

Section 1: Additional Unix installation using Easyadm

This section outlines board and port maintenance activities and less frequently used Unix installation procedures. They include the following:

- Board Modification Options
- Port Configuration Options
- Autsetup
- Panel Utilities
- Customize

Board modification options

Modify Board

The configuration setup parameters (I/O addresses and interrupt) for an installed EasyConnection board can be modified within **easyadm**.

1. Highlight **Select** on the Main Menu.
2. Highlight the board to be modified and press <Enter>.
3. The Board Diagram is displayed.
4. Highlight **Modify** and press <Enter>.
5. Enter the new settings or select them from the <F3> windows for each field.
6. Type press <Enter> to accept the changes. Any board changes must be recorded in the system:
7. <ESC> back to the main menu.
8. Highlight **Exit** and press <Enter>.
9. Highlight the '**Commit changes and rebuild kernel**' option and press <Enter>.

The new settings are committed and the UNIX system is rebuilt to reflect the changes.

Remove Board

You can remove a board from the system if this becomes necessary:

1. Highlight **Select** on the Main Menu.
2. Highlight the board to be removed and press <Enter>.
3. Highlight **Remove** and press <Enter>.
4. Answer “y” at the “Remove this board and all its ports now? (y/n)” prompt. Any board changes must be recorded in the system:
5. <ESC> back to the main menu.
6. Highlight **Exit** and press <Enter>.
7. Highlight the ‘**Commit changes and rebuild kernel**’ option and press <Enter>.

Removal of the board is recorded and the UNIX system is re- built to reflect the changes.

Layout

The Layout option allows you to change the displayed circuit board diagram to suit your particular hardware type.

Note: If there is only one board layout for your board, this option is not active.

1. Highlight **Select** on the Main Menu.
2. Highlight the board to be changed and press <Enter>.
3. Highlight **Layout** and press <Enter>.
4. Select the appropriate board layout from the list of available board layouts.
5. Check the EasyConnection board switch settings.

Port configuration options

The Panel Configuration and Port Configuration menus provide access to port configuration options.

To access the panel Configuration Menu:

1. Highlight Select on the Main Menu.

2. Highlight the EasyConnection panel to be modified and press <Enter>.
3. The configuration options are displayed: Select, View, Utilities, Analyse, Panel.

To access the Port Configuration Menu:

1. Highlight Select on the Panel Configuration Menu.
2. Use arrow keys to select a port.
3. The Port Configuration options are displayed: Configure, Modify, Remove, Wiring, Options, Analyse.

Some of these options formed part of Part A - Installing with UNIX and are not included in this section.

Refer to Part A for information on:

- Select/Configure a Device
- Utilities/Copy and Remove Configuration
- Select/Wiring

View Port Setup

The View option on the Panel Configuration Menu lets you view the devices attached to each port:

- Physical Devices (Terminals, Printers, Modems, UUCP Links)
- Labels
- Sessions
- Attached Printers
- Port Status
- Input
- Output

To activate the View option:

1. Highlight View on the Panel Configuration Menu & press <Enter>.
2. Select the device type to be viewed and press <Enter>. 3 The panel diagram displays the requested information.

Port Administration on Multiple Ports

Four options are available for port manipulation from the Utilities option of the Panel Configuration Menu. These options permit multiple ports to be managed, allowing functions to be performed on many ports or on the whole panel at once.

- **Enable Port.** A login will not appear on a terminal, nor will a UNIX printer print, unless it is enabled.
- **Disable Port.** If a port needs to be disabled, use this function. Remember to re-enable it after you have attended to the matters at hand.
- **Flush Port.** The Flush option may clear minor communications problems in the data buffers. If this procedure does not work, try **Port Reset**. The **Tips** option, as described in the Port Analysis section, may provide information about why the devices are having problems communicating. Alternatively, further diagnostic tests may be required.
- **Port Reset.** Using Port Reset may get a device working again if flushing the port does not fix the problem. Port Reset will flush the data buffers and kill any processes on the port(s) selected. Further diagnostic tests may still be required.

To activate any of these administration functions:

1. Highlight Utilities on the Panel Configuration Menu.
2. Highlight the port function to be activated and press <Enter>.
3. Highlight the port to be manipulated and <Space> to select.
4. Repeat step (3) until the required number of ports have been selected.
5. <Enter> to execute the port administration.
6. Answer 'y' to the "Manipulate the highlighted ports? (y/n)" question.

Working '/' appears at the top right corner of the screen. Ports are de-highlighted as each port is manipulated.

Select another Panel Type

The Panel option on the Panel Configuration Menu allows you to select the type of panel you are working with in your system.

Modify Device Parameters

You can modify the parameters of a device attached to a port. Reasons for doing this could be:

- You are connecting a different terminal to this port.
- Device communications parameters were recorded incorrectly in original Port Configuration.

Use these steps to Modify a Device:

1. Select the port supporting the device to be modified.
2. Highlight Modify on the Port Configuration Menu & press <Enter>.
3. Select the device to be modified and press <Enter>.
4. Make the changes to the parameters.
5. <Enter> after the last field to accept the modifications.

Remove an Attached Device

The Remove option allows you to remove a device from a port:

1. Select a single port supporting the device(s) to be removed.
2. Highlight Remove on the Port Configuration Menu and press <Enter>.
3. Select the device to be removed from the device table.
4. Answer 'y' at the 'Remove this Device? (y/n):' prompt to remove the device from the port.

If you wish to remove multiple ports, use the Panel Configuration menu Utilities Remove option. See Remove Port Configurations.

Options

Options on the Port Configuration Menu provides two alternatives for changing various device parameters: Port and Device.

You will not usually change the default settings. If they do need modification, see Technical Reference section which contains details specific to these settings.

To change the default settings:

1. Highlight Select on the Main Menu, highlight the EasyConnection panel containing the relevant port and press <Enter>.
2. Highlight Select on the Panel Configuration Menu and the port supporting the Device and press <Enter>.
3. Highlight Options on the Port Configuration Menu and press <Enter>.
4. Highlight the Port or Device option (as required) and the Device Type in the Device Table and press <Enter>.
5. Change the necessary parameter(s) and press <Enter> to activate.

Autosetup

Autosetup provides the facility to create a diskette or file containing a customized setup for boards and ports. This setup can be used at a later date to restore the setup on an existing system or duplicate them on a new system. Time is saved and settings will always be correct.

The diskette or file also provides a backup of your configuration. The two options under Autosetup are:

- Create
- Install

Creating an Autosetup Diskette

1. If you are saving to diskette, have a spare diskette ready for this procedure. It can be formatted during the creation phase.
2. Highlight the Autosetup option on the Main Menu and press <Enter>.
3. Highlight Create and press <Enter>.
4. Highlight Diskette in the Destination field.
5. Highlight the Required Diskette Drive (Drive0 or Drive1).
6. Highlight the Required Diskette Size (1.2Mb or 1.44Mb).
7. If you wish to Format the Diskette first, highlight "Yes" and press <Enter>.
8. Answer "y" to the question, "Create an Autosetup using this setup (y/n)".
9. Insert the diskette and press <Enter>.

The Working '/' spins as the Autosetup diskette is created.

Creating an Autoseup File

1. Highlight the Autoseup option on the Main Menu and press <Enter>.
2. Highlight Create and press <Enter>.
3. Highlight File in the Destination field and press <Enter>.
4. Type the required filename, including the full path.
5. Answer 'y' to the question, "Create an Autoseup using this setup (y/n)".
The Working '/' spins as the Autoseup file is created.

Restoring from an Autoseup Diskette

To install an autoseup configuration from Diskette:

1. Highlight the Autoseup option on the main menu and press <Enter>.
2. Highlight Install and press <Enter>.
3. Highlight Diskette and press <Enter>.
4. Highlight the required Diskette Drive and press <Enter>.
5. Highlight the required Diskette Size and press <Enter>.
6. Insert the previously saved Autoseup diskette into the selected diskette drive and press <Enter>.
7. If saved panel configurations are the only requirements from the autoseup diskette - i.e. saved board configurations are not required - answer 'n' to "Do you wish to install the saved Board configuration? (y/n)" prompt.
8. An "Autoseup diskette" icon appears on the front screen, with any saved EasyConnection panels chained to it.
9. If 'n' was chosen above, proceed to step 13.
10. Select the Main Screen Exit option and press <Enter>.
11. Select the "Commit changes and rebuild kernel" option. 1
12. Connect any panels, reboot the machine and run **easyadm**. The "Autoseup diskette" icon again appears. 1
13. Select the Utilities option on the front screen and press <Enter>. 1
14. Highlight the Copy option of the Utilities menu and press <Enter>. 1
15. Select the panel in the Autoseup list to be copied and press <Enter>. 1

16. Select the panels to be set up identical to the selected Autosetup list panel. You can copy the setup to multiple panels by selecting cables using the arrow keys and tagging them for copying with the <Space>. When all destination cables have been tagged for copying, type press <Enter> to start the configuration copy process.
17. Exit and re-run easyadm. The "Autosetup Diskette" icon now no longer appears. The Autosetup restore is complete.

Restoring from an Autosetup File

The procedure for restoring from an Autosetup file is similar to restoring from an Autosetup diskette, except a filename is supplied to the above rather than details of the source diskette drive.

Utilities

The Utilities option on the Main Menu allows operations to be performed on entire panels.

Label a Panel

The default label given to a panel depends on the number and type of ports provided by your hardware (ie. an eight port DB25 module would have a label of '8 port ECDB'). This label may be changed to aid in identifying the ownership of ports on the panel, eg. "Admin" or "Accounts".

To Label a Panel:

1. Select Utilities on the front screen menu bar.
2. Select Label from the pop-up menu screen.
3. Choose the EasyConnection panel you wish to label. You can do this by:
 - a. using the arrow keys to move the highlight bar to the required EasyConnection panel.
 - b. entering the label, eg Accounts.
4. Accept the chosen panel by pressing press <Enter>.
5. Enter the new label on the line provided.

Copy Panel Configurations

An EasyConnection panel's configuration can be copied to another panel. After the copy, all ports on the newly configured panel will be identical to the original. Any copied printers will have a digit appended to the name to avoid printer name clashes. To copy one EasyConnection panel's configuration to another:

1. Select Utilities on the front screen menu bar.
2. Select Copy from the pop-up menu screen.
3. Select the panel you wish to copy. (See the Label a Panel procedure above for details on doing this.)
4. Select each panel designated to receive the new configuration. This is done by typing <Space> to tag each panel required.
5. Type press <Enter> after selecting all destination panels.

A progress bar is displayed at the base of the screen to reflect the progression of the device copying operation on each of the panels. In addition, the Working '/' spins, and the highlight is removed from each panel in turn as each receives its new configuration.

Remove Panel Configurations

A panel can only be deleted from the list of Off-Line panels. After removal, all port configurations and the panel itself will be removed.

Note: A panel will drop to the Off-Line list if it is disconnected or replaced with a different type of panel. If a panel appears as green on a color monitor or flashing in monochrome, either remove the off-line panel or use exchange.

To remove an EasyConnection panel:

1. Select Utilities on the front screen menu bar.
2. Select Remove from the pop-up menu screen.
3. Choose a panel you wish to remove. (See the Label a Panel procedure above for details on doing this.)
4. Select any additional panels to be removed, by typing <Space> to tag each additional panel.
5. Type press <Enter> after selecting all panels for removal.

A progress bar is displayed at the base of the screen to reflect the progression of the device removing operation on each of the panels. In addition, the Working '/' spins, and each of the panels is removed in turn.

Exchange a Panel

The entire configuration of an EasyConnection panel can be moved to another panel, providing that the new panel has no ports configured. This feature allows a panel to be easily exchanged in the event of hardware failure or upgrade.

To exchange an EasyConnection panel:

1. Power down the system and disconnect the panel to be replaced.
2. Connect the replacement panel and power up the system. If the replacement panel is of a different type, then the old panel configuration will remain "Off-Line".
3. Select Utilities on the front screen menu bar.
4. Select Exchange from the pop-up menu screen.
5. Select the EasyConnection panel which is to be replaced. (See the Label a Panel procedure above for details on doing this.)
6. Select the replacement panel.

Customize

The Customize option on the Main Menu provides the facility to customize Terminal Escape Sequences.

Terminal Escape Sequences

Each different terminal type uses escape sequences (special characters that the terminal interprets as commands instead of data for display). There are special escape sequences to:

- Position the cursor.
- Clear the screen.
- Select a different page.
- Make data go to the attached printer and not to the screen.
- and so on....

Syntax for Entering Escape Sequences

These guidelines relate to entering Escape Sequences for Session Hotkeys and Terminal Escape Sequences:

- **Tilde (~)** has a special meaning. When it precedes a character it means <ALT><character>. (Eg. ~A means <ALT><A>.)
- **Carat (^)** has a special meaning. When it precedes a character it means <CTRL>. (Eg. ^A means <CTRL><A>.) Instead of typing ^J (or Enter), enter the carat (^) followed by <J>. The carat character (^) can be entered as `\^`, `\d094`, `\x5e` or `\136`.
- **Escape (^D)** can also be entered as `\x1b`, `\d027` or `\033` for the <ESC> character.
- **Octal Numbers** are prefixed by `\`. (eg. enter octal 20 as `\020`) - Octal Numbers must contain three (3) digits.
- **Decimal Numbers** are three digit sequences prefixed by `\d`. (Eg. enter decimal 20 as `\d020`).
- **Hexadecimal Numbers.** Enter hexadecimal numbers in 2 hex digit sequences prefixed by `\x`. (Eg. enter hex 0xBF as `\xbf`).

Customize Terminal Escape Sequence Options

If you need to make changes to the Terminal Escape Sequences for the terminals connected to your system, three options are available for this process:

- Create
- Modify
- Remove

Create an Entry for a Terminal Type

Create allows you to enter Escape Sequences to support Sessions and Attached Printers on a new terminal type. Most users will not need to use this function.

1. Highlight Customize on the Main Menu and press <Enter>.
2. Highlight Terminal Escape Sequences and press <Enter>.
3. The Terminal Escape Sequences Table and Menu display.

4. Highlight Create and press <Enter>.
5. Enter a name for this terminal's entry and press <Enter>.
6. Enter the terminfo or termcap type (eg. wy60) to use. The logon TERM type will be set to this value.
7. Enter the Printer, Terminal and Session Escape Sequence and press <Enter> after each entry. Also enter the preferred hot-keys to select each session.

Note: The port sends down an escape sequence whenever it needs to switch to a new session or send output to an attached printer. If you have an attached printer, you will need to know the "Enable Transparent Print Mode" and "Disable Transparent Print Mode" escape sequences. If the terminal has an attached printer, the sequences are:

```
Attached Printer: <Enable Transparent Print>
Terminal: <Disable Transparent Print> <Select Page 0>
Session 0: <Disable Transparent Print> <Select Page 1>
Session 1: <Disable Transparent Print> <Select Page 2>
```

The following is an example set up for a Wyse 60 terminal, which uses function keys <F1>,<F2>,<F3> to select the Terminal and two extra sessions. To use this entry when creating a new terminal, enter wy60fk as the terminal type.

```
Name for this Terminfo's Entry: wy60fk
Terminfo/Termcap type to use: wy60
Target Escape Sequence Preferred Hotkey
Printer:    ^[d#
Terminal:   ^T^[w0    ^A@^M
Session 0:  ^T^[w1    ^AA^M
Session 1:  ^T^[w2    ^AB^M
```

For a Wyse 60 terminal, ^[d# and ^T turn Transparent Print mode on and off respectively, ^[w0 selects the first terminal display page, and the terminal sends ^A@^M whenever <F1> is pressed. **Modify an Entry** You can modify Terminal Escape Sequences if this becomes necessary:

1. Highlight Customize on the Main Menu and press <Enter>.
2. Highlight the Terminal Escape Sequences option and press <Enter>.
3. Highlight Modify and press <Enter>.
4. Use the down arrow to highlight the terminal type to be modified.
5. Press <Enter> and answer "y" at the "Update This Entry?" prompt.

6. Enter the changes and preferred session hotkeys and the Terminal, Session and Attached Printer Escape Sequences.

Remove an Entry

You can remove an entry from the Terminal Escape Sequences table:

1. Highlight Customize on the Main Menu and press <Enter>.
2. <Enter> to accept the Terminal Escape Sequences option.
3. Highlight Remove and press <Enter>.
4. Highlight the entry to be removed and press <Enter>.
5. Answer “y” to the “Remove this terminal entry?” prompt.

RUN

The Run option provides access to other Stallion products which may be installed on your system. If you do not have these products, a demonstration runs when the option is selected. Note that these products are now discontinued.

Crocodile (Croc)

Crocodile is Stallion’s disk performance enhancement product. To activate Crocodile:

1. Highlight Run on the Main Menu and press <Enter>.
2. Highlight Crocodile and press <Enter>.

Monitor

Monitor is Stallion’s system performance monitoring product. It highlights performance problems on your system.

To activate Monitor:

1. Highlight Run on the Main Menu and press <Enter>.
2. Highlight Monitor and press <Enter>.

Section 2: Port analysis using Easyadm (Unix)

Port monitoring

Port Monitoring provides two levels of diagnostic tests:

- All Ports Display.
- Single Port Display.

All Ports Display provides diagnostic information about all the ports on a selected EasyConnection panel.

Single Port Display displays more detailed information on a selected single port on an EasyConnection panel. The State and Device options provide device information, communication parameters, throughput statistics and status information for individual port devices. The Admin option provides device manipulation functions, such as Flush, Reset, Enable and Disable, while Tips and Report assist with reporting faults.

Access to All Ports Display

To access the All Ports Display:

1. Highlight Analyze on the Panel Configuration Menu & press <Enter>.
2. Highlight Monitor and press <Enter>. The screen displays the All Ports Display. This display provides useful diagnostic information about all the ports on the selected EasyConnection panel.
3. Use the down arrow to scroll through the display.
4. To access the Single Port Display for a particular port, highlight the port for further investigation and press <Enter>.
5. Activate any of the Single Port Display options if necessary. See explanations of individual options, in this Section, for a description of each available option.
6. <ESC> returns you to the All Ports Display.

Access to Single Port Display

The Single Port Display can be accessed through the All Ports Display as outlined above, or by selecting Analyze from the Port Configuration Menu:

1. Highlight Select on the Panel Configuration Menu.
2. Highlight the port to analyze and press <Enter>.
3. Highlight Analyze on the Port Configuration Menu and press <Enter>.
4. Highlight Monitor and press <Enter>.

The Single Port Display for the selected port is shown on the screen displaying:

- Port Configuration Parameters.
- Percentage Throughput.
- Status of RS232 Signals.

Port Status

You can use the next level of diagnostics to further examine the port setup. The options available for reporting and device manipulation are: State, Device, Admin, Report, Tips

Single Port Display Field Descriptions

Device Type identifies which of the port's devices is currently being displayed.

Device identifies the /dev device file which corresponds to the displayed device.

Comms summarizes the port's communications setup. This comprises five communication parameters, each beginning with a word describing the parameter, followed by the parameter's currently configured value:

- Baud - the port's baud rate setting (bits/second).
- Data - the port's number of data bits per char setting.
- Stop - the port's number of stop bits per character.
- Par - the port's parity setting.
- Hndshk - the port's handshaking setting.

These parameters are identical for all of the port's devices.

Description describes the various attributes of the current device (eg. terminal types, printer names, etc.).

Percentage Throughput shows receive and transmit throughput as a percentage of the port's capacity at its Baud Rate.

Total Chars the total number of characters, including flow control characters, exchanged on the current device.

Status displays the current device's line status and whether the device is Open (Operating) or Closed (Not currently operating).

State

You can use the State option on the Single Port Display to acquire detailed technical port information for the selected device. This display records statistics on character exchange, hardware and software flow control and error conditions:

1. Highlight **State** and press <Enter>.
2. The Technical Port Display for the selected port shows on the screen. The information relates to Software and Hardware Flow Control and character transmission data. See Technical Port Display Field Descriptions in this Section for field specific information.
3. Press <Enter> at the **Display** option if you need to toggle between the two statistics screens.

Note: The Host State/Slave State statistics screen is offered as diagnostic information for Stallion support use only. The user is not required to interpret the data displayed.

4. Press <Enter> at the **View** option if you wish to display more advanced technical information.

View is accessed through State on the Single Port Display:

1. With the Technical Port Display on the screen, press <Enter> to activate the View option.
2. Port State information displays:
 - EasyConnection Port State.
 - Port Control Flags.
 - Port Input Flags.
 - Port Output Flags.

Device

Several devices may be configured on one port (eg. the physical device, several sessions and an attached printer).

The Device option allows you to select a port and display information about the devices attached to that port.

1. Highlight **Select** on the Main Menu and press <Enter>.
2. Select the required EasyConnection panel and press <Enter>.
3. Highlight **Select** on the Panel Configuration Menu & press <Enter>
4. Highlight the port for investigation and press <Enter>.
5. Highlight **Analyze** on the Port Configuration Menu, press <Enter>.
6. Press <Enter> to select the **Monitor** option.
7. Highlight **Device** on the Single Port Display Menu, press <Enter>.
8. Highlight the device type you wish to display and press <Enter>.
9. Select another **Single Port Display** option or <ESC> back to the previous menu.

Admin

Admin allows you to perform various port administration tasks. Four options are available for device manipulation:

Flush device. The **Tips** option may provide information about why the device is having problems communicating. Always activate **Tips** before using the **Flush** option. Alternatively, further diagnostic tests may be required. The **Flush** option may clear minor communications problems in the data buffers. If this procedure does not work, try **Reset**.

Reset device. Using **Reset** may get a device working again if flushing the port does not fix the problem. **Reset** will flush the data buffers and kill any processes on the device selected. Further diagnostic tests may be required.

Enable device. A login will not appear on a terminal or session or a UNIX printer will not print unless it is enabled.

Disable device. If you need to disable a device, use this function. Remember to re-enable it after you have attended to the matters at hand.

To activate any of the Admin functions:

1. Highlight **Select** on the Panel Configuration Menu, highlight the port for investigation and press <Enter>.
2. Highlight **Analyze** on the Port Configuration Menu & press <Enter>.
3. <Enter> to accept the Monitor option.
4. Highlight **Admin** on the Single Port Display Menu and press <Enter>.
5. Highlight the device function to be activated and press <Enter>.
6. <ESC> takes you back to the Port Configuration Menu.

Report

The Report option generates a support notice containing all relevant information about a selected port. The information is placed in a file which you name, and is in a format suitable for printing and including in a fax to your Support Center.

To produce a Support Notice:

1. Highlight **Select** on the Panel Configuration Menu, highlight the port for investigation and press <Enter>.
2. Highlight **Analyze** on the Port Configuration Menu & press <Enter>.
3. <Enter> to accept the Monitor option.
4. Highlight **Report** on the Single Port Display and press <Enter>.
5. Type a *file name* and press <Enter>.
6. <ESC> takes you back to the Port Configuration Menu.
7. Print the file using the UNIX lp command - eg.
`lp -d <printer name> <file>`

Tips

The Tips option performs a port analysis in an attempt to diagnose common port configuration errors. An explanation of the problem and the action you should take to correct the error situation displays on the status line.

To activate the Tips option:

1. Highlight **Select** on the Panel Configuration Menu, highlight the port for investigation and press <Enter>.

2. Highlight **Analyze** on the Port Configuration Menu & press <Enter>.
3. Press <Enter> to accept the **Monitor** option.
4. Highlight **Tips** on the Single Port Display Menu & press <Enter>.
5. The error explanation displays or 'Cannot detect any serious problems on this port' appears on the status line.
6. Press <Enter> removes the message.

Technical Port Display Fields

Selecting the State option displays detailed technical port information for the selected device. This display records statistics on character exchange, hardware and software flow control and error conditions.

The port number, board number and device name are shown in the top line of the display window. The following summary provides information about the technical port display fields:

Transmitted. The total number of characters transmitted on the selected device since the last system reboot.

Received. The total number of characters received on the selected device since the last system reboot.

Transmitted/second. The number of chars transmitted on the device in the last sec.

Received/second. The number of chars received by the device in the last second.

DUART Transmit Buffer. The number of characters buffered in the EasyConnection ring queue.

DUART Receive Buffer. The number of characters in the EasyConnection receive ring queue.

Slave Transmit Buffer. The number of characters in the transmit buffer.

Slave Receive Buffer. The number of characters in the receive buffer.

Lost. The number of receive characters lost to date, due to flow control problems. Characters arrived when the ring queue was full and had to be flushed.

Overruns. The number of receive character overruns to date.

Receive Errors. The total number of receive errors to date.

Parity Errors. The number of receive parity errors to date.

Software Xon Transmitted. The number of Xon characters transmitted by the board sw.

Software Xon Received. The number of Xon characters received by the board software.

Software Xoff Transmitted. The number of Xoff characters transmitted by the board sw.

Software Xoff Received. The number of Xoff characters received by the board sw.

RTS Off. The number of times the port has de-asserted RTS.

RTS On. The number of times the port has asserted RTS.

Breaks. The number of breaks received to date.

Receive Delay. The configured software receive delay (in 100ths of a second).

Transmit Priority. The number of chars on the priority transmission queue.

Framing Errors. The number of receive framing errors to date.

Loopback Tests


Loopback tests validate the internal wiring of each port, and the port RS232/RS422 circuitry. There are two Loopback Tests:

- All Ports Loopback
- Single Port Loopback

While Single Port Loopback Tests can be performed in Multi User Mode, the All Ports Loopback Test must be done in Single User Mode.

Loopback Tests require the use of the RS232 Loopback Connector Plug (and the RS422 Loopback Connector Plug for the Dual Interface Module) which is part of the hardware package you receive with EasyConnection.


The Loopback Test displays the current line status of all ports on the EasyConnection panel. When you plug the Loopback Connector Plug into a port, the status of every signal on that port should change. This indicates a successful Loopback Test for that port. If some signals do not change, or a diagnostic error message displays for the port, the Loopback Test has failed for that port.

-  **Note:** Indicator Lights which are “asserted” are green or display as +. Indicator Lights which are “not asserted” are red or display as -.

All Ports Loopback Test

To activate the All Ports Loopback Test:

1. Boot the system in Single User Mode.
2. Highlight Select on the Main Menu.
3. Highlight the EasyConnection panel to be tested and press <Enter>.
4. Highlight Analyze on the panel Configuration Menu and press <Enter>.
5. Highlight Loopback and press <Enter>.
6. Plug the Loopback Connector Plug into a port on the EasyConnection panel. If all Indicator Lights (RS232/RS42 signals) are “asserted” the test on that port is successful.
7. Repeat step (6) on all ports on the EasyConnection panel.
8. If any test is unsuccessful, that port may be faulty.

-  **Note:** This test sends characters out all ports on the panel under test, and should be used with no devices connected.

Single Port Loopback Test

To activate the Single Port Loopback Test:

1. Highlight Select on the Main Menu.
2. Highlight the EasyConnection panel containing the port for testing and press <Enter>.
3. Select the port to be tested and press <Enter>.
4. Highlight Analyze on the Port Configuration Menu, press <Enter>.
5. Highlight Loopback and press <Enter>.

6. Working '/' appears in the top right corner of the screen until the Single Port Loopback test diagram displays.
7. Plug the Loopback Connector Plug into the port being tested. A successful test shows all Indicator Lights (RS232/RS42 signals) "asserted".
9. If the test is unsuccessful, the port may be faulty.

It is possible for a Stallion port to sustain damage to the driver chips and *still pass* the loopback diagnostic test. Stallion have developed a 'loaded' loopback tester to determine whether a port has been damaged to the point where it cannot sustain sufficient voltage under a given load. This type of damage is not covered by the warranty.

Section 3: Unix technical reference

This section contains technical information suitable for Programmers and experienced System Administrators.

Unix Device Naming Conventions

EasyConnection Device Names:

`tttybbppx` for devices where:

`bb` = [1-9][a-z] Non-modem device.

[1-9][A-Z] Modem device.

`pp` = [0-9] [0-9] Port number.

`x` = [] No characters (No multiple sessions on this port).

[0-9] Session number.

`prnbbpp` for Attached Printers:

`bb` = [1-9] [a-z] Non-modem device.

[1-9] [A-Z] Modem device.

`pp` = [0-9] [0-9] Port number.

Port configurable parameter

AutoCTS - Locked Hardware Handshaking. Easyadm provides the facility for the ports to always obey RTS/CTS transmit flow control, overriding system commands to turn hardware flow control off. This feature is particularly useful for running modems over UUCP. UUCP turns all flow control off, and uses its own sliding window protocol. By default the AutoCTS flag is OFF. A hardware handshake cable is required on a port if AutoCTS is turned ON. To change the AutoCTS flag setting from "Off" to "On" or vice versa:

1. Select a port.
2. Highlight Options on the Port Configuration Menu.
3. Highlight Port and press <Enter>.
4. Change the AutoCTS parameter and press <Enter> to execute.

Device configurable parameters

Each Device on a port has a configurable Onboard Device Flag, whilst any device on a port configured with multiple devices has the following extended list of configurable parameters:

- Onboard
- Block
- Maximum CPS
- Quantum
- Escape Wait
- Flow Control Characters

Onboard Device Flag

The Onboard device flag applies to all devices configured on a port. It should be turned off only when absolutely necessary. System performance is affected by turning the Onboard flag off. If the Onboard device flag is turned on for a device, Stallion Technologies enhanced character processing is enabled, significantly reducing the load on the host CPU. If a program doesn't work on an EasyConnection port, but does on a standard serial port, then turning the Onboard device flag off may fix it.

To change the Onboard device flag setting from "Off" to "On" or vice versa:

1. Select a port.
2. Highlight Options on the Port Configuration Menu.
3. Highlight Device and press <Enter>.
4. Select the Port Device.
5. Change the Onboard device parameter and press <Enter> to execute.

Block Device Flag

The Block Device Flag applies to Multiple Session Devices. This flag should be turned "Off" only if your terminal supports multiple windows.

Multiple Sessions are handled differently by different terminals. MSS supports a number of methods. Some terminals, such as the Wyse-60, use a separate page for each terminal session. Others support multiple tiled windows. All windows appear to be updated simultaneously.

When the Block Device Flag is turned “On”, the board software blocks output to all except the current session. The Block Device Flag defaults to “On” when a terminal session is enabled. If this flag is turned “Off”, output to sessions proceeds simultaneously.

To change the Device Flag from “Off” to “On” or vice versa:

1. Select a Port Device.
2. Highlight Options on the Port Configuration Menu.
3. Highlight Device and press <Enter>.
4. Select the port device type to be configured and press <Enter>.
5. The Device Flags display with their respective status highlighted.
6. Change the Block Device Flag and press <Enter> to execute.

Maximum CPS (CHARS/SEC) Device Flag

If output to your terminal pauses intermittently when the attached printer is printing, modifying the CPS may solve your problem.

As printers may be slower output devices than terminals, attached printers will often signal the terminal to pause output. Most terminals then relay this signal to the board sub-system. This results in all transfers between the board and the terminal being temporarily suspended (flow controlled). Output to the terminal’s screen will also stop.

To solve this problem, lower the maximum CPS value on the Attached Printer Device. This places an upper limit on the number of characters sent to the attached printer per second. Set this value slightly less than the printer’s minimum printing rate. This will prevent the printer from requesting flow control.

The default CPS value for Attached Printers is 120 characters per second. It is zero for other devices.

To modify the CPS value for an Attached Printer:

1. Highlight Select on the Main Menu, highlight the panel containing the relevant port and press <Enter>.
2. Highlight Select on the Configuration Menu and then the port supporting the Attached Printer and press <Enter>.
3. Highlight Options on the Port Configuration Menu & press <Enter>.

4. Highlight Device, highlight Attached Printer in the Device Table and press <Enter>.
5. Change the Maximum CPS parameter & press <Enter> to execute.

Quantum Device Parameter

Session and Attached Printer devices are cyclical, giving all Sessions and the Attached Printer a turn to use the line.

A quantum is the maximum burst of characters the port sends to a session if other non-blocked sessions or attached printers are also waiting for a turn to use the line for output.

You can increase the proportion of an output cycle given to a session or attached printer by increasing that device's quantum value.

On your attached printer session, always set the Quantum to be less than your printer's buffer size.

Suggested values are baud/20 for sessions up to 9600 baud or 480 for higher baud rates, and 32 for printers at all baud rates.

If the quantum value is too large, output to the terminal sessions and the Attached Printer will be bursty.

To modify the quantum value:

1. Highlight Select on the Main Menu, highlight the EasyConnection panel containing the relevant port and press <Enter>.
2. Highlight Select on the Configuration Menu and then the port supporting the Device and press <Enter>.
3. Highlight Options on the Port Configuration Menu and press <Enter>.
4. Highlight the Device option and the Device Type in the Device Table and press <Enter>.
5. Change the Quantum parameter and press <Enter> to execute. Escape Wait Device Parameter

ESCAPE_WAIT Device Parameter

If your terminal:

- Suffers from output corruptions when using an Attached Printer and/or Multiple Sessions, or

- Displays data to the wrong device (eg. data for the Attached Printer appears on the terminal),

then modifying the `escape_wait` parameter may solve your problem.

Many terminals and printers use multi-character escape sequences to control the cursor position and enhancement of data (eg. bold, inverse). When both a Terminal and its Attached Printer are operating simultaneously, the board software transparently inserts escape sequences to direct output to the appropriate device.

Often an escape sequence will only be partially output when it is time to switch output to the other device. When this happens, most terminals get confused, the desired switch is not performed and the corruption described results.

To solve this problem, a timer (set to the value of the `ESCAPE_WAIT` period) is started whenever a port sends an escape character. Switching to the alternate device will be inhibited until the `ESCAPE_WAIT` period has elapsed. The timer is re-started if another escape character is sent within the `ESCAPE_WAIT` period.

The default value of the `ESCAPE_WAIT` period for all devices is 80 clock ticks (ie. 80/100ths of a second). To modify the `Escape_Wait` parameter:

1. Highlight Select on the Main Menu, highlight the panel containing the relevant port and press <Enter>.
2. Highlight Select on the Configuration Menu and then the port supporting the Device and press <Enter>.
3. Highlight Options on the Port Configuration Menu and press <Enter>.
4. Highlight the Device option and the Device Type in the Device Table and press <Enter>.
5. Change the `ESCAPE_WAIT` parameter and press <Enter> to execute.

Device Flow Control Characters

This section is relevant only if your system uses software flow control characters other than `^S` and `^Q`.

If a device is receiving characters faster than it can process them, the device will request the port to stop sending characters. When it is ready to receive again, it will request the character flow be re-started. The board software uses two characters, `Vstop` (usually `^S`) to pause the flow, and `Vstart` (usually `^Q`) to re-start the flow.

To modify Vstop and Vstart:

1. Highlight Select on the Main Menu, highlight the panel containing the relevant port and press <Enter>.
 2. Highlight Select on the Configuration Menu and then the port supporting the Device and press <Enter>.
 3. Highlight Options on the Port Configuration Menu, press <Enter>.
 4. Highlight the Device option and the Device Type in the Device Table and press <Enter>.
- . Change the Vstart and Vstop values and press <Enter> to execute.

RS-485 support

RS-485 is an upgraded version of RS-422-A. It uses the same signal levels but extending the number of peripherals to which a computer can interface. Additionally, RS-485 allows for bi-directional multi-point party line communication and can effectively be used for 'mini-LAN' applications eg. between point of sale terminals and a central computer.

When using RS-485 party line communications, enabling and disabling of the transmitter is achieved by toggling the DTR signal. The following command configures the driver to perform DTR toggling automatically on a particular port:

```
/usr/lib/easyio/bin/bccstty -d <device> dtrfollow
```

where <device> refers to the port device name eg. /dev/tty1a00.

This should be added at the end of the easyadm startup script, located in /etc/rc2.d/S30easy (or /etc/dc.d/5/ATA5 in SCO XENIX). Unix and Xenix drivers of v5.0.8 or later have support for this feature.