Antic Software presents

SHADOW™

by Double Click Software

From Antic Publishing, Inc.
An Information Technology Company

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INTRODUCING SHADOW

SHADOW is the most powerful background file transfer facility available for the Atari ST family. Combined, the SHADOW program and desk accessory let you upload and download files, and dial through your modem, *all* during the execution of any other program, regardless of whether the program uses GEM. You will never notice a system slow down with SHADOW, no matter what baud you are using. And SHADOW's exclusive reset-proof transfer allows you to reset your Atari without interrupting your upload or download.

This manual will familiarize you with all the options available through the SHADOW accessory and the SHADOW handler/program. And, for you programmers, a special appendix has been added describing the method used for accessing SHADOW routines from within programs you write.

Getting Started

On your SHADOW disk, you will find the two files necessary to operate SHADOW:

SHADOW.PRG – Installs the file transfer routines into memory.
SHADOW.ACC – Allows access to SHADOW file transfer routines.

You may also find a file labeled README. Please look at this before proceeding. It may contain important information regarding changes that were made to the program since this printed documentation went to press.

BACK UP YOUR DISK BEFORE GOING ANY FURTHER! SHADOW is not copy protected, so you can copy the necessary files to any floppy disk, or hard disk. For starters, we suggest you first make a direct disk copy (see your Atari Owner's Manual for instructions), then store your original disk in a safe place.

NOTE: Any updates or upgrades of the SHADOW program will require the original disk as proof of purchase.

Now that you're working with a copy, you can transfer the files you actually need to operate SHADOW. If you're working with floppy drives, we'll assume, for this manual, that drive A: is your boot drive; if you're using a hard disk with autoboot software, when you see the term "boot disk," pretend we're talking about your boot partition (usually C:).

All right! If you don't already have an AUTO folder on your boot disk, create one by making sure your boot disk is the open, active window on the desktop;

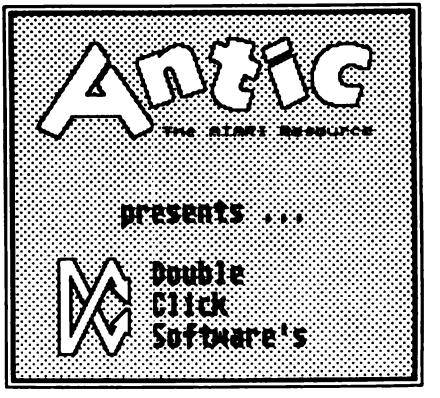
selecting New Folder from the File menu, typing AUTO in the Name field, and pressing [Return].

Drag the SHADOW.PRG file into the AUTO folder, and place the SHADOW.ACC file on the root directory of your boot disk. You're all set to go. We're going to step through a quick download session with SHADOW, ignoring for now such details as memory configuration, etc.

NOTE: SHADOW uses 100K of memory for buffer space as a default configuration. Keep this in mind if you own a 1/2-megabyte machine and want to run a large program while transferring files. Buffer space may be configured to any size, as described later in the manual.

NOTE: SHADOW works with most memory-resident software (with the exceptions noted either in this manual, or on the README file on your disk). But, while trying SHADOW for the first time, we suggest you remove all desk accessories and AUTO programs (except for SHADOW's, of course). After you feel comfortable operating SHADOW, go ahead and reinstall all your favorite utilities. If you do run into program conflicts, you'll now have a better idea of which program may be causing a problem. And if you find a program conflicting with SHADOW, please let us know immediately.

SHADOW TUTORIAL



Now that the two SHADOW files are in the right place, turn your computer power off, then back on to reboot your computer and install the SHADOW programs in memory. As your Atari comes up to speed, a very brief message will flash on the screen saying, "SHADOW (c) 1988 Double Click Software. SHADOW Driver 1.0 Initializing," before SHADOW reboots your computer.

After the second boot, a message will appear saying, "SHADOW Driver 1.0 INSTALLED," followed by the appearance of the GEM desktop.

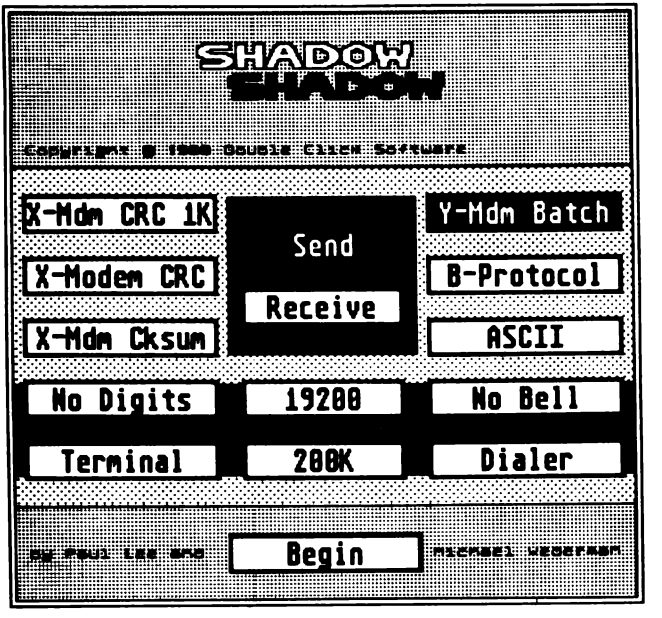
NOTE: There are actually three different methods of installing desk accessories in ST memory: reset, reboot, and resolution change. For purposes of this manual, a "reboot" means turning off your computer's power, then turning it back on. (If you have one-megabyte or more of memory, you should wait approximately 14 seconds before turning power back on to insure that all of memory has been cleared.) A reboot is known as a "cold start." On the other hand, when you press the reset button or change resolutions you perform a "warm start," which leaves information in some of memory. Be aware of the difference as you read through the SHADOW manual. (Although a warm start accomplished by a system-reset is actually different than one accomplished by a resolution change, for our purposes they are the same.) Sometimes you need to reboot for a cold start to clear out all the cobwebs, elsewhere a reset will do the job. Also, SHADOW can survive either form of warm start, but nothing can survive a cold start.

SHADOW's Built-In Terminal

SHADOW may be used from any terminal program (and FLASH v.1.6 doesn't even need the SHADOW.ACC program). For the sake of an introductory demonstration, we'll use SHADOW's built-in terminal and dialer. Turn on your modem, in the following example we'll log on to CompuServe and download a file. (Don't worry if you don't have a CompuServe account. The following instructions can be applied to any remote terminal, including a neighbor's computer.)

Select SHADOW from the Desk menu: a title box appears. This box will only appear the first time you use SHADOW after reboot or reset. Click the right mouse button, or press [Undo], to move to the SHADOW main menu.

NOTE: Whenever using SHADOW, the right mouse button is used to exit whatever dialog box you are in. If you get lost, just continue to click the right mouse button until you're back in familiar territory.

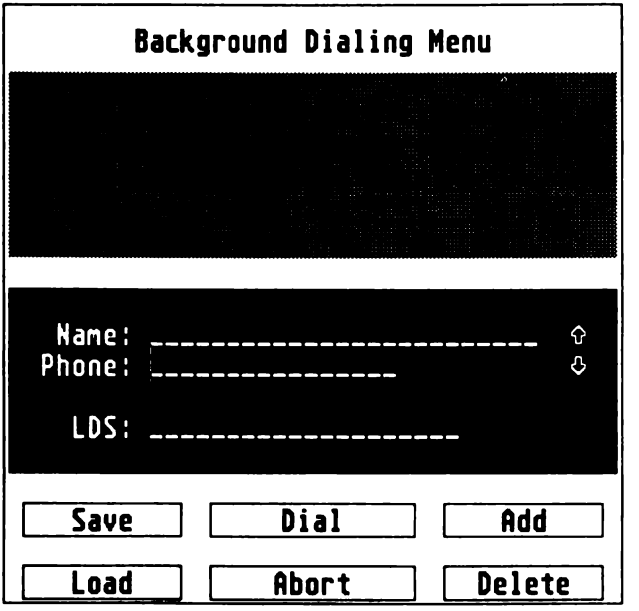


There are various options available here. For the sake of our example click on Receive, if it is not already highlighted, then choose the file transfer protocol you like (such as X-Modem CRC for CompuServe). The baud rate is displayed in the button below the Receive button. If it does not show your modem's rate, click on the button until it does. (Or, alternately, press the up and down cursor arrows.)

Now, click on Terminal and you will be presented with the SHADOW terminal screen. At the bottom of the screen are the displayed the SHADOW title and version number; either Full or Half duplex; either Snd CR or Snd CR/LF (Send Carriage Return, or Carriage Return and Line Feed); and the current file transfer protocol. Function key [F1] will toggle the duplex parameter, [F2] will toggle the end-of-line mode, [F3] will abort a file transfer, and [F4] through [F9] will select the various transfer protocols. [F10] will clear the terminal screen, restore the default colors (if changed), and reset the RS232 port.

Logging On

At this point, you may simply log on by typing directly on the terminal screen, or you may use the SHADOW Background Dialer. (If you type to the screen and nothing appears, press [F1] to change the duplex setting.) To use the dialer, click the left mouse button from the terminal. A dialog box will appear labeled "Background Dialing Menu."



You may type your number directly into the Phone field or, if you have a FLASH .DIR directory file, you may loaded it from disk by clicking on Load. (After loading the FLASH .DIR file, a message will appear which you may ignore for now by clicking the right mouse button.) Once the FLASH directory file is loaded, you may scroll through the available entries by clicking on the up

or down arrows. If you require special long-distance coding, enter it in the LDS field.

To use the dialing menu, you must also include the modem prefix information in the top area of the Background Dialing Menu. Move the cursor (using either the mouse or the cursor arrows) to the Modem Prefix area and type ATDT. Press [Return], and enter the next three fields depending on your needs. (They might typically be: CONNECT, NO CARRIER, and BUSY.)

When you have everything the way you want it, click on Save to store your dialing information, including the modem prefix data, on disk.

To actually dial the number, simply click on Dial. The terminal screen will reappear, and the number will be dialed. Once you get a connect, follow whatever procedures are necessary for your particular remote terminal. (With Compuserve, you press [Control]-[C], then proceed with the log-on prompts.)

Downloading

Downloading any file will depend upon the terminal you're connected with. If you were on CompuServe, you might go to the SIG*Atari, select Data Library 13, and download a CYBER animation. After you found the file you wanted (for this example it should be under 100K in size), you would type DOW (for download). One of the CompuServe prompts would ask you which transfer protocol you wanted, at which point you would chose XModem CRC (if this was the setting in the SHADOW box). Sooner or later, CompuServe would tell you that it was "sending the file..." This is the point you've been waiting for!

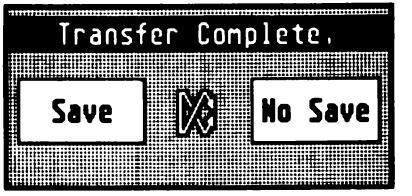
As soon as the remote terminal tells you it is sending, you can receive by simply clicking the right mouse button, then clicking on Begin in the Shadow main-menu dialog box. Even easier would be to press [Alternate]-[R] (for Receive) from the SHADOW terminal screen.

At this point, SHADOW will automatically begin transferring the incoming file into a special buffer in memory called the File Transfer Buffer (described in detail later in this manual). The transferred blocks will be displayed in the upper-right corner of the screen.

All in the Background...

Now that the transfer is taking place, you can do anything short of turning off your computer's power. You may exit the SHADOW terminal by clicking the right mouse button. A special box will appear displaying the transfer protocol, the current block being transferred, and a button labeled "Abort." This same box will appear if you select SHADOW from the Desk menu anytime during the transfer. Right-click again to exit this box, or press [T] to reenter the terminal screen.

During file transfer, you may run other programs, switch resolution, press the system reset button (yes, really!), use disk I/O in other programs, print to the printer, etc., etc. Go ahead, try it!



When the transfer is complete, the console bell will chime (assuming your monitor volume is turned up), and the countdown numbers will no longer be displayed at the top of the screen. Now, when you select SHADOW from the Desk menu, a special box simply says: Transfer Completed, Save or No Save. Click on Save, and a file selector box will appear. Select any path, type in a filename for your downloaded file, and press [Return]. Your downloaded file will be transferred from the File Transfer Buffer to the chosen drive.

If you had chosen No Save, you would have been prompted to make sure you really wanted to not save the buffer. If you chose to proceed, the buffer contents would be erased.

When the Transfer Completed box appears, you may avoid making any decision, by clicking the right mouse button; the box will go away. However, until you make a decision, every time you select SHADOW from the Desk menu you will get the Transfer Completed box.

Once you have decided to either Save or No Save, and have finished with the file selector (if you have Saved), you will be returned to the main SHADOW menu. From here, you may return to the terminal and continue your online session, download another file, or you may click the right mouse button to exit back to the desktop.

You now have an idea of how to use SHADOW at its basic level. The remainder of this manual will introduce you to all of SHADOW's powerful functions, including how to use it with FLASH v. 1.6.

SHADOW REFERENCE GUIDE

Memory Configuration

SHADOW consists of two programs (SHADOW.PRG and SHADOW.ACC) which together permit you to transfer files, by modem, transparently. A "transparent" file transfer means that, once the transfer has begun, you may ignore it and use your computer for other things. While SHADOW transfers your files, you may run other programs, change resolution, or even press the system reset button – all without losing the transferred information.

At bootup, SHADOW reserves an area of memory, called the *File Transfer Buffer*, into which files are moved during a background download (receive), and out of which files are moved during a background upload (send). The default setting of the File Transfer Buffer is 100K, but can be reconfigured to any size, depending on available memory.

In a download transfer, the file (or files) is sent from the source to the File Transfer Buffer. Before you may download another file, or before you turn off

your computer's power, you must, at some point, move the file(s) from the File Transfer Buffer to disk.

In an upload transfer, the file (or files) is first moved from disk to the File Transfer Buffer. Once it is in the File Transfer Buffer and has begun its transfer to the remote terminal, you may exit SHADOW, and perform any other computer duties, with the exception of turning the power off.

As you can see, the File Transfer Buffer must be large enough to contain whatever data is being transferred during a single download or upload. Aside from the default bootup setting of 100K, there are three methods of configuring the File Transfer Buffer.

RAMdisk Installation Configuration

One method of configuring the File Transfer Buffer is to install a new drive on the desktop, include configuration code in its Icon Label Field, then save the desktop. All subsequent cold starts will retrieve your configuration information from the DESKTOP.INF file.

Since SHADOW must remain reset-proof, we have included a special reset-proof RAMdisk within the SHADOW code. It is this RAMdisk icon that you install on the desktop to help configure your File Transfer Buffer. While you're at it, you may configure the size of your SHADOW RAMdisk (should you decide to use it.).

WARNING: Other reset-proof RAMdisks will not work properly with SHADOW. If you need a RAMdisk, please use the SHADOW RAMdisk provided.

In order to configure your two memory areas (File Transfer Buffer and SHADOW RAMdisk), you must first decide:

- What size file buffer you want.
- What size RAMdisk you want.
- On which drive you want your RAMdisk to be.

After you have decided on the above information, here's how to establish your desktop RAMdisk drive icon.

1. Select, and highlight any drive icon from the desktop by clicking on the icon once.

2. Select Install Drive from the Option menu.

3. In the Install Disk Drive dialog box, type the letter you want for your RAMdisk into the Drive Identifier field. (You can have from A-Z disk drives, but be careful, drive c: (lowercase) is for the cartridge port.)

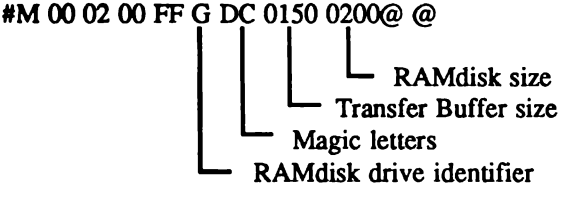
4. Press [Tab] to move to the Drive Label field. (Here is where you enter the configuration information.) Type the letters "dc" (upper- or lower-case), followed by a space. Next, enter four digits representing the size of your File Transfer Buffer in kilobytes (including leading zeroes). Add one more space and, finally, type in four more digits representing the size of your RAMdisk in kilobytes (including leading zeroes). For example, to tell SHADOW you want a File Transfer Buffer of 150 kilobytes and a RAMdisk of size 200 kilobytes, you would enter **DC 0150 0200** in the Drive Label field. This will completely fill the line. If your information does not resemble the example, SHADOW will generate an error.

5. Next, click on Install to put the RAMdisk icon onto the desktop. Below the icon, you can see displayed the sizes you have chosen for the File Transfer Buffer and the RAMdisk.

NOTE: Make sure you click on Install to exit the Install Drive dialog, above. If you simply press [Return], you will be returned to the desktop and no changes will have been made.

6. Assuming the sizes are what you want, you can create a DESKTOP.INF file by selecting Save Desktop from under the Options menu. *If you do not save the desktop, all configuration settings will be lost on reset or bootup!*

On bootup, SHADOW looks for the DESKTOP.INF file. If the file is located, SHADOW will look for the magic letters 'DC.' Once the letters are located, SHADOW uses the information on that line in the DESKTOP.INF file to determine the size of both the File Transfer Buffer and the RAMdisk, as well as the RAMdisk drive identifier. Here is what the line would look like in the DESKTOP.INF file:



In addition to reading buffer and RAMdisk information from DESKTOP.INF, SHADOW will also locate the baud rate in DESKTOP.INF, as you have selected

from the Control Panel desk accessory that came with your ST. This will be used as the default baud rate.

SHADOW.INF Configuration

If you don't want to use RAMdisk installation to set up SHADOW, you can use a text editor to create a simple file called SHADOW.INF which SHADOW reads from the AUTO folder upon bootup.

The SHADOW.INF file contains four pieces of information: the size of the Transfer Buffer, the size of the RAMdisk, the drive identifier of the RAMdisk, and the file transfer protocol and direction. Each parameter is placed on a separate line:

```
0100
0200
G
YS
```

The first line is the Transfer Buffer size in kilobytes; the second is the RAMdisk size in kilobytes; the third is the RAMdisk drive identifier; and the fourth contains one letter representing the transfer protocol, and a second letter representing the direction of transfer (in this case: Ymodem Batch, Send).

The numbers for the buffer and RAMdisk size must be four digits with leading zeroes.

The third line may be any legitimate drive path letter. (Avoid lower-case 'c,' which is reserved by the system for cartridges.)

The fourth line is read only by SHADOW.ACC. The two letters may be either upper- or lower-case. The second letter, representing direction, is either 'S' for Send, or 'R' for Receive. The first letter, representing file transfer protocol, is identical with the keyboard alternatives available while in the SHADOW terminal. (See Protocols in the Main Menu section, below.) The available letters are:

K – X-Modem CRC 1K
C – X-Modem CRC
X – X-Modem Checksum
Y – Y-Modem Batch
B – B-Protocol
A – ASCII

Each line of the SHADOW.INF file must start in the very first column, and each line must end with a carriage return/line feed combination directly after the last character. (Make sure you have no trailing spaces!) The carriage return/line feed combination is created when you press the [Return] key in most text editors.

Most word processors may also be used to create the SHADOW.INF file, but you must be sure and save the file in ASCII format. In the case of ST Writer, you should print the file to disk. If you have FLASH, simply create the file in your Capture Buffer editor, then save it to disk. To test the file's format, double-click on it and print it to the screen – it should appear exactly as you typed it in, with no added characters.

After you have created and saved the SHADOW.INF file in a plain ASCII format, copy the file into the AUTO folder on your bootup disk. When you reboot, SHADOW will read the SHADOW.INF file for its configuration information. It's that simple!

NOTE: If both files are available on bootup, SHADOW will use the information in the DESKTOP.INF file (described above), reading only the protocol and direction from the SHADOW.INF file.

Boot-up Configuration

Since part of SHADOW is placed in the AUTO folder, it will be executed every time your computer boots up. The first time SHADOW runs, one of its steps is a search for the DESKTOP.INF and/or SHADOW.INF files containing special configuration information. If, before booting SHADOW, you decide you would like to set up SHADOW in a different way than either .INF file, you can do that:

Hold down the [Control]-[Left Shift] keys when you first turn on your computer's power. When SHADOW runs, the following will appear:

```
SHADOW 1.0 initializing...
Enter buffer size in kbytes ->
```

At this prompt, enter the buffer size you wish, such as 200. Enter 0 (zero) if you don't want a file buffer. You will not be able to transfer files if you choose zero. (If you press just [Return], you will be prompted again.) You will next see the prompt:

```
Enter RAMdisk size in kbytes ->
```

Enter the RAMdisk size, and press [Return]. Enter 0 (zero) if you do not want a RAMdisk. If you enter zero, there will be no further prompts. If you enter a value beyond zero, the next prompt will be:

Enter RAMdisk drive identifier ->

Enter the drive letter you wish the RAMdisk to be (A-Z), and press [Return].

SHADOW will now set up the transfer routines in memory, and reboot the system.

NOTE: Of the three configuration routines, this last method saves nothing to disk, so all its values are lost when your computer's power is turned off. They are maintained, however, through system reset, or resolution change.

In addition to being able to set up the configuration by holding down [Control]-[Left Shift], you can selectively bootup without the Transfer Buffer, without the RAMdisk, or without either one. To do this, hold down one of the following keys while turning on the computer, but before SHADOW runs:

[Left Shift]	Bootup without the Transfer Buffer.
[Control]	Bootup without the RAMdisk.
[Right Shift]	Bootup without the Transfer Buffer or RAMdisk.

SHADOW will display a message to notify you of your configuration.

Booting Up

When SHADOW.PRG executes for the first time, you will first see the message: "SHADOW driver 1.0 Initializing..." At this time, SHADOW is reserving protected memory, and installing the file transfer routines, RAMdisk handler, File Transfer Buffer and/or RAMdisk. (This happens very quickly, the message will flash only briefly on the screen.) When SHADOW is through reserving memory and setting up the routines, the computer will reboot.

After the reboot, you will see the message: "SHADOW driver 1.0 INSTALLED!" From this point, the other AUTO folder programs and desk accessories will be installed. If you press the reset button, only the second SHADOW message will be repeated.

When you first turn ¬n your computer, this is what SHADOW does:

1. Look for the [Control]-[Left Shift] keys being depressed.
2. Look for the [Left Shift] key being depressed.
3. Look for the [Control] key being depressed.
4. Look for the [Right Shift] key being depressed.
5. Look for DESKTOP.INF, if it exists, then
   a. read in the default baud rate, and
   b. look for the magic letters 'DC,' and, if present
   c. read in the information as presented above.
   If DESKTOP.INF does not exist, or does not contain SHADOW information, then

6. SHADOW will look for SHADOW.INF and, if it exists
   a. read in the Transfer Buffer size,
   b. read in the RAMdisk size,
   c. read in the RAMdisk drive identifier,
7. Set up the SHADOW handler, and reset the machine.
8. Run again

If any of the information, in either DESKTOP.INF or SHADOW.INF is bad, SHADOW will prompt you for information. If there is no SHADOW information in the DESKTOP.INF file and no SHADOW.INF file exists, SHADOW will assume a default configuration of a 100K File Transfer Buffer, and no RAMdisk.

Accessing SHADOW

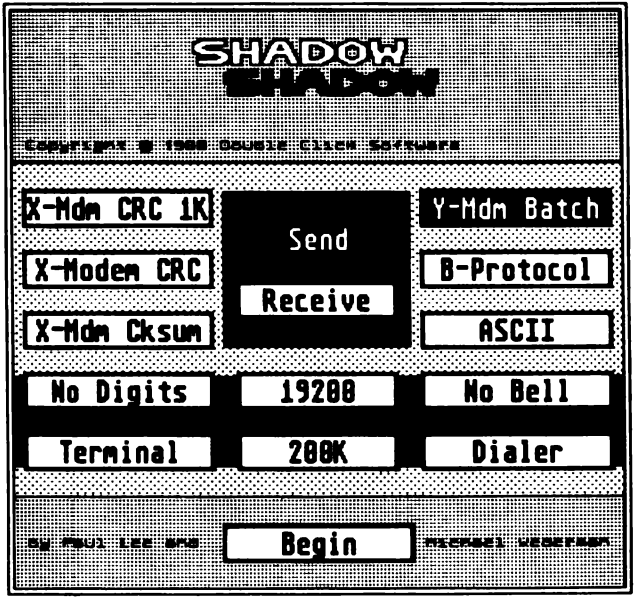
The SHADOW desk accessory (SHADOW.ACC) gives you access to the SHADOW file transfer options, so it must be installed at bootup to successfully use SHADOW. Click on SHADOW in the Desk drop-down menu to access it.

NOTE: If you have not allocated a File Transfer Buffer, when the desktop first appears, the warning: "SHADOW not present!" will appear, and there will be no response when you attempt to activate the SHADOW desk accessory. If the RAMdisk has been allocated, however, it will be available. On the other hand, if you have allocated a Transfer Buffer, but not the RAMdisk, the SHADOW transfer handler will be accessible, but the RAMdisk handler will not. If you allocate neither the Transfer Buffer nor the RAMdisk, no memory is reserved, and no handlers are installed.

When you first run the SHADOW accessory after each bootup, or resolution change, the SHADOW title screen will precede the SHADOW main menu screen. You may exit this screen by clicking the right mouse button.

NOTE: There are no Exit buttons in any of the SHADOW screens. While using the SHADOW accessory, the right mouse button will consistently remove you from the current point in the program. Think of the right button as a "Take no action," or "Get me out of here!" button. The [Undo] key performs the same function.

The Main Menu



The SHADOW main menu offers the following choices:

X-Mdm CRC 1K	(X-Modem CRC 1K)
X-Modem CRC	(X-Modem CRC)
X-Mdm Cksum	(X-Modem Checksum)
Y-Mdm Batch	(Y-Modem Batch)
B-Protocol	
ASCII	
Send	
Receive	
Digits/No Digits	
Bell/No Bell	
Terminal	
Dialer	
Begin	

In addition, the baud rate, and the size of the File Transfer Buffer will be displayed directly under the Receive button.

Protocols

Click on any of the six buttons labeled X-Mdm CRC 1K, X-Modem CRC, X-Mdm Cksum, Y-Mdm Batch, B-Protocol, or ASCII, to select that file transfer protocol for sending or receiving files. (ASCII is not a protocol but a straight file dump or capture.)

NOTE: We have implemented our own version of the system button handler. You will notice that the buttons will automatically be highlighted when you move the mouse over the button. The button will not be selected until you click on the left mouse button.

Alternately, you may select any of the file transfer protocols by depressing a keyboard key. The following keys (upper- or lower-case) will select the indicated protocol:

[K] X-Modem CRC 1K
[C] X-Modem CRC
[X] X-Modem Checksum
[Y] Y-Modem Batch
[B] B-Protocol
[A] ASCII

Send or Receive

You may send files or receive files in any of the above transfer protocols. To select the desired transfer direction, click on either Send or Receive, or press [S] for Send, or [R] for Receive.

Baud Rate

You must set your baud rate to match the remote system in order to communicate or transfer files correctly. If your baud rate is not set correctly, you will see strange or "garbage" characters on the screen when trying to communicate with the remote system.

The SHADOW main menu displays the baud rate directly below the Receive button. If the baud rate is not what you want, you can change it by clicking its button until the desired baud rate appears. The baud rate will increase from 50 to 19200, and will wrap around once the upper limit is reached. You can also select the baud rate by using the up and down cursor arrows on the keyboard. The up arrow will increase the baud value, while the down arrow will decrease the baud value.

SHADOW is the only program we know of that will sense a baud change from another program or from a desk accessory. In other words, you can change the baud rate from the Control Panel desk accessory that came with your Atari, then enter the SHADOW accessory and see the new baud rate displayed. Whenever you save your desktop, the baud rate last set by the Control Panel is saved in the DESKTOP.INF file. It is this file that SHADOW reads at bootup. And SHADOW uses its internal baud-rate-save variable to set the baud rate after warm starts. Thus, during warm starts, the baud rate in the DESKTOP.INF file is ignored. This feature is important. When SHADOW attempts to continue with file transfers that were interrupted due to a warm start, the transfer must be started again at the correct baud rate. (See Reset-Proof File Transfers in the SHADOW Transfer section, below.)

Do not expect other programs or desk accessories to know that the baud rate has changed, if it was changed from within SHADOW. In particular, the Control Panel, if installed, will reset the baud rate to what it was last set to. Other programs, like FLASH, will set the baud rate according to their configuration. Of course, SHADOW will see any baud change and adjust accordingly.

NOTE: You can not alter the baud rate during a file transfer, either in SHADOW or in any other program. The reason for this is to prevent transfer errors caused

by trying to communicate at different baud rates. (Programmers may refer to Appendix A for more on this.)

NOTE: SHADOW will set the default baud rate on a cold boot (when you first turn on the computer), but will set the baud rate on subsequent warm boots (using the reset button) to the last baud rate used. For example, if you turn on the computer and use your modem at 1200 baud, then use it at 2400 baud, then reset the computer, SHADOW will reset the baud rate to 2400 baud when the system comes back up. Be careful of programs, such as the Control Panel, that may change the baud after SHADOW executes.

Starting the Transfer

Once you have selected your file transfer protocol, Send or Receive, and baud rate, you may begin the file transfer at any time by clicking on the Begin button, or pressing [Return]. If you do not wish to start the file transfer, you can click the right mouse button, or press [Undo] to exit the SHADOW main menu and take no action. The SHADOW menu will remain ready, with your choices, until it is selected again from the Desk menu. You can even reset the computer without losing your options.

When you select Begin from the main menu, what happens next will depend on whether you are sending or receiving.

Receiving and Sending Files

If you wish to receive a file, select Begin to immediately begin the receive.

If you are sending a file, click on the Begin button to bring up the system file selector, then select the file(s) you wish to send.

If you are using Y-Modem Batch protocol, you may select up to 32 files to send. For example, after the file selector appears, double-click on a file. The file will be loaded into the file buffer, and the file selector will appear again. If you select another file, the file will be loaded, and the selector will appear again, until you have either reached the maximum of 32 files, or you select the Cancel button from the file selector. When you select Cancel, you signal SHADOW that you are finished selecting files for Y-Modem Batch send.

For any other file transfer protocol, you will only be able to select one file to send.

For any protocol send, if you select a file which is too large for your File Transfer Buffer, you will be alerted that the buffer is too small. If you have selected a file that is zero bytes in size, you will be alerted that the file is zero size, and you will not be able to send the file.

NOTE: To exit from any SHADOW alert box which displays the Double Click Software logo, click the right mouse button or press [Undo].

After you have selected the file(s) to transfer, you will see another dialog box appear asking you to Send or Abort. If you want to begin the file transfer at this time, click on the Send button, or press [S]. If you decide that you do not want to send, click on the Abort button, or press [A]. If you want to take no action and wait to send, click on the right mouse button, or press [Undo].

NOTE: Selecting Abort will cancel the send, and you will have to load your files again.

If you decide to wait, selecting SHADOW again at any time from the Desk menu will present you with the dialog box to Send or Abort. You may choose from these two options, or wait again.

NOTE: You can also go to the terminal from the Send or Abort dialog by pressing [T]. (See The SHADOW Terminal, below.)

NOTE: Because CompuServe's B-Protocol is different than other file transfer methods, you will be presented with different options when sending. After you have selected files to send, a dialog box will ask you whether to go to the Term (terminal) or Abort. Click on the Term button or press [T] to go to the terminal, or click on the Abort button or press [A] to completely abort the send. For a receive you will also be asked to go the Terminal or Abort. B-Protocol transfer is always initiated by the remote end, so you will probably want to go to the terminal to notify the remote end that you are ready to begin. For either send or receive, the file transfer will not begin until the correct starting sequence is received from the remote end. This is different than the other transfer protocols which begin immediately.

The SHADOW Transfer

When the SHADOW transfer begins, the number of the current block being sent or received will appear in the upper right of your screen. This option can be toggled on or off. (See Transfer Options, below.)

During the transfer, you can select SHADOW from the Desk menu for a statu: report. The first line of the dialog box that appears indicates either the file transfer protocol, or the filename for Y-Modem Batch or B-Protocol. The seco line indicates the current transfer block. ASCII send or receive does not have a block number, so the second line indicates whether you are sending or receivin The block number in the dialog box will change during all transfers (except ASCII), as will the filename if you are using Y-Modem Batch. If you wish to cancel the file transfer, you may click on the Abort button or press [A]. If you wish to take no action, click on the right mouse button or press [Undo].

NOTE: To provide uninterrupted transfer, you will not be able to change the baud rate or send out the serial port during either a send or receive operation. Also, you may not change the baud rate or send through the serial port, even from another terminal program. The exception to this is ASCII send or receive, in which you can send and receive characters normally.

Transfer Completion

When you have finished sending or receiving files, you will be notified of the completion by the sounding of a bell. You can toggle this feature on or off. (See Transfer Options, below.) For ASCII receive, you will have to manually abort the transfer, or continue until the File Transfer Buffer is full.

WARNING: Please be aware that the File Transfer Buffer must be large enough to hold the entire file(s) you are downloading. If you do not allow enough room, the transfer will abort with the error message of "Buffer Full." For ASCII download or Y-Modem Batch, you can save files already received. For any othe protocol, you will lose all information received to that point. The current buffer size is displayed on the main menu, below the baud rate.

Once the transfer is complete, you can select SHADOW from the Desk menu for a message of completion. For a send, you will be notified: Send Completed. For a receive, you will be given the choice of Save or No Save. If you want to save the file(s) you have just received, click on the Save button or press [S]. At this point, you will be presented with the system file selector to choose the destination of the save file. If you do not want to save the file(s), click on the No Save button or press [N]. You will be prompted to proceed with the No Save option. *If you chose to proceed with a No Save action, you will lose the file or files that you have downloaded.* If you wish to take no action, click on the right mouse button or press [Undo].

If you are saving a file, or files for either Y-Modem Batch or B-Protocol, the current filename will appear in the file selector. For all other transfer protocols, you may enter any filename you wish for the saved file. Click on OK to save the file. If you click on Cancel in the file selector during a file save, SHADOW will warn you that you are "Cancelling Save." If you wish to cancel the save, thereby permanently losing the file you just downloaded, click on the Okay button or press [O]. If you wish to take no action and go back to the file selector, click on the right mouse button or press [Undo].

Transfer Options

Two file transfer options: Digits and Bell, are available from the main menu. These are both "toggles" and may be either on or off. Digits displays block numbers in the upper right corner of the screen so you may track the progress of the file transfer. Click on the Digits button or press [N] to toggle between Digits and No Digits. No Digits will tell SHADOW not to display the digits during the file transfer.

Bell notifies you of the completion of file transfers (if the monitor volume is turned up), by the sound of a single bell. Click on the Bell button or press [L] to toggle between Bell and No Bell. No Bell will tell SHADOW not to sound the completion bell.

Either one of these options will work during virtually any program you are running. Some games may make the digits flicker. (Usually, because the game is switching between two screens.)

If you decide not to display the block count on the screen and turn off Digits, you can still monitor the block count by selecting SHADOW from the Desk menu. The dialog box that appears will display the current block count. Also, while viewing this dialog box, you may toggle the Digits and Bell options by pressing their keyboard alternates, [N] for digits and [L] for Bell.

Reset-Proof File Transfers

If for any reason you have to press the system reset button during a file transfer (such as in the case of a system crash), when the system comes back up SHADOW will resume the transfer from where it was interrupted. For all transfer protocols, except ASCII, you will lose no data whatsoever. During an ASCII capture, you may lose some characters. All options selected prior to a warm start or system crash will be preserved. (Switching resolutions will continue any tranfers seamlessly.)

NOTE: Some system crashes are not recoverable, and force the system to go through a cold bootup sequence. If this occurs, you will know it by the opening message of "SHADOW 1.0 Initializing..." If this happens, your files and the options set since the last cold boot will all be lost. Luckily, this is a rare occurance, and we have yet to have run into a problem with a straight system-

reset recover. But we do not recommend pressing the system reset button unless necessary. (Or unless you're showing off SHADOW to a friend.)

Floppy disk users need not have any of the SHADOW files present in their drive for a safe file transfer during a system reset. SHADOW will startup automatically by using a reset resident program. However, you will ultimately need the SHADOW.ACC desk accessory to save files after a download completion, and SHADOW.ACC will not be reinstalled unless it is on your boot disk during a reset. No problem, just place the disk containing SHADOW.ACC in your boot drive, and press reset again (or change resolutions). Your SHADOW accessory will be installed without losing any data in the File Transfer Buffer, and you may select the accessory and save the data to disk.

For hard disk users with autoboot software, SHADOW.PRG must execute again to restart the file transfer. This is necessary because the bootup sequence for a hard disk is not the same as for floppies. This should not present a problem since SHADOW.PRG will always be present in the AUTO folder.

NOTE: If you suspect that you will be resetting the computer during a file transfer, be sure to force the DTR (Data Terminal Ready) line to ALWAYS ON on your modem. Otherwise your modem will drop the connection and the file transfer will not be able to resume. Refer to your modem user's manual to determine how to do this.

The SHADOW RAMdisk

SHADOW also features a reset-proof RAMdisk. All your files previously in the RAMdisk will be maintained after a warm start, so you need not worry about losing them either.

[F3] – Abort file transfer

Function key [F3] will abort any file transfer in progress. When you press [F3] you will next be prompted in the status line to enter [Y] to continue the abort, or [N] to forget you even requested it. After a file-transfer abort, any file(s) received during ASCII or Y-Modem Batch receives will be retained in the File Transfer Buffer for saving. Any other protocol will abort and nothing will remain in the File Transfer Buffer for saving.

[F4] to [F9] – Select Transfer Protocol

Pressing one of these functions keys will select a different file protocol. The status line will display the current protocol, and the main menu will reflect the new choice.

[F4] X-Modem Checksum protocol

[F5] X-Modem CRC protocol

[F6] X-Modem CRC 1K protocol

[F7] ASCII

[F8] Y-Modem Batch protocol

[F9] B-Protocol protocol

[F10] – Reset the Terminal

Press [F10] to reset the terminal. The screen will be cleared, the background and foreground color will be restored to the defaults, and the RS232 port will be reset.

[Alternate]-[S] – Send File

Press [Alternate]-[S] to begin a file *send* using the selected protocol. You will be presented with the system file selector to choose the file(s) to send. Once the file(s) is selected, the transfer begins immediately. If you selected B-Protocol, the remote end will have to initiate the start of the transfer. (See The SHADOW Transfer, above.)

[Alternate]-[R] – Receive File

Press [Alternate]-[R] to begin a file *receive* using the selected protocol. If you selected B-Protocol, the remote end will have to initiate the start of the transfer. (See The SHADOW Transfer, above.)

[Clr/Home] – Clear Status Line

Press [Clr/Home] to clear the status line of any messages. If you have a file or files waiting to be saved, this will have no effect.

Left-click – Enter Background Dialer

Click on the left mouse button to bring up the Background Dialer Menu. (See The SHADOW Background Dialer Menu, below.)

Right-click/[Undo] – Exit the Terminal

Click on the right mouse button, or press [Undo] to exit the terminal and return to the main SHADOW menu.

file is not found, you will be alerted that there was "No .MDM File" present. Click the right mouse button to continue. The upper Modem Prefix fields in the Background Dialer Menu will remain unchanged. If there was no previous Modem Prefix information, they will remain empty, otherwise, whatever strings were in those fields will remain in effect.

NOTE: Because the FLASH .DIR files contain no Modem Prefix information, the first time you load a FLASH .DIR file, you will receive a "No .MDM File" message. Ignore it, enter the prefix information yourself, then save the directory (see below), which will create an .MDM file. Subsequent loads of the .DIR file will load the new .MDM file.

To save a dial directory, click on the Save button. When the file selector appears, select a file, or enter a new name. SHADOW will then attempt to create a .DIR and a .MDM file. If SHADOW is unable to create a file, due to a write-protected or a full disk, you will be alerted that SHADOW "Can't Create File."

Click on the up and down arrows, to the right of the Name and Phone fields, to move through the directory entries. Hold the button down to scroll the entries in either direction. When the last entry is displayed, the entries will wrap to the first. Once the entry you wish is displayed, you may Dial, Edit, or Delete that entry.

Adding and Deleting Entries

Entries may be added to the Dialer Menu at any time by first clicking on the Add button. The directory fields will become blank, and you may enter the new information.

The thin-bar cursor may be moved to any field by left-clicking on that field; or it may be moved among the fields by pressing [Return], [Tab], or the up or down cursor-arrow keys.

All new directory entries are added to the end of the current directory list. If SHADOW.DIR was unable to load on bootup, the dial directory will be empty, and your first directory entry will be at the top of the list. The SHADOW directory can contain up to 60 entries; beyond this, you will receive a message that the "Directory is Full."

Name – The Name field may contain up to 25 characters, and is simply a label, or description of the related directory entry and phone number.

Phone – The Phone field may contain up to 16 characters. You may enter any number you wish to dial. In addition, at any point within the Phone field, you may enter the plus sign (+) to insert the LDS string (below). For example, if the LDS code was 12345, and the Phone field contained +67890, the number dialed would be 1234567890. The LDS code will be inserted *anywhere* you place the plus sign. If your Phone field contained 5432+6789, then the dialed number would be 5432123456789.

LDS – The Long DiStance access code. The LDS field may contain 20 characters. Place here any special dialing codes required for long distance, or for special phone service prefixes (such as those used by MCI or Sprint).

You may delete any displayed directory entry by clicking on the Delete button. A dialog box will ask you if you want to delete that entry. Click on Okay, or press [O] if you wish to proceed. Click the right mouse button if you wish to take no action. Once an entry is deleted, it is erased from memory, but still exists in the saved .DIR file. If you wish to make the deletion permanent, you should replace the disk file by saving the directory in memory to the same filename. If there are no entries left to delete, SHADOW will display a "No Entries" message.

NOTE: Although there is no command to erase an entire directory, you may save a blank directory as a file (call it, say, BLANK.DIR), then load it any time you want to erase all current entries from memory.

Dialing

You may dial the number of any displayed entry by clicking on the Dial button. The number will be dialed, and will continue to be dialed until the modem connects. Redial and connection are detected by the use of the Connect and Fail strings (described below). Once dialing has begun, you may execute another program, or continue with the program you are currently running. Upon connection, you will be notified with a bell (if your monitor volume is turned up). You can then use the SHADOW terminal, or any terminal of your choice. While the dialer is dialing, you may not type anything out the serial port.

If you are currently dialing a number, and you decide to try another number, you do not need to Abort first. Simply find the directory entry of the new number, and click on Dial. The new number will be stored by SHADOW, and will be dialed on the next retry.

If you are dialing, you cannot select Begin to start a file transfer. You will receive a message that you are "Currently Dialing." To start a file transfer or set up for a send, you must either be connected, or you must abort the dialing.

You may abort the dialing of any number by clicking on the Abort button. When the modem fails to connect, the dialing will not resume. Note that SHADOW does not stop dialing as soon as Abort is selected, it simply does not redial after the modem is done.

Modem Strings

The Modem Prefix field may contain up to 18 characters. Whatever is contained in the Modem Prefix field will be added to the beginning of the number in the Phone field when you dial. For example, a Modem Prefix string of ATS11=50DT (causing the modem to dial faster and use tone dialing) used with a Phone number of 555-1212, will result in the string ATS11=50DT555-1212 being sent to the modem. Consult your modem instructions for useful prefix commands.

The Connect String, Fail1 String, and Fail2 String fields may each contain up to 12 characters. The contents of these fields will be used to determine whether to ring the bell for connection, or to redial. These strings are used to match whichever strings your modem sends. For example, most modems will send CONNECT (for connect at 300 baud), CONNECT 1200 (for connect at 1200 baud), or CONNECT 2400 (for connect at 2400 baud) to the computer. If you enter CONNECT in the Connect String, the SHADOW Background Dialer will ring the connection bell after receiving any of the above connection messages from the modem. Additionally, you could enter ONNEC, NNE, ECT, etc. to yield the same results.

If the SHADOW Background Dialer receives one of the Fail strings, SHADOW will redial the phone number. The same rule applies as above, you may enter any substring of the failure message you expect from the modem.

Consult your modem instructions for a list of the messages your modem responds with.

Typical SHADOW Installation

Here are the steps we would recommend for the typical installation of SHADOW.

1. Copy SHADOW.PRG to AUTO folder
2. Copy SHADOW.ACC to root directory
3. Install a RAMdisk desktop icon for SHADOW
4. Save DESKTOP.INF
5. Reboot (cold start) your computer to install SHADOW
6. Edit the dial directory
7. Save dial directory and .MDM files
8. Use SHADOW

FLASH Compatibility

The SHADOW terminal is specially designed to work from within FLASH version 1.6 or higher, using its routines. Likewise, FLASH v.1.6 has been designed to use the SHADOW transfer routines, without need of the SHADOW.ACC desk accessory. You can use these two programs in either way:

Using SHADOW from FLASH

If you select the SHADOW desk accessory while using FLASH, you will hear a bell signifying that SHADOW realizes FLASH is present.

Once SHADOW detects FLASH's presence, SHADOW will use FLASH's current terminal emulation routines. In other words, if you are in VIDTEX mode in FLASH, when you enter the SHADOW terminal you will continue to emulate VIDTEX. If you select Half Duplex from within SHADOW Terminal, FLASH will be set to Half Duplex. If you set CR to CR/LF, FLASH will do the same. SHADOW also saves any text received in the FLASH capture buffer, and the current screen will be saved in the FLASH screen buffer.

NOTE: Do not rename the FLASH.PRG file. In order for SHADOW to detect the presence of FLASH, it asks the operating system for the ID of FLASH. If you execute FLASH with a different filename than FLASH.PRG, SHADOW will be unable to detect that it is being called from within FLASH.

WARNING: FLASH version 1.6 or higher must be used with SHADOW. (See the FLASH folder on your SHADOW disk for details.) If you exit or enter earlier versions of FLASH during a SHADOW file transfer, the transfer will be frozen, and the system may even crash! To overcome this, press the system reset button. The transfer will continue, and you may then enter other programs. You may

also elect to remain in the earlier FLASH versions during the SHADOW file transfers, and have full access to the FLASH capture buffer/text editor – all functions, including disk I/O, will be operational as long as you don't exit FLASH.

Using FLASH with SHADOW

FLASH version 1.6 can access the SHADOW transfer routines without need of the SHADOW.ACC desk accessory. If you have installed SHADOW using SHADOW.PRG in the AUTO folder, FLASH will detect SHADOW's presence and allow you to access the file transfer routines. (Details on this are included in the FLASH folder on your SHADOW disk.)

SHADOW DIALOGS, ALERTS, AND MENUS

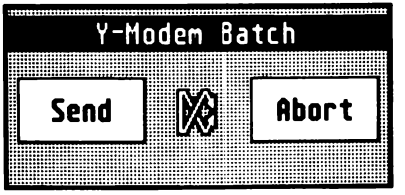
While using SHADOW, you will be presented with a number of dialog boxes, alert messages, and menus. *A dialog box* is defined as a message box that offers you two or more choices (buttons, and/or right-click exits). An *alert box* simply alerts you of the situation; no choice is involved. A menu presents various choices and fields by which you may operate SHADOW.

For all SHADOW dialog boxes, you may either click on the button to select it, or press the key which matches the first letter of the word(s) in that button – or you may exit the dialog box and take no action, by clicking the right mouse button or pressing [Undo].

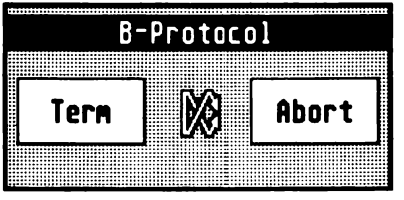
For all SHADOW alert boxes, your only choice is to acknowledge the message by clicking the right mouse button or pressing [Undo].

All SHADOW menus may be exited by clicking the right mouse button or pressing [Undo].

Dialog Boxes

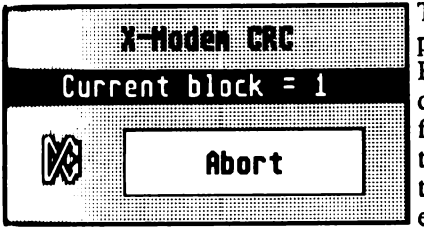


This will appear before you send files, using any protocol (except B-Protocol). Click on the appropriate button, or press [T] to go to the terminal.

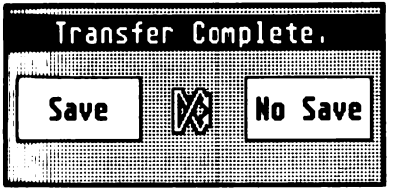


This will appear before you send or receive a file using B-Protocol. Click on the appropriate button. Usually you will want to go to the terminal to begin the transfer. B-Protocol requires that the remote end initiate the transfer.

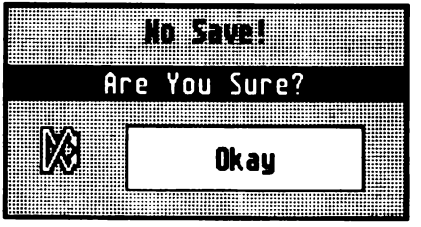
This appears only for ASCII upload or download, and signifies that the transfer is in progress. You may select Abort to stop the transfer. For ASCII receive, if you have received any characters, you will be presented with a dialog to save a file. You may also press [N] to toggle digits display, and [L] to toggle the completion bell.



This will appear for any file transfer protocol other than ASCII. For Y-Modem Batch and B-Protocol, the first line will display the current file being transferred, for all others you will see the current transfer protocol. The current block being transferred is displayed for all protocols except ASCII. You may select Abort to stop the transfer. For Y-Modem Batch, if you have received any files, you will be presented with a dialog box to save the file(s). You may also press [N] to toggle digits display, and [L] to toggle the completion bell.



This appears after a successful file completion, or after aborting an ASCII receive (if you have recieved any characters), or Y-Modem Batch receive (if you have successfully received any files). Select the appropriate button. You may also press [T] to go to the terminal. Upon exiting the terminal, you will be presented with this dialog box again.



You are cancelling the save of all files received. Click on Okay or press [O] if you want to lose all files received; click on the right mouse button or press [Undo] to take no action and go back to the Save/No Save dialog box.

This appears if you select Cancel from the file selector when saving a received file. Select Okay if you do not want to save the file.

This will appear if you select Delete from the Background Dialer menu. Select Okay if you want to delete this entry from the dial directory.

Alert Boxes

You have installed SHADOW without the file buffer, or you did not run SHADOW.PRG but still have the SHADOW accessory installed.

You have selected to abort a file transfer, but the abort is not yet completed.

The file transfer has been aborted by the remote end.

The sending of a file(s) has been successfully completed. Exiting this alert box will bring you back to the main menu.

You have attempted to receive a file(s) which exceeded the size of your File Transfer Buffer. Exiting this alert will take you to the Save/No Save dialog box if you are in ASCII receive, or Y-Modem Batch (and have successfully received any files).

This will appear if you have attempted receiving or sending a block more than ten times. Exiting this alert will take you to the Save/No Save dialog box if you are in ASCII receive, or Y-Modem Batch (and you have successfully received any files).

SHADOW cannot open a file for sending. This may be due to a write-protected disk or an unformatted disk.

This will appear if SHADOW cannot create a file for saving a received file, or a dial directory, or an .MDM file. This may be due to a write-protected disk, a full disk, or an unformatted disk.

SHADOW cannot open a dial directory file. Look for an incorrect file path, or misspelt filename.

SHADOW cannot find and load a matching .MDM file when loading a .DIR dial directory. You will always get this the first time you load a FLASH .DIR file, since FLASH does not use .MDM files. Ignore the alert by right-clicking, then save the directory to create a new .MDM file.

This will appear if you try to delete an entry from an empty dial directory.

The dial directory is completely full (60 entries). Save the current directory, and create a new one, or delete unwanted entries.

When you were saving the phone directory .DIR file, SHADOW could not create the accompanying .MDM file. Check for a write protected disk, a full disk, or a bad path.

SHADOW could not save a received file. Check for a write protected disk, a full disk, or a bad path.

You have attempted to load a file for sending which contains no information. You will not be able to send this file.

You have attempted to load a file for sending that is too big for the File Transfer Buffer. Reboot with a larger Transfer Buffer, or send a smaller file.

You have tried to load more than 32 files into the File Transfer Buffer. Send the files you currently have loaded then send the rest, or ARC the files together.

You have tried to Begin a file transfer while SHADOW is dialing a phone number. Wait until you connect to start the transfer.

A critical error has occurred in SHADOW. If you see this alert, reboot your system. If you can reproduce this problem repeatedly, please inform us! You should never see this!

Menus

The Main Menu

The following menu choices may be clicked on, or you may press the keyboard alternative shown in brackets.

X-Modem CRC-1K [K]	Choose X-Modem CRC 1K protocol for sends and receives.
X-Modem CRC [C]	Choose X-Modem CRC protocol for sends and receives.
X-Modem Cksum [X]	Choose X-Modem Cksum protocol for sends and receives.
Y-Modem Batch [Y]	Choose Y-Modem Batch protocol for sends and receives.
B-Protocol [B]	Choose B-Protocol protocol for sends and receives.
ASCII [A]	Choose ASCII for sends and receives.
Send [S]	Tell SHADOW to send a file when you select Begin.
Receive [R]	Tell SHADOW to receive a file when you select Begin.
Digits/No Digits [N]	Toggle between displaying/not displaying blocks in the upper-right corner of the screen.
Bell/No Bell [L]	Toggle sounding/not sounding a completion bell when a send/receive has successfully completed.
Baud [Up/Down Cursor Arrows]	Set the displayed baud rate.
Terminal [T]	Take you into the SHADOW terminal.

Dialer [D]	Take you to the SHADOW Background Dialer Menu.
Begin [Return]	Begin a transfer. If you are sending, you will be presented with the system file selector to choose a file(s) to send. For Y-Modem batch, select Cancel from the file selector to end file selection.

The Background Dialer Menu

The Background Dialer Menu contains the following fields and buttons:

Modem Prefix	Enter a string which will become the prefix to the number sent (including the LDS string, below). This will tell the modem what to do.
Connect String	Enter a string the modem will send when it has connected to another modem. The dialer will use this to sound the connection tone, and deinstall the dialer handlers. (See your modem manual.)

Fail1, Fail2	Enter two strings the modem will send when it fails to connect to another modem. The dialer will use this to dial again. (See your modem manual.)
Name	Enter a name or label for the number contained in the Phone field.
Phone	Enter the phone number you want dialed.
LDS	This is a string which will be inserted in the Phone field anywhere a plus sign (+) is located. Usually this is placed immediately before the Phone string as part of the long distance access code.
Load	Select to Load a dial directory (.DIR) and a prefix (.MDM) file.
Save	Select to Save a dial directory and .MDM file.
Dial	Select to begin dialing a number. Be sure your modem is on, your baud rate is correct, and your prefix fields are properly completed.
Abort	Select this to Abort redialing a number.
Add	Select this to Add an entry to the dial directory. The currently displayed fields will become blank, and ready for new entry.
Delete	Select this to Delete a dial directory entry. You will be asked to confirm the deletion of the entry.

The Terminal

The SHADOW terminal is a simple VT52 emulation. From the terminal you can begin a file transfer and dial a number. The following keys perform the indicated action:

[F1]	Toggle duplex
[F2]	Toggle sending line feeds
[F3]	Abort a file transfer
[F4]	Select X-Modem Checksum protocol
[F5]	Select X-Modem CRC-1K protocol
[F6]	Select X-Modem CRC protocol
[F7]	Select ASCII
[F8]	Select Y-Modem Batch protocol
[F9]	Select B-Protocol protocol
[F10]	Reset terminal
[Alternate]-[S]	Start a file send using selected protocol
[Alternate]-[R]	Start a file receive using selected protocol
[Undo]/Right-click	Exit
[Clr/Home]	Clear status line, if no files are waiting to be saved
Dialer	Left click to access the Background Dialer Menu from the SHADOW terminal.

Status Line

The Status Line at the base of the terminal screen will usually display the duplex, linefeed option, and protocol. You may also see one of the following status messages during, or after a file transfer:

Sending <Protocol|FILENAME.EXT>

Receiving <Protocol|FILENAME.EXT>

Ready to Send.

Send Completed!

Receive Completed!

Aborting Transfer.

Other End Aborted!

Too Many Retries.

Buffer Overflow!

This is the end of the main SHADOW documentation. We hope you enjoy the program. The appendix immediately following contains technical information to help programmers use SHADOW within their own code. If you fall into this category, and want even more detailed help, please write us, care of Antic, at the address included in the Dedication section at the end of this manual.

Appendix A
SHADOW FROM C OR ASSEMBLY

The SHADOW driver works by intercepting the RS232 send and receive interrupts at (HEX) $128 and $130. SHADOW is a state driven program that performs a function given a defined state. All transfers are broken into distinct parts which can be roughly defined as:

1. Initiating the transfer. When first accessed, SHADOW sets up variables and installs a handler for all transfer protocols and the RAMdisk.
2. Receiving data. When each byte is received, SHADOW will store the data and perform a checksum or CRC calculation. CRC calculations are performed using a table look-up for maximum speed. For Y-Modem Batch or B-Protocol, an extra step is performed for storing the name of the file.
3. Checking of checksum or CRC with remote end.
4. Repeat of step 2 until completed, or the next file is ready to be received.

SHADOW installs itself before the system is completely booted up. In this way, SHADOW can reserve a portion of memory, then reset the system and complete the bootup process. Once completed, the operating system is fooled into

believing less memory is available for its use. This keeps the reserved memory from being zeroed out on system warm start.

On reset, if a file transfer is in progress, SHADOW examines its state and determines where the transfer was interrupted. SHADOW then sends a NAK to the remote end so the current block is resent, thus restarting the transfer.

For floppy based users, a little known feature of the operating system, known as a *Reset Resident Program*, is installed as soon as the reset button is pressed. After performing certain functions, the operating system will search memory for a reset resident program, and if present, it will be executed. Thus, for floppy based users, there is no need for SHADOW.PRG to run again. The reset resident program initiates the restart.

For hard disk users, the reset resident program search performed by the operating system is by-passed, thereby making the execution of SHADOW.PRG necessary for restarting the transfer. This by-passing of the reset resident program check is a function of the hard disk autoboot programs, which are installed in the hard disk boot sector. If you are not using one of these hard disk bootup programs, then you do not need to have SHADOW.PRG execute again.

TRAP 15 – As part of the installation process, SHADOW installs a vector to itself in TRAP 15, (HEX) $BC. Through a simple TRAP 15 call, all SHADOW routines are accessible. This is the way the SHADOW accessory works, and this is how a program you write can access SHADOW's file transfer facility.

SHADOW HEADER – When SHADOW installs itself in high memory, location (HEX) $42e (phys_top) is adjusted to point to the first byte of the handler. At

this byte begins a header which contains certain information used by SHADOW accessory and the handler itself. The header is defines as follows:

Address in $42e plus	What it is
+0 word $DC	The magic number
+2 long buf_size	Size of file buffer in bytes
+6 long rd_size	Size of RAMdisk in bytes
+10 word rd_ident	RAMdisk drive (0=A:, 1=B:, etc.)
+12 long rd_driver	Pointer to RAMdisk routines
+16 long buf_ptr	Pointer to start of file buffer
+20 word baud	Baud rate as defined and used by Rs_conf()
+22 SHADOW	Start of handler

$DC – The magic number $DC is used to detect whether or not SHADOW is installed. The test:

```
move.l    $42e, A0
cmpi.l    #$DC, (A0)
```

Will set the zero flag if SHADOW is installed.

BUF_SIZE – The size of the SHADOW buffer in bytes, as defined on bootup.

RD_SIZE – The size of the SHADOW RAMdisk in bytes, as defined on bootup.

RD_IDENT – The RAMdisk drive identifier, as defined on bootup.

RD_DRIVER – A pointer to the first routine in the RAMdisk handler.

BUF_PTR – A pointer to the start of the file buffer, as calculated on bootup.

BAUD – The baud rate used by the system Rs_conf() call. SHADOW intercepts all baud rate changes so it knows the current baud. When a file transfer is in progress, SHADOW disallows baud rate changes. The following HEX numbers are used for the baud rate:

0 - 19200, 1 - 9600, 2 - 4800, 3 - 3600, 4 - 2400, 5 - 2000, 6 - 1800, 7 - 200, 8 - 600, 9 - 300, A - 200, B - 150, C - 134, D - 110, E - 75, F - 50

SHADOW intercepts the TRAP 13 for the calls B_conout() so no characters can be sent out the RS232 during a transfer; and Setexc() so the send, receive, ctserr, and rtserr vectors can be handled properly should a program attempt to change them during a file transfer. SHADOW also intercepts the TRAP 14 call for Rs_conf() as described above; and Jdisint() and Jenabint() so the 68901 interrupt vectors can be handled correctly should a program try to change them during a transfer.

The 200 hz interrupt routine at (HEX) $114 is also intercepted by SHADOW for the completion bell routine. The xbios Xbtimer() call is intercepted during file transfers to disable baud rate changes caused by accessing MFP time D. If you plan on intercepting TRAP 13 or 14 or $114, be sure to continue the call using the previous address in the vector. To assure your program works correctly with SHADOW, use the xbios call Setexc() to set an interrupt vector or Xbtimer() to set MFP timer D.

During a transfer, SHADOW does not use the io_rec as returned by the system call Iorec(). SHADOW has its own handlers for receiving and sending data. Also, no flow control is used during a transfer.

NOTE: Certain programs which also intercept the TRAP 13 and 14 calls DO NOT handle the vector correctly. These programs will not continue the TRAP call using the existing address in the vector. These programs must be loaded BEFORE SHADOW is installed, since SHADOW will handoff the TRAP call to these programs.

SHADOW Routines

On your program disk, you will find sample code which illustrates accessing SHADOW from a 'C' program. Short assembly language routines are needed to access SHADOW from 'C.' The demo code is named SHDWDEMO.C. You will also find an object file SHADOW.O, which contains the calls (as named below) so you can link to the file without having to assemble the routines. Source code for the routines is also provided in SHADOW.S.

SHADOW has ten routines which are defined as follows:

Routine #	Name
0	shdw_struct -> returns address of shdw_rec structure
1	shdw_receive -> initiates the receive
2	shdw_send -> initiate send
3	shdw_abort -> abort a file transfer
4	shdw_yesdigits -> turn on digits
5	shdw_nodigits -> turn off digits
6	shdw_yesbell -> turn on completion bell
7	shdw_nobell -> turn off completion bell
8	shdw_init -> initiate restart
9	shdw_dial -> start or abort background dialing

The calling procedure from 'C' is defined here for each one of these calls, including all variables needed to be passed.

shdw_rec
SHDW_STRUCT *shdw_struct();

Performing this call will return a pointer to SHADOW's internal record. shdw_rec is defined as follows:

```
typedef struct SHDW_STRUCT {
    int     block,              /* current transfer block */
            status;             /* current status, defined below */
    long    rec_bytes,          /* bytes received */
            sent_bytes;         /* bytes sent */
    int     num_files;          /* number of files to send or received */
    long    b_bytes[32],        /* batch file sizes, 32 max */
            b_files[4*32];      /* batch file names, 32 max */
    int     digit_flag,         /* digits? 0 = no, 1 = yes */
            bell_flag,          /* bell? 0 = no, 1 = yes */
            mode,               /* transfer mode (0-5, defined below) */
            type,               /* transfer direction, 1 = receive, 2 = send */
            dial_flag;          /* dialing? 0 = no, 1 = yes */
);

SHDW_STRUCT *shdw_rec;
```

The following calls will refer to this structure.

shdw_receive

```
shdw_receive(buffer, length, mode)
char *buffer;       /* pointer to the start of the file buffer */
long length;        /* size in bytes of file buffer */
int mode;           /* mode as defined below */
```

mode can be:

0 - X-Modem Checksum

1 - X-Modem CRC

2 - X-Modem CRC 1K

3 - ASCII

4 - Y-Modem Batch

5 - B-Protocol

This call initiates a file receive. Upon start, shdw_rec->status is set to 1, and shdw_rec->mode and shdw_rec->type are set to what is passed on the call.

shdw_rec->status can have one of the following values as set by the SHADOW routines:

Value	Means
0	Ready for action
1	Transfer in progress
2	Receive completed successfully
3	In the process of aborting
4	Other end aborted

5	Send completed successfully
6	Buffer overflow
7	Ready to begin send (this is set by user)
8	Too many retries
9	ASCII receive in progress
10	ASCII send in progress

dw_send(buffer, length, mode)

```
r *buffer;      /* pointer to start of File Transfer Buffer */
g length;       /* size of file to send (unused in YModem) */
 mode;          /* modem as above */
```

is call initiates a file send. Upon start, shdw_rec->status is set to 1, and dw_rec->mode and shdw_rec->type are set to what is passed on the call.

dw_abort

```
dw_abort();
```

is call will attempt to abort the transfer in progress. Upon completion, dw_rec->status is set to 0.

hdw_yesdigits

```
dw_yesdigits();
```

This call will turn on the on-screen block count if a transfer is in progress. This all sets shdw_rec->digit_flag to 1.

shdw_nodigits
shdw_nodigits();

This call will turn off the on-screen block count if a transfer is in progress. This call sets shdw_rec->digit_flag to 0.

shdw_yesbell
shdw_yesbell();

This call will turn on the completion bell. shdw_rec->bell_flag is set to 1.

shdw_nobell
shdw_nobell();

This call will turn off the completion bell. shdw_rec->bell flag is set to 0.

shdw_init
shdw_init();

This call is performed on all system resets. If a transfer is in progress, the routine this calls will restart the transfer. Otherwise, vectors and variables are checked and reinitialized, if needed. The user should never need to call this routine.

shdw_dial
```
shdw_dial(number, connect, fail1, fail2)
char *number;    /* ptr to complete dial string, ie. ATDT555-1212 */
char *connect;   /* pointer to connect match string */
char *fail1;     /* pointer to first fail match string */
char *fail2;     /* pointer to second fail match string */
```

This call starts the background dialing. shdw_rec->dial_flag is set to 1.

Passing this routine a zero pointer for the number (number = 0) will abort the dialing. shdw_rec->dial_flag is then set to 0.

Appendix B
SOFTWARE ETHICS

The retail purchaser of this computer program *does not* have the right to exercise any of the exclusive rights of copyright reserved by the *author* of this program, which include:

(1) the right to reproduce or otherwise make copies of this program, other than an archival copy (as described below);
(2) the right to distribute copies of the program;
(3) the right to prepare derivative works based on the program. (Section 106, U.S. Copyright Act of 1976, as amended, Public Law 94-553, Oct. 19, 1976).

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(1) the new copy is created as an essential step in utilization of the program; or
(2) the new copy is for archival purposes.

All archival copies must be destroyed in the event that the original purchaser ceases to own the original copy of the program. Section 117, U.S. Copyright Act of 1976, as amended by Public Law 96-517, dated Dec. 12, 1980.

The propriety of respecting the copyright owner's rights in his creation (after all, that's how he earns his living) is reflected in the range of penalties that the law affords to the copyright owner, which include: injunctive relief (Section 502); forefeiture of all infringing and contributorily infringing items (Section 503); monetary damages (Section 504); and criminal sanctions, including imprisonment (Section 506).

The holder of the copyright of SHADOW is Michael Vederman.

DEDICATIONS

Thank you for purchasing SHADOW. SHADOW is the culmination of over one year's work. We have endeavored to include many useful options in the program. Please support us by purchasing legitimate versions of the program; and send any useful suggestions to us care of Antic Software:

SHADOW Suggestions
Antic Software
544 Second Street, San Francisco, CA 94017

We would like to thank the following people for their help and patience:

Program suggestions:	Keith Gerdes, Jim Masterson, and Larry Novak
Hardware assistance:	Dave Parsons of Computers To Grow
User group:	H.A.S.T.E.

Paul's Special Dedication

Nephews and Nieces:	Christina, Bryan, Kimberly, James, Michael, Kenny Jr., and Christopher. "Can we play with your computer?"
Favorite Spudette:	Corinne Fong.

Mike's Special Dedication

To LG, no you can't have a copy!
To Ed, wanna get a pizza?
To Jim Masterson, why couldn't you come up with suggestions sooner?!
To Keith, thanks for the help!
To Larry, our best beta-tester.

HI MOM! Maria - ;-)

And a special thanks to Gary and Jack at ANTIC.