Using Terminus, the LCS Dialup Server

with excerpts from the Cisco Systems manual,
Terminal Server Configuration and Reference *

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Terminus is the LCS dialup server. This brief document will provide a description of some of the options and commands one may use with Terminus, as well as some other information that the user will find useful. Support for Terminus includes three mailing lists: `Bug-Terminus@LCS.MIT.Edu` for bugs, `Terminus-Admin@LCS.MIT.Edu` for administrative questions, and `Terminus-Users-Request@LCS.MIT.Edu` for service info and updates which all users, especially guests, should get.

1 Brief Overview

1.1 Getting to Terminus

The supported service uses standard data transmission at speeds from 300 to 14400 bits per second (bps). The Bell 103 standard is used at 300bps, the Bell 212 at 1200. CCITT standards V.22*bis* and V.32*bis*[1] are used for 2400, 4800, 9600, and 14400bps.

There is also capability for one non-standard—but widespread—high speed modulation (USR-HST), this is not strictly a supported service but is available and fully functioning. The MNP and V.42bis error control and compression protocols are also supported.

The main phone number for reaching the dialup service is **258-7111**. This number is good for all but the V.32/V.32*bis* service; for these the number is **258-6222**.

The phone numbers for Terminus are handled by what is termed a *Call Distributor*. Calls to these numbers will automatically be routed to free lines with the required service. The selection of lines is done such that successive calls will go to different lines even if the first caller has hung up. This should prevent a problem with a single line from interfering with all calls. If you have a problem; hang up and then call right back, you will get a different line (unless there is only one line available).

1.2 General Command Use

The commands described below are used to make connections, control those connections and perform other miscellaneous operations. Not all the available commands are described here, but these are the ones users will find most useful.

You may type commands in uppercase, lowercase, or any combination thereof. You may also abbreviate commands and other key words to the number of characters that cause the command to be a unique abbreviation. For example, you can abbreviate the **show** command to **sh**.

If you make a typing mistake, you can erase characters with the Delete or Backspace keys. Press either key to erase the last character you typed. To erase the entire line, type Ctrl-U.

The terminal server acts on most commands after you press the Return key. You can abort a local command at any time by typing Ctrl-C; commands which open connections may require the escape sequence described below (by default Ctrl-`^ X`).

To list available commands, type a question mark (`?`). You can often enter a question mark (help command) to obtain more information about commands. For example, type `terminal ?` to obtain a list of **terminal** commands or `show ?` to obtain a list of **show** commands.

[1] and as with all CCITT standards, the bis forms are compatible with the older non-bis forms of the same standards

Certain commands may produce large quantities of output. You can prevent the output of these commands from scrolling off the screen by setting the height to an appropriate number (the default is 24). At the end of each screen, Terminus pauses and displays:

```
-More-
```

Type a space to continue the output; anything else will return you to the system command prompt.

Here is a list of the commands that you may use. They are described in more detail in the sections following:

```
Terminus>?

 connect <host>       Connect to host - same as typing just a host name
 disconnect <cn>      Break the connection specified by name or number
 exit, quit           Exit from the EXEC
 name-connection      Give a connection a logical name
 resume               Make the named connection be current
 rlogin <host>        Connect to host using rlogin protocol
 show <cmd>           Information commands, type "show ?" for list
 systat               Show terminal lines and users
 telnet <host>        Connect to host using telnet protocol
 terminal             Change terminal's parameters, type "terminal ?"
 where                Show open connections
 xremote              Enter XRemote mode
 <cr>                 To resume connection
```

2 Making a Connection

Terminus provides three different types of connections, **telnet**, **rlogin**, and **Xremote**

2.1 Telnet

Telnet is the Internet standard terminal protocol, and the default on Terminus. The simplest way to use telnet is to type in the name of the machine you want to connect to:

```
 Terminus> snark
```

The above command would connect you to snark and start a session as usual.

2.2 Rlogin

The **rlogin** command starts a connection using the UNIX rlogin protocol. The full syntax of the command is:

rlogin *host* [**debug**]

The optional keyword **debug** enables debugging output from the rlogin protocol.

An alternative to the Telnet protocol, **rlogin** was designed to use with the UNIX system at UC Berkeley. For more information about this protocol, read the manpages.

2.3 XRemote Connections

If your computer includes a server for XDMCP, you can use automatic session startup to initiate an XRemote session on an NCD X terminal.

The command used to initiate XRemote using XDMCP is **xremote xdm**. This command has the following syntax:

xremote xdm *hostname*

3 Common Commands

3.1 Establishing Multiple Connections

You can have several concurrent connections open and switch back and forth between them. To switch between connections, first type the escape sequence, which by default is Ctrl-^, then `X` (press the Ctrl, SHIFT and ^ key simultaneously, let go, then press the `X` key), to return to the sustem command prompt.

To make a new connection, use the precedure described above. To get back to an existing connection, use the **resume** command. Use the **where** command to list your open connections.

3.2 Switching Between Connections

The **resume** command returns to a previous connection. The general command syntax is:

resume [*connection*]

The optional argument *connection* is the connection name or number; the default is the most recent connection.

You can omit the command word **resume** and simply type the connection number to resume a connection. You can also return to the most recent session by just pressing the Return key.

3.3 Displaying User Sessions

There are two commands that can be used to display information about your actve terminal sessions. They are **where** and **show sessions**. To use, just type either command at the prompt.

The information it displays includes the host name, address, number of characters waiting to be sent to the terminal, idle time, and connection name. An asterisk (*) indictes the current connection.

3.4 Displaying Line Information

You can use **systat** to display information about the active ports of the terminal server:

systat [**all**]

Using the optional keyword *all* will cause all lines to be displayed, including those not currently active. Here is a sample:

```
Terminus>systat

    Line     User      Host(s)                 Idle Location
   1 tty 1             AUGUST.AI.MIT.EDU          0 Dialup
   2 tty 2             CATFISH                   14 Dialup
   4 tty 4             WINGEDLION              1:13 Dialup
```

3.5 Exiting a Session

The **exit** or **quit** command terminates the EXEC command parser and closes any active terminal sessions. Enter either command when you are finished with all sessions. This will terminate any connections (after confirmation) and hang up your modem.

4 Some Advanced Commands

This section describes in detail some more options for Telnet, as well as a few other commands that might be of use. The commands in this section are not needed for most simple use of Terminus, but may be helpful to some users.

4.1 More Telnet Information

The full **telnet** command syntax is:

{ **connect** | **telnet** } *host* [*port*] [*/keyword*]

The argument *host* is a host name (the machine you want to call) or an Internet address. Since **telnet** is the default protocol, all that is really necessary to connect is the host name.

The optional argument *port* is a decimal TCP port number; the default is the Telnet server port (decimal 23) on the host. The optional *keyword* is one of the following:

/route: *path* – Specifies a loose source routing. The argument *path* is a list of host names or Internet addresses that specify network nodes, ending with the final destination. For example, the following command routes packets from the source to *kl.sri.com*, then to 10.1.0.11, and finally to *mathom*:

Terminus> `connect mathom /route:kl.sri.com 10.1.0.11 mathom`

/line – Enables Telnet line mode. In this mode, the terminal server does not send any data to the host until the user presses Return. The user can edit the line using the standard terminal server command editing characters (Backspace, Delete, Ctrl-U, Ctrl-W). The **/line** keyword is a local switch; the remote server is not notified of the mode change.

/debug – Enables Telnet debugging mode.

/stream – Turns on "stream" processing, which enables a raw TCP stream with no Telnet control sequences. A stream connection does no preocessing of Telnet options, and may be appropriate for conncetion to ports running UUCP and other non-Telnet protocols.

4.2 Naming a Connection

The **name-connection** command assigns a logical name to a connection. You will be prompted for the connection number and name to assign when you enter this command. The **where** command displays a list of the assigned local connection names.

The following example demonstrates this process:

```
Terminus>where

Conn Host     Address        Byte  Idle  Conn  Name
*  1 Eng1     192.31.6.22       0     0  Eng1
   2 Term2    192.33.6.21       0     5  Term2

Terminus>name-connection
Connection number:1
Enter logical name:  my host
Connection 1 to Eng1 will be named ‘‘my host’’ [confirm]
```

```
Terminus>where

Conn Host     Address         Byte  Idle  Conn  Name
*  1 Eng1     192.31.6.22        0     0  my host
   2 Term2    192.33.6.21        0    10  Term2
```

4.3 Aborting a Connection

You can use the command **disconnect** to abort a connection:

disconnect [*connection*]

The optional argument *connection* is a connection name or number; the default is the current connection. Use **where** to get a list of your open connections.

> **Note:** *Do not use the* **disconnect** *command to end a session. Instead, log off the host, thus allowing the host to initiate the disconnect. Use the* **disconnect** *command only if you cannot log off the host.*

4.4 The Terminal Command

The terminal command can be used to change some of the terminal parameters. The syntax is:

terminal [*command*]

Typing `terminal ?` will show you a complete list of terminal commands. There are two that could come in useful:

escape-character - To set the escape character for the current terminal line, use this command. The syntax is:

terminal escape-character *decimal-number*

Decimal-number is the ASCII decimal representation of the desired escape character or an escape character (Ctrl-P, for example). Typing the escape character followed by the X key returns you to the Terminus prompt when you are connected to another computer. The default escape character is Ctrl-^.

To make the Break key function as the escape character, use the **terminal no escape-character** command. The break need not be followed by an "X".

download - The **terminal download** command is used when running a program such as KERMIT, XMODEM or CrossTalk that downloads a file across a terminal server line. It sets up the terminal as a transparent pipe that can be used to transmit data. To restore the original parameters, type **terminal no download**.

Two commands that you shouldn't mess with are **flow** and **speed**. They refer to the settings of the modem connected to Terminus, and not to your terminal.

4.5 Displaying Current Terminal Parameters

The **show terminal** command displays the configuration parameter settings for the current terminal line. Enter this command at the Terminus prompt:

show terminal

The display includes a comprehensive report on the terminal settings in effect, including the preferred transport protocol.