

Using the Show Lane Client Command to Troubleshoot LAN Emulation Clients

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Related Information

Introduction

This document explains the **show lane client** output fields that are useful to determine why a LAN Emulation Client (LEC) will not come up within operational state. See this output:

```
Gambrinus#show lane client
LE Client ATM2/0/0 ELAN name: default Admin: up State: operational
Client ID: 2 LEC up for 15 minutes 39 seconds
ELAN ID: 1
Join Attempt: 691
Last Fail Reason: Control Direct VC being released
HW Address: 0060.4750.8402 Type: ethernet Max Frame Size: 1516
ATM Address: 47.009181000000006047508401.006047508402.00
VCD  rxFrames  txFrames  Type      ATM Address
  0      0         0  configure 47.009181000000006047508401.006047508405.00
256      1         10  direct   47.009181000000006047508401.000000000002.01
257     476         0  distribute 47.009181000000006047508401.000000000002.01
258      0         56  send     47.009181000000006047508401.000000000003.01
259      2         0  forward  47.009181000000006047508401.000000000003.01
263      1         18  data     47.009181000000006047508401.006047508402.00
```

The Admin field indicates whether the interface or sub-interface is administratively shutdown. The state is defined in accord with the LANE specification. If the Admin field is down, the first action is to enable the interface. In the case of the output above and throughout this document, the Admin field is **up**.

Prerequisites

Requirements

There are no specific requirements for this document.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Reasons for Which LECs Show as Non-Operational

If the LEC is not Operational, the only thing to consider is the last fail reason. Although there are approximately 30 possible last fail reasons, almost all problems display one of these last fail reasons:

- Link Went Down
- Local Configuration Changed
- Fail to Set Up Configuration VC
- Configuration VC Being Released
- Receiving Negative Configuration Response
- Control Direct VC Being Released
- Receiving Negative Join Response

Link Went Down

The problem is on the physical layer – check the cable quality. The interface is likely to be in the "Down, Down" state. You can check this with the **show interface atm** command. Also check the card quality. A good way to do this is to physically loop back the interface and check if the interface goes "Up, Up." Refer to Understanding Loopback Modes on Cisco Routers for more details.

Local Configuration Changed

The system detected that the configuration changed. In this case, you must restart the client. Shut down (or do not shut down) the sub-interface to force the LEC join procedure. Once you do this, either the LEC joins the emulated LAN (ELAN) or there is a different last fail reason.

Fail to Set Up Configuration VC

We cannot establish the configuration Virtual Channel Connection (VCC) directly to the LAN Emulation Configuration Server (LECS). The Interim Local Management Interface (ILMI) usually causes this. This protocol and its associated VC must be enabled, at least in order to get the ATM prefix. If ILMI does not work, you do not have any knowledge of the prefix and cannot establish any Switched Virtual Circuits (SVCs). This can be checked with the **show lane default** command. The first output shows a **properly working ILMI** connection:

```
Gambrinus#show lane default
interface ATM2/0:
LANE Client:      47.00918100000001604799FD01.0050A219F038.**
LANE Server:     47.00918100000001604799FD01.0050A219F039.**
LANE Bus:        47.00918100000001604799FD01.0050A219F03A.**
LANE Config Server: 47.00918100000001604799FD01.0050A219F03B.00
```

Note: ** is the sub-interface number byte in hex.

If **ILMI is not working properly**, "dots" appear at the start of each address. The output then looks like this:

```
Gambrinus#show lane default
interface ATM1/0:
LANE Client:     ...00000C409820.**
LANE Server:     ...00000C409821.**
LANE Bus:        ...00000C409822.**
```

LANE Config Server: ...00000C409823.00

Note: ** is the sub-interface number byte in hex.

If the output is not OK, check that the ILMI Permanent Virtual Connection (PVC) is well-defined. Refer to the Set Up the Signaling and ILMI PVCs. Once it is done, you can check the result with the **show atm ilmi-status** command and see the result in **show lane default**. If the ILMI PVC was defined, enable **debug atm ilmi** to see which device (the end device or the switch) is faulty.

Configuration VC Being Released

Is the LAN Emulation Configuration Server (LECS) address incorrect or unreachable? Check the output of **show lane client** to determine if the LECS address that is sent to the well-known ATM address can be seen.

If the LEC could not contact the LECS, the output looks like this:

```
Gambrinus#show lane client
LE Client ATM2/0/0  ELAN name: default  Admin: up  State: initialState
Client ID: unassigned      Next join attempt in 1 seconds
Join Attempt: 14
Last Fail Reason: Config VC being released
HW Address: 0000.0c40.9820  Type: ethernet      Max Frame Size: 1516
ATM Address: 47.00918100000001604799FD01.00000C409820.09
VCD  rxFrames  txFrames  Type      ATM Address
  0      0         0  configure 47.007900000000000000000000.00A03E000001.00
  0      0         0  direct   00.000000000000000000000000.000000000000.00
  0      0         0  distribute 00.000000000000000000000000.000000000000.00
  0      0         0  send     00.000000000000000000000000.000000000000.00
  0      0         0  forward  00.000000000000000000000000.000000000000.00
```

- If the remote ATM switch is not a Cisco device, be aware that some vendors do not support LECS address advertising through ILMI. In that case, you can use the well-known address on the LECS.
- If the LECS address is learned through ILMI, verify that the **atm lecs-address-default** commands are properly configured on the ATM switches to which LECs are connected. Try to hard code the LECS address on this specific LEC. For a configuration example of this, refer to LAN Emulation Sample Configuration.
- If you hard coded the LECS ATM address in your configuration, or if you have a valid LECS ATM address that is different from the well-known address in the **show lane client** output, go to the device that hosts the LECS. Use the **show lane server** command to compare the LECS address with the one you see at the client and check that the server is on.

Receiving Negative Configuration Response

The LECS refuses the connection to the ELAN. This is usually due to a configuration mistake. The ELAN type or name differs from what has been configured on the database.

- Check your configuration for the type (Ethernet/Token Ring) and the name of the ELAN you wish to join. Connect to the device that hosts the LECS, and check if the name and type of the ELAN are identical. Remember that the names are case sensitive.
- If your ELAN is restricted, double-check if the ATM address of the client is specified in the LANE database configured on the LECS.
- Check if the LAN Emulation Server (LES) could connect to the LECS. On the device that hosts the LES, use the **show lane server** command, and check that the LECS is connected. In order to connect to the LECS, the LES needs the same information that a simple client would need.

Control Direct VC Being Released

If you are unable to connect to the LES, the LES is either unreachable or misconfigured.

The **show lane client** output typically looks like this:

```
Gambrinus#show lane client
LE Client ATM2/0/0 ELAN name: default Admin: up State: initialState
Client ID: unassigned Next join attempt in 7 seconds
Join Attempt: 25
Last Fail Reason: Control Direct VC being released
HW Address: 0000.0c40.9820 Type: ethernet Max Frame Size: 1516
ATM Address: 47.00918100000001604799FD01.00000C409820.09
VCD  rxFrames  txFrames  Type          ATM Address
0      0           0  configure  47.00918100000001604799FD01.00604799FD05.00
0      0           0  direct     47.00918100000001604799FD01.00604799FD03.09
0      0           0  distribute 00.0000000000000000000000000000.000000000000.00
0      0           0  send       00.0000000000000000000000000000.000000000000.00
0      0           0  forward    00.0000000000000000000000000000.000000000000.00
```

If you hard coded the LES address into the configuration, check that the address on the machine that hosts the LES is identical to the one you configured.

Receiving Negative Join Response

The LES refuses the connection.

- If the ELAN you wish connect to is restricted, and if you connect to the LES directly (bypass the LECS), there could be a security issue. If you configured restrictions, check the LANE database configuration on the LECS to ensure that it includes the ATM address of the client that attempts to connect.
- If you configured a LEC and a LES on the same sub-interface and you also specified the ATM address for the LES with the **lane server-atm-address** command, there is a possibility that the LEC tries to contact a backup LES (which then refuses the connection). The reason is that the LEC also uses the **lane server-atm-address** command to decide which LES to contact. It will then unconditionally contact the local LES that can currently be the backup. The easy way to fix this is to configure the LES on a different sub-interface.

Related Information

- [LAN Emulation Sample Configuration](#)
- [LANE Design Recommendations](#)
- [ATM LANE](#)
- [ATM Technology Support Pages](#)
- [Technical Support & Documentation – Cisco Systems](#)

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