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Using Dialout/EZ with a Cisco Access Server

Document ID: 23241

Introduction

Hardware and Software Versions **Installation and Configuration**

Installing Appropriate Modem Drivers for the Dialout/EZ Virtual COM Port

Configuring the Access Server

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Sample NAS Configurations for the Dialout/EZ Utility

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Related Information

Introduction

Tactical Software's DialOut/EZ product allows desktop LAN users to share network access server (NAS) ports as a modem pool for outbound asynchronous communications. Users of DialOut/EZ no longer need dedicated modems and phone lines at their desktops, but instead use the communication (COM:) port redirector software to allow dial ports on the access servers to appear as local modems to desktop communications applications. Windows users can dial through a central NAS/access server to access remote on-line services and even to send faxes from their PCs. The Cisco IOS[®] Software Release running on the NAS must support COM Port Control protocol (RFC 2217). You can find out more information about Tactical Software's DialOut/EZ from the company's Web site at: <http://www.tacticalsoftware.com>.

Note: DialOut/EZ is a replacement for the Cisco Dialout Utility.

Hardware and Software Versions

Tactical Software requires that Cisco IOS Software version 12.0(9) or higher be installed on the NAS to interoperate with DialOut/EZ.

Due to Bug CSCds28071, we recommend that you run Cisco IOS Software version 12.1(8) or higher. If you are a registered user and you are logged in, you can refer to .

Installation and Configuration

Installing Appropriate Modem Drivers for Dialout/EZ the Virtual COM Port

1. Install DialOut/EZ.

For complete DialOut/EZ installation information on a client workstation, please refer to the User Guide on Tactical Software's website: DialOut/EZ.

2. Download Modem Drivers

The DialOut/EZ virtual COM ports do not have any modem devices attached to them. The DialOut/EZ user should use an appropriate .inf file for the modems (install a modem driver on the virtual COM ports). The MICA, NextPort and Microcom .inf files are available for download from the Cisco web site. For the other platforms use the specified .inf files.

Modem Type	Platform	.inf file
MICA	3600, AS5200,AS5300,AS5800	mdcsmica.inf
NextPort	AS5350,AS5400 AS5800, AS5850	
Microcom	AS5200	mnpv90.inf
NM-xAM	2600, 3600	Microcom DeskPorte V.34 FAST
WIC-xAM	2600, 3600	mdmrock5.inf (or the standard 28800 bps modem file)

Note: For Windows XP, the Cisco provided .inf files may not work. Try using a Windows built-in .inf file instead.

3. Install Modem Drivers

To install a modem driver on the Windows PC, use the following procedure:

1. **Start** --> **Settings** --> **Control Panel** --> **Phone and Modem Options**.
2. Select **Modem** and **Add** to add a new modem.
3. Select **Don't detect my modem; I will select it from a list** then click **Next**.
4. Select the Manufacturer and Model of your modem. Selecting Cisco on the left window displays Mica on the right window.
5. Select **Have Disk** and browse to the location where the .inf file is saved.
6. In the **Selected ports** option, use the COM port selected during EZ Dialout installation (for example, COM 5).

Configuring the Access Server

The IOS software configuration needed for character-mode modem dialout applications only (such as with DialOut/EZ) goes under the line configuration:

```
line starting_line_number ending_line_number
modem dtr-active
! -- If the router is for dialin and dialout use "modem inout" instead
transport input telnet
! -- Or transport input all could be used
escape-character NONE
! -- Due to Bug CSCdv12194 for the AS5350/AS5400.
rotary 1
! -- Specifies the use of TCP port 7001 in the Dialout/EZ manager
! -- window to dial out rotary 1
```

If external modems are used, then add the RS232 physical-layer and framing parameters under the line configuration as desired:

```
speed 115200
! -- Set to the highest speed supported by the modems
flowcontrol hardware
parity even
databits 7
! -- Or databits 8
stopbits 1
! -- Recommended for best throughput
```

If you want to control access to the dialout lines, add the following in line configuration mode:

```
password password
```

Alternatively, configure authentication, authorization, and accounting (AAA) and apply the list to the line with:

```
login authentication listname
```

If you wish to control which trunks are used for the dialout calls, use the **modem dialout controller** command introduced in Cisco IOS Software Release 12.1(T) (as of now, supported on the AS5300 only). For more information, refer to the document *Configuring a T1 or E1 Interface for Outgoing Analog Calls Using the modem dialout controller Command*.

Tip: Sometimes DialOut/EZ can get confused by the Password OK message from the IOS software. To avoid this issue, configure AAA (local or server-based) on the router. Refer to the AS5xxx with AAA section of this document for a sample configuration.

Optional: You can also configure a modemcap to reset the modem to the default configuration after each call. Use the command **modem autoconfigure type mica** under the line configuration. This modemcap (which sets factory default &F) can be applied to all routers regardless of the type of modem (MICA, NextPort, Microcom etc.). For more information on modemcaps refer to the document *Recommended Modemcaps for Internal Digital and Analog Modems on Cisco Access Servers*.

The same Access Server can be used for dialin as well as dialout (application). For comprehensive sample configurations refer to the section *Sample NAS Configurations for the DialOut/EZ Utility*.

Troubleshooting DialOut/EZ

Follow the method outlined below to troubleshoot DialOut/EZ related issues:

1. Reverse Telnet to the NAS modem from the NAS exec prompt. Ensure you can connect to the modem by issuing an **AT** command which should return an **OK** response. If you can connect to the modem, try to dial the number of the remote device using the **atdt #####** command. If the connection is successful, then the router configuration is correct and the hardware is working correctly.

Note: Use the binary Telnet TCP port range: 6000+line to use a specific line, or 7000+ rotary_number for a dialout rotary.

The example below shows a successful call:

```
maui-nas-03#telnet 172.22.53.150 7001
! -- Reverse Telnet to an up/up interface on the router
! -- and use port 7000+rotary
Trying 172.22.53.150, 7001 ... Open
```

```

User Access Verification
!
Username: admin
Password:
at
OK
! -- Modem is responding
atdt 81560
! -- Dial number 81560 to connect to remote device.
! -- This may take up to 30 seconds.
CONNECT 33600 /V.42/V.42bis
! -- Call is connected to the remote device.
  User Access Verification
! -- Username prompt by remote device
  Username: cisco
  Password:
maui-nas-01>

```

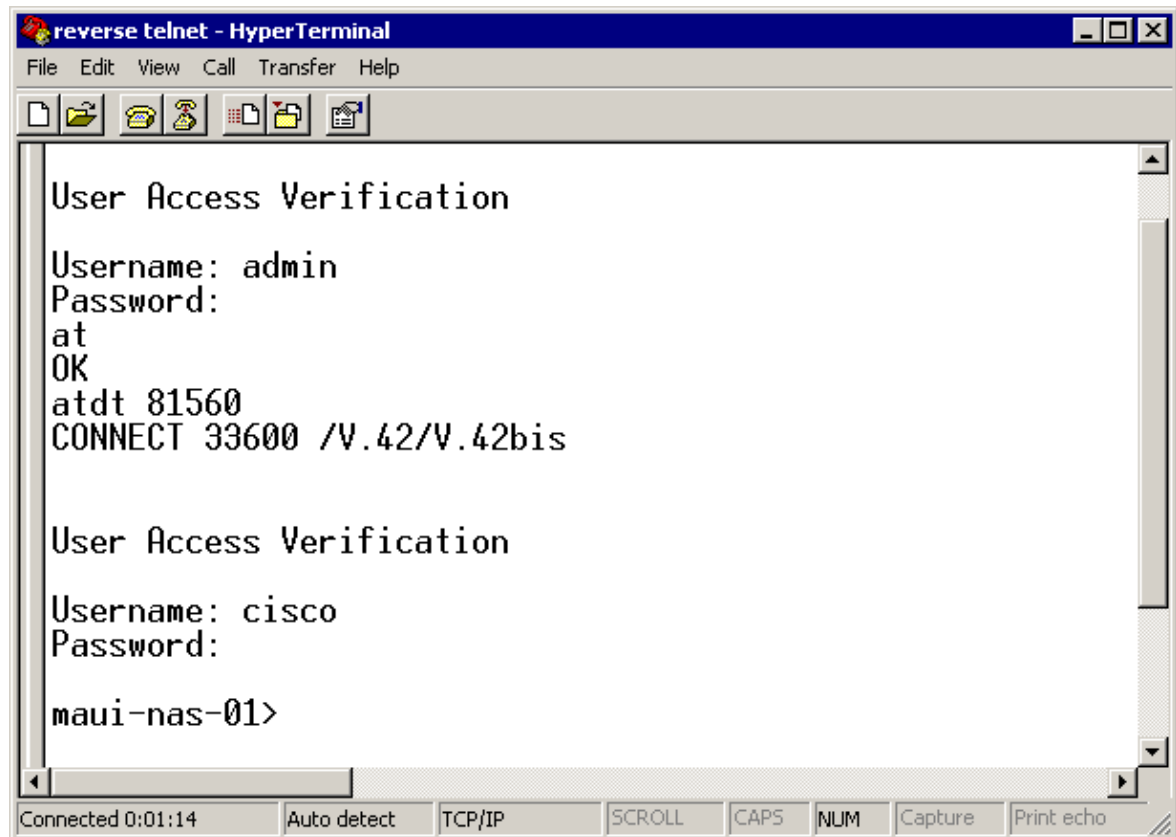
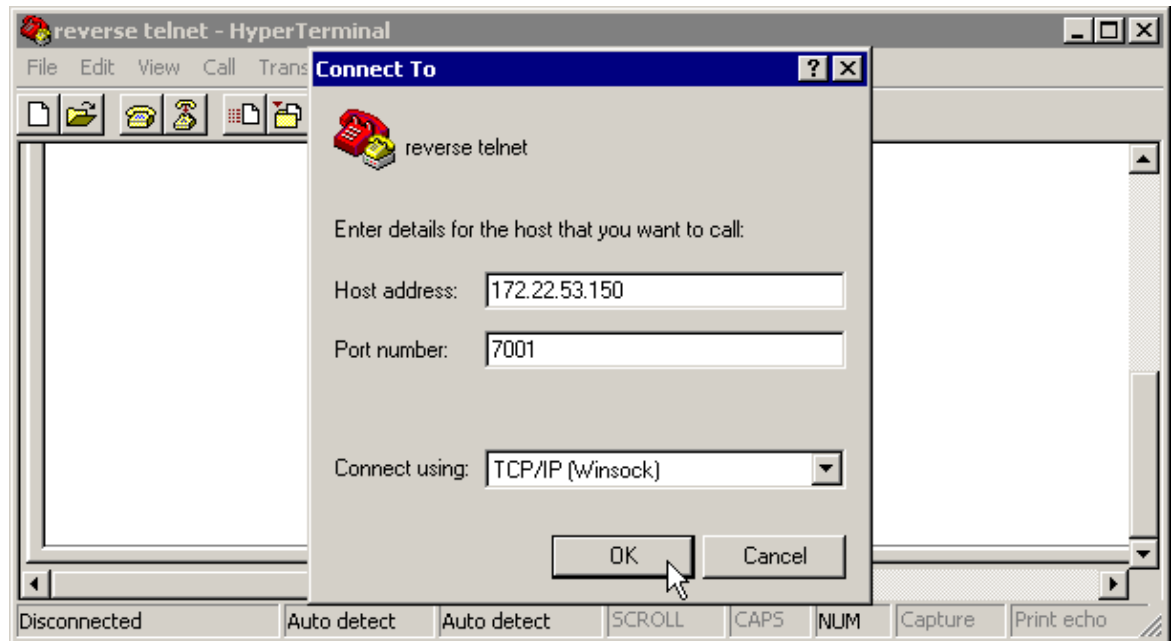
If the reverse Telnet does not reach the modem AT command mode, then the NAS is misconfigured. Check the following:

1. The interface whose IP address you're Telnetting to should be up/up and pingable from the PC host on the LAN. If you cannot ping the router interface troubleshoot your LAN for routing related issues.
2. The modem line should have **modem inout** (for dialin/dialout) or **modem dtr-active** (for dialout only).
3. The line should be configured with **transport input telnet** or **transport input all**.

If the reverse Telnet succeeds in reaching the modem AT command mode, but the manual call fails, then the problem could be a Telco or remote router issue. Troubleshoot the remote router, the line and retest the connection before proceeding further. Refer to Troubleshooting Dial Technology Connectivity – Non-DDR Callout for more information.

5. Try a reverse Telnet from a PC host on the LAN. Open Windows Hyper terminal (or Windows Telnet) and Telnet to the router's IP address and the port you are using for DialOut/EZ (for example 7001). If you can reach the modem and dialout, then there is nothing wrong with the LAN (we had previously verified that dialout from the NAS is working).
4. If the reverse Telnet does not reach the modem AT command mode, then the NAS is misconfigured or the IP network isn't working. Check the following:
 1. The interface whose IP address you're Telnetting to should be up/up and pingable from the PC host on the LAN. If you cannot ping the router interface troubleshoot your LAN for routing related issues.
 2. There should be no access-class that is blocking the Telnet connection.

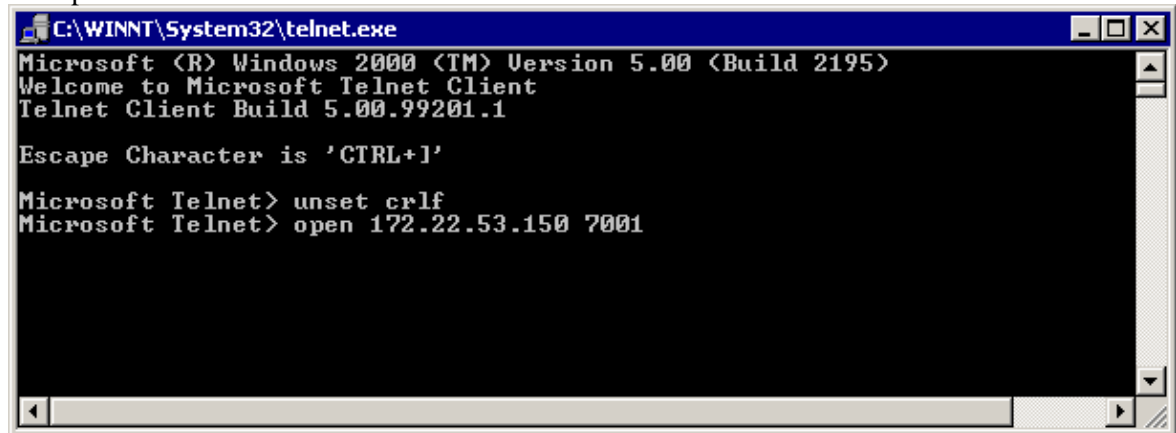
The following screen captures show a successful Hyperterminal session:



Note: If you are using the Microsoft Windows Telnet client and AAA is configured on the NAS, the windows Telnet login may fail. This failure is caused by application settings and is characterized by an inability to enter the password, thus login fails. To correct the Telnet application setting for this session, follow the procedure below on the host PC:

1. **Start** --> **Run** --> type **telnet**, click **OK**.
2. Type the **unset crlf** command. (This ensures that you send a carriage returns as Telnet <CR><NUL> rather than <CR><LF>.)

3. Use **open** *<ip_address>* *<port>* to Telnet to the modem.
4. You should now be connected to the modems and can now initiate the manual dial using **atdt** just as with the Hyperterminal example shows above. The following screen capture is an example:



2. Use Hyperterminal to directly connect to the NAS modems via DialOut/EZ's emulated COM port. Refer to the DialOut/EZ User Guide chapter on installation on <http://www.tacticalsoftware.com> for more information. This will verify that DialOut/EZ's emulated COM port is functioning.

If Hyperterminal over DialOut/EZ's emulated COM port does NOT work, then the problem would seem to be peculiar to DialOut/EZ's communication with IOS. Gather the following information:

- ◆ These debugs determines if the NAS is receiving the Telnet connection.

debug telnet
debug modem

- ◆ The DialOut/EZ Trace Log: Selecting the **Trace Window** menu option opens the DialOut/EZ Port Monitor 3.0 window, with the **Trace Window** tab enabled. To begin tracing, check the **Enable Trace** box at the bottom of this window. Make sure you save the log for further analysis. Refer to the Troubleshooting section of the User Guide on the Tactical Software's website for more information.
3. Since we have verified that DialOut/EZ can connect to the modems, next have the end application initiate a connection. If the end applications cannot talk to each other using the DialOut/EZ connection, then the problem could be peculiar to the end application. The DialOut/EZ Trace Log may be useful in troubleshooting this issue. Also turn on the Windows TAPI modem log, and also any logging available from the application. Refer to Microsoft's website for the following Microsoft article: [How to Create and Use the Modemlog.txt File \(Q142730\)](#) for more information.

If the operation still doesn't work as desired, gather the IOS debugs, the DialOut/EZ Trace Log, and (if applicable) the Windows modem log, and analyze the results to determine where the application is failing.

Refer to Tactical Software: Frequently Asked Questions for additional information.

Sample NAS Configurations for the DialOut/EZ Utility

AS25xx, NM-xAM, WIC-xAM

Following is a sample configuration file for routers with external analog modems, such as Cisco AS2509, Cisco AS2510, Cisco AS2511, or Cisco AS2512 access server as well as routers with internal analog modems (NM-xAM and the WIC-xAM) such as the 26xx, and 36xx series routers.

The example below shows the router capable of incoming and outgoing calls. If the router is for outbound use only, then the line configuration is all that is needed.

```
interface Group-Async1
! -- Group-Async interface used for dialin calls
! -- This is not used for dialout
ip unnumbered Ethernet0
no ip mroute-cache
encapsulation ppp
no ip route-cache
async default routing
async dynamic address
async mode interactive
peer default ip address pool local
dialer in-band
no cdp enable
ppp authentication chap
group-range 1 8
! -- Range of lines include 1 through 8
! -- Modems 1 through 8 can now be used for incoming or outgoing calls
!
line 1 8
! -- Line configuration used for Dialout/EZ
modem InOut
! -- Modem can be used for dialing and dialout
! -- If the line is used for dialout only use "modem dtr-active"
rotary 1
! -- The lines are placed in a rotary
! -- They are accessed by Dialout EZ using port (7000 + rotary)=7001
transport preferred telnet
transport input all
! -- You could also use transport input telnet instead
rxspeed 115200
txspeed 115200
! -- Speed for external modems
! -- This is not needed for internal analog modems (NM-xAM, WIC-xAM)
flowcontrol hardware
! -- Flowcontrol for external modems
! -- This is not needed for internal analog modems (NM-xAM, WIC-xAM)
```

AS5xxx without AAA

Following is a sample configuration file for a Cisco AS5xxx series access server without AAA.

This example shows the router accepting incoming calls and making outbound calls.:

```
controller T1 0
! -- T1 interface used for incoming and outgoing calls
framing esf
clock source line primary
linecode b8zs
pri-group timeslots 1-24
!
interface Serial0:23
```

```

! -- D-channel configuration for T1 0
! -- This configuration is only needed for incoming calls
ip address 10.15.2.80 255.255.255.0
encapsulation ppp
no ip route-cache
no ip mroute-cache
no keepalive
dialer idle-timeout 400
dialer map ip 10.15.2.60 6661210
dialer-group 1
isdn incoming-voice modem
! -- Incoming analog calls will be switched to the modems
peer default ip address pool setup_pool
no fair-queue
no cdp enable
ppp authentication chap
ppp multilink
!
interface Group-Async1
! -- Group-async configuration for incoming calls
! -- This configuration is not used for outgoing calls
ip unnumbered Ethernet0
encapsulation ppp
no ip route-cache
no ip mroute-cache
async dynamic address
async dynamic routing
async mode interactive
peer default ip address pool setup_pool
ppp authentication chap pap
group-range 1 48
! -- Range of lines include 1 through 48
! -- Modems 1 through 48 can now be used for incoming or outgoing calls
!
line 1 48
! -- Line configuration for Dialout/EZ
exec-timeout 0 0
autoselect during-login
autoselect ppp
! -- The autoselect commands are used for protocol selection for incoming calls
! -- This is not needed if the router only makes outbound calls
modem InOut
! -- Modem can be used for dialing and dialout if the line is used for
! -- dialout only use, modem dtr-active transport preferred telnet
rotary 1
! -- The lines are placed in a rotary
! -- They are accessed by Dialout EZ using port (7000 + rotary)=7001
transport input all
transport input telnet
! -- Configure one or both of the above commands

```

AS5xxx with AAA

Following is a sample configuration file for Cisco AS5xxx series access servers with server-based AAA configured.

The following example, shows an access server configured for dialin and dialout calls:

```

aaa new-model
aaa authentication login default radius
! -- Use the radius server for login on the default list
! -- for local AAA replace "radius" with "local"

```

```

! -- (make sure to configure the username/password locally as well
aaa authentication ppp ppptac radius
! -- Use the radius server for ppp on the list named ppptac
! -- This is used for incoming ppp calls and is not used for outgoing
! -- Dialout/EZ calls
!
controller T1 0
! -- T1 interface used for incoming and outgoing calls
 framing esf
 clock source line primary
 linecode b8zs
 pri-group timeslots 1-24
!
interface Serial0:23
! -- D-channel configuration for T1 0
! -- This configuration is only needed for incoming calls
 ip address 10.15.2.80 255.255.255.0
 encapsulation ppp
 no ip route-cache
 no ip mroute-cache
 no keepalive
 dialer idle-timeout 400
 dialer map ip 10.15.2.60 name test 5551210
 dialer-group 1
 isdn incoming-voice modem
 peer default ip address pool setup_pool
 no fair-queue
 no cdp enable
 ppp authentication chap ppptac
 ppp multilink
!
!
interface Group-Async1
! -- Group-async configuration for incoming calls
! -- This configuration is not used for outgoing calls
 ip unnumbered Ethernet0
 encapsulation ppp
 no ip route-cache
 no ip mroute-cache
 async dynamic address
 async dynamic routing
 async mode interactive
 peer default ip address pool setup_pool
 ppp authentication chap pap ppptac
! -- Use list named ppptac for authentication
 group-range 1 48
! -- Range of lines include 1 through 48
! -- Modems 1 through 48 can now be used for incoming or outgoing calls
!
!
radius-server host 10.4.1.10
radius-server timeout 20
radius-server key nas1
! -- Radius server configuration
!
line 1 48
! -- Line configuration for Dialout/EZ as well as dialin calls
 exec-timeout 0 0
 autoselect during-login
 autoselect ppp
! -- The autoselect commands are used for protocol selection for incoming calls
! -- This is not needed if the router only makes outbound calls
 modem InOut
! -- Modem can be used for dialing and dialout

```

```
! -- If the line is used for dialout only, use modem dtr-active transport  
! -- preferred telnet  
rotary 1  
! -- The lines are placed in a rotary  
! -- They are accessed by Dialout EZ using port (7000 + rotary)=7001  
transport preferred telnet  
transport input all  
! -- You could also use transport input telnet instead
```

Related Information

- [Tactical Software](#)
 - [Tactical Software: Frequently Asked Questions](#)
 - [Dialout Utility Frequently Asked Questions](#)
 - [Cisco DialOut Utility User Guide](#)
 - [Dial Technology Support Page](#)
 - [Technical Support & Documentation](#)
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