



**User Manual for
*HE500OSW001, HE500OSW003,
and HE500OSW005***

**Cscape PDA Software
for Palm OS[®]
Handhelds**

June 14, 2001

MAN0461-01

PREFACE

This manual explains how to use the Cscape PDA Software.

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ABOUT PROGRAMMING EXAMPLES

Any example programs and program segments in this manual or provided on accompanying diskettes are included solely for illustrative purposes. Due to the many variables and requirements associated with any particular installation, Horner APG cannot assume responsibility or liability for actual use based on the examples and diagrams. It is the sole responsibility of the system designer utilizing Cscape PDA Software to appropriately design the end system, to appropriately integrate the Cscape PDA software and to make safety provisions for the end equipment as is usual and customary in industrial applications as defined in any codes or standards which apply.

Note: The programming examples shown in this manual are for illustrative purposes only. Proper machine operation is the sole responsibility of the system integrator.

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CHAPTER 1: INTRODUCTION

1.1 Product Description

Cscape PDA software enables most popular handheld computers to function as a program loader for the OCS / RCS controller product lines. Cscape PDA is a Palm OS® version of Cscape software, and it is designed for use with the Palm OS® line of handheld computers. Cscape PDA software contains many of the useful features found in the Windows version of Cscape such as *Data Watch* and *Remote Text Terminal*.

There are several variations of Cscape PDA software available depending upon which type of handheld computer is used. A cable is included with the software that is appropriate for the type of handheld used to ensure proper connection to the OCS/RCS controller.



Figure 1.1 - Palm OS® Handheld loaded with Cscape PDA Software

Table 1.1 lists the Cscape PDA software (and cable) that is designed for use with various models of handheld computers.

Table 1.1 – Cscape PDA	
Cscape PDA Part Number	Description
HE500OSW001	Cscape PDA software with Handspring Visor / Visor Deluxe / Prism / Platinum Handheld Cable
HE500OSW003	Cscape PDA software with Palm III Series Handheld Cable
HE500OSW005	Cscape PDA software with Palm V Series Handheld Cable

1.2 System Requirements

The following items are required to use Cscape PDA software (which includes the appropriate cable):

- a. One handheld computer running Palm OS, Version 3.0 or later, with approximately 50K+ of free memory. Additional space is required for uploaded files.
- b. One PC running the Palm Desktop software to complete the installation.

1.3 Installing Cscape PDA Software

Cscape PDA arrives as a single file (**cscape.prc**) on a floppy disk, CD-ROM, or via email. A cable is also provided. (See the next section.) The methods for loading software vary so be sure to consult the user manual that is sent with the handheld computer. A typical loading method is to double-click the **cscape.prc** file to start the Palm OS Install Tool and then to synchronize the handheld by connecting it to a PC and starting the *HotSync* technology process.

1.4 Cable Used for Connecting PDA to Controller

Although handheld computers are typically provided with a serial cable to enable connection to a PC, a different cable is required to connect handheld computers to OCS/RCS controllers. A cable is included with the software that is appropriate for the type of handheld computer used to ensure proper connection to the OCS/RCS controller.

1.5 Main Screen Operations

Note: For additional information, consult the user manual supplied with the handheld computer.

After loading the handheld computer with Cscape PDA software and starting the program, the main screen appears:

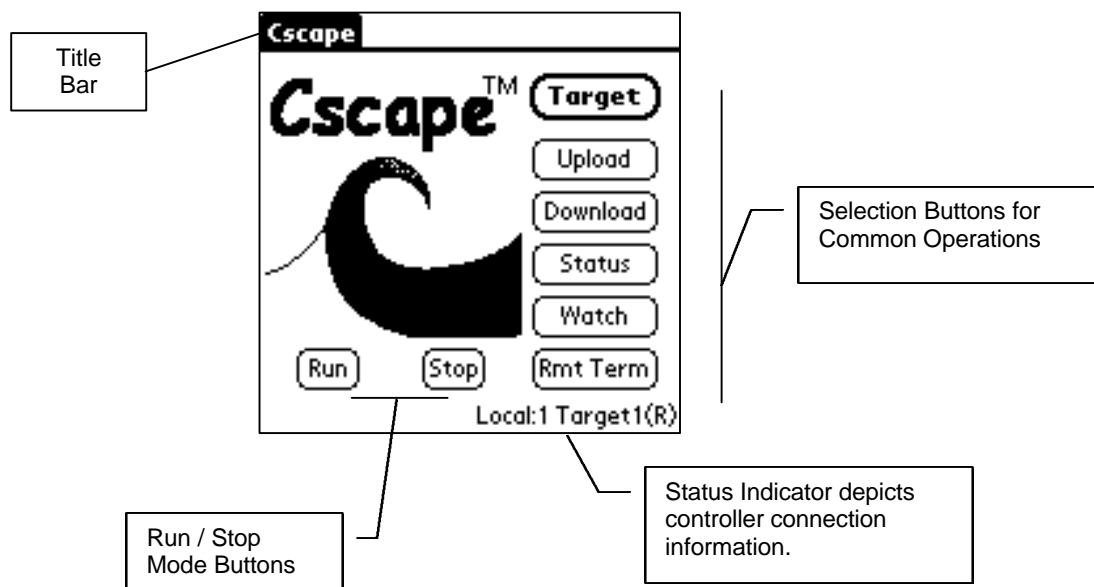


Figure 1.2 – Main Screen

Press the **Menu** button (see example) on the front panel of the handheld or tap the title bar on Palm OS 3.5 or later.



Example of a **Menu button** on the front panel of a handheld computer.

a. Selection Buttons

Press one of the tabs in the title bar (**Controller, Program, or Help**) depending upon what function is desired. The following pull-down menus are associated with each tab, and each function is covered in subsequent chapters.



Figure 1.3 – Controller Tab

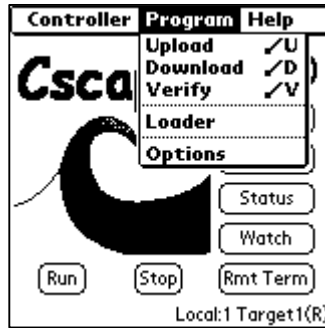


Figure 1.4 – Program Tab



Figure 1.5 – Help Tab

b. Status Indicator

The Status Indicator is constantly updated to show the controller connection information. This status is in the format of:

Local: **XXX** Target **YYY** (**M**)

Where:

XXX is the locally connected controller (the handheld is plugged into this controller)

YYY is the target controller (all communications are directed to this device)

M is the controller mode of the target (R = Run, D = DO/IO, I = Idle, ? = no communications)

c. **Selecting a Target Controller**

Just as in Cscope for the PC, a target controller must be selected for all communications. When Cscope PDA first starts, the locally connected device is selected as the target. This means all communication functions are sent to this device.

CsCAN networking allows the communications to be sent to any device on the network. To choose the device where communications are to be directed, press the **Target** button on the main screen or select **Program | Set Target ID** from the menu. The following dialog appears:



Figure 1.6 – Set Target ID

The target can be entered numerically or with up and down arrows. Three buttons also quickly switch the target to commonly used IDs: ID 1, ID 253, and the local ID.

CHAPTER 2: UPLOAD, DOWNLOAD, AND VERIFY

2.1 Uploading Program from a Controller

Uploads are started by pressing the upload button on the main screen or by selecting **Program | Upload** from the menu. After selecting to start an upload, the dialog in Figure 2.1 requests a filename for the file to be uploaded.

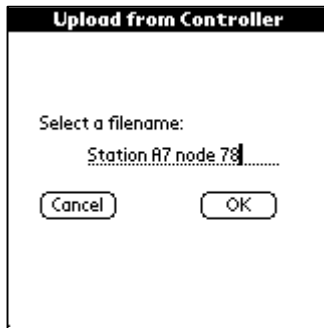


Figure 2.1 – Selecting Filename



Figure 2.2 – Verifying Upload

Filenames can be up to 32 characters long and can contain spaces and special characters. The filename is used later to identify it when doing a verify or download. Once the file name is entered, press **OK** to start the upload. In Figure 2.2, the screen indicates that the upload is taking place. (The icon on the left is animated to show the file moving from the controller to the handheld.)

2.2 Managing Uploaded Files

After one or more files have been uploaded, there are several tools for managing the files. File management is accomplished by pressing the **Download** button on the main screen or selecting **Program | Download** from the menu.

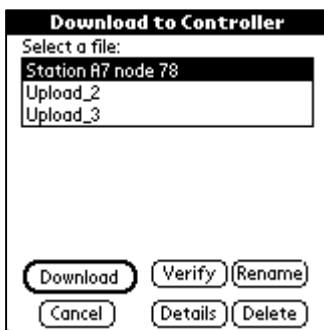


Figure 2.3 – Download to Controller

2.2.1 File Details

Select a file from the list and press the **Details** button. This provides information about the file.

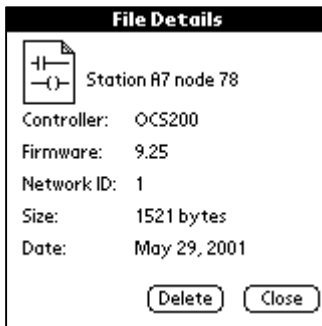


Figure 2.3 – Download to Controller

Controller - indicates the type of controller from which the file was uploaded.

Firmware - shows the firmware version of the controller.

Network - ID is the ID of the controller from the upload.

Size - is the number of bytes the entire program requires for storage.

Date - is the date the upload took place.

2.2.2 Deleting Files

Both the file list and the file details dialog contain delete buttons. Pressing delete presents a confirmation message for the delete. Accepting the delete permanently deletes the file from your handheld. If the handheld was synchronized with the PC *after* the file was uploaded, the file remains on the PC.

2.2.3 Renaming Files

Selecting a file from the file list and pressing the **Rename** button displays the following dialog. This allows a file name to be renamed after the original name was assigned from an upload.



Figure 2.4 – Rename File

2.3 Downloading Programs

To start a download, select a file from the file list and press the **Download** button.

Files can only be download to the same type of controller from which they were uploaded. For example, a file upload from an OCS100 can not be downloaded to an OCS200. Attempting to download to a different controller generates an error and prevents the download from continuing.

Files should also be downloaded to a controller with the same firmware revision as the controller used for upload. If the target controller firmware version does not match the version recorded during the upload, a warning message is shown. Because features are added in firmware releases, some or all of operations of the controller can be affected.

When the download is successfully started, the following dialog is displayed. The icon on the left is animated during the process to show that the file is moving from the handheld to the controller.



Figure 2.5 – Rename File

2.4 Verifying Programs

The Verify function uses a similar process to download. To start a verify, select a file from the file list and press the **Verify** button. Figures 2.6 – 2.8 depict the statuses of Verify (In process, pass, or fail). The icon on the left-side of the screens are animated to show the file moving between the handheld computer and the controller.

Once the verify is complete, a message appears to indicate the verify was successful .



Figure 2.6 – Verify in Process



Figure 2.7 – Verify Passes



Figure 2.6 – Verify Fails

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CHAPTER 3: USING THE ONE BUTTON LOADER

The One Button Loader is a feature built-in to Cscape PDA, and it is also included as a separate program "CsLoad.prc". This allows one or more controllers to be updated by pressing a single button. Individuals with minimal training can now update the program in one or more controllers.



Figure 3.1 – Start Screen

The one button loader sequentially loads all the files found in a handheld computer to the specified controllers. For example if the handheld contains 3 programs:

- Machine 1 - uploaded from ID 5
- Machine 2 - uploaded from ID 10
- Machine 3 - uploaded from ID 15

The one button loader attempts to load the file **Machine 1** into target **ID 5** and then attempts to load **Machine 2** into target **ID 10**, and finally, attempts to load **Machine 3** into target **ID 15**.

If more than one controller is being updated, and they are all connected via a CsCAN network, the files are all loaded using the one-point programming feature of CsCAN.

If the controllers are not networked or are networked using a non-CsCAN protocol, the load prompts the user to connect the handheld computer to the correct controller number. The user also has the option of skipping the controller if it is not available for updating.



Figure 3.2 – Prompt Screen

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CHAPTER 4: STATUS AND DIAGNOSTICS

4.1 Controller Status

Pressing the Status button from the main screen, or selecting the **Controller | Status** from the menu displays status information about the target controller. The information displayed varies based on the target controller but typically contains run/idle mode, scan rate, firmware version(s) and other program and operational status. The controller manual or the Cscape manual (for the PC) further describe the status information provided for the controller that is used.

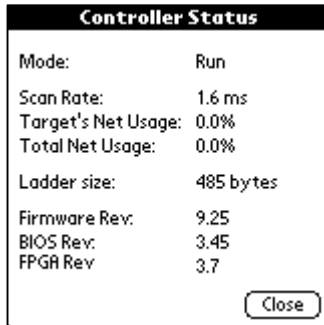


Figure 4.1 – Controller Status

4.2 Controller Diagnostics

Controller diagnostics are displayed using the drop down menu and selecting **Controller | Diagnostics**. This dialog displays diagnostic information about the target controller. This information is the same as shown in the diagnostic dialog on Cscape for the PC.



Figure 4.2 – Diagnostic Information

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CHAPTER 5: DATA WATCH

The **Data Watch** allows viewing and modifying controller registers using a variety of different formats. This is very similar to the Data Watch window found in Cscope for the PC. To start the Data Watch, press the **Watch** button on the main screen. An empty watch screen appears.

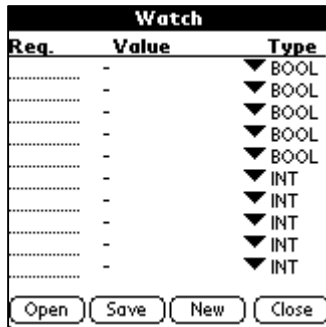


Figure 5.1 – Starting Watch Screen

5.1 Adding Registers to the Watch

To add register to the watch, tap on an empty register description (the left-most column) and enter a register. The percent sign (%) is optional. Registers can be in upper case or lower case, can include bit numbers (r100.3), and can be in the reverse format (1r). Once the register is selected, select the format by tapping on the type (right-most column). The value should now be read from the controller and updated continuously.

If excessive communication errors occur, the last value with an error is displayed as “—Comm Err—“. Cscope PDA stops scanning the target controller. To resume scanning, correct the problem causing the error (i.e., loose cable, lost power), and then close and re-open the watch dialog.

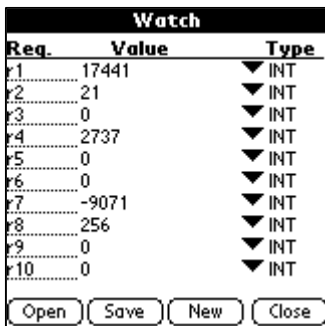


Figure 5.2 – Data Watch

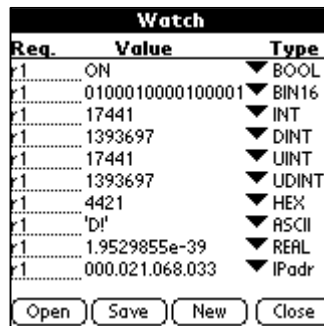


Figure 5.3 – Watch Showing Different Types

5.2 Modifying Values of Watch Registers

To modify the value of a register, tap on the value. A screen appears that allows the new value to be entered. This dialog also shows the previous value and format type.

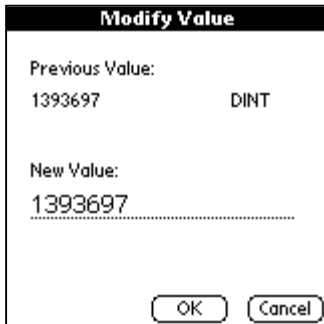


Figure 5.4 – Modifying a Value

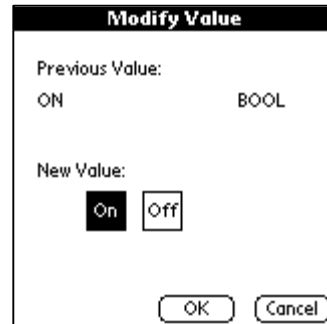


Figure 5.5 – Modifying a Boolean Value

5.3 Saving the list of Watch Registers

The Data Watch list can be saved to the handheld's memory for later use. Press the **Save** button on the Data Watch dialog. A screen appears requesting a name for the data watch. The name can be any combination of up to 32 characters. The name "Cescape Last Watch" should not be used since closing the Data Watch dialog automatically saves the current watch with this name. Each Data Watch saved requires approximately 236 bytes of storage.



Figure 5.6 – Saving Data Watch List

5.4 Opening a list of Watch Registers

To open a previously saved Data Watch list, press the Open button on the main Data Watch dialog. You will be shown a list of saved files. The file named "Cescape Last Watch" is automatically generated when the Data Watch is closed to retain the last state of the list. Select a file and press Open to reload the saved list.



Figure 5.7 – Opening Data Watch List

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CHAPTER 6: REMOTE TEXT TERMINAL

6.1 Using the Remote Text Terminal

The **Remote Text Terminal** feature operates with the same features found in the Cscape for the PC version. Start the text terminal by pressing the **Rmt Term** button on the main screen. This brings up a dialog showing a keypad and simulated display similar to the one on the connected target. (This simulates display and keypads for RCS devices.) Keys pressed on this dialog are sent to the controller where the keys are processed as if they were physically pressed. One difference is keys are only active for one scan when they are pressed on a remote text terminal.

The simulated display is constantly updated with data from the controller so the display on this dialog matches the physical display. Cscape PDA has a built-in font that exactly matches the font found in OCS text displays. At the time of printing some of the special characters had not been added to the handheld version of the font.

If excessive communication errors occur the words "Communication Error!" are displayed on the top line of the simulated display. Simply close the dialog and re-open it after the cause of the communication error has been corrected.

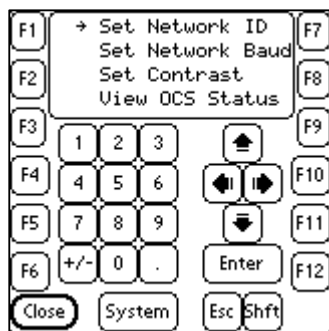


Figure 6.1 – 4-Line Remote Terminal

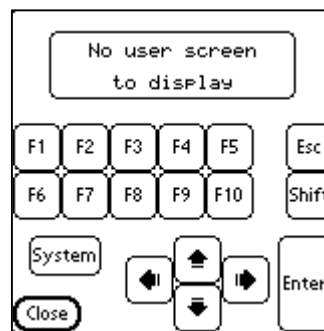


Figure 6.2 – 2-Line Remote Terminal

NOTES

CHAPTER 7: OTHER FEATURES

7.1 Changing the Controller Mode (Run / Stop)

The **Run** and **Stop** controller mode can be set using either the buttons on the main screen or the menu items under the Controller menu. The **DO I/O** mode is only set from the menu.

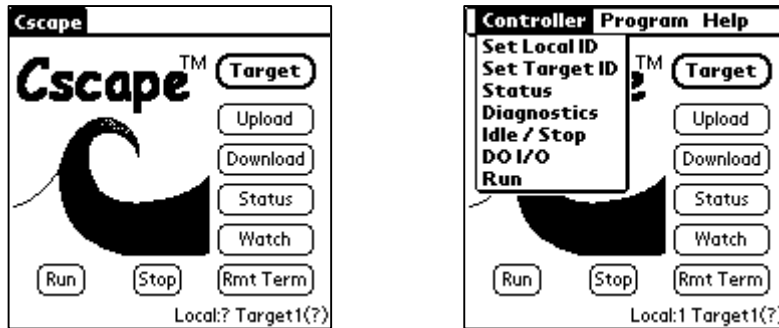


Figure 7.1 – Main Screen and Controller Screen

7.2 Changing the Local ID

To change the ID of the controller physically connected to the handheld, select the **Controller | Set Local ID** menu item. A screen appears that allows the ID to be changed. This function only works on controllers without IDs set with switches (RCS).

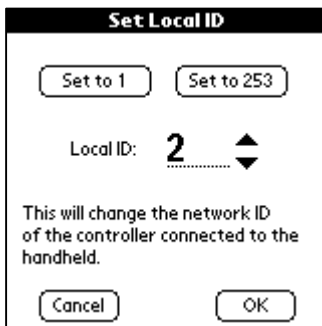


Figure 7.2 – Setting ID

7.3 Program Security

If the program loaded in the controller was configured with security options, Cscape PDA enforces this security. For example, if an attempt is made to download a program that requires a password for download, the following screen appears:



Figure 7.3 – Security

The password required for download must be entered to continue the operation.

Once a valid password is entered it is used for all secure transactions until a different password is required or Cscape PDA is closed.

7.4 Program Options (Baud Rate)

The menu item **Program | Options** allows options for the Cscape PDA program to be set. Currently the maximum baud rate is the only option that can be set. This defaults to 38,400 baud. If using a longer cable or if communication errors are experienced, reduce the baud rate. If the handheld is faster, setting the baud rate to 57,600 may improve its performance on uploads and download. Most handhelds do not work reliably at 115,200 baud.

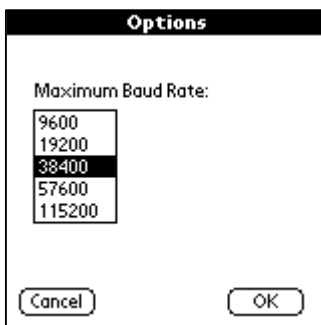


Figure 7.4 – Baud Rate Options