

SwiftLink-232 File Transfer Program

Documentation

Introduction

To use *SwiftLink-232* to talk to or exchange files with another computer, you need a terminal program running on your C-64 or C-128. Most terminal programs are designed to connect to a remote machine through a modem. They often provide automatic dialing and other modem-specific functions. They may include memory buffers, several protocols for uploading (sending) and downloading (receiving) files, and disk drive functions. Several excellent terminal programs are provided on the disks accompanying your *SwiftLink-232*.

The *SwiftLink-232 File Transfer Program (FTP)* is a “bare bones” utility, provided primarily for “null modem” transfers between your C-64/128 and another computer with an RS-232 port. Other terminal programs will also work for null modem transfers and may have other features you find useful.

Note: When using *FTP*, the terminal program on the other computer should have communication parameters of:

- 8 data bits
- 1 stop bit
- no parity

Null Modem Transfers

Using a null modem cable is the fastest, easiest way to move files between two different types of computers that can't read each other's floppy disks. Usually the files you'll want to transfer are data files, such as word processor documents. A null modem connection allows you to move a document written on an MS-DOS or CP/M computer directly to your C-64/128 where you can import it into your word processor.

It's also possible to transfer programs by null modem. But, programs from non-Commodore machines won't run on your C-64/128. C-64/128 programs won't work on other machines, either.

For more information on null-modem transfers, consult the *SwiftLink-232 Serial Cartridge Instructions*. Dr. Evil Labs can also provide in-depth information on null-modem cables—contact us for details.

Loading *FTP*

FTP is designed to operate on a C-64 or a C-128 operating in C-64 mode. If you have a C-128, first switch to C-64 mode by typing:

```
GO 64
```

and pressing <Return>.

Place the disk with *FTP* in your disk drive and type:

```
LOAD "SWIFTLINK FTP", 8
```

and press <Return>. If you want to load *FTP* from a different disk device, use that device number instead of “8”. You should see the following messages appear on your screen:

```
SEARCHING FOR SWIFTLINK FTP  
LOADING  
READY.
```

If you get an error message instead, make sure you have the right disk and the right device number in your load command. Also, check the spelling of the filename. When *FTP* is successfully loaded, type

RUN

and press <Return> to start the program.

Using *FTP*

The information in this section is presented in order according to each of the options listed on the Main Menu.

Terminal Mode

FTP is designed for null modem transfers and is not intended as a full-function terminal program. While *FTP* does work with a modem, the “T” option is provided mainly so you can verify that you’re properly connected with the other computer. To enter terminal mode from the Main Menu, press <T>. You next see a message indicating that you’re in terminal mode and a reminder about the special functions of the <F1> and <F7> keys. There are four special keys in terminal mode:

- <F1> *FTP* defaults to “local echo on” in terminal mode. This allows you to see the characters you send to the other computer. The terminal program in the other computer may also echo the characters you type back to your screen. If each character appears twice, turn local echo off by pressing the <F1> key. Pressing <F1> again toggles local echo on.
- <F3> You may want to use terminal mode to view information displayed by the other computer. Often, especially at high baud rates, the information scrolls off your screen before you can read it. Conventional computer terminals use the <Ctrl-S> key combination to tell the other computer to pause while you read what’s displayed on your screen. But, Commodore has special uses for the <Ctrl> key that make it hard to send a <Ctrl-S>. Instead, we use the <F3> key to send the pause code.
- <F5> If you use <F3> to send a pause command to the other computer, you need a way to tell it to start sending again. Computer terminals use the <Ctrl-Q> combination to do this. But, again, Commodore’s special use of the <Ctrl> key makes this difficult. Pressing the <F5> key sends the resume code to the other computer.
- <F7> Pressing <F7> exits terminal mode and returns you to the Main Menu.

Receive ASCII File

Most terminal programs have an option called “ASCII”, “Stream”, or “Raw” transfer. This is the fastest way to send text (7-bit ASCII) data because it does not use a “protocol”.

Protocols were developed to verify that the data sent had been received correctly. Using phone lines, noise can often interfere with data transmission, causing errors. Left undetected, these errors cause serious problems in program (8-bit binary) files. They’re often just inconvenient in text files, showing up as misspelled words. These errors can be more serious if they change numbers such as dollar amounts, however!

Using a null modem cable, line noise is rarely a problem. So, a protocol usually is not required for error-free transmission. For files of reasonable length that contain only text characters, ASCII transmission is fast and reliable.

Note: *FTP* uses a 46,000 byte buffer for receiving files in ASCII file mode. If the file you want to receive is larger than 46,000 bytes (characters), use the “Download - Xmodem” option instead.

To receive a file with the ASCII method, press <R> from the *FTP* Main Menu. You are asked for a filename to use for the received file. Enter any legal Commodore file name and press <Return>.

Next, *FTP* asks if this should be a SEQuential or PRoGram file. Most word processors use SEQ files. But, yours may expect a PRG file instead. Press either <S> or <P> to select the file type.

FTP then asks if you want to translate the file to PETSCII as it's received from the other computer. Most computers store character files using "True ASCII" codes. Commodore uses a slightly different code system called "PET ASCII" or "PETSCII" (the first Commodore computer was called the Personal Electronic Transactor, or "PET", hence the name of the code system).

Your word processor probably expects PETSCII, so press <Y> for "Yes". If the received file has upper and lower case reversed, or some letters are graphic characters, try receiving the file again and answer <N> for "No" instead.

Note: Some Commodore word processors, such as *SpeedScript*, use the "screen code" system rather than PETSCII for storing files. They usually provide a way to "import" PETSCII files with either a menu option or a special utility program. Check your word processor documentation for more information.

Once you have answered the above questions, *FTP* prints:

```
Working .
```

and waits for the other computer to start sending the file. At this point, initiate the transfer from the other computer. As each block of 256 characters is received, *FTP* prints another "." on the screen.

The other computer's terminal program should tell you when the file transfer is complete. Press <F7> on the C-64/128 to store the file.

If there's a disk error, *FTP* displays the error message and gives you the option to try saving the file again or return to the Main Menu. To go back to the Main Menu without saving the received file, press <F7>.

To try saving the file again, press any key except <F7>—the space bar, for example. You are asked for the filename and file type again. If the error message was "File exists", just use a different file name. If the disk was full, insert a different disk before continuing.

Once the received file has been successfully saved on disk, *FTP* returns to the Main Menu.

Note: If you try to receive a file larger than 46,000 characters, *FTP* prints an error message. You can either return to the Main Menu by pressing <F7> or save the part of the file already received by pressing any other key except <F7>. It is best to use the "Download - Xmodem" option for files larger than 46,000 characters.

Send ASCII File

First, set up the terminal program on the other computer to receive a file by the ASCII method. Then, press <S> from the *FTP* Main Menu to send a file to the other computer using ASCII transmission. (See the "Receive ASCII File" section for more information on ASCII transmission.)

FTP first asks you for the name of the file you want to send to the other computer. *FTP* then asks if this is a SEQuential or PRoGram type file. Press <S> or <P> to indicate the file type.

Next, *FTP* asks if you want the file translated to "True ASCII" as it's sent to the other computer. In most cases, you'll want to translate the file. Press <Y> for "Yes". If you think the file is already in true ASCII, press <N> for "No". (See the "Receive ASCII File" section for more information on true ASCII.)

FTP then tries to open the file on your disk. If there's a disk error, *FTP* displays the error message and gives you the option of trying a different filename/disk or returning to the Main Menu. To go back to the Main Menu, press <F7>.

If you press any key except <F7>, you are asked for the filename and file type again. Once *FTP* finds the file on your disk, it prints:

```
Working .
```

and begins sending the file to the other computer. As each block of 256 characters is transmitted, *FTP* prints another "." on the screen.

When the file has been sent to the other computer, *FTP* prints a message to that effect on your screen. Press any key to return to the Main Menu.

If *FTP* encounters a disk error when it tries to send the file, it prints an error message. Pressing any key returns you to the Main Menu.

Note: *FTP* does not use a memory buffer to send ASCII files, so the 46,000 character limit does not apply to sending files.

Download - Xmodem

Xmodem is a file transfer protocol system developed to send files over regular phone lines. Noise on phone lines may garble data as it's transmitted. Protocols, such as Xmodem, check packets or blocks of data as they're transmitted. A code is exchanged between the computers after each packet or block that verifies the data. If errors occurred, the packet is sent again.

The verification check increases transmission time. Since null modem cables seldom produce errors, Xmodem protocol isn't required unless you're transferring binary (non-text) or very large (over 46,000 characters) files. For most text files, use the "Receive ASCII File" option.

To receive a file with the Xmodem protocol, press <D> on your C-64/128 to select the "Download - Xmodem" option. Terminal programs on other computers may "time out" if the transfer does not start within a specified time, so we start things on the receive end first.

When you select the "Download - Xmodem" option, *FTP* asks you for a filename to use for the downloaded file. Enter any legal Commodore file name and press <Return>.

Next, *FTP* asks if this should be a SEQuential or PRoGram file. Most word processors use SEQ files. But, yours may expect a PRG file instead. Press either <S> or <P> to select the file type.

FTP then asks if you want to translate the file to PETSCII as it's received from the other computer. See the "Receive ASCII File" section for information on PETSCII translation. Press <Y> to translate the file or <N> for no translation.

FTP then tries to create the file on your disk. If there's a disk error, *FTP* displays the error message and gives you the option of trying a different filename/disk or returning to the Main Menu. To go back to the Main Menu, press <F7>.

If you press any key except <F7>, you are asked for the filename and file type again. If the error message was "File exists", just use a different filename. If the disk was full, insert a different disk before continuing.

After the file is successfully created, *FTP* prints:

```
Working .
```

and waits for the other computer to start sending the file. At this point, initiate the transfer from the other computer. Be sure you specify "Checksum" rather than "CRC" Xmodem protocol. As each block of 128 characters is received, *FTP* prints another "." on the screen. If an error is detected, *FTP* prints a "*" and asks the other computer to resend the block.

When the transfer is complete, *FTP* closes the disk file and returns you to the Main Menu.

Upload - Xmodem

The ASCII transfer system will not work for "binary" files (files which contain non-text data). For these files, use the "Upload - Xmodem" option. (See the "Download - Xmodem" section for more information on the Xmodem protocol.)

First, set up the other computer's terminal program to receive the file using Xmodem protocol. Most terminal programs have the Xmodem option for downloading and uploading files. *FTP* uses the "Checksum" Xmodem

protocol. The other computer may also have the Xmodem “CRC” (Cyclical Redundancy Check) option. Be sure you specify “Checksum” rather than “CRC” Xmodem protocol.

Once the other computer is ready, press <U> on your C-64/128 to select the “Upload - Xmodem” option. When you select the “Upload - Xmodem” option, *FTP* first asks you for the name of the file to upload. Next, *FTP* asks for the file type: SEQuential or PRoGram. Press either <S> or <P> to select the file type.

FTP then asks if you want to translate the file to true ASCII as it’s uploaded to the other computer. See the “Receive ASCII File” section for information on PETSCII to true ASCII translation. Press <Y> to translate the file or <N> for no translation.

FTP then tries to open the file on your disk. If there’s a disk error, *FTP* displays the error message and gives you the option of trying a different filename/disk or returning to the Main Menu. To go back to the Main Menu, press <F7>.

If you press any key except <F7>, you are asked for the filename/file type again. Once *FTP* finds the file on your disk, it prints:

```
Working .
```

and begins uploading the file. As each block of 128 characters is successfully transmitted, *FTP* prints another “. ” on the screen. If an error is detected, *FTP* prints a “*” and resends the block.

When the transfer is complete, *FTP* closes the disk file and returns you to the Main Menu.

Change Baud Rate

FTP displays the baud rate at the top right of the Main Menu screen. The baud rate selected for *FTP* and the baud rate used by the other computer must be the same or you won’t be able to transfer files.

To verify that the baud rates are correct, go to terminal mode by pressing <T> and then type a few characters on each computer. If the characters are displayed properly, the baud rates are the same.

In general, you should use the highest baud rate available to both machines. Many non-Commodore computers can operate at 9600 baud, the default rate for *FTP*. Some can use 19.2K baud or 38.4K baud. *FTP* supports these higher rates also, as well as lower baud rates.

To change the baud rate used by *FTP*, press . You are given a selection of seven baud rates, labeled “A” through “G”. Press the letter corresponding to the baud rate you want to use.

You are returned to the Main Menu with the new baud rate in effect. **Note:** To make a new version of *FTP* with a different default baud rate, see the “Changing the Default Baud Rate” section.

Change Disk Device Number

FTP defaults to the device number from which it was loaded. This is usually device 8. If you want to change the device which *FTP* uses for sending and receiving files, press <N> from the Main Menu.

You are given a menu of eight device numbers ranging from 8 through 15. Press the letter, “A” through “H”, that corresponds to the device number you want to use.

You are returned to the Main Menu with the new device number in effect. **Note:** If you have a device that you want to use for file transfers which isn’t on the list, copy *FTP* to that device. Then load that copy of the program. That device will be the default when the program is run.

Quit

To exit from *FTP*, press <Q>. The computer resets to clear memory. If you want to run *FTP* again, you will have to re-load it.

Changing the Default Baud Rate

FTP uses 9600 baud as its default baud rate. If you usually use a different rate, you can make a copy of *FTP* with a new default.

First make a copy of *FTP* using any program-copying utility. If you don't have a file copier, you can make a copy by loading *FTP* from the original disk and then saving it onto a freshly-formatted disk.

Be sure the disk with the copy of *FTP* is in your disk drive, then load the copy. Do not run it. Instead, POKE location 2228 with the default baud rate you wish to use, according to the table below:

0	=	300 baud
1	=	1200 baud
2	=	2400 baud
3	=	4800 baud
4	=	9600 baud
5	=	19,200 baud
6	=	38,400 baud

For example, to change the default baud rate to 19.2K baud, type:

```
POKE 2228,5
```

and press <Return>. Be sure to save the altered copy (but not to your original disk)!

Changing the Cartridge Base Address

FTP expects your *SwiftLink-232* cartridge to have a base address of \$DE00 in memory. All *SwiftLink-232* cartridges are normally shipped with this as the base address. If you have requested a special setup or have modified the cartridge for use at another location, you can tell *FTP* where to look for the cartridge. The other two possible base addresses are \$DF00 (C-64 or C-128) and \$D700 (C-128 only). To change the base address, first make a copy of *FTP* using any program-copying utility. If you don't have a file copier, you can make a copy by loading *FTP* from the original disk and then saving it onto a freshly-formatted disk.

Be sure the disk with the copy of *FTP* is in your disk drive, then load the copy. Do not run it. Instead, POKE 3917 with the high byte of the new base address. For example, to change the base address to \$DF00, type:

```
POKE 3917,223 ($DF = 223)
```

and press <Return>. Be sure to save the altered copy (but not to your original disk)!