridge number 1 in the emulated LAN *red*:

```
clear lane le-arp name red route-desc segment 1 bridge 1
```

Note MAC addresses are written in the same dotted notation for the **clear lane le-arp** command as they are for the global **IP arp** command.

clear lane server

To force a LANE server to drop a client and allow the LANE configuration server to assign the client to another emulated LAN, use the **clear lane server** EXEC command.

```
clear lane server {interface slot/port [.subinterface-number] | name elan-name}
  [mac-address mac-address | client-atm-address atm-address | lecid lane-client-id |
  route-desc segment segment-number bridge bridge-number]
  (for the Cisco 7500 series)
```

```
clear lane server {interface number [.subinterface-number] | name elan-name}
  [mac-address mac-address | client-atm-address atm-address | lecid lecid |
  route-desc segment segment-number bridge bridge-number]
  (for the Cisco 4500 and 4700 routers)
```

Syntax Description

interface <i>slot/port</i> [<i>.subinterface-number</i>]	Interface or subinterface where the LANE server is configured for the Cisco 7500 series. The space between the atm keyword and the <i>slot</i> argument is optional.
interface <i>number</i> [<i>.subinterface-number</i>]	Interface or subinterface where the LANE server is configured for the Cisco 4500 or 4700 routers. The space between the atm keyword and the <i>number</i> argument is optional.
name <i>elan-name</i>	Name of the emulated LAN on which the LANE server is configured. Maximum length is 32 characters.
mac-address <i>mac-address</i>	(Optional) Keyword and LANE client's MAC address.
client-atm-address <i>atm-address</i>	(Optional) Keyword and LANE client's ATM address.
lecid <i>lane-client-id</i>	(Optional) Keyword and LANE client ID. The LANE client ID is a value between 1 and 4096.
route-desc segment <i>segment-number</i>	(Optional) Keywords and LANE segment number. The segment number ranges from 1 to 4095.
bridge <i>bridge-number</i>	(Optional) Keyword and bridge number that is contained in the route descriptor. The bridge number ranges from 1 to 15.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

After changing the bindings on the configuration server, enter this command on the LANE server to force the client to leave one emulated LAN. The LANE server will drop the Control Direct and Control Distribute VCCs to the LANE client. The client will then ask the LANE configuration server for the location of the LANE server of the emulated LAN it should join.

If no LANE client is specified, all LANE clients attached to the LANE server are dropped.

Example

The following example forces all the LANE clients on the emulated LAN *red* to be dropped. The next time they try to join, they will be forced to join a different emulated LAN.

```
clear lane server name red
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

client-atm-address name

lane database

mac-address name

show lane server

client-atm-address name

To add a LANE client address entry to the configuration server's configuration database, use the **client-atm-address** database configuration command. To remove a client address entry from the table, use the **no** form of this command.

```
client-atm-address atm-address-template name elan-name  
no client-atm-address atm-address-template
```

Syntax Description

atm-address-template

Template that explicitly specifies an ATM address or a specific part of an ATM address and uses wildcard characters for other parts of the ATM address, making it easy and convenient to specify multiple addresses matching the explicitly specified part.

Wildcard characters can replace any nibble or group of nibbles in the prefix, the end-system identifier (ESI), or the selector fields of the ATM address.

elan-name

Name of the emulated LAN. Maximum length is 32 characters.

Defaults

No address and no emulated LAN name are provided.

Command Mode

Database configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command is ordinarily used.

The effect of this command is to bind any client whose address matches the specified template into the specified emulated LAN. When a client comes up, it consults the LANE configuration server, which responds with the ATM address of the LANE server for the emulated LAN. The client then initiates join procedures with the LANE server.

Before this command is used, the emulated LAN specified by the *elan-name* argument must have been created in the configuration server's database by use of the **name server-atm-address** command.

If an existing entry in the configuration server's database binds the LANE client ATM address to a different emulated LAN, the new command is rejected.

This command affects only the bindings in the named configuration server database. It has no effect on the LANE components themselves.

See the **lane database** command for information about creating the database, and the **name server-atm-address** command for information about binding the emulated LAN's name to the server's ATM address.

The **client-atm-address name** command is a subcommand of the global **lane database** command.

ATM Addresses. A LANE ATM address has the same syntax as a network service access point (NSAP) but it is not a network-level address. It consists of the following:

- A 13-byte prefix that includes the following fields defined by the ATM Forum:
 - AFI (Authority and Format Identifier) field (1 byte), DCC (Data Country Code) or ICD (International Code Designator) field (2 bytes), DFI field (Domain Specific Part Format Identifier) (1 byte), Administrative Authority field (3 bytes), Reserved field (2 bytes), Routing Domain field (2 bytes), and the Area field (2 bytes)
- A 6-byte end-system identifier (ESI)
- A 1-byte selector field

Address Templates. LANE ATM address templates can use two types of wildcards: an asterisk (*) to match any single character (nibble), and an ellipsis (...) to match any number of leading, middle, or trailing characters. The values of the characters replaced by wildcards come from the automatically assigned ATM address.

In LANE, a *prefix template* explicitly matches the prefix but uses wildcards for the ESI and selector fields. An *ESI template* explicitly matches the ESI field but uses wildcards for the prefix and selector.

In our implementation of LANE, the prefix corresponds to the switch, the ESI corresponds to the ATM interface, and the selector field corresponds to the specific subinterface of the interface.

Examples

The following example uses an ESI template to specify the part of the ATM address corresponding to the interface. This example allows any client on any subinterface of the interface that corresponds to the displayed ESI value, no matter which switch the router is connected to, to join the *engineering* emulated LAN:

```
client-atm-address ...0800.200C.1001.** name engineering
```

The following example uses a prefix template to specify the part of the ATM address corresponding to the switch. This example allows any client on a subinterface of any interface connected to the switch that corresponds to the displayed prefix to join the *marketing* emulated LAN:

```
client-atm-address 47.000014155551212f.00.00... name marketing
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

default-name

lane database

mac-address name

name server-atm-address

default-name

To provide an emulated LAN name in the configuration server's database for those client MAC addresses and client ATM addresses that do not have explicit emulated LAN name bindings, use the **default-name** database configuration command. To remove the default name, use the **no** form of this command.

```
default-name elan-name  
no default-name
```

Syntax Description

<i>elan-name</i>	Default emulated LAN name for any LANE client MAC address or LANE client ATM address not explicitly bound to any emulated LAN name. Maximum length is 32 characters.
------------------	--

Default

No name is provided.

Command Mode

Database configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command is ordinarily used.

This command affects only the bindings in the configuration server's database. It has no effect on the LANE components themselves.

The named emulated LAN must already exist in the configuration server's database before this command is used. If the default name-to-emulated LAN name binding already exists, the new binding replaces it.

The **default-name** command is a subcommand of the global **lane database** command.

Example

The following example specifies the emulated Token Ring LAN *man* as the default emulated LAN. Because none of the emulated LANs are restricted, clients are assigned to whichever emulated LAN they request. Clients that do not request a particular emulated LAN will be assigned to the *man* emulated LAN.

```
lane database example2  
  name eng server-atm-address 39.000001415555121101020304.0800.200c.1001.02  
  name eng local-seg-id 1000  
  name man server-atm-address 39.000001415555121101020304.0800.200c.1001.01  
  name man local-seg-id 2000  
  name mkt server-atm-address 39.000001415555121101020304.0800.200c.4001.01  
  name mkt local-seg-id 3000  
  default-name man
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

client-atm-address name

lane database

mac-address name

name server-atm-address

lane auto-config-atm-address

To specify that the configuration server ATM address is computed by our automatic method, use the **lane auto-config-atm-address** interface configuration command. To remove the previously assigned ATM address, use the **no** form of this command.

```
lane [config] auto-config-atm-address
no lane [config] auto-config-atm-address
```

Syntax Description

config (Optional) When the **config** keyword is used, this command applies only to the LANE configuration server (LECS). You are telling the LECS to use the auto-computed LECS address.

Default

No specific ATM address is set.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

When the **config** keyword is not present, this command causes the LANE server and LANE client on the subinterface to use the automatically assigned ATM address for the configuration server.

When the **config** keyword is present, this command assigns the automatically generated ATM address to the configuration server (LECS) configured on the interface. Multiple commands that assign ATM addresses to the LANE configuration server can be issued on the same interface to assign different ATM addresses to the configuration server. Commands that assign ATM addresses to the LANE configuration server include **lane auto-config-atm-address**, **lane config-atm-address**, and **lane fixed-config-atm-address**.

For a discussion of Cisco's method of automatically assigning ATM addresses, refer to the "Configuring LAN Emulation (LANE)" chapter in the *Cisco IOS Switching Services Configuration Guide*.

Examples

The following example associates the LANE configuration server with the database named *network1* and specifies that the configuration server's ATM address will be assigned by our automatic method:

```
lane database network1
 name eng server-atm-address 39.020304050607080910111213.0800.AA00.1001.02
 name mkt server-atm-address 39.020304050607080910111213.0800.AA00.4001.01
interface atm 1/0
 lane config database network1
 lane config auto-config-atm-address
```

The following example causes the LANE server and LANE client on the subinterface to use the automatically assigned ATM address to communicate with the configuration server:

```
interface atm 2/0.1
 ip address 172.16.0.4 255.255.255.0
 lane client ethernet
 lane server-bus ethernet eng
 lane auto-config-atm-address
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

lane config-atm-address

lane database

lane fixed-config-atm-address

lane bus-atm-address

To specify an ATM address—and thus override the automatic ATM address assignment—for the broadcast-and-unknown server on the specified subinterface, use the **lane bus-atm-address** interface configuration command. To remove the ATM address previously specified for the broadcast-and-unknown server on the specified subinterface and thus revert to the automatic address assignment, use the **no** form of this command.

```
lane bus-atm-address atm-address-template
no lane bus-atm-address [atm-address-template]
```

Syntax Description

<i>atm-address-template</i>	ATM address or a template in which wildcard characters are replaced by any nibble or group of nibbles of the prefix bytes, the end-system identifier (ESI) bytes, or the selector byte of the automatically assigned ATM address.
-----------------------------	---

Default

For the broadcast-and-unknown server, the default is automatic ATM address assignment.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

When applied to a broadcast-and-unknown server, this command overrides automatic ATM address assignment for the broadcast-and-unknown server. When applied to a LANE client, this command gives the client the ATM address of the broadcast-and-unknown server. The client will use this address rather than sending LE ARP requests for the broadcast address.

When applied to a selected interface, but with a different ATM address than was used previously, this command replaces the broadcast-and-unknown server's ATM address.

ATM Addresses. A LANE ATM address has the same syntax as an NSAP (but it is not a network-level address). It consists of the following:

- A 13-byte prefix that includes the following fields defined by the ATM Forum:
 - AFI (Authority and Format Identifier) field (1 byte)
 - DCC (Data Country Code) or ICD (International Code Designator) field (2 bytes)
 - DFI field (Domain Specific Part Format Identifier) (1 byte)
 - Administrative Authority field (3 bytes)
 - Reserved field (2 bytes)
 - Routing Domain field (2 bytes)
 - Area field (2 bytes)

- A 6-byte end-system identifier (ESI)
- A 1-byte selector field

Address Templates. LANE ATM address templates can use two types of wildcards: an asterisk (*) to match any single character (nibble), and an ellipsis (...) to match any number of leading, middle, or trailing characters. The values of the characters replaced by wildcards come from the automatically assigned ATM address.

The values of the digits that are replaced by wildcards come from the automatic ATM assignment method.

In LANE, a *prefix template* explicitly matches the prefix but uses wildcards for the ESI and selector fields. An *ESI template* explicitly matches the ESI field but uses wildcards for the prefix and selector.

In our implementation of LANE, the prefix corresponds to the switch, the ESI corresponds to the ATM interface, and the Selector field corresponds to the specific subinterface of the interface.

Examples

The following example uses an ESI template to specify the part of the ATM address corresponding to the interface; the remaining values in the ATM address come from automatic assignment:

```
lane bus-atm-address ...0800.200C.1001.**
```

The following example uses a prefix template to specify the part of the ATM address corresponding to the switch; the remaining values in the ATM address come from automatic assignment:

```
lane bus-atm-address 45.000014155551212f.00.00...
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

lane server-bus

lane client

To activate a LANE client on the specified subinterface, use the **lane client** interface configuration command. To remove a previously activated LANE client on the subinterface, use the **no** form of this command.

```
lane client {ethernet | tokenring} [elan-name]  
no lane client [{ethernet | tokenring} [elan-name]]
```

Syntax Description

ethernet	Identifies the emulated LAN attached to this subinterface as an Ethernet ELAN.
tokenring	Identifies the emulated LAN attached to this subinterface as a Token Ring ELAN.
<i>elan-name</i>	(Optional) Name of the emulated LAN. This argument is optional because the client obtains its emulated LAN name from the configuration server. The maximum length of the name is 32 characters.

Default

No LANE clients are enabled on the interface.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command is ordinarily used.

If a **lane client** command has already been entered on the subinterface for a different emulated LAN, then the client initiates termination procedures for that emulated LAN and joins the new emulated LAN.

If you do not provide an *elan-name* value, the client contacts the server to find which emulated LAN to join. If you do provide an emulated LAN name, the client consults the configuration server to ensure that no conflicting bindings exist.

Example

The following example enables a Token Ring LANE client on an interface:

```
lane client tokenring
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

lane client-atm-address

lane client-atm-address

To specify an ATM address—and thus override the automatic ATM address assignment—for the LANE client on the specified subinterface, use the **lane client-atm-address** interface configuration command. To remove the ATM address previously specified for the LANE client on the specified subinterface and thus revert to the automatic address assignment, use the **no** form of this command.

lane client-atm-address *atm-address-template*
no client-atm-address [*atm-address-template*]

Syntax Description

atm-address-template ATM address or a template in which wildcard characters are replaced by any nibble or group of nibbles of the prefix bytes, the ESI bytes, or the selector byte of the automatically assigned ATM address.

Default

Automatic ATM address assignment.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Use of this command on a selected subinterface, but with a different ATM address than was used previously, replaces the LANE client's ATM address.

ATM Addresses. A LANE ATM address has the same syntax as an NSAP (but it is not a network-level address). It consists of the following:

- A 13-byte prefix that includes the following fields defined by the ATM Forum:
 - AFI (Authority and Format Identifier) field (1 byte)
 - DCC (Data Country Code) or ICD (International Code Designator) field (2 bytes)
 - DFI field (Domain Specific Part Format Identifier) (1 byte)
 - Administrative Authority field (3 bytes)
 - Reserved field (2 bytes)
 - Routing Domain field (2 bytes)
 - Area field (2 bytes)
- A 6-byte end-system identifier (ESI)
- A 1-byte selector field

Address Templates. LANE ATM address templates can use two types of wildcards: an asterisk (*) to match any single character (nibble), and an ellipsis (...) to match any number of leading, middle, or trailing characters. The values of the characters replaced by wildcards come from the automatically assigned ATM address.

In LANE, a *prefix template* explicitly matches the ATM address prefix but uses wildcards for the ESI and selector fields. An *ESI template* explicitly matches the ESI field but uses wildcards for the prefix and selector.

In our implementation of LANE, the prefix corresponds to the switch, the ESI corresponds to the ATM interface, and the selector field corresponds to the specific subinterface of the interface.

For a discussion of Cisco's method of automatically assigning ATM addresses, refer to the "Configuring LAN Emulation (LANE)" chapter in the *Cisco IOS Switching Services Configuration Guide*.

Examples

The following example uses an ESI template to specify the part of the ATM address corresponding to the interface; the remaining parts of the ATM address come from automatic assignment:

```
lane client-atm-address...0800.200C.1001.**
```

The following example uses a prefix template to specify the part of the ATM address corresponding to the switch; the remaining parts of the ATM address come from automatic assignment:

```
lane client-atm-address 47.000014155551212f.00.00...
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

lane client

lane config-atm-address

To specify a configuration server's ATM address explicitly, use the **lane config-atm-address** interface configuration command. To remove an assigned ATM address, use the **no** form of this command.

```
lane [config] config-atm-address atm-address-template  
no lane [config] config-atm-address atm-address-template
```

Syntax Description

config	(Optional) When the config keyword is used, this command applies only to the LANE configuration server (LECS). You are telling the LECS to use the 20-byte address that you explicitly entered.
<i>atm-address-template</i>	ATM address or a template in which wildcard characters are replaced by any nibble or group of nibbles of the prefix bytes, the ESI bytes, or the selector byte of the automatically assigned ATM address.

Default

No specific ATM address or method is set.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

If the **config** keyword is not present, this command causes the LANE server and LANE client on the subinterface to use the specified ATM address for the configuration server.

When the **config** keyword is present, this command adds an ATM address to the configuration server configured on the interface. A LANE configuration server can listen on multiple ATM addresses. Multiple commands that assign ATM addresses to the LANE configuration server can be issued on the same interface to assign different ATM addresses to the LANE configuration server.

ATM Addresses. A LANE ATM address has the same syntax as an NSAP (but it is not a network-level address). It consists of the following:

- A 13-byte prefix that includes the following fields defined by the ATM Forum:
 - AFI (Authority and Format Identifier) field (1 byte)
 - DCC (Data Country Code) or ICD (International Code Designator) field (2 bytes)
 - DFI field (Domain Specific Part Format Identifier) (1 byte)
 - Administrative Authority field (3 bytes)
 - Reserved field (2 bytes)

- Routing Domain field (2 bytes)
- Area field (2 bytes)
- A 6-byte end-system identifier (ESI)
- A 1-byte selector field

Address Templates. LANE ATM address templates can use two types of wildcards: an asterisk (*) to match any single character (nibble), and an ellipsis (...) to match any number of leading, middle, or trailing characters. The values of the characters replaced by wildcards come from the automatically assigned ATM address.

In LANE, a *prefix template* explicitly matches the ATM address prefix but uses wildcards for the ESI and selector fields. An *ESI template* explicitly matches the ESI field but uses wildcards for the prefix and selector.

In our implementation of LANE, the prefix corresponds to the switch prefix, the ESI corresponds to a function of ATM interface's MAC address, and the Selector field corresponds to the specific subinterface of the interface.

For a discussion of Cisco's method of automatically assigning ATM addresses, refer to the "Configuring LAN Emulation" chapter in the *Cisco IOS Switching Services Configuration Guide*.

Examples

The following example associates the LANE configuration server with the database named *network1* and explicitly specifies the configuration server's ATM address:

```
lane database network1
 name eng server-atm-address 39.020304050607080910111213.0800.AA00.1001.02
 name mkt server-atm-address 39.020304050607080910111213.0800.AA00.4001.01
 interface atm 1/0
 lane config database network1
 lane config config-atm-address 39.020304050607080910111213.0800.AA00.3000.00
```

The following example causes the LANE server and LANE client on the subinterface to use the explicitly specified ATM address to communicate with the configuration server:

```
interface atm 2/0.1
 ip address 172.16.0.4 255.255.255.0
 lane client ethernet
 lane server-bus ethernet eng
 lane config-atm-address 39.020304050607080910111213.0800.AA00.3000.00
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

lane auto-config-atm-address
lane config database
lane database
lane fixed-config-atm-address

lane auto-config-atm-address
lane config-atm-address
lane database
lane fixed-config-atm-address

lane database

To create a named configuration database that can be associated with a configuration server, use the **lane database** global configuration command. To delete the database, use the **no** form of this command.

```
lane database database-name  
no lane database database-name
```

Syntax Description

database-name Database name (32 characters maximum).

Default

No name is provided.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Use of the **lane database** command places you in database configuration mode, in which you can use the **client-atm-address name**, **default name**, **mac-address name**, **name restricted**, **name unrestricted**, **name new-name**, and **name server-atm-address** commands to create entries in the specified database. When you are finished creating entries, type **^Z** or **exit** to return to global configuration mode.

Example

The following example creates the database named *network1* and associates it with the configuration server on interface ATM 1/0:

```
lane database network1  
name eng server-atm-address 39.020304050607080910111213.0800.AA00.1001.02  
name mkt server-atm-address 39.020304050607080910111213.0800.AA00.4001.01  
default-name eng  
interface atm 1/0  
lane config database network1  
lane config auto-config-atm-address
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

```
client-atm-address name  
default-name  
lane config database  
mac-address name  
name server-atm-address  
name new-name
```

lane fixed-config-atm-address

To specify that the fixed configuration server ATM address assigned by the ATM Forum will be used, use the **lane fixed-config-atm-address** interface configuration command. To specify that the fixed ATM address is not used, use the **no** form of this command.

```
lane [config] fixed-config-atm-address
no lane [config] fixed-config-atm-address
```

Syntax Description

config (Optional) When the **config** keyword is used, this command applies only to the LANE configuration server (LECS). You are telling the LECS to use the well-known, ATM Forum, LEC address.

Default

No specific ATM address or method is set.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

When the **config** keyword is not present, this command causes the LANE server and LANE client on the subinterface to use that ATM address, rather than the ATM address provided by the ILMI, to locate the configuration server.

When the **config** keyword is present, and the LECS is already up and running, please be aware of the following scenarios:

- If you configure the LECS with only the well-known address, the LECS will not participate in the SSRP, act as a “standalone” master, and only listen on the well-known LECS address. This scenario is ideal if you want a “standalone” LECS that does not participate in SSRP, and you would like to listen to only the well-known address.
- If only the well-known address is already assigned, and you assign at least one other address to the LECS, (additional addresses are assigned using the **lane config auto-config-atm-address** command and/or the **lane config config-atm-address** command) the LECS will participate in the SSRP and act as the master or slave based on the normal SSRP rules. This scenario is ideal if you would like the LECS to participate in SSRP, and you would like to make the master LECS listen on the well-known address.
- If the LECS is participating in SSRP, has more than one address (one of which is the well-known address), and all the addresses but the well-known address is removed, the LECS will declare itself the master and stop participating in SSRP completely.
- If the LECS is operating as an SSRP slave, and it has the well-known address configured, it will not listen on the well-known address unless it becomes the master.
- If you want the LECS to assume the well-known address only when it becomes the master, configure the LECS with the well-known address and at least one other address.

When you use this command with the **config** keyword, and the LAN Emulation Configuration Server (LECS) is a master, the master will listen on the fixed address. If you enter this command when an LECS is not a master, the LECS will listen on this address when it becomes a master. If you do not enter this command, the LECS will not listen on the fixed address.

Multiple commands that assign ATM addresses to the LECS can be issued on the same interface in order to assign different ATM addresses to the LECS. Commands that assign ATM addresses to the LECS include **lane auto-config-atm-address**, **lane config-atm-address**, and **lane fixed-config-atm-address**. The **lane config database** command and at least one command that assigns an ATM address to the LECS are required to activate a LECS.

Examples

The following example associates the LANE configuration server with the database named *network1* and specifies that the configuration server's ATM address is the fixed address:

```
lane database network1
  name eng server-atm-address 39.020304050607080910111213.0800.AA00.1001.02
  name mkt server-atm-address 39.020304050607080910111213.0800.AA00.4001.01
interface atm 1/0
  lane config database network1
  lane config fixed-config-atm-address
```

The following example causes the LANE server and LANE client on the subinterface to use the fixed ATM address to communicate with the configuration server:

```
interface atm 2/0.1
  ip address 172.16.0.4 255.255.255.0
  lane client ethernet
  lane server-bus ethernet eng
  lane fixed-config-atm-address
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

lane auto-config-atm-address
lane config-atm-address
lane config database

lane global-lecs-address

To specify a list of LECS addresses to use when the addresses cannot be obtained from the ILMI, use the **lane global-lecs-address** interface configuration command. The **no** form of this command removes an LECS address from the list.

lane global-lecs-address *address*
no lane global-lecs-address *address*

Syntax Description

<i>address</i>	Address of the LECS. You cannot enter the well-known LECS address.
----------------	--

Default

No addresses are configured. The router obtains LECS addresses from the ILMI.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

Use this command when your ATM switches do not support the ILMI list of LECS addresses and you want to configure Simple Server Redundancy. This command will simulate the list of LECS addresses, as if they were obtained from the ILMI. Enter this command with a different address for each LECS. The order they are entered determines their priority. You should enter the addresses in the same order as you would on the ATM switch.

Note You must configure the same list of addresses on each interface that contains a LANE entity.

If your switches do support ILMI, this command force the router to use the addresses specified and will not use the ILMI to obtain the LECS addresses.

Since the well-known LECS address is always used as a last resort LECS address, you cannot use the address in this command.

lane le-arp

To add a static entry to the LE ARP table of the LANE client configured on the specified subinterface, use the **lane le-arp** interface configuration command. To remove a static entry from the LE ARP table of the LANE client on the specified subinterface, use the **no** form of this command.

```
lane le-arp {mac-address | route-desc segment segment-number bridge bridge-number}  
atm-address  
no lane le-arp {mac-address | route-desc segment segment-number bridge bridge-number}  
atm-address
```

Syntax Description

<i>mac-address</i>	MAC address to bind to the specified ATM address.
<i>segment-number</i>	LANE segment number. The segment number ranges from 1 to 4095.
<i>bridge-number</i>	Bridge number that is contained in the route descriptor. The bridge number ranges from 1 to 15.
<i>atm-address</i>	ATM address.

Default

No static address bindings are provided.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command adds or removes a static entry binding a MAC address or segment number and bridge number to an ATM address. It does not add or remove dynamic entries. Removing the static entry for a specified ATM address from an LE ARP table does not release Data Direct VCCs established to that ATM address. However, clearing a static entry clears any fast-cache entries that were created from the MAC address-to-ATM address binding.

Static LE ARP entries are neither aged nor removed automatically.

To remove dynamic entries from the LE ARP table of the LANE client on the specified subinterface, use the **clear lane le-arp** command.

Example

The following example adds a static entry to the LE ARP table:

```
lane le-arp 0800.aa00.0101 47.000014155551212f.00.00.0800.200C.1001.01
```

The following example adds a static entry to the LE ARP table binding segment number 1, bridge number 1 to the ATM address:

```
lane le-arp route-desc segment 1 bridge 1 39.020304050607080910111213.00000CA05B41.01
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

clear lane le-arp

lane server-atm-address

To specify an ATM address—and thus override the automatic ATM address assignment—for the LANE server on the specified subinterface, use the **lane server-atm-address** interface configuration command. To remove the ATM address previously specified for the LANE server on the specified subinterface and thus revert to the automatic address assignment, use the **no** form of this command.

lane server-atm-address *atm-address-template*
no server-atm-address [*atm-address-template*]

Syntax Description

<i>atm-address-template</i>	ATM address or a template in which wildcard characters are replaced by any nibble or group of nibbles of the prefix bytes, the ESI bytes, or the selector byte of the automatically assigned ATM address.
-----------------------------	---

Defaults

For the LANE server, the default is automatic address assignment; the LANE client finds the LANE server by consulting the configuration server.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command also instructs the LANE client configured on this subinterface to reach the LANE server by using the specified ATM address instead of the ATM address provided by the configuration server.

When used on a selected subinterface, but with a different ATM address than was used previously, this command replaces the LANE server's ATM address.

ATM Addresses. A LANE ATM address has the same syntax as an NSAP (but it is not a network-level address). It consists of the following:

- A 13-byte prefix that includes the following fields defined by the ATM Forum:
 - AFI (Authority and Format Identifier) field (1 byte)
 - DCC (Data Country Code) or ICD (International Code Designator) field (2 bytes)
 - DFI field (Domain Specific Part Format Identifier) (1 byte)
 - Administrative Authority field (3 bytes)
 - Reserved field (2 bytes)
 - Routing Domain field (2 bytes)
 - Area field (2 bytes)
- A 6-byte end-system identifier (ESI)
- A 1-byte selector field

Address Templates. LANE ATM address templates can use two types of wildcards: an asterisk (*) to match any single character (nibble), and an ellipsis (...) to match any number of leading, middle, or trailing characters. The values of the characters replaced by wildcards come from the automatically assigned ATM address.

In LANE, a *prefix template* explicitly matches the prefix, but uses wildcards for the ESI and selector fields. An *ESI template* explicitly matches the ESI field, but uses wildcards for the prefix and selector.

In our implementation of LANE, the prefix corresponds to the switch, the ESI corresponds to the ATM interface, and the Selector field corresponds to the specific subinterface of the interface.

For a discussion of Cisco's method of automatically assigning ATM addresses, refer to the "Configuring LAN Emulation (LANE)" chapter of the *Cisco IOS Switching Services Configuration Guide*.

Examples

The following example uses an ESI template to specify the part of the ATM address corresponding to the interface; the remaining parts of the ATM address come from automatic assignment:

```
lane server-atm-address ...0800.200C.1001.**
```

The following example uses a prefix template to specify the part of the ATM address corresponding to the switch; the remaining part of the ATM address come from automatic assignment:

```
lane server-atm-address 45.000014155551212f.00.00...
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

lane server-bus

lane server-bus

To enable a LANE server and a broadcast-and-unknown server on the specified subinterface, use the **lane server-bus** interface configuration command. To disable a LANE server and broadcast-and-unknown server on the specified subinterface, use the **no** form of this command.

```
lane server-bus {ethernet | tokenring} elan-name  
no lane server-bus [{ethernet | tokenring} elan-name]
```

Syntax Description

ethernet	Identifies the emulated LAN attached to this subinterface as an Ethernet ELAN.
tokenring	Identifies the emulated LAN attached to this subinterface as a Token Ring ELAN.
<i>elan-name</i>	Name of the emulated LAN. The maximum length of the name is 32 characters.

Defaults

No LAN type or emulated LAN name is provided.

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

This command is ordinarily used.

The LANE server and the broadcast-and-unknown server (BUS) are located on the same router.

If a **lane server-bus** command has already been entered on the subinterface for a different emulated LAN, then the server initiates termination procedures with all clients and comes up as the server for the new emulated LAN.

The **no** form of this command removes a previously configured LANE server and broadcast-and-unknown server on the subinterface.

Example

The following example enables a LANE server and broadcast-and unknown server for a Token Ring ELAN:

```
lane server-bus tokenring
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

lane server-atm-address

name local-seg-id

To specify or replace the ring number of the emulated LAN in the configuration server's configuration database, use the **name local-seg-id** database configuration command. To remove the ring number from the database, use the **no** form of this command.

name *elan-name* **local-seg-id** *segment-number*
no name *elan-name* **local-seg-id** *segment-number*

Syntax Description

<i>elan-name</i>	Name of the emulated LAN. The maximum length of the name is 32 characters.
<i>segment-number</i>	Segment number to be assigned to the emulated LAN. The number ranges from 1 to 4095.

Default

No emulated LAN name or segment number is provided.

Command Mode

Database configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3.

This command is ordinarily used for Token Ring LANE.

The same LANE ring number cannot be assigned to more than one emulated LAN.

The **no** form of this command deletes the relationships.

Example

The following example specifies a ring number of 1024 for the emulated LAN *red*:

```
name red local-seg-id 1024
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

default-name
lane database
mac-address name

name server-atm-address

To specify or replace the ATM address of the LANE server for the emulated LAN in the configuration server's configuration database, use the **name server-atm-address** database configuration command. To remove it from the database, use the **no** form of this command.

```
name elan-name server-atm-address atm-address [restricted | un-restricted] [index number]  
no name elan-name server-atm-address atm-address [restricted | un-restricted] [index number]
```

Syntax Description

<i>elan-name</i>	Name of the emulated LAN. Maximum length is 32 characters.
<i>atm-address</i>	LANE server's ATM address.
restricted un-restricted	(Optional) Membership in the named emulated LAN is restricted to the LANE clients explicitly defined to the emulated LAN in the configuration server's database.
index number	(Optional) Priority number. When specifying multiple LANE servers for fault tolerance, you can specify a priority for each server. 0 is the highest priority.

Defaults

No emulated LAN name or server ATM address are provided.

Command Mode

Database configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0. The **restricted** command first appeared in Cisco IOS Release 11.1. The **un-restricted** and **index** keywords first appeared in Cisco IOS Release 11.2.

Emulated LAN names must be unique within one named LANE configuration database.

Specifying an existing emulated LAN name with a new LANE server ATM address adds the LANE server ATM address for that emulated LAN for redundant server operation or simple LANE service replication. This command can be entered multiple times.

The **no** form of this command deletes the relationships.

Example

The following example configures the *example3* database with two restricted and one unrestricted emulated LANs. The clients that can be assigned to the *eng* and *mkt* emulated LANs are specified using the **client-atm-address** commands. All other clients are assigned to the *man* emulated LAN.

```
lane database example3  
  name eng server-atm-address 39.000001415555121101020304.0800.200c.1001.02 restricted  
  name man server-atm-address 39.000001415555121101020304.0800.200c.1001.01  
  name mkt server-atm-address 39.000001415555121101020304.0800.200c.4001.01 restricted
```

```
client-atm-address 39.000001415555121101020304.0800.200c.1000.02 name eng
client-atm-address 39.0000001415555121101020304.0800.200c.2000.02 name eng
client-atm-address 39.000001415555121101020304.0800.200c.3000.02 name mkt
client-atm-address 39.000001415555121101020304.0800.200c.4000.01 name mkt
default-name man
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

client-atm-address name

default-name

lane database

mac-address name

show lane

To display detailed information for all the LANE components configured on an interface or any of its subinterfaces, on a specified subinterface, or on an emulated LAN, use the **show lane** EXEC command.

show lane [**interface atm** *slot/port*[*.subinterface-number*] | **name** *elan-name*] [**brief**]
 (for the AIP on the Cisco 7500 series routers;
 for the ATM port adapter on the Cisco 7200 series)

show lane [**interface atm** *slot/port-adapter/port*[*.subinterface-number*] | **name** *elan-name*] [**brief**] (for the ATM port adapter on the Cisco 7500 series routers)

show lane [**interface atm** *number*[*.subinterface-number*] | **name** *elan-name*] [**brief**]
 (for the Cisco 4500 and 4700 routers)

Syntax Description

interface atm <i>slot/port</i>	(Optional) ATM interface slot and port for the following: <ul style="list-style-type: none"> • AIP on the Cisco 7500 series routers. • ATM port adapter on the Cisco 7200 series routers.
interface atm <i>slot/port-adapter/port</i>	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.
interface atm <i>number</i>	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.
<i>.subinterface-number</i>	(Optional) Subinterface number.
name <i>elan-name</i>	(Optional) Name of emulated LAN. The maximum length of the name is 32 characters.
brief	(Optional) Keyword used to display the brief subset of available information.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Entering the **show lane** command is equivalent to entering the **show lane config**, **show lane server**, **show lane bus**, and **show lane client** commands. The **show lane** command shows all LANE-related information except the **show lane database** command information.

Sample Displays

The following is sample output of the **show lane** command for an Ethernet-emulated LAN:

```

Router# show lane

LE Config Server ATM2/0 config table: cisco_eng
Admin: up State: operational
LECS Mastership State: active master
list of global LECS addresses (30 seconds to update):
39.020304050607080910111213.00000CA05B43.00 <----- me
ATM Address of this LECS: 39.020304050607080910111213.00000CA05B43.00 (auto)
  vcd rxCnt txCnt callingParty
    50    2    2 39.020304050607080910111213.00000CA05B41.02 LES elan2 0 active
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 30
cumulative total number of config failures so far: 12
  cause of last failure: no configuration
  culprit for the last failure: 39.020304050607080910111213.00602F557940.01

LE Server ATM2/0.2 ELAN name: elan2 Admin: up State: operational
type: ethernet Max Frame Size: 1516
ATM address: 39.020304050607080910111213.00000CA05B41.02
LECS used: 39.020304050607080910111213.00000CA05B43.00 connected, vcd 51
control distribute: vcd 57, 2 members, 2 packets

proxy/ (ST: Init, Conn, Waiting, Adding, Joined, Operational, Reject, Term)
lecid ST vcd pkts Hardware Addr ATM Address
  1 0 54 2 0000.0ca0.5b40 39.020304050607080910111213.00000CA05B40.02
  2 0 81 2 0060.2f55.7940 39.020304050607080910111213.00602F557940.02

LE BUS ATM2/0.2 ELAN name: elan2 Admin: up State: operational
type: ethernet Max Frame Size: 1516
ATM address: 39.020304050607080910111213.00000CA05B42.02
data forward: vcd 61, 2 members, 0 packets, 0 unicasts

lecid vcd pkts ATM Address
  1 58 0 39.020304050607080910111213.00000CA05B40.02
  2 82 0 39.020304050607080910111213.00602F557940.02

LE Client ATM2/0.2 ELAN name: elan2 Admin: up State: operational
Client ID: 1 LEC up for 11 minutes 49 seconds
Join Attempt: 1
HW Address: 0000.0ca0.5b40 Type: ethernet Max Frame Size: 1516

ATM Address: 39.020304050607080910111213.00000CA05B40.02

VCD rxFrames txFrames Type ATM Address
  0 0 0 configure 39.020304050607080910111213.00000CA05B43.00
  55 1 4 direct 39.020304050607080910111213.00000CA05B41.02
  56 6 0 distribute 39.020304050607080910111213.00000CA05B41.02
  59 0 1 send 39.020304050607080910111213.00000CA05B42.02
  60 3 0 forward 39.020304050607080910111213.00000CA05B42.02
  84 3 5 data 39.020304050607080910111213.00602F557940.02

```

The following is sample output of the **show lane** command for a Token Ring LANE network:

```

Router# show lane

LE Config Server ATM4/0 config table: eng
Admin: up State: operational
LECS Mastership State: active master
list of global LECS addresses (35 seconds to update):
39.020304050607080910111213.006047704183.00 <----- me
ATM Address of this LECS: 39.020304050607080910111213.006047704183.00 (auto)
  vcd rxCnt txCnt callingParty
    7    1    1 39.020304050607080910111213.006047704181.01 LES elan1 0 active
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 2

```

```

cumulative total number of config failures so far: 0

LE Server ATM4/0.1 ELAN name: elan1 Admin: up State: operational
type: token ring Max Frame Size: 4544 Segment ID: 2048
ATM address: 39.020304050607080910111213.006047704181.01
LECS used: 39.020304050607080910111213.006047704183.00 connected, vcd 9
control distribute: vcd 12, 1 members, 2 packets

proxy/ (ST: Init, Conn, Waiting, Adding, Joined, Operational, Reject, Term)
lecid ST vcd pkts Hardware Addr ATM Address
 1 0 8 3 100.2 39.020304050607080910111213.006047704180.01
 0060.4770.4180 39.020304050607080910111213.006047704180.01

LE BUS ATM4/0.1 ELAN name: elan1 Admin: up State: operational
type: token ring Max Frame Size: 4544 Segment ID: 2048
ATM address: 39.020304050607080910111213.006047704182.01
data forward: vcd 16, 1 members, 0 packets, 0 unicasts

lecid vcd pkts ATM Address
 1 13 0 39.020304050607080910111213.006047704180.01

LE Client ATM4/0.1 ELAN name: elan1 Admin: up State: operational
Client ID: 1 LEC up for 2 hours 25 minutes 39 seconds
Join Attempt: 3
HW Address: 0060.4770.4180 Type: token ring Max Frame Size: 4544
Ring:100 Bridge:2 ELAN Segment ID: 2048
ATM Address: 39.020304050607080910111213.006047704180.01

VCD rxFrames txFrames Type ATM Address
 0 0 0 configure 39.020304050607080910111213.006047704183.00
 10 1 3 direct 39.020304050607080910111213.006047704181.01
 11 2 0 distribute 39.020304050607080910111213.006047704181.01
 14 0 0 send 39.020304050607080910111213.006047704182.01
 15 0 0 forward 39.020304050607080910111213.006047704182.01

```

Table 6 describes significant fields in the sample displays.

Table 6 Show LANE Field Descriptions

Field	Description
LE Config Server	Identifies the following lines as applying to the LANE configuration server. These lines are also displayed in output from the show lane config command. See the show lane config command for explanations of the output.
LE Server	Identifies the following lines as applying to the LANE server. These lines are also displayed in output from the show lane server command. See the show lane server command for explanations of the output.
LE BUS	Identifies the following lines as applying to the LANE broadcast-and-unknown server. These lines are also displayed in output from the show lane bus command. See the show lane bus command for explanations of the output.
LE Client	Identifies the following lines as applying to a LANE client. These lines are also displayed in output from the show lane client command. See the show lane bus command for explanations of the output.

show lane bus

To display detailed LANE information for the broadcast-and-unknown server configured on an interface or any of its subinterfaces, on a specified subinterface, or on an emulated LAN, use the **show lane bus** EXEC command:

show lane bus [**interface atm** *slot/port*[*.subinterface-number*] | **name** *elan-name*] [**brief**]
(for the AIP on the Cisco 7500 series routers; for the ATM port adapter on the Cisco 7200 series)

show lane bus [**interface atm** *slot/port-adapter/port*[*.subinterface-number*] | **name** *elan-name*] [**brief**] (for the ATM port adapter on the Cisco 7500 series routers)

show lane bus [**interface atm** *number*[*.subinterface-number*] | **name** *elan-name*] [**brief**]
(for the Cisco 4500 and 4700 routers)

Syntax Description

interface atm <i>slot/port</i>	(Optional) ATM interface slot and port for the following: <ul style="list-style-type: none"> • AIP on the Cisco 7500 series routers. • ATM port adapter on the Cisco 7200 series routers.
interface atm <i>slot/port-adapter/port</i>	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.
interface atm <i>number</i>	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.
<i>.subinterface-number</i>	(Optional) Subinterface number.
name <i>elan-name</i>	(Optional) Name of emulated LAN. The maximum length of the name is 32 characters.
brief	(Optional) Keyword used to display the brief subset of available information.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Displays

The following is sample output of the **show lane bus** command for an Ethernet-emulated LAN:

```
Router# show lane bus

LE BUS ATM2/0.2 ELAN name: elan2 Admin: up State: operational
type: ethernet Max Frame Size: 1516
ATM address: 39.020304050607080910111213.00000CA05B42.02
data forward: vcd 61, 2 members, 0 packets, 0 unicasts

lecid vcd pkts ATM Address
 1 58 0 39.020304050607080910111213.00000CA05B40.02
 2 82 0 39.020304050607080910111213.00602F557940.02
```

The following is sample output of the **show lane bus** command for a Token Ring LANE:

```
Router# show lane bus

LE BUS ATM3/0.1 ELAN name: anubis Admin: up State: operational
type: token ring Max Frame Size: 4544 Segment ID: 2500
ATM address: 47.009181000000000000000000.00000CA01662.01
data forward: vcd 14, 2 members, 0 packets, 0 unicasts

lecid vcd pkts ATM Address
 1 11 0 47.009181000000000000000000.00000CA01660.01
 2 17 0 47.009181000000000000000000.00000CA04960.01
```

Table 7 describes significant fields in the sample displays.

Table 7 Show LANE BUS Field Descriptions

Field	Description
LE BUS ATM2/0.2	Interface and subinterface for which information is displayed.
ELAN name	Name of the emulated LAN for this broadcast-and-unknown server.
Admin	Administrative state, either up or down.
State	Status of this LANE broadcast-and-unknown server. Possible states include down and operational.
type	Type of emulated LAN.
Max Frame Size	Maximum frame size (in bytes) on the emulated LAN.
Segment ID	The emulated LAN's ring number. This field appears only for Token Ring LANE.
ATM address	ATM address of this LANE broadcast-and-unknown server.
data forward	Virtual channel descriptor of the Data Forward VCC, the number of LANE clients attached to the VCC, and the number of packets transmitted on the VCC.
lecid	Identifier assigned to each LANE client on the Data Forward VCC.
vcd	Virtual channel descriptor used to reach the LANE client.
pkts	Number of packets sent by the broadcast-and-unknown server to the LANE client.
ATM Address	ATM address of the LANE client.

show lane client

To display detailed LANE information for all the LANE clients configured on an interface or any of its subinterfaces, on a specified subinterface, or on an emulated LAN, use the **show lane client** EXEC command.

show lane client [**interface atm** *slot/port*[*.subinterface-number*] | **name** *elan-name*] [**brief**]
(for the AIP on the Cisco 7500 series routers; for the ATM port adapter on the Cisco 7200 series)

show lane client [**interface atm** *slot/port-adapter/port*[*.subinterface-number*] | **name** *elan-name*] [**brief**] (for the ATM port adapter on the Cisco 7500 series routers)

show lane client [**interface atm** *number*[*.subinterface-number*] | **name** *elan-name*] [**brief**]
(for the Cisco 4500 and 4700 routers)

Syntax Description

interface atm <i>slot/port</i>	(Optional) ATM interface slot and port for the following: <ul style="list-style-type: none"> • AIP on the Cisco 7500 series routers. • ATM port adapter on the Cisco 7200 series routers.
interface atm <i>slot/port-adapter/port</i>	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.
interface atm <i>number</i>	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.
<i>.subinterface-number</i>	(Optional) Subinterface number.
name <i>elan-name</i>	(Optional) Name of emulated LAN. The maximum length of the name is 32 characters.
brief	(Optional) Keyword used to display the brief subset of available information.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Displays

The following is sample output from the **show lane client** command for an Ethernet-emulated LAN:

```
Router# show lane client

LE Client ATM2/0.2 ELAN name: elan2 Admin: up State: operational
Client ID: 1 LEC up for 11 minutes 49 seconds
Join Attempt: 1
HW Address: 0000.0ca0.5b40 Type: ethernet Max Frame Size: 1516

ATM Address: 39.020304050607080910111213.00000CA05B40.02

VCD  rxFrames  txFrames  Type      ATM Address
  0      0         0  configure 39.020304050607080910111213.00000CA05B43.00
 55      1         4  direct   39.020304050607080910111213.00000CA05B41.02
 56      6         0  distribute 39.020304050607080910111213.00000CA05B41.02
 59      0         1  send     39.020304050607080910111213.00000CA05B42.02
 60      3         0  forward  39.020304050607080910111213.00000CA05B42.02
 84      3         5  data     39.020304050607080910111213.00602F557940.02
```

The following is sample output from the **show lane client** command for a Token Ring LANE:

```
Router# show lane client

LE Client ATM4/0.1 ELAN name: elan1 Admin: up State: operational
Client ID: 1 LEC up for 2 hours 26 minutes 3 seconds
Join Attempt: 3
HW Address: 0060.4770.4180 Type: token ring Max Frame Size: 4544
Ring:100 Bridge:2 ELAN Segment ID: 2048
ATM Address: 39.020304050607080910111213.006047704180.01

VCD  rxFrames  txFrames  Type      ATM Address
  0      0         0  configure 39.020304050607080910111213.006047704183.00
 10      1         3  direct   39.020304050607080910111213.006047704181.01
 11      2         0  distribute 39.020304050607080910111213.006047704181.01
 14      0         0  send     39.020304050607080910111213.006047704182.01
 15      0         0  forward  39.020304050607080910111213.006047704182.01
```

Table 8 describes significant fields in the sample displays.

Table 8 Show LANE Client Field Descriptions

Field	Description
LE Client ATM2/0.2	Interface and subinterface of this client.
ELAN name	Name of the emulated LAN.
Admin	Administrative state; either up or down.
State	Status of this LANE client. Possible states include initialState, lecsConnect, configure, join, busConnect, and operational.
Client ID	The LAN emulation 2-byte Client ID assigned by the LAN emulation server.
Join Attempt	The number of attempts before successfully joining the emulated LAN.
HW Address	MAC address of this LANE client.
Type	Type of emulated LAN.
Max Frame Size	Maximum frame size (in bytes) on the emulated LAN.
Ring	The ring number for the client. This field only appears for Token Ring LANE.

Table 8 Show LANE Client Field Descriptions (Continued)

Field	Description
Bridge	The bridge number for the client. This field only appears for Token Ring LANE.
ELAN Segment ID	The ring number for the emulated LAN. This field only appears for Token Ring LANE.
ATM Address	ATM address of this LANE client.
VCD	Virtual channel descriptor for each of the VCCs established for this LANE client.
rxFrames	Number of frames received.
txFrames	Number of frames transmitted.
Type	Type of VCC. The Configure Direct VCC is shown in this display as <i>configure</i> . The Control Direct VCC is shown as <i>direct</i> ; the Control Distribute VCC is shown as <i>distribute</i> . The Multicast Send VCC and Multicast Forward VC are shown as <i>send</i> and <i>forward</i> , respectively. The Data Direct VCC is shown as <i>data</i> .
ATM Address	ATM address of the LANE component at the other end of this VCC.

show lane config

To display global LANE information for the configuration server configured on an interface, use the **show lane config EXEC** command.

show lane config [interface atm slot/0]

(for the AIP on the Cisco 7500 series routers; for the ATM port adapter on the Cisco 7200 series)

show lane config [interface atm slot/port-adapter/0]

(for the ATM port adapter on the Cisco 7500 series routers)

show lane config [interface atm number]

(for the Cisco 4500 and 4700 routers)

Syntax Description

interface atm slot/0	(Optional) ATM interface slot and port for the following: <ul style="list-style-type: none"> • AIP on the Cisco 7500 series routers. • ATM port adapter on the Cisco 7200 series routers.
interface atm slot/port-adapter/0	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.
interface atm number	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Displays

The following is sample **show lane config** output for an Ethernet emulated LAN:

```
Router# show lane config

LE Config Server ATM2/0 config table: cisco_eng
Admin: up State: operational
LECS Mastership State: active master
list of global LECS addresses (30 seconds to update):
39.020304050607080910111213.00000CA05B43.00 <----- me
ATM Address of this LECS: 39.020304050607080910111213.00000CA05B43.00 (auto)
  vcd  rxCnt  txCnt  callingParty
    50     2     2  39.020304050607080910111213.00000CA05B41.02 LES elan2 0 active
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 30
cumulative total number of config failures so far: 12
  cause of last failure: no configuration
  culprit for the last failure: 39.020304050607080910111213.00602F557940.01
```

The following example shows sample **show lane config** output for TR-LANE:

```
Router# show lane config

LE Config Server ATM4/0 config table: eng
Admin: up State: operational
LECS Mastership State: active master
list of global LECS addresses (40 seconds to update):
39.020304050607080910111213.006047704183.00 <----- me
ATM Address of this LECS: 39.020304050607080910111213.006047704183.00 (auto)
vcd rxCnt txCnt callingParty
  7    1    1 39.020304050607080910111213.006047704181.01 LES elan1 0 active
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 2
cumulative total number of config failures so far: 0
```

Table 9 describes significant fields in the sample display.

Table 9 Show LANE Config Command Field Descriptions

Field	Description
LE Config Server	Major interface on which the LANE configuration server is configured.
config table	Name of the database associated with the LANE configuration server.
Admin	Administrative state, either up or down.
State	State of the configuration server: down or operational. If down, the reasons field indicates why it is down. The reasons include the following: NO-config-table, NO-nsap-address, and NO-interface-up.
LECS Mastership state	Mastership state of the configuration server. If you have configured simple server redundancy, the configuration server with the lowest index is the active LECS.
list of global LECS addresses	List of LECS addresses.
40 seconds to update	Amount of time until the next update.
<----- me	ATM address of this configuration server.
ATM Address of this LECS	ATM address of the active configuration server.
auto	Method of ATM address assignment for the configuration server. In this example, the address is assigned by the automatic method.
vcd	Virtual circuit descriptor that uniquely identifies the configure VCC.
rxCnt	Number of packets received.
txCnt	Number of packets transmitted.
callingParty	ATM NSAP address of the LANE component that is connected to the LECS. 'elan1' indicates the emulated LAN name, '0' indicates the priority number, and 'active' indicates that the server is active.

show lane database

To display the configuration server's database, use the **show lane database** EXEC command.

```
show lane database [database-name]
```

Syntax Description

database-name (Optional) Specific database name.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

By default, this command displays the LANE configuration server information displayed by the **show lane config** command.

If no database name is specified, this command shows all databases.

Sample Displays

The following is sample output of the **show lane database** command for an Ethernet LANE:

```
Router# show lane database

LANE Config Server database table 'engandmkt' bound to interface/s: ATM1/0
default elan: none
elan 'eng': restricted
  server 45.000001415555121f.yyyy.zzzz.0800.200c.1001.01 (prio 0) active
  LEC MAC 0800.200c.1100
  LEC NSAP 45.000001415555121f.yyyy.zzzz.0800.200c.1000.01
  LEC NSAP 45.000001415555124f.yyyy.zzzz.0800.200c.1300.01
elan 'mkt':
  server 45.000001415555121f.yyyy.zzzz.0800.200c.1001.02 (prio 0) active
  LEC MAC 0800.200c.1200
  LEC NSAP 45.000001415555121f.yyyy.zzzz.0800.200c.1000.02
  LEC NSAP 45.000001415555124f.yyyy.zzzz.0800.200c.1300.02
```

The following is sample output of the **show lane database** command for a Token Ring LANE:

```
Router# show lane database

LANE Config Server database table 'eng' bound to interface/s: ATM4/0
default elan: elan1
elan 'elan1': un-restricted, local-segment-id 2048
  server 39.020304050607080910111213.006047704181.01 (prio 0) active
```

Table 10 describes significant fields in the sample displays.

Table 10 Show LANE Database Command Field Descriptions

Field	Description
LANE Config Server database	Name of this database and interfaces bound to it.
default elan	Default name, if one is established.
elan	Name of the emulated LAN whose data is reported in this line and the following indented lines.
un-restricted	Indicates whether this emulated LAN is restricted or unrestricted.
local-segment-id 2048	Ring number of the emulated LAN.
server	ATM address of the configuration server.
(prio 0) active	Priority level and simple server redundancy state of this configuration server. If you have configured simple server redundancy, the configuration server with the lowest priority will be active.
LEC MAC	MAC addresses of an individual LANE client in this emulated LAN. This display includes a separate line for every LANE client in this emulated LAN.
LEC NSAP	ATM addresses of all LANE clients in this emulated LAN.

show lane default-atm-addresses

To display the automatically assigned ATM address of each LANE component in a router or on a specified interface or subinterface, use the **show lane default-atm-addresses EXEC** command.

show lane default-atm-addresses [interface atm slot/port.subinterface-number]
(for the AIP on the Cisco 7500 series routers; for the ATM port adapter on the Cisco 7200 series)

show lane default-atm-addresses [interface atm slot/port-adapter/port.subinterface-number]
(for the ATM port adapter on the Cisco 7500 series routers)

show lane default-atm-addresses [interface atm number.subinterface-number]
(for the Cisco 4500 and 4700 routers)

Syntax Description

interface atm slot/port	(Optional) ATM interface slot and port for the following: <ul style="list-style-type: none">• AIP on the Cisco 7500 series routers.• ATM port adapter on the Cisco 7200 series routers.
interface atm slot/port-adapter/port	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.
interface atm number	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.
.subinterface-number	(Optional) Subinterface number.

Command Mode

EXEC

Usage Guidelines

The **show lane default-atm-addresses [interface atm slot/port.subinterface-number]** command first appeared in Cisco IOS Release 11.0.

The **show lane default-atm-addresses [interface atm number.subinterface-number]** command first appeared in Cisco IOS Release 11.1.

It is not necessary to have any of the LANE components running on this router before you use this command.

Sample Display

The following is sample output of the **show lane default-atm-addresses** command for the ATM interface 1/0 when all the major LANE components are located on that interface:

```
Router# show lane default-atm-addresses interface atm1/0
interface ATM1/0:
```

```

LANE Client:      47.00000000000000000000000000000000.00000C304A98.**
LANE Server:     47.00000000000000000000000000000000.00000C304A99.**
LANE Bus:        47.00000000000000000000000000000000.00000C304A9A.**
LANE Config Server: 47.00000000000000000000000000000000.00000C304A9B.00
note: ** is the subinterface number byte in hex

```

Table 11 describes significant fields shown in the display.

Table 11 Show LANE Default-ATM-Addresses Field Descriptions

Field	Description
interface ATM1/0:	Specified interface.
LANE Client:	ATM address of the LANE client on the interface.
LANE Server:	ATM address of the LANE server on the interface.
LANE Bus:	ATM address of the LANE broadcast-and-unknown server on the interface.
LANE Config Server:	ATM address of the LANE configuration server on the interface.

show lane le-arp

To display the LANE ARP table of the LANE client configured on an interface or any of its subinterfaces, on a specified subinterface, or on an emulated LAN, use the **show lane le-arp** EXEC command.

show lane le-arp [interface atm slot/port[.subinterface-number] | name elan-name]
(for the AIP on the Cisco 7500 series routers; for the ATM port adapter on the Cisco 7200 series)

show lane le-arp [interface atm slot/port-adapter/port[.subinterface-number] | name elan-name] (for the ATM port adapter on the Cisco 7500 series routers)

show lane le-arp [interface atm number[.subinterface-number] | name elan-name]
(for the Cisco 4500 and 4700 routers)

Syntax Description

interface atm <i>slot/port</i>	(Optional) ATM interface slot and port for the following: <ul style="list-style-type: none"> AIP on the Cisco 7500 series routers. ATM port adapter on the Cisco 7200 series routers.
interface atm <i>slot/port-adapter/port</i>	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.
interface atm <i>number</i>	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.
<i>.subinterface-number</i>	(Optional) Subinterface number.
name <i>elan-name</i>	(Optional) Name of emulated LAN. The maximum length of the name is 32 characters.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Displays

The following is sample output of the **show lane le-arp** command for an Ethernet LANE client:

```
Router# show lane le-arp

Hardware Addr   ATM Address                                     VCD  Interface
0000.0c15.a2b5  39.00000000000000000000000000000000.00000C15A2B5.01  39  ATM1/0.1
0000.0c15.f3e5  39.00000000000000000000000000000000.00000C15F3E5.01  25* ATM1/0.1
```

The following is sample output of the **show lane le-arp** command for a Token Ring LANE client:

```
Router# show lane le-arp

Ring Bridge      ATM Address                               VCD Interface
512   6           39.020304050607080910111213.00602F557940.01 47 ATM2/0.1
```

Table 12 describes significant fields shown in the displays.

Table 12 Show LANE LE-ARP Field Descriptions

Field	Description
Hardware Addr	MAC address, in dotted hexadecimal notation, assigned to the LANE component at the other end of this VCD.
Ring	Route descriptor segment number for the LANE component.
Bridge	Bridge number for the LANE component.
ATM Address	ATM address of the LANE component at the other end of this VCD.
VCD	Virtual circuit descriptor.
Interface	Interface or subinterface used to reach the specified component.

show lane server

To display global information for the LANE server configured on an interface, on any of its subinterfaces, on a specified subinterface, or on an emulated LAN, use the **show lane server EXEC** command.

show lane server [interface atm slotport[.subinterface-number] | name elan-name] [brief]
(for the AIP on the Cisco 7500 series routers; for the ATM port adapter on the Cisco 7200 series)

show lane server [interface atm slotport-adapter/port[.subinterface-number] | name elan-name] [brief] (for the ATM port adapter on the Cisco 7500 series routers)

show lane server [interface atm number[.subinterface-number] | name elan-name] [brief]
(for the Cisco 4500 and 4700 routers)

Syntax Description

interface atm slotport	(Optional) ATM interface slot and port for the following: <ul style="list-style-type: none">• AIP on the Cisco 7500 series routers.• ATM port adapter on the Cisco 7200 series routers.
interface atm slot/port-adapter/port	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.
interface atm number	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.
.subinterface-number	(Optional) Subinterface number.
name elan-name	(Optional) Name of emulated LAN. The maximum length of the name is 32 characters.
brief	(Optional) Keyword used to display the brief subset of available information.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.0.

Sample Displays

The following is sample output of the **show lane server** command for an Ethernet-emulated LAN:

```
Router# show lane server

LE Server ATM2/0.2  ELAN name: elan2  Admin: up  State: operational
type: ethernet      Max Frame Size: 1516
ATM address: 39.020304050607080910111213.00000CA05B41.02
```

```

LECS used: 39.020304050607080910111213.00000CA05B43.00 connected, vcd 51
control distribute: vcd 57, 2 members, 2 packets

proxy/ (ST: Init, Conn, Waiting, Adding, Joined, Operational, Reject, Term)
lecid ST vcd      pkts Hardware Addr  ATM Address
  1  O   54        2 0000.0ca0.5b40 39.020304050607080910111213.00000CA05B40.02
  2  O   81        2 0060.2f55.7940 39.020304050607080910111213.00602F557940.02

```

The following is sample output of the **show lane server** command for a Token Ring-emulated LAN:

```

Router# show lane server

LE Server ATM3/0.1 ELAN name: anubis Admin: up State: operational
type: token ring      Max Frame Size: 4544      Segment ID: 2500
ATM address: 47.009181000000000000000000.00000CA01661.01
LECS used: 47.009181000000000000000000.00000CA01663.00 connected, vcd 6
control distribute: vcd 10, 2 members, 4 packets
proxy/ (ST: Init, Conn, Waiting, Adding, Joined, Operational, Reject, Term)
lecid ST vcd      pkts Hardware Addr  ATM Address
  1  O    7        3 400.1           47.009181000000000000000000.00000CA01660.01
                    0000.0ca0.1660 47.009181000000000000000000.00000CA01660.01
  2  O   16        3 300.1           47.009181000000000000000000.00000CA04960.01
                    0000.0ca0.4960 47.009181000000000000000000.00000CA04960.01

```

Table 13 describes significant fields shown in the displays.

Table 13 Show LANE Server Field Descriptions

Field	Description
LE Server ATM2/0.2	Interface and subinterface of this server.
ELAN name	Name of the emulated LAN.
Admin	Administrative state, either up or down.
State	Status of this LANE server. Possible states for a LANE server include down, waiting_ILMI, waiting_listen, up_not_registered, operational, and terminating.
type	Type of emulated LAN.
Max Frame Size	Maximum frame size (in bytes) on this type of emulated LAN.
Segment ID	The emulated LAN's ring number. This field appears only for Token Ring LANE.
ATM address	ATM address of this LANE server.
LECS used	ATM address of the LANE configuration server being used. This line also shows the current state of the connection between the LANE server and the LANE configuration server and the virtual circuit descriptor of the circuit connecting them.
control distribute	Virtual circuit descriptor of the Control Distribute VCC
proxy	Status of the LANE client at the other end of the Control Distribute VCC.
lecid	Identifier for the LANE client at the other end of the Control Distribute VCC.
ST	Status of the LANE client at the other end of the Control Distribute VCC. Possible states are Init, Conn, Waiting, Adding, Joined, Operational, Reject, and Term
vcd	Virtual channel descriptor used to reach the LANE client.

Table 13 Show LANE Server Field Descriptions (Continued)

Field	Description
pkts	Number of packets sent by the LANE server on the Control Distribute VCC to the LANE client.
Hardware Addr	The top number in this column is the router-descriptor, while the second number is the MAC-layer address of the LANE client.
ATM Address	ATM address of the LANE client.