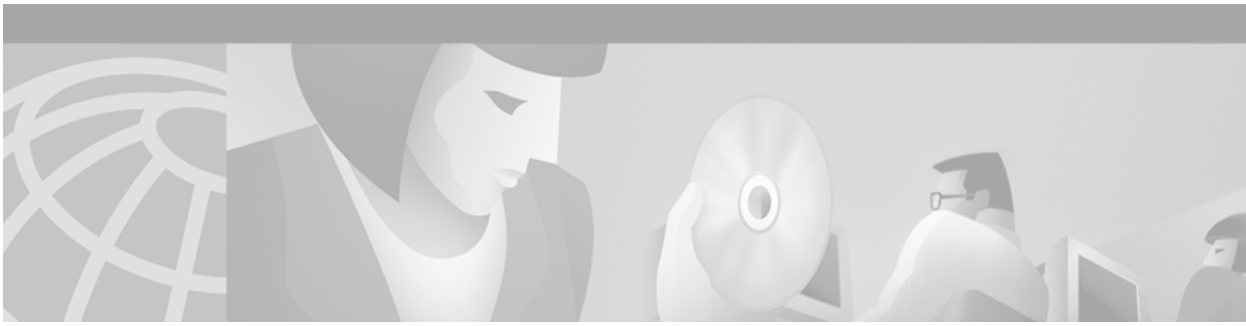


Task 5—Setting Up a Web Portal for the Dial NMS

About a Web Portal

A web portal for the dial NMS is a combination of CGI scripts and HTML links used to support a dial Internet access service.

As the number of devices and applications in a network increase, the operations support team may become inundated with a myriad of management products. To support a dial service, a web portal provides easy access to:

- Product manuals, design guides, white papers, and troubleshooting guides.
- Light-weight tools and scripts.
- Network policies, procedures, and reports.
- Periodic and just-in-time reporting.
  - The help desk can access operational information (for example, current connected caller status).
  - The operations staff can report on current service levels.

Tips For more information on building a management intranet, go to http://www.cisco.com/warp/public/cc/serv/mkt/nmps/ent/tech/bmi_wi.htm

Table 22 Utilities Provided by the Web Portal for the Dial NMS

Utility	Function
Documentation Center	A web server used as an online-documentation hub to share network operations information.
Device Linker	A web page used for bookmarking URLs for quick device telnet and out of band (console) access. See the "Building a Device Linker Web Page" section on page 83.

Table 22 Utilities Provided by the Web Portal for the Dial NMS (continued)

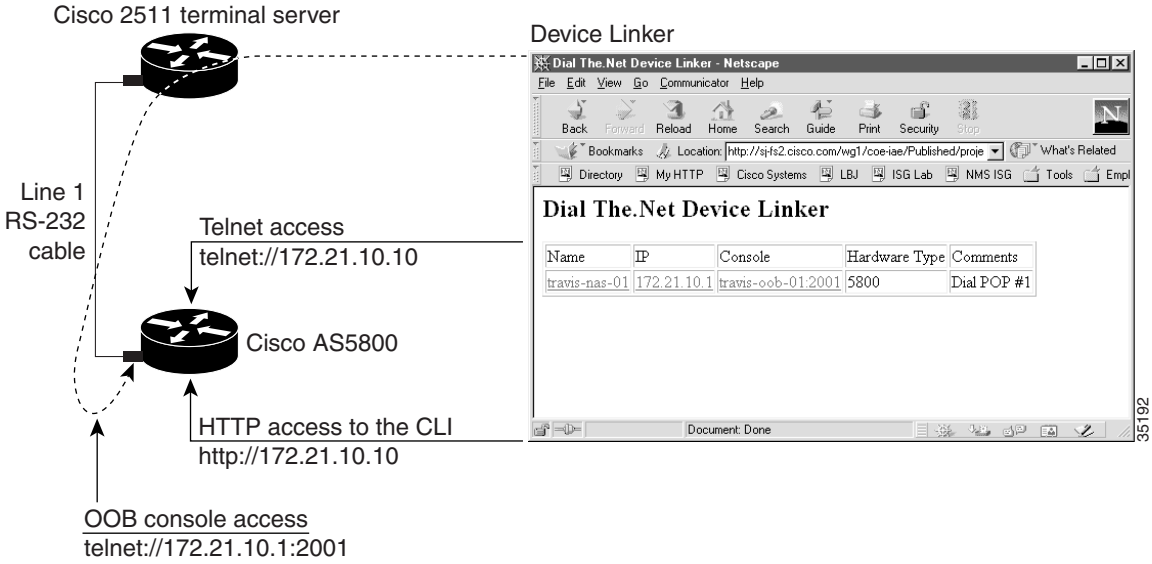
Utility	Function
Cisco IOS CLI Command Center	A web page that provides HTTP access to frequently used Cisco IOS CLI commands. The operations team and help desk can use this utility to troubleshoot connectivity problems. See the "Using HTTP to Access CLI Commands" section on page 86.
IP Tracker	A web page that uses two scripts to keep track of IP address block assignments by using DNS reverse lookup zones. See the "Creating an IP Tracker Web Page" section on page 96.
SNMP Commander	A script that aids the MIB research task by enabling engineers to build web-based object identification (OIDs) bookmarks. You can poll for network statistics by using OID bookmarks and a web browser. No keyboard is required. See the "About SNMP Commander" section on page 48.
Syslog Viewer	A utility that uses FTP to access a syslog server and a web browser to view syslog messages. Migration to HTTP is straightforward after security issues are addressed. The use of non-wrapping text is useful when viewing debug messages and modem call records. See the "Inspecting Syslog Messages in the Log File" section on page 78.
Modem Call Record Viewer	Light-weight scripts used to parse and view modem call records. See the "About Syslog" section on page 67.
CiscoWorks 2000 Resource Manager Essentials	A utility used to remotely monitor and maintain devices through a web-based browser interface. See the "Task 8—Using CiscoWorks 2000 Resource Manager Essentials" section on page 117.

Building a Device Linker Web Page

A device linker web page:

- Simplifies access to the many device-management interfaces in the network.
- Provides links to the telnet, console, and HTTP ports of Cisco IOS devices.

Figure 19 Device Linker Used to Access Devices



By using a Cisco terminal server for out-of-band console access, such as a Cisco 2511, the consoles are available at TCP port 20*xx* on a terminal server. The target line number replaces *xx*. For example to get to line 1, telnet to port 2001. The equivalent URL is telnet://172.21.101.250:2001

To build a device linker web page, follow these steps:

Step 1 Collect the IP addresses for the Cisco IOS devices.

Step 2 Collect the device console out-of-band (OOB) paths for the terminal server and the lines connected to Cisco IOS devices.

Step 3 Create a basic HTML table and enter the information for each device. The telnet and HTTP information is in bold in the following HTML code fragment. Step 4 shows what the table looks like in a web browser.

```
<html>
<head>
<title>Dial The.Net Device Linker</title>
</head>
<body>
<h2>Dial The.Net Device Linker</h2>
<table border="1">
  <tr>
<td>Name</td>
    <td>IP</td>
    <td>Console</td>
    <td>Hardware Type</td>
    <td>Comments</td>
  </tr>
  <tr>
```

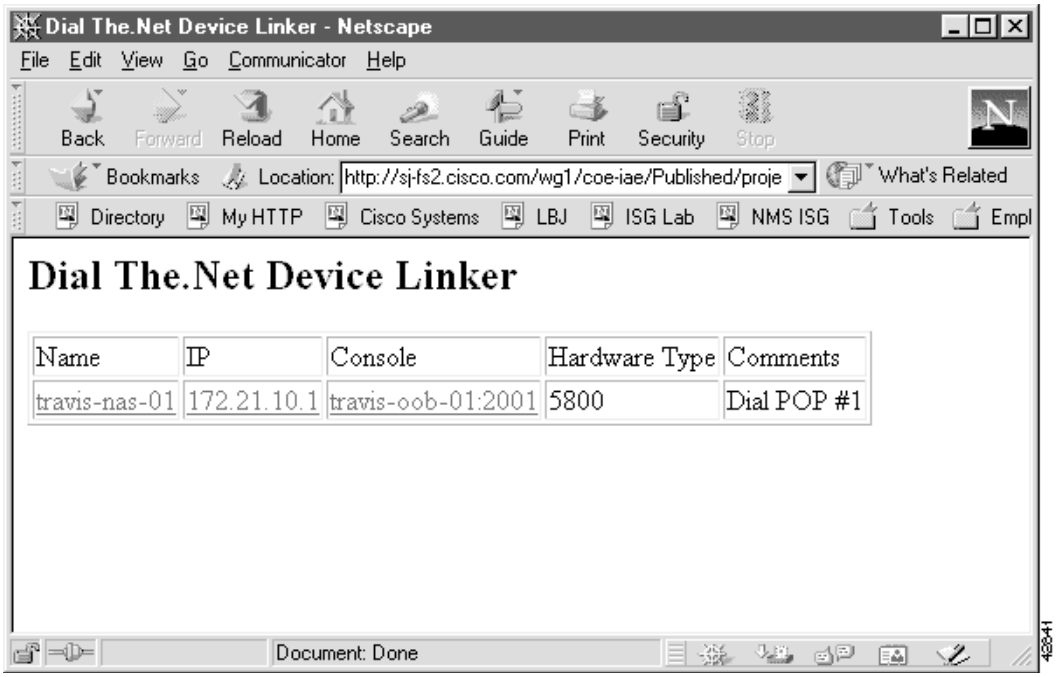
```
    <td><a href="http://172.21.10.1">travis-nas-01</a></td>
    <td><a href="telnet://172.21.10.1">172.21.10.1</a></td>
    <td><a href="telnet://172.21.101.250:2001">travis-oob-01:2001</a></td>
    <td>5800</td>
    <td>Dial POP #1</td>
  </tr>
</table>
</body>
</html>
```

Table 23 Functions and Parameters for Designing a Device Linker Web Page

Function	Formula	Example
OOB console access	telnet://termserver-ip:20XX	telnet://172.21.101.250:2001
Basic IP access	telnet://ip-address	telnet://172.21.10.1
IOS HTTP access	http://ip-address	http://172.21.10.1

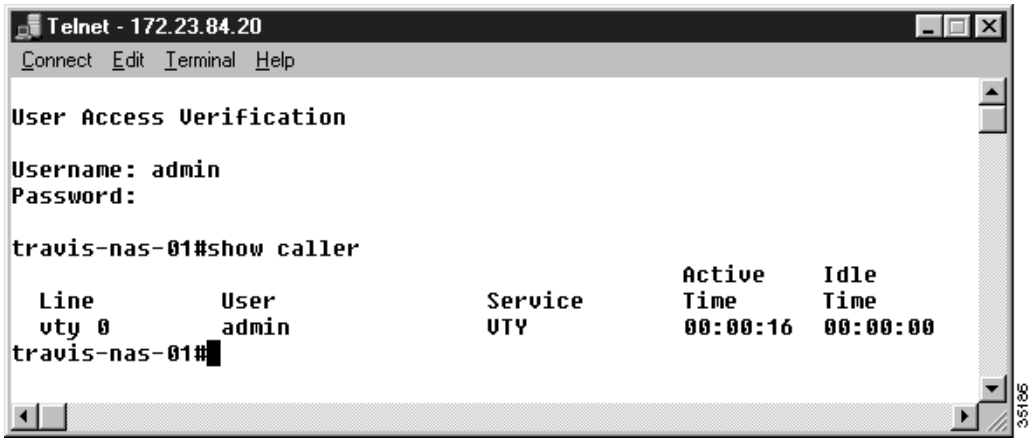
Step 4 Post the device linker web page to a WWW server in the NOC.

Figure 20 A Device Linker Management Page



Step 5 Click on an active device link. After a telnet session opens, log in.

Figure 21 Console Port Login



Troubleshooting a Cisco 2511 Console Connection

If you cannot access the console of a device, follow these steps:

Step 1 Verify that the configuration on the terminal server is correct. Telnet is the only service that must be supported to access the lines. The following configuration fragment shows you how to configure 16 TTY lines on a Cisco 2511 terminal server.

```
!
line 1 16
 no exec
 transport input telnet
!
```

Step 2 If the console port is blocked, you may need to telnet to the terminal server and clear the line. Enter the **show users** EXEC command followed by the **clear line** *type number* command.

```
c2511-oob#show users
    Line      User      Host(s)              Idle Location
   0 con 0    admin     idle
   4 tty 4    admin     incoming                0 dhcp-172-71-218-198.guessme.com
* 10 vty 0    admin     incoming                0 dhcp-172-71-218-198.guessme.com

c2511-oob#clear line tty 4
[confirm]
 [OK]
c2511-oob#show users
    Line      User      Host(s)              Idle Location
   0 con 0    admin     idle
* 10 vty 0    admin     incoming                0 dhcp-172-71-218-198.guessme.com
```

Step 3 (Optional) Sometimes administrators inadvertently leave lines in use. To make idle telnet sessions end after 30 minutes, enter the **exec-timeout 30 0** command on all the lines.

```
!
line 1 16
 no exec
 exec-timeout 30 0
 transport input telnet
!
```

About HTTP Access to the CLI

Using web-based access to the CLI reduces the need for telnet sessions to monitor or verify network operations. Telnet sessions can be reserved for actions such as making configuration changes. Additionally, sending syslog to a syslog server prevents telnet sessions from becoming cluttered with debug output.

HTTP access to the CLI is:

- Very difficult to secure. One way of securing a router is to use access-control lists on all VTY lines. Enable only devices in the NOC to access the VTY lines.
- Not recommended for service providers. If used, you should weigh the perceived ease of use versus the additional security issues involved with HTTP access to a network device.

The Cisco IOS CLI Command Center is a web page utility that provides HTTP access to CLI commands on a router. HTTP access to the CLI simplifies the troubleshooting tasks for a help desk.

Using HTTP to Access CLI Commands

To manage a dial Internet access service by using HTTP access to CLI commands, follow these steps:

Step 1 Enable HTTP services on the Cisco IOS device by entering the following commands:

```
!
ip http server
ip http authentication aaa
!
```

Table 24 Command Descriptions

Command	Purpose
`ip http server`	Enables the router to function as an HTTP server.
`ip http authentication aaa`	Uses the AAA facility as an authentication method for HTTP server users.

Step 2 Create a table in an HTML web page and enter your list of frequently used Cisco IOS CLI commands.

Note To create the link for a CLI command, specify the IP address of the Cisco IOS device followed by the command. Remember to include the forward slashes (/) between each command mode and key word.

Table 25 Formula and Example for Linking a CLI Command

Formula	Example
http://ip-address/exec/ios-key-word/.../cr	http:/172.23.84.20/exec/sh/caller/cr

The web page can include many types of commands useful for managing a dial Internet access service, including:

- System commands (Table 26)
- Interface commands (Table 27)
- Call state commands (Table 28)
- Debug commands (Table 29)

Table 26 System Commands

show running configuration	**show file systems**	**show ip route**
show version	**dir**	**show ip route static**
show modem version	**show flash**	**show ip route connected**

Table 27 Interface Commands

show controller t1	**show ip interface brief**	**show interface Fast Ethernet0/0/0**
show isdn service	**show interface**	**show line**
show isdn status		

Table 28 Call State Commands

show modem	**show caller**	**show users**
show modem call-stats	**show caller ip**	**show dialer**
show modem ?	**show caller timeout**	**show dialer map**
	show caller ?	

Table 29 Debugging Commands

show logging	**debug isdn q931**	**debug aaa authentication**
clear counters	**debug modem**	**debug aaa authorization**
clear logging	**debug ppp negotiation**	**debug aaa accounting**
show debug	**debug ppp authentication**	**debug aaa per-user**
undebug all	**debug dialer**	**debug vtemplate**
	debug dialerpacket	**debug vprofile**

Step 3 Post the HTML page that you created in Step 2 to a web server.

Figure 22 Cisco IOS CLI Commander

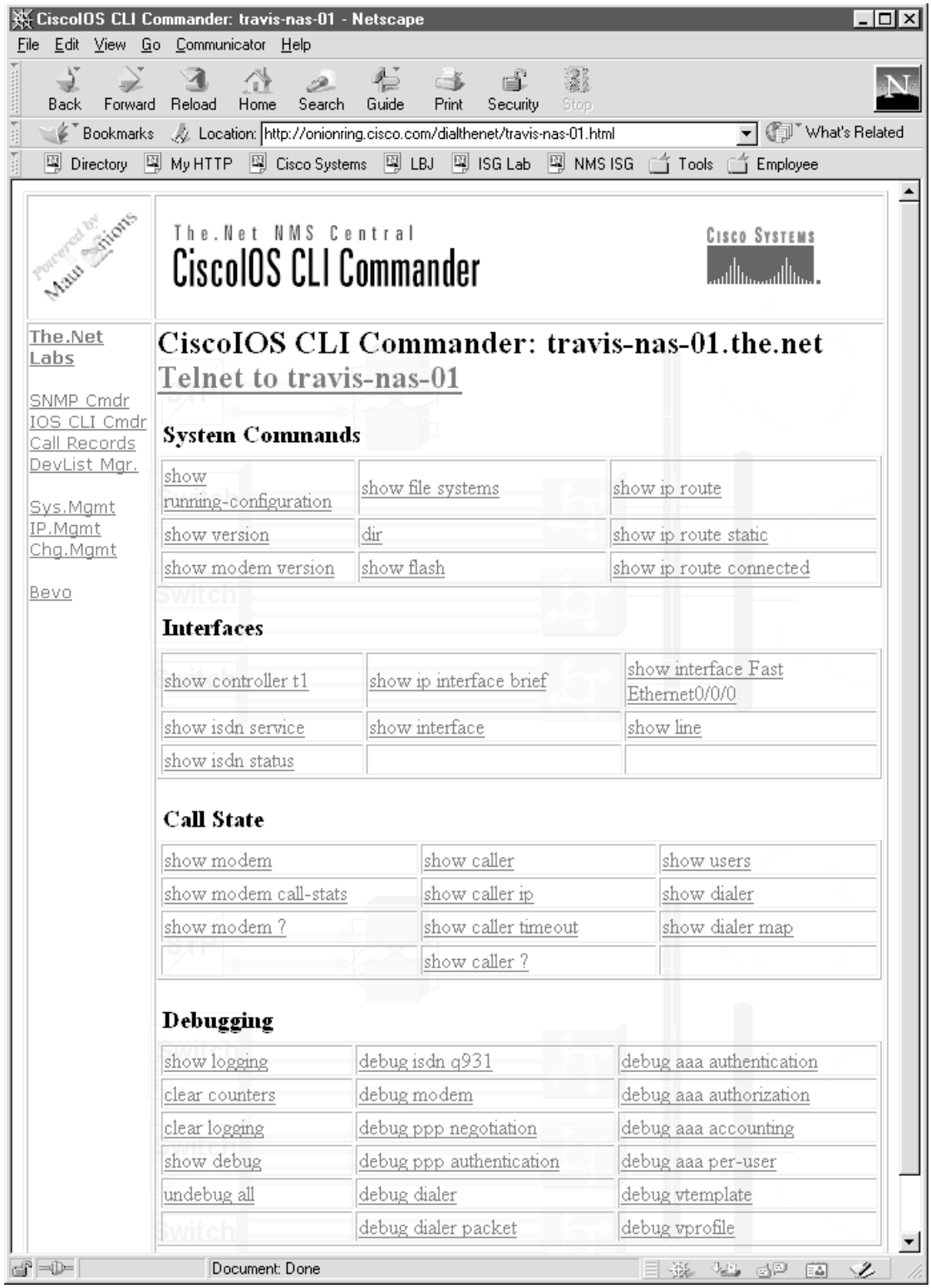


Table 30 shows the source code that created the Cisco IOS CLI Commander in Figure 22. Telnet to travis-nas-01.

Table 30 Cisco IOS CLI Commander:travis-nas-01.the.net

System Commands
show running config
show version
show modem version
show file systems
show flash
show ip route
show ip static
show ip route connected
dir
Interfaces
show controller t1
show isdn service
show isdn status
show ip interface brief
show ip interface
show interface Fast Ethernet0/0/0
show line
Call State
show modem
show modem call-stats
show modem ?
show caller
show caller ip
show caller timeout
show caller ?
show users
show dialer
show dialer map
Debugging
show logging
clear counters
clear logging
show debug
undebug all
debug isdn q931
debug modem

Table 30 Cisco IOS CLI Commander:travis-nas-01.the.net (continued)

debug ppp negotiation
debug ppp authentication
debug dialer
debug dialer packet
debug aaa authentication
debug aaa authorization
debug aaa per-user
debug aaa vtemplate
debug aaa vprofile

Step 4 Click on a CLI command and view the command output in a web page.

Figure 23 Output for the Show Caller Command