

# LAN仿真配置示例

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## [Introduction](#)

本文说明如何配置LAN仿真(LANE)服务和客户端Cisco路由器的， Catalyst交换机及ATM交换机。

## [Prerequisites](#)

### [Requirements](#)

There are no specific requirements for this document.

### [Components Used](#)

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

### [Conventions](#)

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

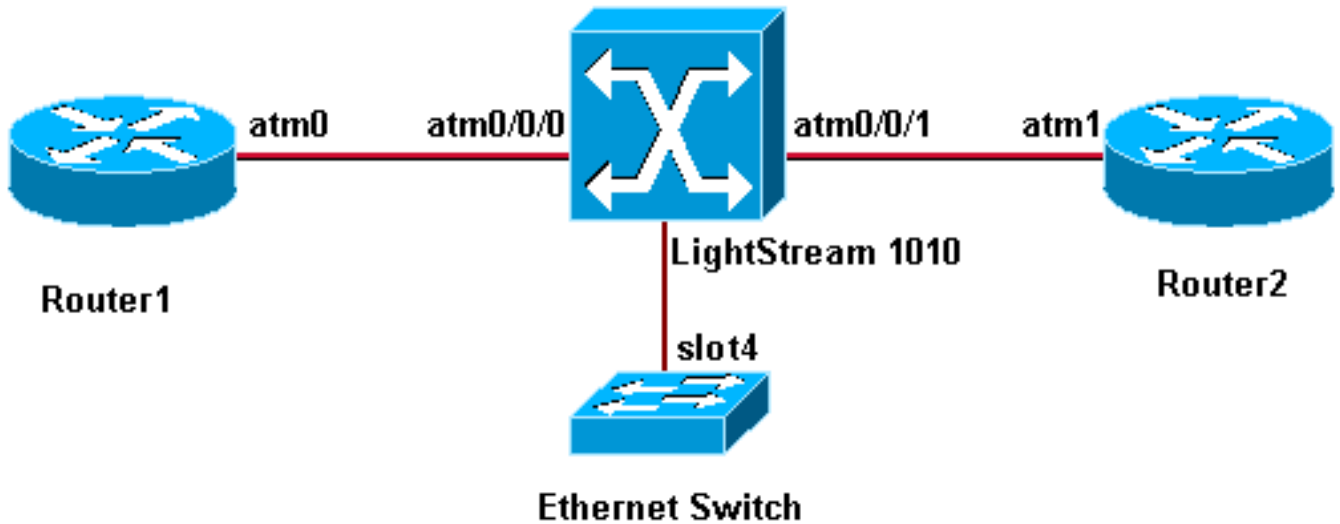
## [Configure](#)

本部分提供有关如何配置本文档所述功能的信息。

**Note:** 要查找本文档所用命令的其他信息，请使用[命令查找工具](#) ( [仅限注册用户](#) )。

## Network Diagram

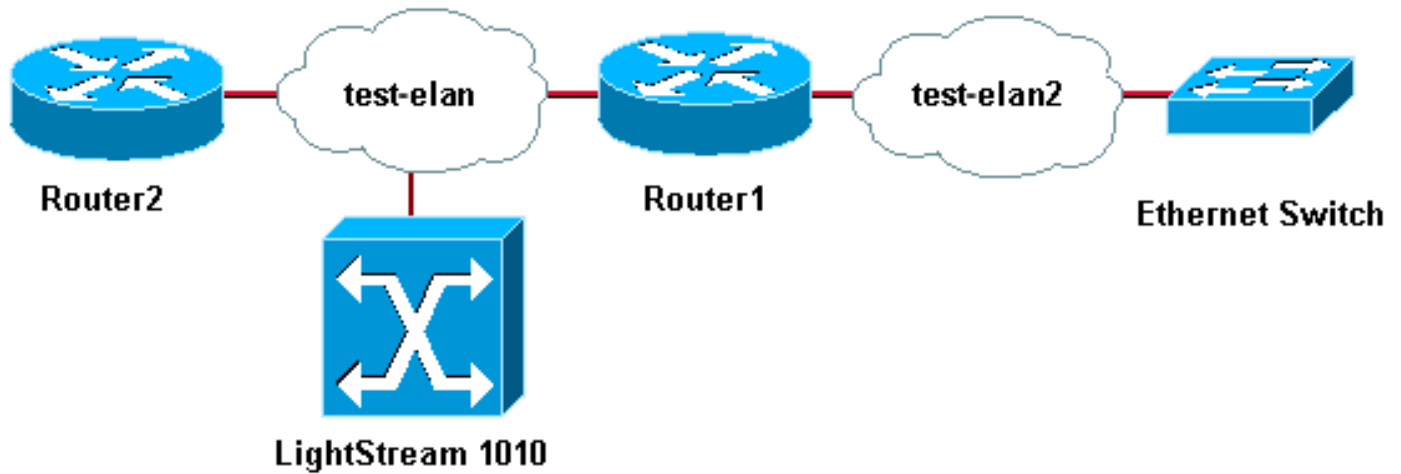
本文档使用以下网络设置：



在该设置：

- Router1和Router2是运行Cisco IOS软件版本12.1(4)的Cisco 4500路由器。两个作为LAN仿真客户端(LECs)。
- LightStream1010运行Cisco IOS软件版本12.0(10)W5(18b)。它作为LAN仿真配置服务器(LECS)。
- 以太网交换机是Catalyst 5000用在插槽4的一个LANE前端。此LANE前端作为LEC和作为LANE广播及未知服务器(LES/BUS)。
- LANE服务根据[LANE设计推荐标准](#)被配置了。
- 配置了两个仿真LAN (ELAN)：test-elan和test-elan2。
- Router1有LEC在每个ELAN。以太网交换机有LEC在test-elan2。Router2和LightStream1010有LEC在test-elan。
- 在以太网交换机上，虚拟LAN，VLAN2，一定对test-elan2。
- Router1是负责执行在两ELAN之间的路由。

这是逻辑设置：



## 配置

本文档使用以下配置：

- [LightStream1010](#)
- [Router1](#)
- [Router2](#)
- [Ethernet交换机LANE Blade](#)

**Note:** 与LANE是相关的配置命令的仅的部分是包括的。

### LightStream1010

```
!--- Output suppressed. atm lecs-address-default
47.0091.8100.0000.0060.705a.8f01.0060.705a.8f05.00 !
lane database test name test-elan server-atm-address
47.0091810000000060705A8F01.00E0B00B7031.01 name test-
elan2 server-atm-address
47.0091810000000060705A8F01.00E0B00B7031.02 ! interface
atm2/0/0 no ip address no ip directed-broadcast lane
config auto-config-atm-address lane config database test
! interface atm2/0/0.2 multipoint ip address 20.0.0.2
255.255.255.0 no ip directed-broadcast lane client
ethernet test-elan !--- Output suppressed.
```

LANE数据库测试定义了LES/BUS的网络服务访问点(NSAP)地址每个ELAN的。在LightStream1010配置的这些地址指向Ethernet交换机LANE Blade：

```
lane-blade# show lane default
```

```
interface atm0:
LANE Client:          47.0091810000000060705A8F01.00E0B00B7030.**
LANE Server:          47.0091810000000060705A8F01.00E0B00B7031.**
LANE Bus:             47.0091810000000060705A8F01.00E0B00B7032.**
LANE Config Server:  47.0091810000000060705A8F01.00E0B00B7033.00
```

**Note:** \*\*表示子接口字节数以十六进制格式。

**Note:** [命令输出解释程序工具](#) ( [仅限注册用户](#) ) 支持某些 show 命令，使用此工具可以查看对 show 命令输出的分析。

一旦定义了LANE数据库，使用lane config database database-name命令，请应用它在LECS的主要接口。这是在LECS被配置三个命令的解释：

- **atm lecs-address-default NSAP寻址**—定义了寻址交换机做通告作为是LECS NSAP对其连接的设备通过本地管理接口(ILMI)。在这种情况下，被配置的地址是NSAP地址分配到LightStream1010的ATM0接口。发出**show lane default**命令得到此地址：

```
LightStream 1010# show lane default

interface ATM2/0/0:
LANE Client:          47.0091810000000060705A8F01.0060705A8F02.**
LANE Server:         47.0091810000000060705A8F01.0060705A8F03.**
LANE Bus:            47.0091810000000060705A8F01.0060705A8F04.**
LANE Config Server: 47.0091810000000060705A8F01.0060705A8F05.00
```

**Note:** \*\*表示子接口字节数以十六进制格式。

- **通道配置自动-设置-ATM-地址**—指示LECS是否回应呼叫建立做对其实际NSAP地址。
- **LANE配置数据库数据库名称**—定义了LANE数据库LECS使用。

一旦适用以上配置于主要接口，LECS是上和活跃的。

## 检查LECS状态

发出**show lane config**命令检查LECS状态：

```
LightStream 1010# show lane config

LE Config Server ATM2/0/0 config table: test
Admin: up State: operational
LECS Mastership State: active master
list of global LECS addresses (49 seconds to update):
47.0091810000000060705A8F01.0060705A8F05.00
ATM Address of this LECS: 47.0091810000000060705A8F01.0060705A8F05.00 (auto)
 vcd rxCnt txCnt callingParty
  46      1      1 47.0091810000000060705A8F01.00E0B00B7031.01 LES test-elan 0 active
  62      1      1 47.0091810000000060705A8F01.00E0B00B7031.02 LES test-elan2 0 active
ATM Address of this LECS: 47.007900000000000000000000.00A03E000001.00 (well known)
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 608
cumulative total number of config failures so far: 601
cause of last failure: no configuration
culprit for the last failure: 47.009181000000FFFFF705A8F01.0050E2030602.01
```

### Router1

```
LightStream 1010# show lane config

LE Config Server ATM2/0/0 config table: test
Admin: up State: operational
LECS Mastership State: active master
list of global LECS addresses (49 seconds to update):
47.0091810000000060705A8F01.0060705A8F05.00
ATM Address of this LECS:
47.0091810000000060705A8F01.0060705A8F05.00 (auto)
 vcd rxCnt txCnt callingParty
  46      1      1
47.0091810000000060705A8F01.00E0B00B7031.01 LES test-
elan 0 active
  62      1      1
```

```
47.0091810000000060705A8F01.00E0B00B7031.02 LES test-
elan2 0 active
ATM Address of this LECS:
47.007900000000000000000000.00A03E000001.00 (well known)
cumulative total number of unrecognized packets received
so far: 0
cumulative total number of config requests received so
far: 608
cumulative total number of config failures so far: 601
  cause of last failure: no configuration
  culprit for the last failure:
47.009181000000FFFF705A8F01.0050E2030602.01
```

## 检查LEC状态

发出这些命令检查LEC状态：

- **show lane client [interface atm number[.subinterface-number]]**

```
router1# show lane client interface atm 0.2
```

```
LE Client ATM0.2  ELAN name: test-elan  Admin: up  State: operational
Client ID: 2          LEC up for 18 hours 9 minutes 42 seconds
ELAN ID: 0
Join Attempt: 1
Known LE Servers: 1
HW Address: 0060.837b.b3a2  Type: ethernet          Max Frame Size: 1516
ATM Address: 47.0091810000000060705A8F01.0060837BB3A2.02
VCD  rxFrames  txFrames  Type      ATM Address
  0         0         0  configure 47.0091810000000060705A8F01.0060705A8F05.00
  5         1         47  direct   47.0091810000000060705A8F01.00E0B00B7031.01
  6        145         0  distribute 47.0091810000000060705A8F01.00E0B00B7031.01
  7         0       4567  send     47.0091810000000060705A8F01.00E0B00B7032.01
  8       10221         0  forward  47.0091810000000060705A8F01.00E0B00B7032.01
```

- **show atm ilmi-status** —验证客户端是否通过ILMI适当地注册其NSAP地址。

```
router1# show atm ilmi-status
```

```
Interface : ATM0 Interface Type : Private UNI (User-side)
ILMI VCC : (0, 16) ILMI Keepalive : Disabled
ILMI State:      UpAndNormal
Peer IP Addr:    10.200.10.47  Peer IF Name:    ATM0/0/0
Peer MaxVPIbits: 8           Peer MaxVCiBits: 14
Active Prefix(s) :
47.0091.8100.0000.0060.705a.8f01
End-System Registered Address(s) :
47.0091.8100.0000.0060.705a.8f01.0060.837b.b3a2.02 (Confirmed)
47.0091.8100.0000.0060.705a.8f01.0060.837b.b3a2.03 (Confirmed)
```

请参见这些文件关于**show atm ilmi-status**命令的更多信息：[了解在ATM接口的ILMIILMI地址注册问题：%LANE-3-NOREGILMI](#)

## Router2

```
router1# show atm ilmi-status
```

```
Interface : ATM0 Interface Type : Private UNI (User-
side)
ILMI VCC : (0, 16) ILMI Keepalive : Disabled
ILMI State:      UpAndNormal
Peer IP Addr:    10.200.10.47  Peer IF Name:
ATM0/0/0
```

```
Peer MaxVPIbits: 8 Peer MaxVCbits: 14
Active Prefix(s) :
47.0091.8100.0000.0060.705a.8f01
End-System Registered Address(s) :
47.0091.8100.0000.0060.705a.8f01.0060.837b.b3a2.02(Confirmed)
47.0091.8100.0000.0060.705a.8f01.0060.837b.b3a2.03(Confirmed)
```

## Ethernet交换机LANE Blade

```
router1# show atm ilmi-status

Interface : ATM0 Interface Type : Private UNI (User-side)
ILMI VCC : (0, 16) ILMI Keepalive : Disabled
ILMI State: UpAndNormal
Peer IP Addr: 10.200.10.47 Peer IF Name:
ATM0/0/0
Peer MaxVPIbits: 8 Peer MaxVCbits: 14
Active Prefix(s) :
47.0091.8100.0000.0060.705a.8f01
End-System Registered Address(s) :
47.0091.8100.0000.0060.705a.8f01.0060.837b.b3a2.02(Confirmed)
47.0091.8100.0000.0060.705a.8f01.0060.837b.b3a2.03(Confirmed)
```

**lane server-bus ethernet elan-name**命令配置此设备作为ELAN名为 *elan* 名称的LES/BUS。

**Note:** 可以只有每个多点子接口—服务器总线。

## 其它命令

当配置LANE时，这些是一些有用的命令使用。使用这些命令为了实现LANE是不必要的。

## 在LECS

```
interface ATM2/0/0
no ip address
no ip directed-broadcast
lane config fixed-config-atm-address
lane config auto-config-atm-address
lane config config-atm-address 47.0091810000000060705A8F01.000000000001.01
lane config database test
```

- **LANE Config fixed-config-atm-address** —表明LECS回应呼叫建立做对众所周知的NSAP地址。众所周知的NSAP地址是47.007900000000000000000000.00A03E000001.00。
- **lane config config-atm-address NSAP** —表明LECS也答案对呼叫建立做对被配置的NSAP地址47.0091.8100.0000.0060.705a.8f01.0000.0000.0001.01。

## 在LES

```
interface ATM0.1 multipoint
lane config-atm-address 47.0091810000000060705A8F01.000000000001.01
```

```
lane server-atm-address 47.0091810000000060705A8F01.000000000002.01
lane bus-atm-address 47.0091810000000060705A8F01.000000000003.01
lane server-bus ethernet test-elan
```

- **Lane Config-ATM-Address NSAP** —强制LES/BUS连接到LECS用NSAP的地址，而不是使用从ILMI了解的LECS地址。
- **LANE Server-ATM-Address NSAP**和**bus-atm-address**通道NSAP —请允许您静态配置各自LES和BUS的NSAP地址。

参考[硬编码LES/LEC/BUS/LECS的ATM地址](#)欲知更多信息。

## 在LEC

```
interface ATM1.2 multipoint
```

```
ip address 20.0.0.3 255.255.255.0
lane fixed-config-atm-address
lane client ethernet test-elan
```

```
interface ATM1.2 multipoint
```

```
ip address 20.0.0.3 255.255.255.0
```

```
lane config-atm-address 47.0091810000000060705A8F01.000000000001.01
lane client ethernet test-elan
interface ATM1.2 multipoint
```

```
ip address 20.0.0.3 255.255.255.0
```

```
lane server-atm-address 47.0091810000000060705A8F01.000000000002.01
lane client ethernet test-elan
```

- **lane fixed-config-atm-address** —使用众所周知的NSAP地址，强制LEC连接到LECS，而不是使用从ILMI了解的LECS NSAP地址。
- **Lane Config-ATM-Address NSAP** —强制LEC连接到LECS用NSAP的地址，而不是使用从ILMI了解的LECS地址。
- **LANE Server-ATM-Address NSAP** —强制LEC直接地连接到LES用NSAP的地址，无需首先连接到LECS。

## Troubleshoot

目前没有针对此配置的故障排除信息。

## Related Information

- [ILMI地址注册问题：%LANE-3-NOREGILMI](#)
- [LANE设计推荐标准](#)
- [LAN仿真使用ATM路由器模块](#)
- [实施 HSRP Over LANE](#)
- [QoS over LANE](#)
- [FSSRP配置示例](#)
- [LANE高级设置-使用两个物理网络的SSRP](#)
- [排除LAN仿真交换环境故障](#)
- [LAN仿真\(LANE\)技术支持](#)

- [异步传输模式\(ATM\)技术支持](#)