Chapter 13
Using Softloads to Upgrade the BitSURFR Pro

GENERAL

The softload feature allows new software to be downloaded from your PC into your BitSURFR Pro through the data port. This allows software updates and new features to be added to your BitSURFR Pro without physically removing the unit from service.

☞ **Note**
> *You only should attempt to softload files that have been obtained directly from the Motorola Web Page, Motorola BBS, or Motorola. For addresses and phone numbers, refer to the page titled "Service And Support" at the rear of this manual.*

The BitSURFR Pro softload file contains an ASCII coded "header" which can be displayed to verify the software's product and version information before initiating the softload. On DOS-based PCs, you can accomplish this using the **TYPE** command. For example, to view the header information of a file called SAMPLE.SL, enter:

TYPE SAMPLE.SL

A typical header is displayed below.

METHOD: SOFTLOAD YGMS-1
PRODUCT: BitSURFR Pro
BOARD ID: 4574190
CPU ID: 0
VERSION: 1F

When you obtain the softload file, you should also receive a utility called SOFTLOAD.EXE. This utility allows you to softload your BitSURFR Pro by entering a command from the DOS prompt.

☞ **Note**
> *It is strongly recommended that you use the ISDN SURFR Setup utility to upgrade your BitSURFR Pro ISA because it eliminates several possible errors that could occur in the soft-loading process.*

SOFTLOAD USING ISDN SURFR SETUP FOR WINDOWS

Use the following instructions to upgrade your BitSURFR Pro using the ISDN SURFR Setup for Windows utility:

1. Obtain the software update file. This will be a data file with a ".SL" file extension. Read any associated text files provided with the softload file for notes and additional instructions.

2. From Windows, launch the ISDN SURFR Setup utility provided with your BitSURFR Pro ISA. Make sure that it properly detects the BitSURFR Pro ISA that you want to upgrade.

3. Click on the *Softload* button.

4. A confirmation dialog box will appear. Click the *OK* button.

5. You will be prompted to select the softload file. After you have selected the appropriate file (with the ".SL" extension), click *OK*. The softload process will begin.

Do not reboot or remove power from your PC, or otherwise interrupt the softload process during this procedure.

After about five minutes or so, the process will be complete. A dialog box will appear to report that the upgrade was successful.

SOFTLOAD USING THE DOS SOFTLOAD UTILITY

Use the following instructions to upgrade your BitSURFR Pro using the Softload utility:

1. Connect your BitSURFR Pro to a COM port on your PC. Power on the BitSURFR Pro.

2. Obtain the software update file. This will be a data file with an ".SL" extension. Read any text file provided with the software file for notes and instructions.

3. From the DOS command line, run the softload utility. Specify the COM port to which your BitSURFR Pro is connected and the name of the softload file to download. For example, the command line:

SOFTLOAD /C2 SAMPLE.SL

downloads SAMPLE.SL to the BitSURFR Pro connected at
COM2. You can use /C1, /C3 or /C4 to indicate COM1, COM3, or
COM4.

4. For help, enter: **SOFTLOAD /?**.

☞ **Note**
*Do not run the Softload program under Windows. If you are
running Windows 3.1 or 3.11, exit Windows before running
this program. If you are running Windows 95, shut down
Windows and restart your computer in MS-DOS mode.*

Softload will last a few minutes. During this time do not turn off or re-
boot your computer or BitSURFR Pro. When the softload is complete,
you will see the message "Softload successfully completed."

If power is removed from the BitSURFR Pro during a softload, or if the
computer is accidentally re-booted during a softload, then you must start
another softload using this softload utility. The BitSURFR Pro will not
otherwise function until a successful softload has been completed.

SOFTLOAD USING A COMMUNICATIONS PACKAGE

⚠ **Caution**
Read all instructions before attempting a softload!

The softload facility in the BitSURFR Pro supports the following func-
tions: set/display softload password, request softload version informa-
tion, and initiate softload. All softload operations must be initiated
using the AT commands, listed in the chart and described below:

Command	Operation
%P1	Display or set softload password.
$Q	Request softload version information.
$Y=x	Initiate softload with password x.

Set/Display Softload Password %P1

You must enter a password to perform softload. This helps prevent acci-
dental softload attempts. Use the **%P1** command to display or change
your softload password.

The password, stored in nonvolatile memory, consists of zero to eight alphanumeric digits. Leading zeros are significant, and the password is case sensitive. You can disable the password, preventing any softload operations except inquiries.

By default, the softload password is set to null. Commands for resetting your softload password are listed on the chart below.

Command	Operation
%P1?	Display softload password.
%P1=x	Set softload password to x, where x is 0-8 alphanumeric digits.
%P1=D	Disable the softload function. To enable softload, set your password again.

☞ **Note**

We recommend that you change the softload password when you initially configure your unit in order to prevent accidental softload attempts.

Request Softload Product Version Information $Q

The **$Q** command returns the product code and the version number of the software currently being used by the BitSURFR Pro. It can provide a positive verification of the success of a softload operation. A typical response to the **$Q** command might be:

        PRODUCT NUMBER: 4574190
        ACTIVE SOFTWARE: 1F
        BOOT SECTOR INFO --
        SOFTLOAD METHOD: SOFTLOAD YGMS-1
        PRODUCT ID: BitSURFR Pro
        BOARD NUMBER: 4574190
        REVISION: 1F
        TIMESTAMP: JAN 26 96 22:30

Initiate Software Download $Y=x

Before initiating softload, configure both the BitSURFR Pro and the communications package for RTS/CTS flow control (hardware handshaking). Do not use software flow control (XON/XOFF) since the softload files contain XON/XOFF characters that would be misinterpreted as flow control characters.

⚠ **Caution**

If the communications software is not set to hardware (RTS/CTS) flow control, the softload will fail!

The file transfer software should be set to 38400 bps (or the fastest data rate that the PC can support) full duplex asynchronous operation, eight-bit characters, no parity.

The **$Y** command initiates softload. This command requires the softload password previously set by the **%P1** command. If the password does not match the unit's stored password, the BitSURFR Pro will return an ERROR message.

If the password matches, the BitSURFR Pro begins by displaying the softload method ID. Then the BitSURFR Pro will display the message "READY", and it will enter the YModem-G receive mode. At this point the BitSURFR Pro is ready to accept a softload using the YModem-G transfer protocol. The BitSURFR Pro sends the YModem-G initiation character (G), and you may begin the file transfer. If a file transfer has not started within two minutes, the BitSURFR Pro will time out and send the message:

> Error code: 0x75
> Softload failed! Restarting softload

The BitSURFR Pro will re-enter the YModem-G receive mode, and begin sending the YModem-G initiation character again. The BitSURFR Pro is again ready to accept a softload.

At this point it is still possible to cancel the softload procedure, if a file transfer has not been started. If the command **$Y=x** has been issued, but no file transfer has been attempted, then removing and re-applying power to the BitSURFR Pro will return the unit to normal AT command mode. Do not remove power from the BitSURFR Pro once a file transfer has been started.

⚠ **Caution**

Once a file transfer has begun, the BitSURFR Pro will lose all functionality except the ability to softload. If the transfer is canceled for any reason, then the BitSURFR Pro will re-

enter the YModem-G receive mode and will accept another softload attempt, but the BitSURFR Pro will not otherwise function until a valid softload is completed.

If power is removed from the BitSURFR Pro during a softload, then when power is restored the BitSURFR Pro will immediately re-enter the YModem-G receive mode. Another softload may proceed normally, except that the file must be uploaded at 19200 bps, regardless of the speed of the first softload. See the Softload Failure section at the end of this chapter for further instructions.

The YModem-G transfer should send one file. After the file has been transferred, the BitSURFR Pro will pause for several seconds. Do not remove power from the BitSURFR Pro during this pause. If the BitSURFR Pro verifies that the file has been received and programmed correctly, it will send the message:

"Softload successful, restarting TA"

The BitSURFR Pro will reset itself, and then it will be ready to perform with the new software upgrade.

If an error occurs during the transfer, see the section entitled "Softload Failure" at the end of this chapter.

A Typical Softload Session

The following example demonstrates a typical softload session from a PC using the HyperACCESS communications package supplied with your BitSURFR Pro.

The steps in performing a softload transfer are:

1. If there is a README.TXT file accompanying the softload file, read it for a description of the software contained in the softload file.

2. To be sure that the software in the softload file is correct, display the file on the PC (be careful not to modify it). At the top of each file is a header (ASCII format) containing the product and version information for the softload file. The DOS command "TYPE" may be used to display the file. The product should be "BitSURFR Pro" and the product ID should be "4574190".

3. For best results, the softload file should be on the PC's hard disk for the downloading process, not on a floppy disk.

4. Connect the PC to the BitSURFR Pro's DTE port. Begin the communications software program on the PC.

5. Configure the software for 38400 bps (or the fastest data rate that the PC can support) full-duplex asynchronous operation, 8-bit characters with no parity, and RTS/CTS flow control of the DTE (hardware handshaking). If the communications software is not set to RTS/CTS flow control, the softload will fail! To set HyperACCESS to RTS/CTS flow control, go to the Properties menu and open the Communications window. Then select the Port Setup button. Check the settings for Software Handshaking. Make sure that both of the Xon/Xoff options are deselected. Then check the settings for Hardware Handshaking. Make sure that RTS is selected for Receiving, and CTS is selected for Sending.

6. Using the terminal emulation on the PC, send an AT command to the BitSURFR Pro. The BitSURFR Pro should respond with **OK**.

7. Configure the BitSURFR Pro for RTS/CTS flow control. This may be done using either LocalMenu or the **AT\Q3** command.

8. Initiate softload. Enter the command **AT$Y=*x*** (where *x* is the softload password). The TA responds with either ERROR (if the password is invalid) or the softload method banner (SOFTLOAD YGMS-1). This banner identifies the download method and file format. The BitSURFR Pro will send the message "READY" to indicate that it is ready for softload, and it will begin sending the YModem-G initiation character (**G**).

9. Initiate the YModem-G file upload on the PC. Upload only the ".SL" file to the BitSURFR Pro; do not attempt to send any other type of file. During the softload the TD (Transmit Data) LED on the BitSURFR Pro will blink green as the file is being sent to the BitSURFR Pro. Do not cancel the file transfer once it has begun. Do not remove power from the BitSURFR Pro during the softload.

10. When the file transfer is complete, the BitSURFR Pro will pause for several seconds. Do not remove power from the BitSURFR Pro during this pause! Then it will display the message "Softload successful, restarting TA". The BitSURFR Pro will reset itself and return to AT command mode. Your BitSURFR Pro will be ready to perform using the new software upgrade.

11. If any errors are encountered during the file transfer, the BitSURFR Pro will display an error code and the message "Softload failed! Restarting softload" and it will re-enter YModem-G receive mode and begin sending the YModem-G initiation character (**G**). At this point a new file transfer may be started. If softload fails, see the Softload Failure section at the end of this chapter.

SOFTLOAD FAILURE

This section describes what to do if you get an error while softloading using a communications software package.

The BitSURFR Pro can contain only one set of software at a time. During a softload, the BitSURFR Pro is replacing its existing software with the new software contained in the softload file. For this reason, if the file transfer is interrupted for any reason, then the software in the BitSURFR Pro will be incomplete, and the BitSURFR Pro will be unable to function. In most cases, it will retain enough functionality to perform another softload. A successful softload must be performed before the BitSURFR Pro will be able to operate normally.

Canceling Softload Before a File Transfer has been Started

When the **AT$Y=***x* command is issued, the BitSURFR Pro responds with the softload method banner and the message "READY". It will begin sending the YModem-G initiation character (**G**). At this point it is possible to cancel the softload, by removing and reapplying power to the BitSURFR Pro, as long as a file transfer has not been started. Do not remove power from the BitSURFR Pro if a file transfer has been started. After a file transfer begins, it is impossible to return to the old software.

Interrupted File Transfer

Do not cancel a file transfer, since this will render the BitSURFR Pro unable to function except to perform another softload. If a file transfer is accidentally interrupted, then the BitSURFR Pro will display an error code and the message "Softload Failed! Restarting softload". The BitSURFR Pro will then re-enter the YModem-G receive mode and will send the YModem-G initiation character (**G**). At this point you may start a new file transfer, however, the communications software must be set to 19200 bps, 8-bit characters and no parity before initiating the file transfer. The softload will be invalid at any other setting. If the softload transfer is successful, the TA will then restart itself and be fully operational with the new software upgrade.

If a Softload Attempt Fails

If a softload attempt fails, do not remove power from the BitSURFR Pro. The BitSURFR Pro should be sending the YModem-G initiation character (**G**) continuously. Re-read this chapter, and check the setup on your communications package. Then attempt another softload. If repeated softload attempts fail, contact Motorola ISG technical support for assistance. See the pages titled *Service and Support* at the rear of this manual for details.

If BitSURFR Pro Does Not Respond After a Softload Attempt

After a successful softload, your BitSURFR Pro should respond to AT commands. If the softload failed, the BitSURFR Pro should re-enter the YModem-G receive mode. It will not respond to AT commands while in YModem-G receive mode. In this mode, the BitSURFR Pro should send the YModem-G initiation character (**G**) to the terminal continuously, indicating that the BitSURFR Pro is ready for softload.

If power has been removed from the BitSURFR Pro during a softload attempt or after a softload failure, make sure the communications package is set to 19200 bps before another softload is attempted. If power has not been removed, then do not change the DTE speed.

If your BitSURFR Pro will not respond to AT commands, and the YModem-G initiation character (**G**) is not being sent to the terminal, try sending the Ymodem-G Cancel command (**Ctrl-X**). Depress the Ctrl-X keystroke combination repeatedly until you see the message "Softload

failed! Restarting Softload" and the BitSURFR Pro begins sending G's. If there is still no response, try removing and then reapplying power to the BitSURFR Pro.