www.fotolia.de,Maciej Mamro

## FTP and NcFTP

# SHOVELING DATA WITH THE SHELL

FTP and NcFTP are both FTP clients for the command line. While FTP only has basic file transfer functionality, NcFTP has a whole bunch of additional features. **BY HEIKE JURZIK**

FTP (File Transfer Protocol) is a suite of Internet protocols that helps users transfer data between two computers. One computer serves as the FTP client, and the other machine is the server.

Most FTP servers provide anonymous services, in which you can enter *anonymous* or *ftp* as your login name and not provide a password, although it is considered a friendly gesture to enter your own email address. Other servers, run by webspace providers, for example, prompt you to enter your username and your password for the purpose of authentication.

Be aware that, in contrast to secure protocols (such as Secure Shell SSH), a protocol such as FTP transmits usernames, passwords, and other data across the network in clear text, and FTP is thus unsuitable for exchanging confidential information.

### TIP

To change directory on the local machine, use the *lcd* command. For other local commands, start the command with an exclamation mark, for example, *!ls* outputs the local directory listing.

If you prefer the simplicity of the command line and would rather not use your web browser's or file manager's internal FTP client, then you should check out the two command-line alternatives, FTP and NcFTP.

## FTP: First Contact

FTP is a simple command-line client that any Linux distribution will include by default. To open a connection, do the following:

```
ftp ftp.server.com
```

Alternatively, you can launch the client first by typing *ftp*, and then you'll enter the following command at the *ftp* command prompt:

```
ftp> open ftp.server.com
```

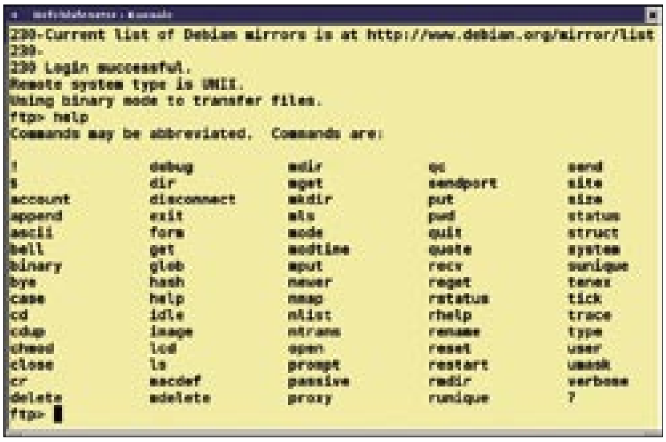
to connect to the required target. After establishing a connection, you will be prompted to log in. As mentioned earlier, you can then either type *anonymous*, *ftp*, or a username provided by the webspace provider, along with the matching password (Listing 1). Typing the password can be quite tricky – in contrast to NcFTP, FTP does not display an asterisk for each character you type.

## FTP Prompt

After logging in, FTP displays the *ftp >* prompt, and you can start to enter commands. The *help* or *?* commands output an overview of the available commands (Figure 1).

### Listing 1: Connecting with FTP

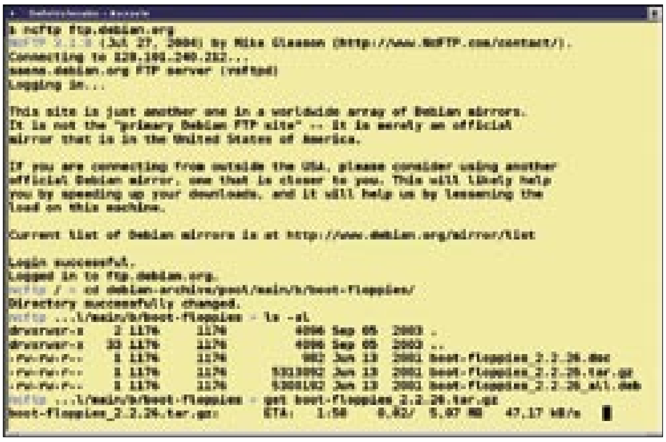
```
ftp> open ftp.debian.org
Connected to ftp.debian.org.
220 saens.debian.org FTP server
 (vsftpd)
Name (ftp.debian.org:huhn): ftp
331 Please specify the password.
07 Password:
```



```
230-Current list of Debian mirrors is at http://www.debian.org/mirror/list
230-
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> help
Commands may be abbreviated.  Commands are:

!               debug           mdir            qc              send
$               dir             mget            sendport        site
account         disconnect      mkdir           put             size
append          exit            mls             pwd             status
ascii           form            mode            quit            struct
bell            get             modtime         quote           system
binary          glob            mput            recv            sunique
bye             hash            newer           reget           tenex
case            help            nmap            rstatus         tick
cd              idle            nlist           rhelp           trace
cdup            image           ntrans          rename          type
chmod           lcd             open            reset           user
close           ls              prompt          restart         umask
cr              macdef          passive         rmdir           verbose
delete          mdelete         proxy           runique         ?
ftp> ▮
```

**Figure 1: Command set – accessing the FTP online help with the ? or help commands.**



```
$ ncftp ftp.debian.org
NcFTP 3.1.8 (Jul 27, 2004) by Mike Gleason (http://www.NcFTP.com/contact/).
Connecting to 128.101.240.212...
saens.debian.org FTP server (vsftpd)
Logging in...

This site is just another one in a worldwide array of Debian mirrors.
It is not the "primary Debian FTP site" -- it is merely an official
mirror that is in the United States of America.

If you are connecting from outside the USA, please consider using another
official Debian mirror, one that is closer to you. This will likely help
you by speeding up your downloads, and it will help us by lessening the
load on this machine.

Current list of Debian mirrors is at http://www.debian.org/mirror/list

Login successful.
Logged in to ftp.debian.org.
ncftp / > cd debian-archive/pool/main/b/boot-floppies/
Directory successfully changed.
ncftp ...l/main/b/boot-floppies > ls -al
drwxrwxr-x    2 1176     1176         4096 Sep 05  2003 .
drwxrwxr-x   33 1176     1176         4096 Sep 05  2003 ..
-rw-rw-r--    1 1176     1176          982 Jun 13  2001 boot-floppies_2.2.26.dsc
-rw-rw-r--    1 1176     1176      5313092 Jun 13  2001 boot-floppies_2.2.26.tar.gz
-rw-rw-r--    1 1176     1176      5300162 Jun 13  2001 boot-floppies_2.2.26_all.deb
ncftp ...l/main/b/boot-floppies > get boot-floppies_2.2.26.tar.gz
boot-floppies_2.2.26.tar.gz:       ETA:   1:50    0.02/  5.07 MB   47.17 kB/s  ▮
```

**Figure 2: NcFTP showing the ETA ("Estimated Time of Arrival") for a particular file.**

Many of the commands use a similar syntax to Bash commands (for example, *cd*, *ls*, *exit*, etc.). Some of the commands are self-explanatory, and others are fairly cryptic. You can ask the program for more help on individual commands such as this:

```
ftp> help command
```

To discover the current directory server-side, enter *pwd* ("print working directory") like in Bash, and typing the familiar *ls* command will give you a directory listing. *cd directory* takes you to another directory, *cd ..* climbs up one level in the directory tree, and *cd* takes you to the root directory on the FTP server.

*get* and *mget* help you download data from the FTP server to the current directory on your local machine. While *get* expects you to enter the complete filename, *mget* also supports wildcards. To shovel all the files in a specific directory onto your local machine, type *mget ** at the prompt.

Of course, you can be more precise if you like:

```
ftp> mget *.tar.gz
```

will download files with the *.tar.gz* extension. By default, FTP will prompt you to confirm downloading every single file that matches the pattern. You can type *y* or *n* to either launch the transfer or skip a file, respectively.

The *prompt* command helps you avoid these questions:

```
ftp> prompt
Interactive mode off.
```

This also applies to the *mput* command, which uploads data to the server, and to *mdelete*, which deletes data server side – both assume you have privileged (write) access to the FTP server.

The *close* command shuts down the connection, and the *quit* command closes the session and quits the program.

## NcFTP: Anybody Out There?

Although most distributions do not include the NcFTP command-line client by default, the client is usually on the installation media, or download the tool from the NcFTP homepage [1], which has versions for various platforms.

Basic operations are not vastly different from FTP; to open a connection, you can either specify a target upon launching the program, or enter the *open* command at the prompt (Listing 2).

NcFTP automatically handles logging on to anonymous servers; if you need to enter a username and password, provide the details when you run the command:

```
ncftp> open -u username -p ↩
password ftp.server.com
```

The *help*, *pwd*, *cd*, *lcd*, *close*, and *quit* commands work just like in FTP, and thus it comes as no surprise that the command for listing directories is titled *ls*. However, NcFTP has an additional feature here; assuming the server supports this, *ls -l* will give you an extended listing, similar to *ls -la*, which will display hidden files and directories.

NcFTP has more to offer – the client supports tab completion, which you will be familiar with from Bash. You can type the first couple letters of a command, or a file/directory name, and press [Tab]. NcFTP will complete the name if it is unique. Typing the first two letters of a command and pressing the tabulator key tells NcFTP to output all the commands that start with this letter.

## NcFTP: New Friends

As you probably expected, the command for downloading files to your local mac is titled *get*. NcFTP adds a convenient feature that shows the download progress and transfer rate at the bottom of the screen (Figure 2).

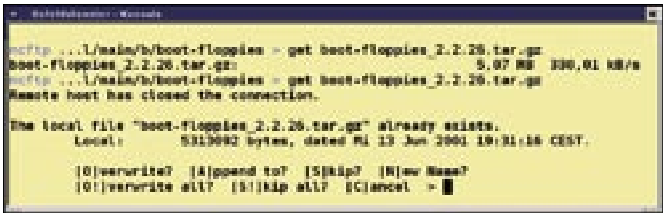
NcFTP has another practical feature – the ability to restart cancelled downloads. When you run *get* against a file that already exists on your local machine, NcFTP prompts you that *The local file filename already exists.*

The FTP client then outputs the file size and timestamp, details for the local and (assuming the files are different) remote files.

The program then asks you what to do next. As you can see from Figure 3, users

### Listing 2: Opening a connection

```
huhn@asteroid:~$ ncftp
Ncftp 3.1.8 (Jul 27, 2004) by ↩
Mike Gleason
(http://www.Ncftp.com/contact/).
ncftp> open ftp.debian.org
Connecting to 128.101.240.212...
saens.debian.org FTP server ↩
(vsftpd)
Logging in...
```



```
ncftp ...l/main/b/boot-floppies > get boot-floppies_2.2.26.tar.gz
boot-floppies_2.2.26.tar.gz:                          5.07 MB  330.01 kB/s
ncftp ...l/main/b/boot-floppies > get boot-floppies_2.2.26.tar.gz
Remote host has closed the connection.

The local file "boot-floppies_2.2.26.tar.gz" already exists.
        Local:      5313092 bytes, dated Mi 13 Jun 2001 19:31:16 CEST.

        [O]verwrite?  [A]ppend to?  [S]kip?  [N]ew Name?
        [O!]verwrite all?  [S!]kip all?  [C]ancel  >
```

**Figure 3: If you attempt to download a file that already exists locally, NcFTP will ask you for your next step.**

have a number of options at this point:

- *o* – Overwrite the local file.
- *r* – Restart a cancelled download.
- *a* – Append the file from the FTP server to the local file.
- *s* – Cancel the connection.
- *n* – Store the file under a new name.
- *o!* – Overwrite all local counterparts on downloading.
- *r!* – Continue file transfer for all files.
- *s!* or *c* – Cancel the action for all processes.

## NcFTP: Flexible

Just like the *ls*, *get* has a number of options with additional features. To transfer a whole folder recursively (that is, including all of its files and subdirectories), do this:

```
ncftp> get -R directory
```

Additionally, *get* has a parameter that lets users store a file under a different name. The following command:

```
ncftp> get -z README README.TXT
```

will store the *README* file as *README.TXT* locally.

Also, *get* has another very practical feature, especially for text files: by default, NcFTP will use binary transfer mode (meaning, it will not change the file content when transferring files). If the file is an ASCII file with different end of line characters for editors on different platforms, the following command:

```
ncftp> get -a file.txt
```

will tell NcFTP to download the file in ASCII mode. To change to ASCII mode permanently, run the *type* command:

```
ncftp> type ascii
ncftp> type
Type is A (ASCII).
ncftp> type binary
ncftp> type
Type is I (binary/image).
```

As you can see, *type* not only toggles modes, but shows you the current mode.

Finally, the *get* command has a *-f* parameter that tells the client to overwrite existing files, without prompting you to append, restart the download, or anything like that.

## NcFTP: Background

Some NcFTP commands automatically run client actions as background processes. Using the *bgget*, *bgput*, and *bgstart* commands gives you the advantage of immediately freeing the FTP client prompt for more input.

You first must tell the program the transfer direction and the source data by running the *bgget* or *bgput* command (Listing 3). Again, running the *(bg)put* command assumes write privileges on the server.

The *jobs* command displays the transfer jobs waiting in the spooler. You can start transferring by entering *bgstart*. NcFTP will then process the jobs in the background (even after you quit the program), and store the results in a logfile:

```
Watch the "/home/huhn/.ncftp/spool/log" file to see how it is progressing.
```

*tail -f* is a very useful way of monitoring the logfile, because it will update the display whenever the file changes.

### Listing 3: bgget

```
ncftp ...e/pool/main/m/man2html >  bgget *.deb
  + Spooled: get man2html_1.5-23.1_alpha.deb
  + Spooled: get man2html_1.5-23.1_arm.deb
  + Spooled: get man2html_1.5-23.1_i386.deb
  + Spooled: get man2html_1.5-23.1_m68k.deb
  + Spooled: get man2html_1.5-23.1_powerpc.deb
  + Spooled: get man2html_1.5-23.1_sparc.deb
```

This lets you monitor NcFTP's progress without needing to run the *less* or *more* pagers multiple times.

## NcFTP: Bookmarks

To avoid typing, or to jog your memory, you can use bookmarks in NcFTP. To do so, type *bookmark* during a session, and press [Enter] to confirm the name suggested by NcFTP, or enter your choice of name for the bookmark:

```
ncftp> bookmark
Enter a name for this bookmark, or hit enter for "debian": debiantest
Bookmark "debiantest" saved.
```

The NcFTP client also lets you store a bookmark when you type *close* or *quit*. In fact, NcFTP will even support password-protected accounts, storing your (encrypted) credentials below your home directory in *.ncftp/bookmarks*.

The next time you open the same connection, just type *open* and pass in the bookmark name. Alternatively, type *open* and press [Enter] to display a list of bookmarks. Incidentally, the *bookmarks* command will also output an overview.

In this view, the FTP client even gives you a simple editor that you can use to edit your bookmarks:

- [Enter] – Open a connection to the specified address.
- */ed* – Edit the specified entry.
- */del* – Delete the bookmark.
- */dup* – Copy the bookmark.
- */new* – Add a bookmark.

When you are done editing your bookmarks, you can press [X] to quit the bookmark editor. ■

### INFO

[1] NcFTP website: *http://www.ncftp.com*

### THE AUTHOR

Heike Jurzik studied German, Computer Science and English at the University of Cologne, Germany. She discovered Linux in 1996 and has been fascinated with the scope of the Linux command line ever since. In her leisure time, you might find Heike hanging out at Irish folk sessions or visiting Ireland.