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# LAT Node and Service Names

Document ID: 9346

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  - Components Used
- LAT Requirements**
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## Introduction

This document provides example of how local–area transport (LAT) node and service names are used with Cisco IOS®. The examples also demonstrate how LAT connections can be monitored.

## Before You Begin

### Conventions

For more information on document conventions, see the Cisco Technical Tips Conventions.

### Prerequisites

There are no specific prerequisites for this document.

### Components Used

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

## LAT Requirements

In order for a router to automatically be aware of LAT service advertisements from other nodes, it must have the following setup:

- a Cisco IOS software image that supports LAT
- LAT enabled on the appropriate interfaces

Examples of these requirements are shown below:

```
hopper# show version
Cisco Internetwork Operating System Software
IOS (tm) 2500 Software (C2500-J-L), Version 11.2(12.1), MAINTENANCE INTERIM SOFTWARE
Copyright (c) 1986-1998 by cisco Systems, Inc.
Compiled Mon 02-Mar-98 15:01 by cuser
Image text-base: 0x0303F1BC, data-base: 0x00001000

hopper# show lat service
```

```

Service Name      Rating  Interface  Node (Address)
ALBIE             84     Ethernet0  ALBIE (aa00.0400.0a28)
  Ident:          Welcome to OpenVMS VAX V7.1
ALFIE             67     Ethernet0  ALFIE (aa00.0400.1728)
  Ident:          Welcome to OpenVMS (TM) VAX Operating System, Version V7.1
ALPHIE           71     Ethernet0  ALPHIE (0800.2be6.9ec9)
  Ident: @sys$manager:announce.txt

```

Because LAT is a valid input and output transport for the async ports, the router will respond to LAT solicitations directed at the router as long as LAT is configured as a valid transport. An example is shown below:

```

line 2 3
  transport input all

hopper# show line 2
  Tty Typ      Tx/Rx      A Modem  Roty  AccO  AccI  Uses   Noise  Overruns
   2 TTY      9600/9600  -   -    -    -    -     0       0       0/0

Line 2, Location: "", Type: ""
Length: 24 lines, Width: 80 columns
Baud rate (TX/RX) is 9600/9600, no parity, 2 stopbits, 8 databits
Status: Ready
Capabilities: none
Modem state: Ready
Group codes: 0
Modem hardware state: noCTS noDSR DTR RTS
Special Chars: Escape Hold Stop Start Disconnect Activation
                ^^x  none  -    -    none
Timeouts:      Idle EXEC    Idle Session  Modem Answer  Session  Dispatch
                00:10:00          never           none         not set
                Idle Session Disconnect Warning
                never

Modem type is unknown.
Session limit is not set.
Time since activation: never
Editing is enabled.
History is enabled, history size is 10.
DNS resolution in show commands is enabled
Full user help is disabled
Allowed transports are lat pad v120 mop telnet rlogin nasi. Preferred is lat.
No output characters are padded
No special data dispatching characters

```

## Making a LAT Connection

There are two methods of establishing a LAT connection.

Method 1: The device requests a connection to a service based on a service advertisement multicast that has been seen and cached. An example is shown below:

```

hopper# show lat service
Service Name      Rating  Interface  Node (Address)
ALBIE             84     Ethernet0  ALBIE (aa00.0400.0a28)
  Ident:          Welcome to OpenVMS VAX V7.1
ALFIE             65     Ethernet0  ALFIE (aa00.0400.1728)
  Ident:          Welcome to OpenVMS (TM) VAX Operating System, Version V7.1
ALPHIE           71     Ethernet0  ALPHIE (0800.2be6.9ec9)
  Ident: @sys$manager:announce.txt

```

Method 2: The device solicits a connection to a node name "x", containing a port named "y". In the following example, the VAX has a LAT device (LTA400) defined to connect to node "hopper", port "2".

```
ALFIE> mc latcp show port lta400

Local Port Name:   _LTA400:           Local Port Type:  Application (Queued)
Local Port State:  Inactive
Connected Link:

Target Port Name:   2                 Actual Port Name:
Target Node Name:   HOPPER            Actual Node Name:
Target Service Name: Actual Service Name:
```

If a virtual terminal connection is attempted from the VAX, the following displays:

```
ALFIE> set host/dte lta400
%REM-I-TOQUIT, connection established
Press Ctrl/\ to quit, Ctrl/@ for command mode
```

And this displays:

```
hopper# debug lat event
LAT event debugging is on
hopper#
hopper#
00:18:06: LAT: Host Initiated connection from ALFIE to :2, sc=1
00:18:06: LAT2: created new inbound session
00:18:06: LAT2: Host-initiated connection complete
00:18:06: LAT2: DataB: +FlowIn +FlowOut Parity 2A Mode Interactive(0) Speed *19200/*19200
00:18:06: LAT2: DataB ignored

hopper# who
   Line   User      Host(s)          Idle Location
*  0 con 0           idle             00:00:00
   2 TTY 2           idle             00:00:18 ALFIE
   9 aux 0           Async interface  00:00:47
```

As you can see, the router has taken the default node name of "hopper" (LAT is not case-sensitive), which is the host name of the router. You can also assign a different node name to the router using the lat node-name command, as shown below:

```
hopper# conf terminal
Enter configuration commands, one per line. End with CNTL/Z.
hopper(config)# lat node-name froggie
hopper(config)# ^Z
```

If the VAX now tries to connect, the router does not respond to the solicit request from the VAX, because the router no longer contains the LAT node name "hopper". The LTA device on the VAX needs to be redefined to point to the node name "froggie" instead of "hopper".

```
ALFIE> set h/dte lta400

%REM-I-TOQUIT, connection established

Press Ctrl/\ to quit, Ctrl/@ for command mode

%REM-E-PORTRXERR, port receive error
-SYSTEM-F-HANGUP, data set hang-up

%REM-S-END, control returned to node ALFIE
```

```
%SYSTEM-F-HANGUP, data set hang-up
ALFIE>
```

```
hopper# show debug
LAT:
  LAT event debugging is on
hopper#
```

You can define services on the router to avoid the administrative overhead of node names. The configuration for this is shown below:

```
hopper# conf terminal
Enter configuration commands, one per line. End with CNTL/Z.
hopper(config)# lat service rodent enab
hopper(config)# ^Z
```

The router will now send out LAT service advertisements for the service "rodent". As shown in the example below, the VAX can see these service advertisements and is able to open connections using the service name:

```
ALFIE> mc latcp show service
```

Service Name	Status	Identification
ALBIE	Available	.Welcome to OpenVMS VAX V7.1
ALFIE	Available	.Welcome to OpenVMS VAX V7.1
ALPHIE	Available	@sys\$manager:announce.txt
PRINTERC	Available	
RODENT	Available	

```
ALFIE>set h/lat rodent
%LAT-S-CONNECTED, session to RODENT on node FROGGIE established
%LAT-I-TODISCON, type ^\ to disconnect the session
```

```
User Access Verification
```

```
Username:
```

```
hopper#
hopper#
00:26:10: LAT: Host delay = 4 tics
00:26:10: LAT: Got new inbound host connection

00:26:10: LAT10: created new inbound session
hopper#
```

**Note:** The methods of connection to a service name and to a node/port pair differ. The service connection provides a vty session while the node/port combination provides a TTY connection. This is because a service connection is initiated by the VAX to the access server, but a node/port connection is initiated by the access server as a result of an invitation from the VAX. The VAX actually asks the access server to start a Virtual Circuit from node "x" and port "y" to the VAX.

An example of a service connection is shown below:

```
hopper# who
  Line   User      Host(s)                Idle Location
*  0 con  0         idle                   00:00:00
   9 aux  0         Async interface       00:00:36
  10 vty  0         idle                   00:01:05 ALFIE
```

An example of a node/port combination connection is shown below:

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```
hopper# who
  Line      User      Host(s)          Idle Location
*  0 con 0
  2 TTY 2
  9 aux 0      Async interface 00:00:22
00:00:00
00:01:24 ALFIE
```

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## Related Information

- [Technical Support – Cisco Systems](#)
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