Chapter 5 File Transfer

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Chapter Overview

This chapter discusses the various features NCSA Telnet provides for transferring Macintosh-specific and other files, and describes the most common file transfer protocol (FTP) commands.

Terminology

The following terms are frequently used in this chapter's discussions concerning file transfer procedures.

ASCII File

An ASCII, or text, file is one that you can read; it can be used with standard editors on the Macintosh or host. When text files are transferred, they are translated to a format appropriate for the receiving machine.

Binary File

A binary, or image, file cannot be read by standard text editors. Unlike text files, binary files are not changed in any way when transferred.

Client/Server

The client is the system that requests services and the server is the system that provides them. The client is not always your Macintosh, despite appearances. When you use NCSA Telnet to connect to a host, your Macintosh is the telnet client. When you request a file transfer from your Macintosh, the transfer is actually initiated on the host, making the host the FTP client and your Macintosh the FTP server. So the Macintosh can be both a telnet client and an FTP server at the same time.

File Transfer

In a file transfer, the contents of a file are copied to a file on another computer.

MacBinary File

A MacBinary file is a file that has been encoded in the MacBinary file format. This means that the file contains all of the information contained in a normal Macintosh file and therefore can be used for transferring applications and other Macintosh-specific files. These files are virtually useless on any other machine, but are in a format that will allow them to be stored for downloading to a Macintosh later.

About FTP

NCSA Telnet has an internal file transfer protocol (FTP) server that allows reliable file transfers between a Macintosh and any FTP host on the network. File transfers are initiated from the FTP host. Features of the NCSA Telnet implementation of FTP permit:

- Stream transferring files in text (ASCII) or binary (image) format
- Changing the directory (by means of menu option or remote command line)
- Showing the name of the current directory
- Listing files in the current directory (with wildcard specifications)
- Sending and receiving multiple files with one command, using wildcards

NOTE: File transfers are processed in the background. Therefore, while a file transfer is in progress you can perform other NCSA Telnet activi-

ties, such as switching sessions, adding new sessions, or changing parameters. While one FTP connection is active, requests for another are ignored.

Transferring Files

Before attempting to transfer files using FTP, make sure the following conditions are met.

- Your host system supports FTP file transfer. If you do not know whether it does, see your system administrator.
- You have not disabled the file transfer capability of NCSA Telnet. Two conditions inform you that the FTP capability is disabled: (1) the FTP Enable command appears unchecked in the File menu, and (2) your machine will not respond to the FTP command when you attempt to start up FTP. You can select FTP Enable, so that the command appears checked. Your system administrator can also enable FTP in the configuration file.

Invoking FTP on the Host Computer

FTP is initiated by the remote host, so the FTP commands vary, depending on the host system. For full documentation of FTP and commands within FTP, refer to the manuals for the host computer. With UNIX systems, you can access online documentation by entering:

```
man ftp
```

Issuing the FTP Command

On most systems, the FTP command is entered at the prompt, with the name or IP address of the target machine. You can enter the FTP command in one of three ways. For example, if your Macintosh is named "mymachine" and your IP address is 192.17.20.22, any of the following procedures invokes FTP.

- Enter:

```
ftp  mymachine
```

or

```
ftp  192.17.20.22
```

and press RETURN.

- Select Send FTP Command from the File menu or press -F. NCSA Telnet types the FTP command and issues a RETURN.
- Enter **ftp**, press the spacebar, select Send IP Number from the Network menu, and press RETURN. The Send IP Number Command types your IP address for you.

Use whichever method of invoking FTP you feel comfortable with. Your host computer may not accept FTP commands as described here, so you may have to try some variations to find the easiest method for your site.

Whichever method you use to invoke FTP, most FTP clients generate a response like this:

```
Connected to 192.17.20.22.
220 Macintosh Resident FTP server, ready
Name (192.17.20.22:timk):
```

Most FTP clients prompt you for your username and password. If NCSA Telnet is configured for passwords (see Chapter 9), then these are required. Otherwise, just press RETURN to bypass the prompts. If you are not prompted for a username and password, assume that you are logged in and continue to enter your FTP commands at the ftp prompt.

Figure 5.1 File Transfer Cursor

NOTE: When an FTP connection is active, the cursor changes to a small file icon (see Figure 5.1). When the FTP connection terminates, the file icon changes back to the standard cursor, or I-beam.

FTP Commands

After FTP has been invoked and passwords have been checked, most FTP clients prompt you for individual FTP commands. These commands are documented in the manuals for the host computer. Most FTP implementations have similar commands because they are modeled after the Berkeley UNIX version of FTP.

FTP commands that are common to most implementations are listed in Table 5.1 and described in the following sections. Once you are in FTP, you can access online help for a list of available commands.

Table 5.1 Common FTP Commands

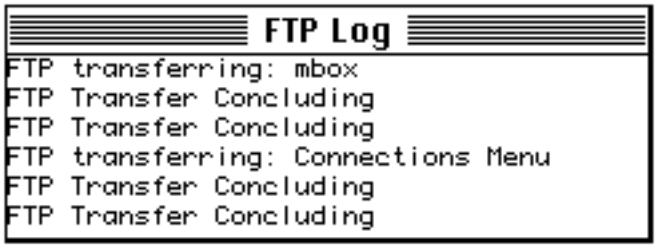
Command	Action
ascii	set mode to ASCII transfer mode (default)
binary	set mode to binary (image or I) transfer mode
cd	change directory on your Macintosh
dir	show filenames in Macintosh's default directory
get *filename*	get file from Macintosh, send it to the host
help	show online list of FTP commands
put *filename*	send file from the host to the Macintosh
pwd	show the current Macintosh directory name

The boldface type in Table 5.1 represents user entries.

FTP Log

To help you keep track of file transactions, NCSA Telnet shows current and past transactions in the FTP log, shown in Figure 5.2. To view the log, select Show FTP Log from the File menu.

Figure 5.2 Sample FTP Log



Setting the Transfer Mode

The default mode for FTP transfers is ASCII format. To transfer graphic or binary data files, you must change the transfer mode to binary format before using the put or get commands. To set the transfer mode to binary, enter the command **binary** or **bin**.

If you intend the file you are transferring to be used with a Macintosh-specific application, you may also need to enable the MacBinary Enabled option in the File menu by selecting it. The command appears checked in the menu when it is enabled (see the section entitled “Transferring MacBinary Files”).

To set or reset the transfer mode to ASCII format, enter the command **ascii**.

For example, Figures 5.3 and 5.4 in the section entitled “Transferring Files to the Macintosh,” shows an FTP transaction with an ASCII file and binary file, respectively.

Changing the Default Directory

FTP transfers files to the default directory on the local disk. To change the directory, issue the cd command from FTP or select Set Transfer Directory from the File menu and locate the directory in the dialog box that appears. For more information regarding using directory dialog boxes to locate files and change directories, refer to your Macintosh user’s guide.

The cd command from FTP, as shown in Table 5.1, has the identical effect as the Set Transfer Directory command, though you specify a directory by manually entering a path rather than using a dialog box. To specify a directory using the cd command, use the colon (:) or the forward slash (/) to separate folder names, as the Macintosh requires. For example, to change the default directory to myfolder on your local Macintosh disk hd20, you would enter one of the following commands at the ftp prompt (ftp>).

```
cd ":hd20:myfolder"
   or
cd "/hd20/myfolder"
```

To find out what directory is set as your default transfer directory, enter **pwd** at the ftp prompt. For example, if you enter pwd after issuing the sample cd command above, the return is:

```
"/hd20/myfolder" is the current directory
```

Transferring Files to the Macintosh

Even though you seem to be initiating the transfer from the Macintosh, the transaction actually operates from the host's side. The practical effect of this makes the commands seem intuitively "backward." For example, to transfer a file from the host to your Macintosh, you do not use a get command as you might expect, but a put command of the following form.

put *filename.ext*

Figure 5.3 shows an example of using the put command to transfer the file temp2 from a host to a local Macintosh. The boldface type represents user entries.

Figure 5.3 Transferring an ASCII File to the Macintosh

```
newton_45% ftp -n 192.17.20.124
Connected to 192.17.20.124.
220 Macintosh Resident FTP server, ready
ftp> put temp2
200 This space intentionally left blank <  >
150 Opening connection
226 Transfer complete
262145 bytes sent in 32.61 seconds (7.8 Kbytes/s)
ftp> quit
221 Goodbye
newton_46%
```

NOTE: Do not exit the program while a file transfer is in progress, or the file transfer will fail.

Transferring Files to the Host

A request to send a file from the Macintosh to the host requires a get command of the following form.

get *filename.ext*

Figure 5.4 shows a get operation used to transfer a binary file named bridge.pic from a local Macintosh to the remote host. Note that the file was in the directory /HD20/pictures, and the cd command was used to locate that directory. Again, the boldface type represents user entries. If you were to send a text file after this sample transfer is complete, you would have to reset the transfer mode to ASCII by first entering **ascii**.

Figure 5.4 Transferring a Binary File from the Macintosh to a Remote Machine

```
newton_41% ftp -n 192.17.20.124
Connected to 192.17.20.124.
220 Macintosh Resident FTP server, ready
ftp> bin
200 Type set to I, binary transfer mode
ftp> cd "/hd20/pictures"
250 Chdir okay
ftp> get bridge.pic
200 This space intentionally left blank < >
```

```
150 Opening connection
226 Transfer complete
262144 bytes received in 9.22 seconds (28 Kbytes/s)
ftp> quit
221 Goodbye
newton_42%
```

Transferring Multiple Files

Some versions of FTP enable you to transfer multiple files sequentially with one command, either mput or mget, used with wildcard characters.

WARNING: If you transfer multiple binary files using a UNIX host, note that there is a bug in mget as implemented on some systems (especially 4.2 BSD UNIX). When used in binary mode, mget adds a carriage return to the filenames as they are transferred. The files themselves are not affected. Use a UNIX utility to remove the carriage return from the filename. In ASCII mode, mget causes no problem.

The trick to using wildcards in FTP get commands is to enclose the get commands in quotes, for example, `get "*.image"`. Do not use quotes with put commands.

Transferring MacBinary Files

Sometimes it may be necessary to upload Macintosh-only files to non-Macintosh hosts and later download them without losing any of the Macintosh-specific data, such as icons and the creation date.

To transfer Macintosh-only files (such as applications and most data files) to an intermediate host while retaining any Macintosh-specific information contained in the files:

1. Enable the MacBinary Enabled option in the File menu. A checkmark appears next to the command when it is enabled. You can alternately enable and disable MacBinary by selecting this option. (Since MacBinary is a binary-only transfer protocol, it is only available when FTP is in binary mode.) Now, all get and put commands transfer Macintosh files in MacBinary format.

2. Set the file transfer mode to binary by entering **`binary`** or **`bin`** at the ftp prompt.

NOTE: If you are writing host-based scripts to download or upload to a Macintosh in MacBinary mode, you can use the `quote MACB ENABLE` and `quote MACB DISABLE` commands from the host's FTP client to enable and disable MacBinary mode, respectively.

Resetting MacBinary for Each FTP

NCSA Telnet can save you the trouble of tracking whether the MacBinary Enabled option is checked or unchecked in the File menu each time you want to transfer files. To set MacBinary mode to return to the default setting of your preference, enabled or disabled, whenever you begin a new FTP session:

1. Select Preferences from the Edit menu. The Preference dialog box

appears.

2. Enable the option Reset MacBinary for each FTP.

3. Enable or disable the MacBinary option to indicate whether you want MacBinary mode to be reset to enabled or disabled, respectively, whenever you begin an FTP session. This ensures that for each new FTP session that you initiate, MacBinary mode is set to your preference by default, regardless of how you set the mode in a previous FTP session.

NOTE: "Each FTP" corresponds not to the individual file transfer, but to establishing the FTP command connection.

4. Click OK or press RETURN to apply these options only to the current session with NCSA Telnet. Click Save to save the specifications as the default, so that next time you invoke NCSA Telnet this option is activated automatically.