



LAN Emulation (LANE) Commands

This chapter describes the commands available to configure LAN emulation (LANE) in Cisco 7000 series, Cisco 7500 series and Cisco 4500 routers that contain an ATM Interface Processor (AIP) and are connected to a Cisco ATM switch.

For LANE configuration information and examples, refer to the chapter entitled “Configuring LAN Emulation (LANE)” in the *Wide-Area Networking Configuration Guide*.

Note Because some LANE commands are used often and others are used very rarely, the command descriptions in this chapter identify the commands you are most likely to use. Look under “Usage Guidelines” for the 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*] [*mac-address*] | **name** *elan-name* [*mac-address*]] (for the Cisco 7000 series and Cisco 7500 series)

clear lane le-arp [**interface** *number* [*.subinterface-number*] [*mac-address*] | **name** *elan-name* [*mac-address*]] (for the Cisco 4500)

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 7000 series and Cisco 7500 series routers.
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.
<i>mac-address</i>	(Optional) Media access control (MAC) address of the entry to be cleared from the LE ARP table.
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.

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.

Use of 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 called *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 called *red*:

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

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

After changing the bindings on a LANE configuration server, to force a LANE server on a specified subinterface or emulated LAN to drop the Control Direct and Control Distribute VCCs to a given LANE client and thus to force the client to rejoin subject to the new bindings, use the **clear lane server** EXEC command.

```
clear lane server {interface slotport[.subinterface-number] | name elan-name}
  [mac-address mac-address | client-atm-address atm-address | lecid lecid]
  (for the Cisco 7000 series and the Cisco 7500 series)
```

```
clear lane server {interface number interface-number] | name elan-name}
  [mac-address mac-address | client-atm-address atm-address | lecid lecid]
  (for the Cisco 4500)
```

Syntax Description

interface <i>slotport</i> [<i>.subinterface-number</i>]	Interface or subinterface on which the LANE server is configured for the Cisco 7000 series and Cisco 7500 series.
interface <i>number</i> [<i>.subinterface-number</i>]	Interface or subinterface on which the LANE server is configured for the Cisco 4500.
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>lecid</i>	(Optional) Keyword and LANE client ID.

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. The effect is to force the client to leave one emulated LAN and join a different emulated LAN.

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 named *red* to be dropped. The next time they try to join, they will be forced to join a different emulated LAN.

```
clear lane server red
```

Related Commands

A dagger (†) indicates that the command is documented outside this chapter.

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.

name *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

A dagger (†) indicates that the command is documented outside this chapter.

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.
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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.

Related Commands

A dagger (†) indicates that the command is documented outside this chapter.

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 config auto-config-atm-address** interface configuration command from the configuration server. 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) Used to specify the configuration server's ATM 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 *Wide-Area Networking Configuration Guide*.

Example

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 39.0000014155551211.0800.AA00.1001.02
name mkt server-atm-address 39.0000014155551211.0800.AA00.4001.01
lane config database network1
lane config auto-config-atm-address
```

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

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 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 Command

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 [elan-name]  
no lane client [ethernet [elan-name]]
```

Syntax Description

ethernet	Identifies the type of emulated LAN attached to this subinterface.
<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. Maximum length is 32 characters.

Default

None

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.

Related Command

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

<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.
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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 *Wide-Area Networking 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 Command

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

<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.
config	(Optional) Used to specify the configuration server 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 (LANE)" chapter in the *Wide-Area Networking Configuration Guide*.

Related Commands

lane auto-config-atm-address

lane config database

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.

Related Commands

A dagger (†) indicates that the command is documented outside this chapter.

```
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) Specifies the configuration server 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.

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 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 a server is not a master, the server 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.

Related Commands

```
lane auto-config-atm-address  
lane config-atm-address
```

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 atm-address  
no lane le-arp mac-address atm-address
```

Syntax Description

<i>mac-address</i>	MAC address to bind to the specified ATM address.
<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 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 not aged and are not 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
```

Related Command

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.
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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 *Wide-Area Networking 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 Command

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 elan-name  
no lane server-bus [ethernet elan-name]
```

Syntax Description

ethernet	Identifies the type of emulated LAN attached to this subinterface.
<i>elan-name</i>	Name of the emulated LAN. Maximum length is 32 characters.

Defaults

No LAN type and emulated LAN name are 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 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.

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

Related Command

lane server-atm-address

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** global 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 n]  
no name elan-name server-atm-address atm-address [restricted | un-restricted] [index n]
```

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 <i>n</i>	(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 **unrestricted** and **index** commands 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.

Related Commands

A dagger (†) indicates that the command is documented outside this chapter.

```
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 Cisco 7000 series and Cisco 7500 series)

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

Syntax Description

interface atm <i>slot/port</i>	(Optional) ATM interface slot and port for the Cisco 7000 series and Cisco 7500 series.
interface atm <i>number</i>	(Optional) ATM interface number for the Cisco 4500.
<i>.subinterface-number</i>	(Optional) Subinterface number.
name <i>elan-name</i>	(Optional) Name of emulated LAN. Maximum length is 32 characters.
brief	(Optional) Keyword used to display the brief subset of available information.

Command Mode

EXEC

Usage Guidelines

The **show lane** [**interface atm** *slot/port*[*.subinterface-number*] | **name** *elan-name*] [**brief**] command first appeared in Cisco IOS Release 11.0.

The **show lane** [**interface atm** *number*[*.subinterface-number*] | **name** *elan-name*] [**brief**] command first appeared in Cisco IOS Release 11.1.

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** information.

Sample Display

The following is sample output of the **show lane** command:

```
Router# show lane

LE Config Server ATM1/0 config table: shj-test State: operational
ATM Address: 39.000000000000000000000000000000.000000000500.00
ATM Address: 39.000000000000000000000000000000.000000000500.01
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 10
cumulative total number of config failures so far: 0

LE Server ATM1/0.1 ELAN name: fred State: operational
```

```

type: ethernet           Max Frame Size: 1516
ATM address: 39.00000000000000000000000000000000.01000000000000.1C
Config Server ATM addr: 39.00000000000000000000000000000000.01000000000000.10 vcd: 19
control distribute: vcd 20, 2 members, 6 packets

proxy/ (ST: Init, Conn, Waiting, Adding, Joined, Operational, Reject, Term)
lecid ST vcd   pkts Hardware Addr  ATM Address
   1  O 17     4 0000.0c15.f3e5 39.00000000000000000000000000000000.00000C15F3E5.01
   2  O 23     4 0000.0c31.26ab 39.00000000000000000000000000000000.00000C3126AB.01

LE BUS ATM1/0.1 ELAN name: fred State: operational
type: ethernet           Max Frame Size: 1516
ATM address: 39.00000000000000000000000000000000.00000C3126AD.01
data forward: vcd 22, 2 members, 10 packets

lecid vcd   pkts  ATM Address
   1  21     5 39.00000000000000000000000000000000.00000C15F3E5.01
   2  26     5 39.00000000000000000000000000000000.00000C3126AB.01

LE Client ATM1/0.1 ELAN name: fred State: operational
HW Address: 0000.0c31.26ab      Type: ethernet      Max Frame Size: 1516
ATM Address: 39.00000000000000000000000000000000.00000C3126AB.01
VCD  rxFrames  txFrames  Type      ATM Address
   0         0         0  configure 66.01020304050089AADDBC2DAA.AB0001010290.10
   7         1         2   direct 66.01020304050089AADDBC2DAA.AB0001010290.1C
  13         1         0  distribute 66.01020304050089AADDBC2DAA.AB0001010290.1C
  19         0       2404   send 47.00000000000000000000000000000000.00000C311F2D.02
  21       2404         0  forward 47.00000000000000000000000000000000.00000C311F2D.02

```

Table 33 describes significant fields in the sample display.

Table 33 Show LANE Command Field Descriptions

Field	Description
LE Config Server	Major Interface on which the LANE configuration server is configured. Identifies the following lines as applying to the LANE configuration server. These lines are also displayed in output from the show lane config command.
config table	Name of the database associated with the LANE configuration server.
State	State of the configuration server: down or operational. If down, a “down reasons” field indicates why it is down. The reasons include the following: NO-config-table, NO-nsap-address, and NO-interface-up.
ATM address	ATM address or addresses of this configuration server.
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.
ATM1/0.1	Interface or subinterface this LANE server is on.
ELAN name:	Name of the emulated LAN this server is linked to.
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.

Table 33 Show LANE Command Field Descriptions (Continued)

Field	Description
Max Frame Size	Maximum frame size on this type of LAN.
ATM address	ATM address of this server.
Config Server ATM addr	The ATM address used to reach the LANE configuration server.
control distribute: vcd 20, 2 members, 6 packets	Virtual circuit descriptor of the Control Distribute VCC
proxy/ (ST: Init, Conn, Waiting, Adding, Joined, Operational, Reject, Term)	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.
pkts	Number of packets sent by the LANE server on the Control Distribute VCC to the LANE client.
Hardware Addr	MAC-layer address of the LANE client.
ATM Address	ATM address of the LANE client.
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.
ATM1/0.1	Interface or subinterface this LANE broadcast-and-unknown server is on.
ELAN name	Name of the emulated LAN this broadcast-and-unknown server is linked to.
State	Status of this LANE client. Possible states include down and operational.
type	Type of emulated LAN.
Max Frame Size	Maximum frame size on this type of LAN.
ATM address	ATM address of this LANE broadcast-and-unknown server.
data direct: vcd 22, 2 members, 10 packets	Virtual channel descriptor of the Data Direct VCC, 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 Direct 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.
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.

Table 33 Show LANE Command Field Descriptions (Continued)

Field	Description
ATM1/0.1	Interface or subinterface this LANE client is on.
ELAN name	Name of the emulated LAN this client is linked to.
State	Status of this LANE client. Possible states include <code>initialState</code> , <code>lecsConnect</code> , <code>configure</code> , <code>join</code> , <code>busConnect</code> , and <code>operational</code> .
HW Address	MAC address, in dotted hexadecimal notation, assigned to this LANE client.
Type	Type of emulated LAN.
Max Frame Size	Maximum frame size on this type of LAN.
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 on the VCC.
txFrames	Number of frames transmitted on the VCC.
Type	Type of VCC; same as the SVC and PVC types. Possible VCC types are <code>configure</code> , <code>direct</code> , <code>distribute</code> , <code>send</code> , <code>forward</code> , and <code>data</code> . ¹
ATM Address	ATM address of the LANE component at the other end of the VCC.

1. Compare the shortened names for VCC types in this display with those shown in Figure 3. The Configure Direct VCC is shown in this display as *configure*. The Control Direct VCC is shown as *direct*; the Control Distribute VCC is shown as *distribute*. The Multicast Send VCC and Multicast Forward VC are shown as *send* and *forward*, respectively. The Data Direct VCC is shown as *data*.

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 Cisco 7000 series and Cisco 7500 series)

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

Syntax Description

interface atm <i>slot/port</i>	(Optional) ATM interface slot and port for the Cisco 7000 series and Cisco 7500 series.
interface atm <i>number</i>	(Optional) ATM interface number for the Cisco 4500.
<i>.subinterface-number</i>	(Optional) Subinterface number.
name <i>elan-name</i>	(Optional) Name of the emulated LAN. Maximum length is 32 characters.
brief	(Optional) Keyword used to display the brief subset of available information.

Command Mode

EXEC

Usage Guidelines

The **show lane bus** [**interface atm** *slot/port*[*.subinterface-number*] | **name** *elan-name*] [**brief**] command first appeared in Cisco IOS Release 11.0.

The **show lane bus** [**interface atm** *number*[*.subinterface-number*] | **name** *elan-name*] [**brief**] command first appeared in Cisco IOS Release 11.1.

Sample Display

The following is sample output of the **show lane bus** command:

```
Router# show lane bus

interface: atm 4/0.1      name: eng
type: Ethernet           MTU: 1500      AAL5-SDU length: 1516
max frame age: 2 seconds  relayed frames/sec: 116
NSAP: 45.000001415555121f.yyyy.zzzz.0800.200c.1002.01
lecid  vcd  cnt  NSAP
*      80  659  45.000001415555121f.yyyy.zzzz.0800.200c.1002.01
1      81  99   45.000001415555121f.yyyy.zzzz.0800.200c.1000.01
5      89  41   45.000001415555122f.yyyy.zzzz.0800.200c.1100.01
6      99  101  45.000001415555124f.yyyy.zzzz.0800.200c.1300.01
interface: atm 4/0.2      name: mkt
type: Ethernet           MTU: 1500      AAL5-SDU length: 1516
max frame age: 2 seconds  relayed frames/sec: 48
NSAP: 45.000001415555121f.yyyy.zzzz.0800.200c.1002.02
```

```

lecid vcd cnt NSAP
*      82 325 45.000001415555121f.yyyy.zzzz.0800.200c.1002.02
1      83 10 45.000001415555121f.yyyy.zzzz.0800.200c.1000.02
3      90 25 45.000001415555123f.yyyy.zzzz.0800.200c.1200.01
4      93 75 45.000001415555124f.yyyy.zzzz.0800.200c.1300.02

```

Table 34 describes significant fields in the sample display.

Table 34 Show LANE BUS Command Field Descriptions

Field	Description
interface	Interface or subinterface for which information is displayed.
name	Name of the emulated LAN.
type	Type of emulated LAN; this release supports Ethernet only.
MTU	Maximum transmission unit (packet) size on the emulated LAN.
AAL5-SDU length	Maximum number of bytes in a LANE Service Data Unit (SDU) encapsulated in an ATM adaptation layer 5 (AAL5) frame. This length includes a two-byte marker and a full Ethernet-like frame from the destination MAC address field through the last byte of data. It does not include an Ethernet CRC or frame redundancy check (FRC), which is not present on emulated LAN frames. The number does not include the 8-byte AAL5 trailer in the last ATM cell of the frame, nor the padding between the last data byte and the 8-byte trailer.
max frame age	After receiving a frame over a Multicast Send VCC, the broadcast-and-unknown server must transmit the frame to all relevant Multicast Forward VCCs within this number of seconds. When the time expires, it discards the frame.
NSAP	ATM address of this broadcast-and-unknown server.
lecid	Unique identifier of the LANE client at the other end of this VCC.
vcd	Virtual circuit descriptor that uniquely identifies this VCC.
cnt	For the Multicast Send VCC, the number of packets sent from the client to the broadcast-and-unknown server. For the Multicast Forward VCC, the number of packets sent from the broadcast-and-unknown server to clients.
NSAP	For the Multicast Send VCC, the ATM address of the LANE client at the other end of this VCC. For the Multicast Forward VCC, the ATM address of the broadcast-and-unknown server.

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 Cisco 7000 series and Cisco 7500 series)

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

Syntax Description

interface atm slot/port	(Optional) ATM interface slot and port for the Cisco 7000 series and Cisco 7500 series.
interface atm number	(Optional) ATM interface number for the Cisco 4500.
.subinterface-number	(Optional) Subinterface number.
name elan-name	(Optional) Name of the emulated LAN. Maximum length is 32 characters.
brief	(Optional) Keyword used to display the brief subset of available information.

Command Mode

EXEC

Usage Guidelines

The **show lane client** [**interface atm slot/port** [,subinterface-number] | **name elan-name**] [**brief**] command first appeared in Cisco IOS Release 11.0.

The **show lane client** [**interface atm number** [,subinterface-number] | **name elan-name**] [**brief**] command first appeared in Cisco IOS Release 11.1.

Sample Display

The following is sample output from the **show lane client** command:

```
Router# show lane client

interface: atm 4/0.1      name: eng
MAC: 0800.200c.1000      type: Ethernet      MTU: 1500      AAL5-SDU length: 1516
NSAP: 45.000001415555121f.yyyy.zzzz.0800.200c.1000.01
VCD  rxFrames  txFrames  Type      ATM Address
0           0           0  configure 47.01020304050089AA.DDBC.2DAA.AB00.0101.0290.10
71          0           0  direct   47.000001415555121f.yyyy.zzzz.0800.200c.1001.01
72          330          0  distrib   47.000001415555121f.yyyy.zzzz.0800.200c.1001.01
85          0           241 send      47.000001415555121f.yyyy.zzzz.0800.200c.1002.01
86          659          0  forward   47.000001415555121f.yyyy.zzzz.0800.200c.1002.01
91          2000         2000 direct   47.000001415555122f.yyyy.zzzz.0800.200c.1100.01
94          10000        4000 direct   47.000001415555124f.yyyy.zzzz.0800.200c.1300.01
```

```

interface: atm 4/0.2      name: mkt
MAC: 0800.200c.1000     type: Ethernet      MTU: 1500      AAL5-SDU length: 1516
NSAP: 45.000001415555121f.yyyy.zzzz.0800.200c.1000.02
VCD  rxFrames  txFrames  Type      ATM Address
54      0          50    direct   45.000001415555121f.yyyy.zzzz.0800.200c.1001.02
55      151        0     distrib  45.000001415555121f.yyyy.zzzz.0800.200c.1001.02
73      0          110   send     45.000001415555121f.yyyy.zzzz.0800.200c.1002.02
74      325        0     forward  45.000001415555121f.yyyy.zzzz.0800.200c.1002.02
84      2000       5000  direct   45.000001415555123f.yyyy.zzzz.0800.200c.1200.01
92      1000       1000  direct   45.000001415555124f.yyyy.zzzz.0800.200c.1300.02

```

Table 35 describes significant fields in the sample display.

Table 35 Show LANE Client Command Field Descriptions

Field	Description
interface	Interface or subinterface for which information is displayed.
name	Name of the emulated LAN.
MAC	MAC address of this LANE client.
type	Type of emulated LAN; this release supports Ethernet only.
MTU	Maximum transmission unit (packet) size on the emulated LAN.
AAL5-SDU length	Maximum number of bytes in a LANE service data unit (SDU) encapsulated in an AAL5 frame. This length includes a 2-byte marker and a full Ethernet-like frame from the destination MAC address field through the last byte of data. It does not include an Ethernet CRC (or FRC), which is not present on emulated LAN frames. The number does not include the 8-byte AAL5 trailer in the last ATM cell of the frame, nor the padding between the last data byte and the 8-byte trailer.
NSAP	ATM address of this LANE client.
vcd	Virtual circuit descriptor that uniquely identifies this VCC.
rxFrames	Number of packets received.
txFrames	Number of packets transmitted.
Type	Type of VCC; same as the SVC and PVC types. Possible VCC types are <i>configure</i> , <i>direct</i> , <i>distribute</i> , <i>send</i> , <i>forward</i> , and <i>data</i> . ¹
NSAP	ATM address of the LANE component at the other end of this VCC.

1. Compare the shortened names for VCC types in this display with those shown in Figure 3. The Configure Direct VCC is shown in this display as *configure*. The Control Direct VCC is shown as *direct*; the Control Distribute VCC is shown as *distribute*. The Multicast Send VCC and Multicast Forward VC are shown as *send* and *forward*, respectively. The Data Direct VCC is shown as *data*.

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[/port]] (for the Cisco 7000 series and Cisco 7500 series)

show lane config [interface atm number] (for the Cisco 4500)

Syntax Description

interface atm slot	(Optional) ATM interface slot number for the Cisco 7000 series and Cisco 7500 series.
interface atm number	(Optional) ATM interface number for the Cisco 4500.
<i>/port</i>	(Optional) ATM interface port number for the Cisco 7000 series and Cisco 7500 series.

Command Mode

EXEC

Usage Guidelines

The **show lane config [interface atm slot[/port]]** command first appeared in Cisco IOS Release 11.0.

The **show lane config [interface atm number]** command first appeared in Cisco IOS Release 11.1.

Sample Displays

The following is sample output from the **show lane config** command when the configuration server has two ATM addresses:

```
Router# show lane config

LE Config Server ATM1/0 config table: table      State: operational
ATM Address: 39.000000000000000000000000000000.000000000500.00
ATM Address: 39.000000000000000000000000000000.000000000500.01
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 10
cumulative total number of config failures so far: 0
```

In the following case, although the configuration server is operational, its addresses are not completely registered. The first address is not registered with the ILMI, as indicated by the *ilmi-* state. The second address has the same problem plus the problem of not having been registered with the ATM signaling subsystem, as indicated by the *atmsig-* state.

```
Router# show lane config

LE Config Server ATM1/0 config table: table      State: operational
ATM Address: 39.000000000000000000000000000000.000000000500.00 ilmi-
ATM Address: 39.000000000000000000000000000000.000000000500.01 ilmi- atmsig-
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 10
cumulative total number of config failures so far: 0
```

In the following case, some physical connectivity problem must have occurred and as a result, the configuration server's ATM address has not yet been determined definitively. Either the prefix has not been obtained, or it is not there. As a result, the address cannot be computed and hence you see the "EXACT ADDRESS NOT YET SET (NO PREFIX ?)" message.

```
Router# show lane config

LE Config Server ATM1/0 config table: table      State: operational
ATM Address: EXACT ADDRESS NOT YET SET (NO PREFIX ?) ilmi- atmsig-
  actual user specified form: ...
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 0
cumulative total number of config failures so far: 0
```

Table 36 describes significant fields in the sample display.

Table 36 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.
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.
ATM address	ATM address of this configuration server.

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 Display

The following is sample output of the **show lane database** command:

```
Router# show lane database

config-table: engandmkt - bound to interface/s: atml/0
default ELAN: none
ELAN eng: les NSAP 45.000001415555121f.yyyy.zzzz.0800.200c.1001.01
  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: les NSAP 45.000001415555121f.yyyy.zzzz.0800.200c.1001.02
  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
```

Table 37 describes significant fields in the sample display.

Table 37 Show LANE Database Command Field Descriptions

Field	Description
config-table	Name of this database.
default ELAN	Default name, if one is established.
ELAN	Name of the emulated LAN whose data is reported in this line and the next three lines.
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-address** EXEC command.

show lane default-atm-addresses [**interface atm** *slot/port.subinterface-number*]
(for the Cisco 7000 series and Cisco 7500 series)

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

Syntax Description

interface atm <i>slot/port</i>	(Optional) ATM interface slot and port for the Cisco 7000 series and Cisco 7500 series.
interface atm <i>number</i>	(Optional) ATM interface number for the Cisco 4500.
<i>.subinterface-number</i>	(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-address** 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 38 describes significant fields shown in the display.

Table 38 Show LANE Default-ATM-Address Field Descriptions

Field	Description
interface ATM1/0:	Specified interface.

Table 38 Show LANE Default-ATM-Address Field Descriptions (Continued)

Field	Description
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 Cisco 7000 series and Cisco 7500 series)
```

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

Syntax Description

interface atm <i>slot/port</i>	(Optional) ATM interface slot and port for the Cisco 7000 series and Cisco 7500 series.
interface atm <i>number</i>	(Optional) ATM interface number for the Cisco 4500.
<i>.subinterface-number</i>	(Optional) Subinterface number.
name <i>elan-name</i>	(Optional) Name of the emulated LAN. Maximum length is 32 characters.

Command Mode

EXEC

Usage Guidelines

The **show lane le-arp** [**interface atm** *slot/port*[*.subinterface-number*] | **name** *elan-name*] command first appeared in Cisco IOS Release 11.0.

The **show lane le-arp** [**interface atm** *number*[*.subinterface-number*] | **name** *elan-name*] command first appeared in Cisco IOS Release 11.1.

Sample Display

The following is sample output of the **show lane le-arp** command:

```
Router# show lane le-arp
Hardware Addr   ATM Address           VCD  Interface
0000.0c15.a2b5  39.000000000000000000.00000c15a2b5.01  39  ATM1/0.1
0000.0c15.f3e5  39.000000000000000000.00000c15f3e5.01  25* ATM1/0.1
```

Table 39 describes significant fields shown in the display.

Table 39 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.
ATM Address	ATM address of the LANE component at the other end of this VCD.
VCD	Virtual circuit descriptor.

Table 39 Show LANE LE-ARP Field Descriptions

Field	Description
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 or 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 Cisco 7000 series and Cisco 7500 series)

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

Syntax Description

interface atm <i>slotport</i>	(Optional) ATM interface slot and port for the Cisco 7000 series and Cisco 7500 series.
interface atm <i>number</i>	(Optional) ATM interface slot and port for the Cisco 4500.
<i>.subinterface-number</i>	(Optional) Subinterface number.
name <i>elan-name</i>	(Optional) Name of the emulated LAN. Maximum length is 32 characters.
brief	(Optional) Keyword used to display the brief subset of available information.

Command Mode

EXEC

Usage Guidelines

The **show lane server** [**interface atm** *slotport*[*.subinterface-number*] | **name** *elan-name*] [**brief**] command first appeared in Cisco IOS Release 11.0.

The **show lane server** [**interface atm** *number*[*.subinterface-number*] | **name** *elan-name*] [**brief**] command first appeared in Cisco IOS Release 11.1.

Sample Display

The following is sample output of the **show lane server** command:

```
Router# show lane server

interface: atm 4/0.1      name: eng
type: Ethernet          MTU: 1500      AAL5-SDU length: 1516
NSAP: 45.000001415555121f.yyyy.zzzz.0800.200c.1001.01
lecid/
proxy vcd cnt  MAC          NSAP
*      75  330 control distrib 45.000001415555121f.yyyy.zzzz.0800.200c.1001.01
1      76  33  0800.200c.1000 45.000001415555121f.yyyy.zzzz.0800.200c.1000.01
5/P    87  15  0800.200c.1100 45.000001415555122f.yyyy.zzzz.0800.200c.1100.01
6/P    95  53  0800.200c.1300 45.000001415555124f.yyyy.zzzz.0800.200c.1300.01
interface: atm 4/0.2      name: mkt
type: Ethernet          MTU: 1500      AAL5-SDU length: 1516
NSAP: 45.000001415555121f.yyyy.zzzz.0800.200c.1001.02
lecid/
```

```

proxy  vcd cnt  MAC                NSAP
*      78 151 control distrib 45.000001415555121f.yyyy.zzzz.0800.200c.1001.02
1      79 10  0800.200c.1000 45.000001415555121f.yyyy.zzzz.0800.200c.1000.02
3/P    88 15  0800.200c.1200 45.000001415555123f.yyyy.zzzz.0800.200c.1200.01
4/P    96 25  0800.200c.1300 45.000001415555124f.yyyy.zzzz.0800.200c.1300.02
    
```

Table 40 describes significant fields shown in the display.

Table 40 Show LANE Server Field Descriptions

Field	Description
interface	Subinterface on which this LANE server is configured.
name	Name of the emulated LAN.
type	LAN type. This release supports Ethernet only.
MTU	Maximum transmission unit (packet) size for this type of LAN.
AAL5-SDU length	Maximum number of bytes in a LANE service data unit (SDU) encapsulated in an AAL5 frame. This length includes a 2-byte marker and a full Ethernet-like frame from the destination MAC address field through the last byte of data. It does not include an Ethernet CRC (or FRC), which is not present on emulated LAN frames. The number does not include the 8-byte AAL-5 trailer in the last ATM cell of the frame, nor the padding between the last data byte and the 8-byte trailer.
NSAP	ATM address of this LANE server.
lecid	Unique LANE client identifier of the LANE client at the other end of this VCC.
proxy	When a LANE client joins an emulated LAN, it includes a “proxy” bit that tells the LANE server that the LANE client does not guarantee to register all its MAC address-ATM address pairs with the LANE server. Our LANE clients must set the proxy bit. Workstation LANE clients directly attached to ATM will not set it.
vcd	Unique virtual circuit descriptor for the VCC.
cnt	For Control Direct VCCs, the number of packets sent from the LANE client to the LANE server. For Control Distribute VCCs, the number of packets sent from the LANE server to the LANE clients.
MAC	Type of VCC, or the MAC address of the device on the other end of this VCC.
NSAP	For Control Direct VCCs, the ATM address of the LANE client on the other end of this VCC. For Control Distribute VCCs, the ATM address of the LANE server.