Paragon® II

User Guide

Release 4.2

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For assistance in the North or South America, please contact the Raritan Technical Support Team by telephone (732) 764-8886, by fax (732) 764-8887, or by e-mail tech@raritan.com

Ask for Technical Support – Monday through Friday, 8:00am to 8:00pm, Eastern.

For assistance around the world, please see the last page of this guide for regional Raritan office contact information.

Power Safety Guidelines

To avoid potentially fatal shock hazard and possible damage to Raritan equipment:

- Do not use a 2-wire power cord in any product configuration.
- Test AC outlets at your computer and monitor for proper polarity and grounding.
- Use only with grounded outlets at both the computer and monitor. When using a backup UPS, power the computer, monitor and appliance off the supply.

Rack Mount Safety Guidelines

In Raritan products which require Rack Mounting, please follow these precautions:

- Operation temperature in a closed rack environment may be greater than room temperature. Do not exceed the rated maximum ambient temperature of the appliances (see **Appendix A: Specifications)**.
- Ensure sufficient airflow through the rack environment.
- Mount equipment in the rack carefully to avoid uneven mechanical loading.
- Connect equipment to the supply circuit carefully to avoid overloading circuits.
- Ground all equipment properly, especially supply connections, such as power strips (other than direct connections), to the branch circuit.

Contents

Figures

Chapter 1: Introduction

Thank you for purchasing Raritan's Paragon II. The Paragon family is about breaking away from the traditional, expensive model of server management – one server, one dedicated monitor, one dedicated keyboard. Paragon allows for a single User Station (monitor, keyboard, and mouse) for multiple servers – even servers of different platforms.

No matter how large or small your setup, no matter how simple or how complex, Raritan is confident that there is a Paragon system just right for you.

Paragon II Overview

The Paragon II is designed to perform heavy-duty multiple-user-to-many-server keyboard/video/mouse (KVM) matrix switching without burdening you with big, confusing hydra-headed cables. Instead, the Paragon II uses standard Category 5 unshielded twisted-pair (UTP) cabling, like the type that is already installed at many sites. It can connect users with servers across as much as 1000 ft. (304 m) of such cabling.

A Paragon II system consists of several components: Main Switching Units (M Units), which serve as Base Units and Matrix switches, securely connecting users to servers; Stacking Units (S Units), which allow you to expand your system and connect to the M Units while conserving space; Computer-Interface Modules (CIMs) connected to each server; and either the User Station (P2-UST), which connects your keyboard, monitor, and mouse to the M unit and provides an intuitive On-Screen User Interface for accessing attached servers, or the Enhanced User Station (P2-EUST), providing all of the P2-UST features, plus superior video quality with automatic skew compensation.

In addition, Raritan's P2-USTIP1 and P2-USTIP2, one- and two-worker User Stations, have integrated IP access and includes KVM over IP capability for anytime, anywhere access and control of servers along with a slim design and GUI for point-and-click remote access. The P2-USTIP supports IP access, enabling one or two remote users to access Paragon II-connected servers from anywhere via Web browser. The P2-USTIP2 also supports 128-bit SSL encryption and local authentication through Paragon II, or centralized authentication when used with Raritan's CommandCenter Secure Gateway.

There are a number of Main Switching Units that support different numbers of directly attached users and servers:

- P2-UMT242 supports 2 users and 42 servers
- P2-UMT442 supports 4 users and 42 servers
- P2-UMT832M supports 8 users and 32 servers
- P2-UMT1664M supports 16 users and 64 servers

There are also several different CIMs for different types of servers (all must output VGA video):

- P2CIM-APS2 supports servers with IBM PS/2 type keyboard and mouse ports. It comes with automatic skew compensation (when used with P2-EUST).
- ZCIM-PS2 supports servers with IBM PS/2 type keyboard and mouse ports, and has an extra RJ45 port to support a "local server" installed between a User Station and a Base Unit, as well as chaining of Z-CIMs for clustered access.
- P2CIM-ASUN supports servers with Sun type keyboard and mouse ports. It comes with automatic skew compensation (when used with P2-EUST).
- P2CIM-AUSB support servers with USB keyboard and mouse ports. It comes with automatic skew compensation (with P2-EUST).
- P2CIM-AUSB works with P2-HUBPAC in PC, MAC, and SUN USB configurations.
- P2CIM-SER, P2CIM-SER-EU and AUATC support servers or ASCII serial devices connected to Paragon II system through their RS-232 serial ports.

- P2CIM-APS2DUAL supports servers with IBM PS/2 keyboard and mouse ports, and allows one PC to double the number of users. It comes with automatic skew compensation (when used with P2-EUST).
- Two CIMs support IBM BladeCenter® (blade servers): P2CIM-APS2-B for PS/2 type keyboard and mouse ports, and P2CIM-AUSB-B for USB type keyboard and mouse ports. Both CIMs support automatic skew compensation.

One universal User Station supports PS/2, Sun, or USB keyboards and mice. (We recommend using a Sun keyboard if there are any Sun servers in your system; if you must use a PS/2 keyboard to control Sun servers, please see **Appendix F: Extra Keyboard/Mouse Information and Settings** for additional information.) If you want to connect one User Station to one server across a long stretch of CAT5 or higher cable, you can run such a cable between a "direct mode" User Station and a P2CIM-APS2 (please see **Appendix B: User Station Direct Mode** for additional information).

Raritan's enhanced User Station, P2-EUST, is a User Station that functions just like Raritan's P2-UST User Station. However, the P2-EUST provides enhanced control over video quality by either automatically adjusting the skew delay of each color, or allowing the user to manually adjust the video gain and skew delay on the screen, and store these preferences in the matrix switch's database.

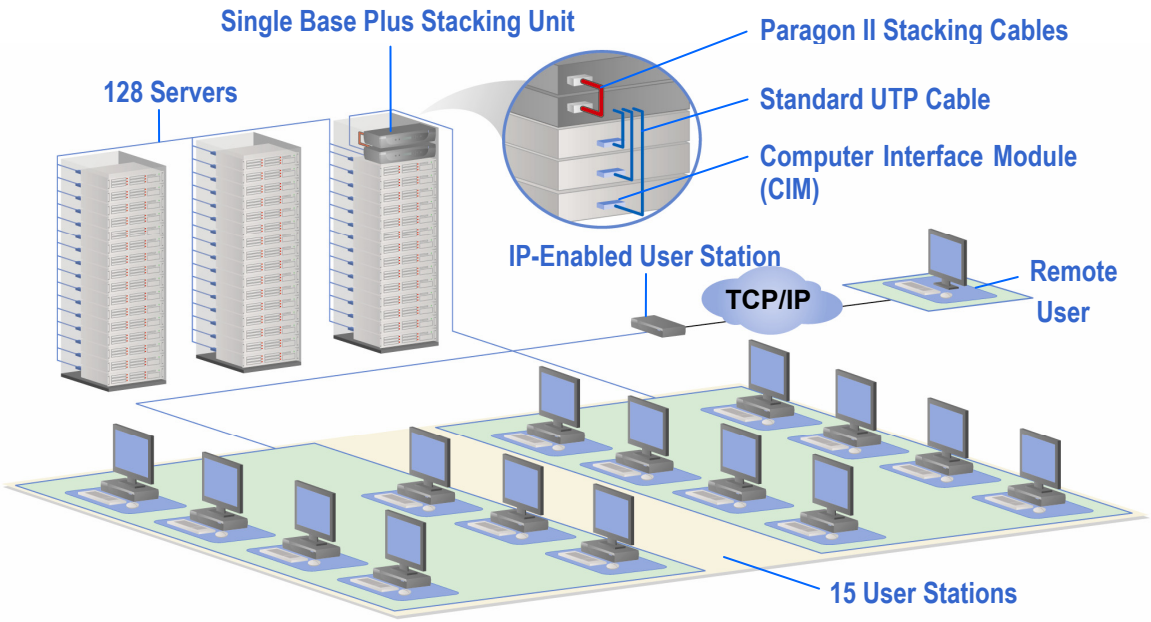

Figure 1 Overview of a Paragon II Sample System

Product Photos

Figure 2 Paragon II Main Switching Units

Figure 3 P2-UMT832 (①), P2-UST (②), and P2CIM-APS2 (③)

Figure 4 P2-EUST

Product Features

- 2U design supports 16 users, 64 servers (model: P2-UMT1664M)
  1U design supports 8 users, 32 servers (model: P2-UMT832M)
  1U design supports 4 users, 42 servers (model: P2-UMT442)
  1U design supports 2 users, 42 servers (model: P2-UMT242)
- Expands the number of users with Raritan's P2CIM-APS2DUAL or P2-HUBPAC
- Locates users and servers up to 1000 feet (304 m) apart
- Supports high-resolution video – up to 1600 x 1200
- Supports up to 512 customized user profiles (with optional Memory Card)
- Adds remote access over IP or modem with Raritan's IP-Reach and UST-IP models
- Expands to 10,000 servers via multi-dimensional expansion (with optional Memory Card)
- Stacking switches provide 100% non-blocked expansion with a single cable
- Enclosed 19" rack mounts with included brackets
- Simple plug-and-play auto-configure installation
- Hot-swappable components with no impact on server operation
- Platform-specific CIMs for PS/2, Sun, USB, Sun USB, ASCII/serial devices
- Powerful, intuitive on-screen user interface for simple operation
- Flexible, multi-level security for authorized server access
- Three system operation modes - private, public, and share
- Flash firmware upgrades with Failsafe capability via network port
- Paragon Manager, a Windows application, provides streamlined administration of Paragon II infrastructure, including adding, deleting or modifying user profiles, event logging, and database backup/restore (see Raritan's **Paragon Manager User Guide** for additional information about Paragon Manager, which is located on the "User Manuals & Quick Setup Guides" CD shipped with your Paragon unit, or you can visit Raritan's Product Documentation Web page: http://www.raritan.com/support/productdocumentation).
- Administrator can log out any connected user
- Turn on, off, or reboot power to any connected device
- Network admin port
- Set power control permissions on a per-outlet basis
- Supports the use of Pinnacle FastAction keyboard (when used with P2CIM-APS2 or P2CIM-APS2DUAL)
- Supports 10-BaseT, half duplex network speed (not configurable)
- OSUI (On-Screen User Interface) support for IBM BladeCenter® servers
- Supports the use of a 121-key Cortron rugged keyboard at the local site when used with the following Paragon II User Station.
  – P2-EUST with firmware version 3E46 or later
  – P2-USTIP with firmware 4.5.0.5.3 or later (local PS/2 port only)

  Both PS/2 (part number 536-0062) and USB keyboards (part number 524-0079) are supported. Those with built-in Sun keys are also supported, and the Sun power key may be used to power off the server, but not power it on.
- Supports the use of a Kensington Expert Mouse® and Turbo Mouse trackball (Model #: 64210) at the local site when used with the following Paragon II components.
  – User Station: P2-UST or P2-EUST
  – CIM: P2CIM-AUSB with the latest CIM firmware
- Supports Multiple Video, also known as "Port-Following Switch." Multiple Video enables up to four User Stations to simultaneously view the video output of a server that has multiple video output.
- Supports video redirection to a specific User Station (known as "Forced Video")
  – Local control by the Administrator
  – Remote control by the Administrator and authorized users through Paragon Manager

Special Note:

Paragon II Release 4.2 is not compatible with the Paragon II System Controller. Release 4.2 is considered a "standalone" release and is not supported for installation in a Raritan PCCI environment. PCCI integration is planned for an upcoming release.

Current Paragon II System Controller customers who wish to expand their Paragon II infrastructure by adding Paragon II switches and user stations are advised to specially request new equipment that is provided with firmware version level 4.1 when placing an order.

Package Contents

Each Paragon Main Switching Unit (M Unit: P2-UMT242, P2-UMT442, P2-UMT832M, or P2-UMT1664M) ships with:

- One Main Switching Unit
- Two 20-ft. (6.1-m) CAT5 test cables
- One Pair of Rackmount brackets and associated screws
- One 6-ft. (1.8-m) AC power cord
- RUMT-1U-LM304 Rackmount kit
- CAT5 admin cable
- Raritan's "User Manuals & Quick Setup Guides" CD
- Quick Setup and Installation Guide

The Paragon Stacking Unit (S Unit) ships with:

- One Stacking Switch
- One RUMT-1U-LM304 Rackmount kit
- One 6" Stacking Cable (for use with P2-UMT832M) or (2) 6" Stacking Cables (for use with P2-UMT1664M)
- One AC Power Cord

The Paragon User Station (both P2-UST or P2-EUST) ships with:

- One User-Station Module
- One 6-ft. (1.8-m) AC power cord
- One 6-ft. (1.8-m) AC power-extension cord for the attached monitor
- One 10-ft. (3-m) DB9 male-to-female serial administration cable

Chapter 2: Installation

Important: The Paragon and all devices you want to attach to it must be unplugged and powered OFF prior to installation.

Basic Installation

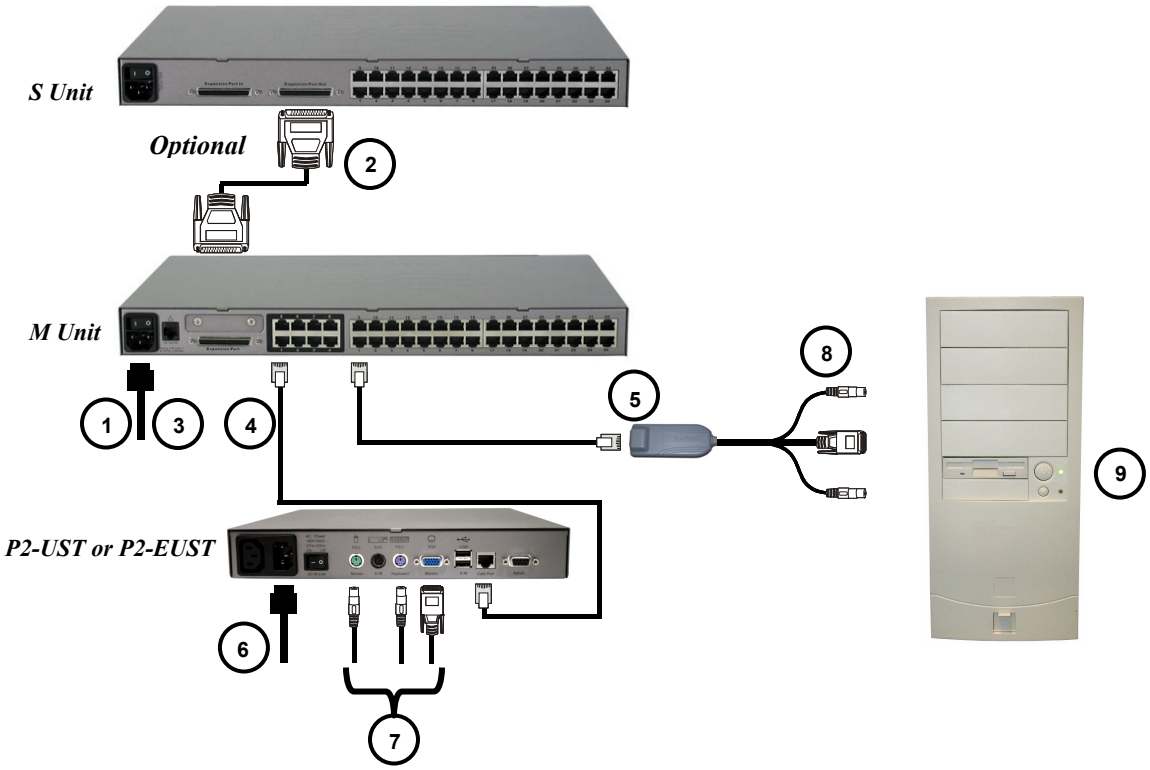

Figure 5 Installation Diagram

1. Connect the power cord to the Main Switching Unit.
2. **(Optional)** Connect a Stacking Unit if it is needed.
   - Connect the power cord to the Stacking Unit.
   - Connect one end of a stacking cable to the "Expansion Port Out" on the back of the Stacking Unit. Connect the other end of the cable to the "Expansion Port" on the Main Switching Unit.

     Note: *For P2-UMT1664M and P2-UMT1664S, you must use two stacking cables. For detailed instructions, see* ***Installing the Paragon P2-UMT1664S Stacking Unit*** *later in this chapter.*

   - Power on all switching units.
   - On the front panel of the Main Switching Unit:
     - Press the **FUNC** button and then use the △ and ▽ buttons to select "Stacking Support." Press the **ENT** button to confirm the selection.
     - Use the △ and ▽ buttons to set the total number of Stacking Units desired (3 maximum for P2-UMT832M or 1 maximum for P2-UMT1664M). Press the **ENT** button to save the setting.

- On the front panel of the Stacking Unit:
  - Press the **FUNC** button and then use the △ and ▽ buttons to select "Set Stack ID." Press the **ENT** button to confirm the selecition.
  - Use the △ and ▽ buttons to assign the Stacking Unit ID. (Each Stacking Unit for P2-UMT832M MUST HAVE A UNIQUE ID [1-3].) Press the **ENT** button to save the setting.
- Power OFF all switching units.
- Power ON the Stacking unit. (This must be done before powering on the Main Switching Unit.)

3. Power on the Main Switching Unit.
4. Connect one end of a Category 5e UTP cable to User Port #1 on the back of the Main Switching Unit. Connect the other end of the cable to the "Cat5 Port" on the back of the User Station (P2-UST or P2-EUST).
5. Connect a power cord to the User Station. Power on the User Station.
6. Connect a PS/2 or USB keyboard, mouse, and a VGA monitor to the User Station. Power on the monitor.
7. Connect one end of a Category 5e UTP cable to Channel Port #1 on the back of the Main Switching Unit (or Stacking Unit, if attached). Connect the other end of the cable to the RJ45 port on a Computer Interface Module (P2-CIM).
8. Connect P2-CIM to a server's keyboard, video, and mouse ports.
9. Power on the server.
10. Repeat steps 4 through 9 for all other servers you want to attach.

Note: *Although users and servers can be located up to 1000 feet (304 m) apart, for optimal video quality, limit the cable length between the Main Switching Unit and CIM to less than 100 feet (30.5 m). For good video quality, limit the cable length to less than 500 feet (152 m).*

Initial Administrative Verification

To verify that an attached server can be viewed and controlled through the Paragon system:

1. When you first power on the Paragon Main Switching Unit, an attached User Station, and the User Station's attached monitor; the Login screen appears. Type **admin** in the **User Name** field and press **Enter.** Type **raritan** (all lowercase) in the **Password** field and press **Enter.**

Note: *The factory-default user names for regular users are **user01** through up to **user15** (depending on the model of your Main Switching Unit), and for the administrator is **admin**. User names are not case-sensitive. By default, a password is required only for the admin user, and that password is **raritan**. Note that passwords are case-sensitive.*

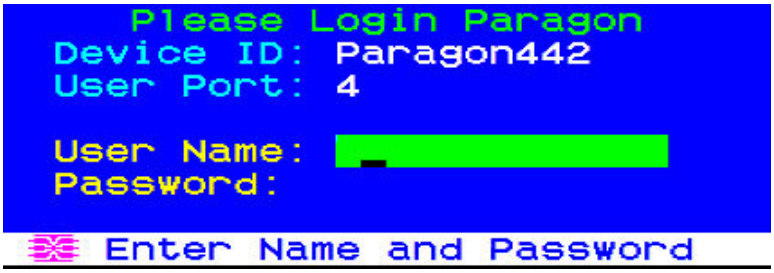

Figure 6 Login Screen

2. The Selection Menu of On-Screen User Interface (**OSUI**) appears. The channel ports of connected servers appear in green. At the start, there are no default names for any servers and the **Name** fields are blank, except for IBM BladeCenter chassis (if any), which has a default name shown as "IBM-Blade".

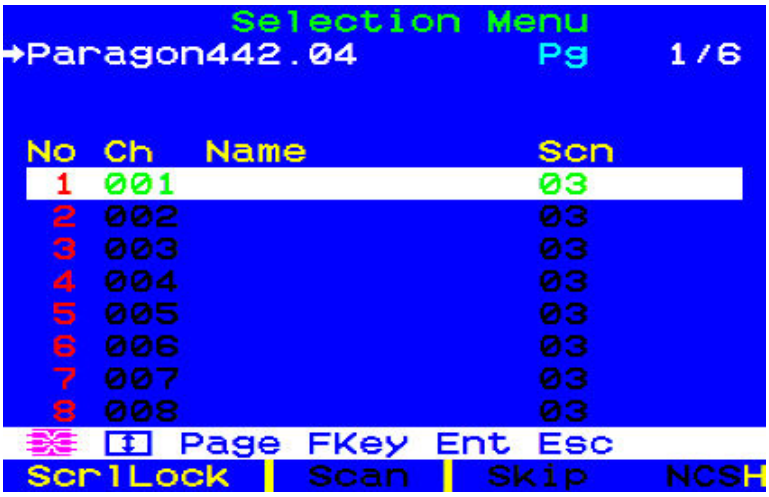

Figure 7 Selection Menu

3. Press the ↑ and ↓ keys on the User Station keyboard to move the highlight to one of the green server ports and press **Enter.**
4. Normal server access and operation indicates a successful connection.
5. Press the **Scroll Lock** key twice QUICKLY to activate the OSUI, and either press **F9** to log out or choose another green channel (if any) to access.

Paragon II Front Panel Display and Controls

The control buttons and LCD display on the Paragon II unit provide system management and technical support functions. For most situations, there is no need to use the front panel beyond viewing status.

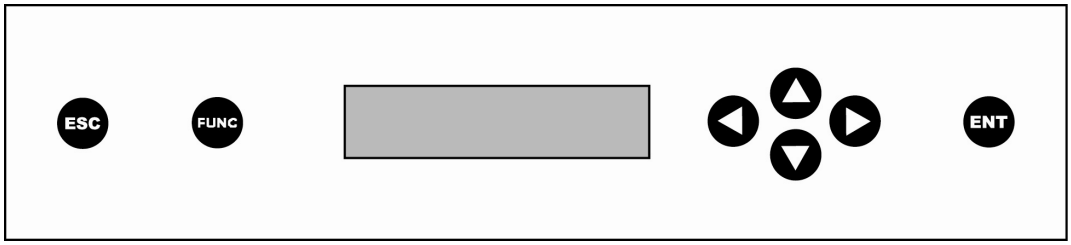

Figure 8 Paragon II Front Panel Buttons

Front Panel Components and Functions:

1. The **ESC** button is used for canceling displayed function and returning system to normal state.
2. The **FUNC** button is used to select various functions.
3. The **LCD** displays system status and indicates functions that can be selected by pressing front panel control buttons.
4. The ◁, △, ▷, and ▽ buttons are used for selecting or setting various options, depending on the function being performed.
5. The **ENT** button is used for confirming and executing selected function.

Start-Up Display:

When a Paragon II unit is powered ON, it performs a start-up test at the beginning. It checks each channel and user port to ensure proper operation.

Normal Display:

After the start-up test, LCD panel displays two lines of messages:

1. **Line 1:** Running message: "Raritan Computer Paragon II: Paragon832/1 Ready"
   For a Paragon II unit model P2-UMT832M, "Paragon832" is the default name of the Matrix switch (this name may be changed through the OSUI's System Configuration submenu).
2. **Line 2:** User port status message: "A/N User (1, 2, 3 …) → None"
   User port status displays a scrolling status of all user ports, one user port per second. The User's active channel, 1 through 128, is displayed after the user port number.

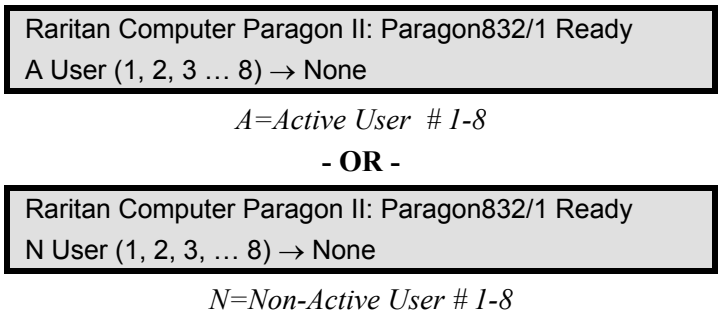

Figure 9 LCD Normal Display

Power Up Option:

If you hold down the **FUNC** button on the front panel of the Paragon II unit during Power Up, the Paragon II unit will clear its database and reset to factory defaults. Confirm functions by pressing the **ENT** button on the front panel.

When "Clear Database Hit Ent/ESC?" appears on the LCD, press the **ESC** button if you want to exit the screen without clearing the database. To clear the database, press the **ENT** button; "Clear All?" appears on the LCD. If you press the **ESC** button once more, the channel configuration will be cleared and will be rebuilt later by the Paragon unit. This is called a **Partial Reset**. However, if you press the **ENT** button, both the channel configuration and the user profile and system settings will be cleared.

Figure 10 Power Up Clear Database

Function Selection Screen:

Several administrative functions can be performed on the Function Menu on the Paragon II unit's front panel LCD.

Display Ver./SN
Test User UST1
Test Chan. UKVM
Test Stack Unit
Stacking Support
Set LCD Contrast
Re-Configure
Set IP Address
Reset Unit

Figure 11 LCD Functions

Selecting a Function:

Press the **FUNC** button on the front panel of the Paragon II unit to enter Function Menu mode and use the △ and ▽ buttons to scroll through the Function List. Press the **ENT** button on the front panel to select one displayed function and use the instructions below for each specified function. Press the **ESC** button on the front panel at any time to return to Normal Display.

Figure 12 Function Selection

1. **Display Ver./SN** (Firmware Version and Serial Number)**:** Displays current version of firmware, the firmware loader, the unit's serial number, and the field programmable gate array (FPGA).

Figure 13 Display Ver. and SN

2. **Test User UST1** (User Station)**:** Used by an administrator to check if User Stations (UST1s) are functioning properly. Press the △ or ▽ button to change user port number. Display will read "OK", "None", or "Failed." Press **ESC** to return to normal display."
   If a "failed" condition is detected, make sure the Category 5e UTP cable is installed properly and secured, or try using another UST to see if the UST under test has become defective.

Figure 14 User Station Test

3. **Test Channel UKVM** (CIM UKVM)**:** Used by an administrator to check if a CIM is functioning properly. Press the △ or ▽ button to change channel number. Display will read "OK", "None", or "Failed." Press **ESC** to return to normal display.
   If a "failed" condition is detected, make sure the Category 5e UTP cable is installed properly and secured, or try using another CIM to see if the CIM under test has become defective.

Figure 15 Channel CIM (UKVM) Test

4. **Test Stack Unit:** Press the △ or ▽ button to select the corresponding Stacking Unit ID for any connected units. If there are no Stacking Units connected, the LCD will display "None". If there are Stacking Units connected, the LCD should read "OK" for each unit. Press **ESC** to return to normal display.

5. **Stacking Support:** Press the △ or ▽ button to set the Stacking Unit ID number (0 – 3 for a P2-UMT832M or 0-1 for a P2-UMT1664M). The default is set to "0" (no Stacking Units connected). If you wish to add Stacking Units, this number must be equal to the number of Stacking Units connected. Press **ENT** to save the value or **ESC** to cancel and return to normal display.

Figure 16 Stacking Support

6. **Set LCD Contrast:** Modifies contrast level of front panel LCD Display. Press the △ or ▽ button to increase or decrease contrast, and press the **ESC** button to return to normal display.

Figure 17 Set LCD Contrast

Note: *LCD contrast can also be adjusted by holding the ◁ button and pressing the △ or ▽ button at any time.*

7. **Re-Configure:** Paragon II will automatically configure the system as computers or devices are added or removed. However, the system administrator can use this function to scan and re-configure the system manually. When complete, it will return to normal display.

Figure 18 Auto Configure

8. **Set IP Address:** As an administrator, you may change Paragon II's IP address directly from the front panel of the device. The Paragon II's current IP address will be displayed, along with a cursor. Use the ◁ and ▷ keys to move the cursor over digit-by-digit, and use the △ or ▽ keys to change the value of that digit. Press the **ENT** button when the new IP address has been set. Press the **ENT** button again to save changes and reboot the unit when asked to "Save Changes?" The unit will restart with the new network address.

Note: *Stacking units do not have their own databases and configurations settings, and likewise, do not have their own network addresses. You cannot configure one using the front panel controls on the units.*

9. **Reset Unit** (Paragon II matrix switch)**:** Enables restart of Paragon II unit as if the unit's power is physically turned off and back on again.
With Paragon II unit firmware 2B1 and User Station (UST1) firmware 2K10 or higher, either a power reset or a factory "function" reset can be performed from the front panel of the Paragon II unit using shortcut button combinations (see below for details).

■ **Power Reset:**

Hold the △ and ▽ buttons on the front panel of the Paragon II unit simultaneously for approximately three seconds. When the front panel LCD stops scrolling, release the buttons.

■ **Factory "Function" Reset:**

Hold the △ and ▽ buttons on the front panel of the Paragon II unit simultaneously while pressing the **FUNC** button. When the front panel stops scrolling, release the △ and ▽ buttons, wait for additional three seconds, then release the **FUNC** button.

When "Clear Database Hit Ent/ESC?" appears on the LCD, press the **ESC** button if you want to exit the screen without clearing the database. To clear the database, press the **ENT** button; "Clear All?" appears on the LCD. If you press the **ESC** button once more, the channel configuration will be cleared and will be rebuilt later by the Paragon unit. This is called a **Partial Reset**. However, if you press the **ENT** button, both the channel configuration and the user profile and system settings will be cleared.

After resetting the device, a progress indicator appears on the message bar of the OSUI to indicate the current update percentage. During the database updating, users are unable to operate the OSUI functions.

Figure 19 Data Update Message

Initial Configuration

*Note: This section includes full instructions for how to install single matrix switches, cascades of multiple matrix switches, or stacking switches. Follow the simplified procedure previously outlined in **Basic Installation** to install a simple Paragon system with a single matrix switch. See **Appendix B: User Station Direct Mode**, to install a "direct mode" User Station-to-CIM system with no matrix switches. See **Chapter 5: Paragon II and P2ZCIMs** to install a Z-CIM and a local PC in your system.*

Using the OSUI for Initial Configuration

You will use the Paragon II On-Screen User Interface (OSUI) after you install the Paragon system, so here are some basics of OSUI to familiarize yourself before starting your installation. Once the User Station and the attached equipment are in place and powered on, activate the OSUI by QUICKLY pressing the default hot key (**Scroll Lock**) twice on an attached keyboard. Each OSUI menu contains the following sections: a menu-title line, a menu/screen body (for text and fields), a prompt/message bar, and a status line that consists of:

- The current OSUI hotkey
- Scan/Skip function status
- NCS (**Num Lock**, **Caps Lock**, and **Scroll Lock**) status indicator
- A communication-speed indicator ("**L**" for low or "**H**" for high, which will depend on your Paragon components) showing the communication speed between the User Station and Base Station.

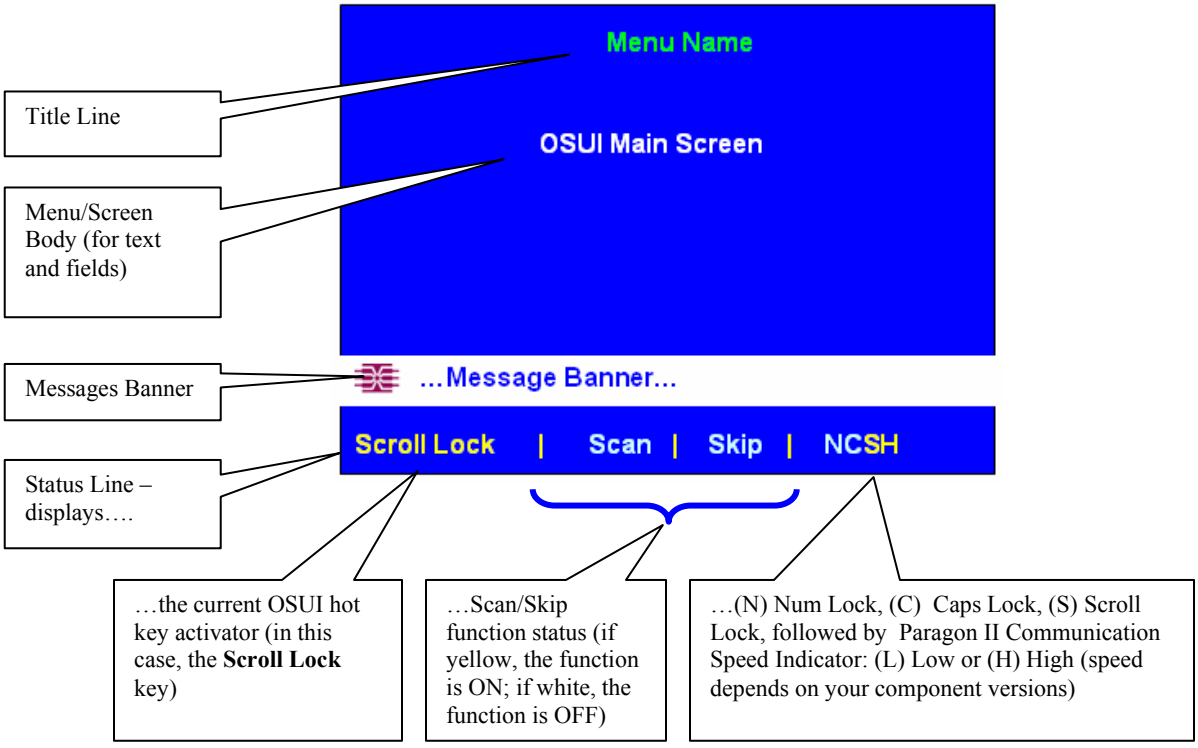

Figure 20 Format of OSUI screens

Use function keys **F1**, **F2**, **F3**, **F4**, **F8**, and **F12** to toggle between first-level menus. Press **F1** while the OSUI is displayed can activate the Help Menu, a list of available help options.

While the OSUI is on the screen, the user-station keyboard's **Scroll Lock** LED indicator blinks.

Below is an abbreviated table of the function keys you will use when working with the OSUI:

KEY	ACTION
F1	View the Help Menu
F2	Go to the Selection Menu for accessing channel ports
F3	View the Power Control Menu for associated Channel
F4	Go to the User Profile Menu for users to customize their settings
F5	Administrator only: Go to the Administration Menu for the administrator to manage the system settings
F6	Administrator only: Toggle the autoscan function on or off
F7	Administrator only: Toggle the autoskip function on or off
F8	View the Information Menu
F9	Log out of the system
Shift + F9	Disconnect from the currently accessed channel without logging out of the system
F10	Toggle the display of all channel ports (including inaccessible ones) on or off
F11	View the Unit Status Menu for connected Raritan Remote Power Control unit (available only from Power Control Menu)
F12	Toggle the Selection Menu's sorting way: numerically by port number or alphabetically by name
Esc	Exit the current OSUI (On-Screen User Interface) screen

Installing a Paragon System with a Single Matrix Switch

If installing a single Paragon matrix switch, keep in mind the maximum numbers of User Stations and server s you can connect:

- 2 User Stations and 42 servers to a P2-UMT242
- 4 User Stations and 42 servers to a P2-UMT442
- 8 User Stations and 32 servers to a P2-UMT832M
- 16 User Stations and 64 servers to a P2-UMT1664M

Important: All Paragon components, servers, and monitors must be turned OFF and unplugged before installation.

1. Initialize the matrix switch.
   A. Run the matrix switch's included power cord from the IEC 320 inlet on its rear panel to a working AC outlet.
   B. Power on the matrix switch.
2. Connect a User Station and its attached devices.
   A. Connect one end of a CAT5 UTP cable to user port # 1 on the back of the matrix switch. Connect the other end of the cable to the RJ45 CAT5 port on the back of the User Station.
   B. Run the User Station's included power cord from the IEC 320 inlet on its rear panel to a working AC outlet.
   C. Power ON the User Station. It will power up and establish communication with the matrix switch.
   D. Connect a keyboard, a mouse, and a monitor to the User Station. (To control Sun servers with a PS/2 keyboard, please see **Appendix F: Extra Keyboard/Mouse Information and** Settings for additional information.)
   E. Plug in and power on the monitor.
3. Perform initial configuration of the User Station.
   A. The Login screen should be displayed on the User Station's attached monitor. If the **Scroll Lock** LED on the User Station's attached keyboard is blinking, the Paragon is ready to accept hot key commands, which can be used with the OSUI to login, select servers, or administer the system.

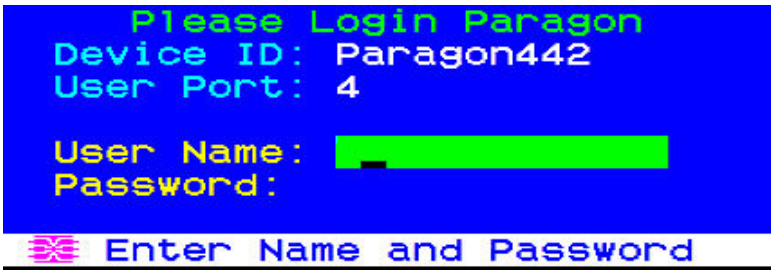

Figure 21 Login Screen for Paragon II

If the monitor instead displays a ".....No connection to Paragon....." message, the User Station is not properly connected to the matrix switch. Check for loose connections and make sure you are using good, intact CAT5 cables.

   B. Type **admin** in the **User Name** field and press **Enter.** In the **Password** field, type the default password **raritan** (all lowercase) and press **Enter.**

C. The OSUI's Selection Menu appears, indicating that the User Station is correctly installed.

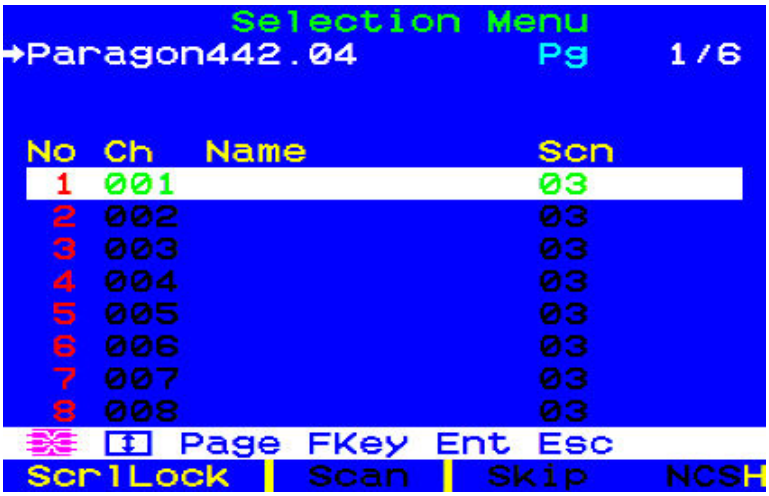

Figure 22 Selection Menu

4. Repeat steps 2 and 3 for each User Station you want to connect to the matrix switch.
5. Connect a CIM and the desired server.
   A. Connect the cable strands of an appropriate CIM to the appropriate ports on a server:
      - P2CIM-APS2 (IBM PS/2 compatible servers) or P2CIM-APS2-B (IBM Blade servers with PS/2 ports):
        Plug the HD15 strand into the server's HD15 VGA video port. Plug the purple 6-pin mini-DIN keyboard strand into the server's 6-pin mini-DIN keyboard port. Plug the light green 6-pin mini-DIN strand into the server's 6-pin mini-DIN mouse port.
      - P2CIM-SUN (Sun compatible servers):
        Plug the HD15 strand into the server's HD15 VGA video port. Plug the 8-pin mini-DIN strand into the server's 8-pin mini-DIN keyboard/mouse port.
      - P2CIM-AUSB, or P2CIM-AUSB-B (IBM Blade servers with USB ports):
        Plug the HD15 strand into the server's HD15 VGA video port. Plug the USB Type A strand into one of the server's USB Type A ports.
      - P2CIM-APS2DUAL (IBM PS/2 compatible CPUs):
        Connect keyboard, monitor, and mouse cables attached to the CIM to the appropriate 15-pin female video port and 6-pin mini-DIN mouse and keyboard ports on the server.
      - AUATC (serial servers, routers, etc.):
        Please see **Appendix E: Connecting Serial Devices to Paragon II System** for installation instructions.
      - Z-CIM and P2ZCIM (local single-user IBM PS/2 compatible servers):
        Please see **Chapter 5: Paragon II and P2ZCIMs** for installation instructions.
   B. Plug in and power on the server. If the CIM is installed and operating properly, the CIM's green LED will start blinking: once per second while the CIM is idle, more quickly while data is passed in either direction.
   C. Connect one end of a CAT5 UTP cable to RJ45 port #1 on the back of the matrix switch. Connect the other end of cable to the RJ45 port on the CIM.
6. Configure the CIM and the attached server.
   A. The monitor attached to the User Station will display the Selection Menu; with the server you just connected displayed in green. Use the ↑ and ↓ keys to move the highlight to that entry and press **Enter.** If you can access and operate the server normally, the CIM is connected successfully. Raritan recommends you give the server a meaningful system name at this time, as described in the next steps.

Note: *If your video image is fuzzy (especially if you are using an LCD flat-panel monitor), you can adjust the video gain to focus the video image. If the OSUI is not displayed, activate it by pressing the* ***Scroll Lock*** *key twice QUICKLY, then use the + and – (plus and minus) keys on the numeric keypad to adjust the video image until it appears to be in focus. The P2-EUST provides automatic and manual skew compensation, which will also help improve video quality. Please see* ***Video Gain Adjustment and Skew Compensation in P2-EUST*** *in Chapter 3 for additional information.*

B. Press **F5** to activate the Administration Menu. Use the ↑ and ↓ keys to move the highlight to the Channel Configuration entry and press **Enter.**

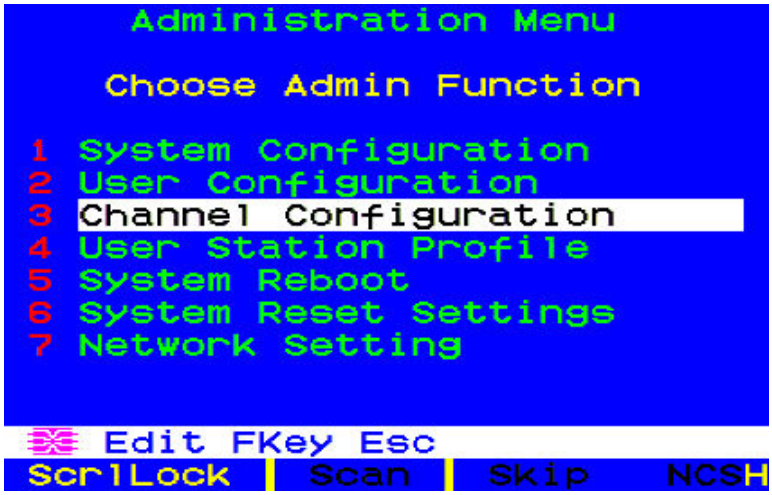

Figure 23 Administration Menu

7. The Channel Configuration menu appears. Use the ↑ and ↓ keys or **TAB** to move the yellow highlight to the **Name** field for the channel port number where you installed the server and press **Enter**. The highlight turns light blue.

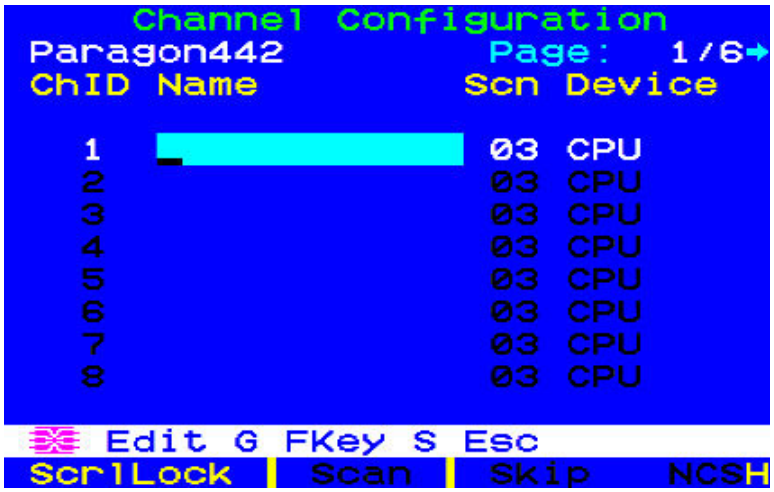

Figure 24 Channel Configuration Menu of a P2-UMT442

A. Edit the name (the highlight turns green when you start typing). Press **Enter** when finished, and press **S** to save the new name.
B. Press **F2** to return to the Selection Menu. Verify that the new name appears in the Selection Menu.

8. Repeat steps 5 and 6 for each CIM and server you want to connect to the matrix switch's channel ports.

Installing a Cascaded Paragon System

Paragon II's channel port capacity can be expanded by installing a cascade of matrix switches (Main Switching Units). In a "two-tiered" cascaded system, one or more subsidiary matrix switches are connected to the channel ports of a Base Unit (first tier -- Master matrix switch). If you fully populate a second tier, you can add a third tier by connecting additional subsidiary matrix switches to the channel ports of matrix switches in the second tier. Three tiers is the maximum depth of a cascaded system; only CIMs may be attached to the channel ports of matrix switches in the third tier.

Note: *When powering on existing stable configurations (i.e., if you are NOT replacing or adding switches and NOT swapping the order of switches) or when you are Power Cycling a cascaded configuration, Raritan recommends that you ① Power on the THIRD TIER switches (if a third tier exists), then ② Power on the SECOND TIER switches, and ③ Power on the Paragon II BASE TIER. User Stations can be powered on and off at any time as needed.*

Please note that this order is the reverse of upgrading a cascaded configuration: when upgrading, first ① Power on the BASE TIER, then ② Power on the SECOND TIER, and ③ Power on the THIRD TIER (if a third tier exists).

For configurations where switches are added, replaced, or swapped (in order), we recommend powering on starting FROM THE THIRD TIER, moving to the second tier, and then the base tier, and in addition, performing a partial reset of the database.

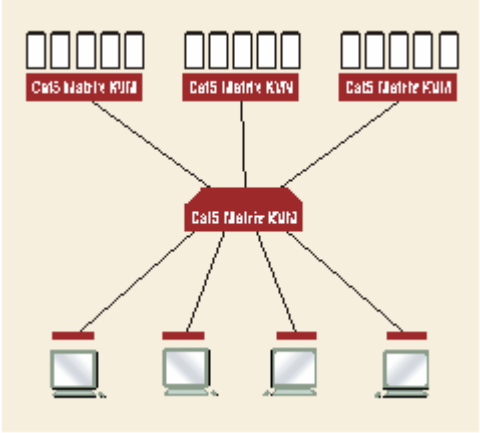

Figure 25 Sample Cascaded System

1. Connect one end of a CAT5 UTP cable to user port #1 on the back of the Master matrix switch (Base Unit). Connect the other end of the cable to the RJ45 CAT5 port on the back of the User Station. Connect a keyboard, a mouse, and a monitor to the User Station. Do not plug in or turn on the User Stations or monitors yet. (Do not attach anything to the matrix switch's channel ports and do not plug it in or turn it on yet.)
2. For each subsidiary matrix switch you want to attach directly to the Master, run CAT5 UTP cables from consecutive channel ports on the Master matrix switch to the subsidiary matrix switch's user ports.
3. If you are installing a third tier: Run CAT5 UTP cables from consecutive channel ports on a second-tier matrix switch to the user ports on a third-tier matrix switch. Repeat for all other subsidiary matrix switches in the third tier.
4. Follow step 5 of **Installing a Paragon System with a Single Matrix Switch** to attach CIMs and servers to the free channel ports on the third-tier matrix switches, on the second-tier matrix switches, and on your Master matrix switch.

5. Following step 1 of **Installing a Paragon System with a Single Matrix Switch,** plug in and power on any THIRD-TIER matrix switches, then the SECOND-TIER matrix switches, and finally your MASTER matrix switch (Base Unit).
6. Following steps 2B, 2C, and 2E of **Installing a Paragon System with a Single Matrix Switch,** plug in and power on your User Stations and monitors.
   The Base Unit (Master matrix switch) should automatically recognize the connected subsidiary matrix switches and update its configuration. All monitors should display the Login screen. If any monitors instead display a ".....No connection to Paragon....." message, the User Station they are attached to is not properly connected to the Base Unit. Check for loose connections and make sure you are using good, intact CAT5 cables. (See **Appendix A: Specifications** for UTP-cabling information.)

Note: *If your video image is fuzzy (especially if you are using an LCD flat-panel monitor), you can adjust the video gain to focus the video image. If the OSUI is not displayed at a given monitor, activate it by pressing the* ***Scroll Lock*** *key twice QUICKLY, then use + and – (plus and minus) keys on the numeric keypad to adjust the video image until it appears to be in focus. The P2-EUST provides automatic and manual skew compensation, which will also help improve video quality. Please see* ***Video Gain Adjustment and Skew Compensation in P2-EUST*** *in Chapter 3 for additional information.*

---

7. Configure the channel ports in your system. (Check the **Scroll Lock** LED on one of your user-station keyboards. If it is blinking, Paragon is ready to accept the hot key commands from that User Station. Hot key commands can be used with the OSUI to login, select servers, or administer the system.)
   A. At the Login screen, type **admin** in the **User Name** field and press the **Enter** key. In the **Password** field, type the default password **raritan** (all lowercase) and press the **Enter** key.
   B. The monitor will display the Selection Menu, indicating that the User Station is correctly installed.

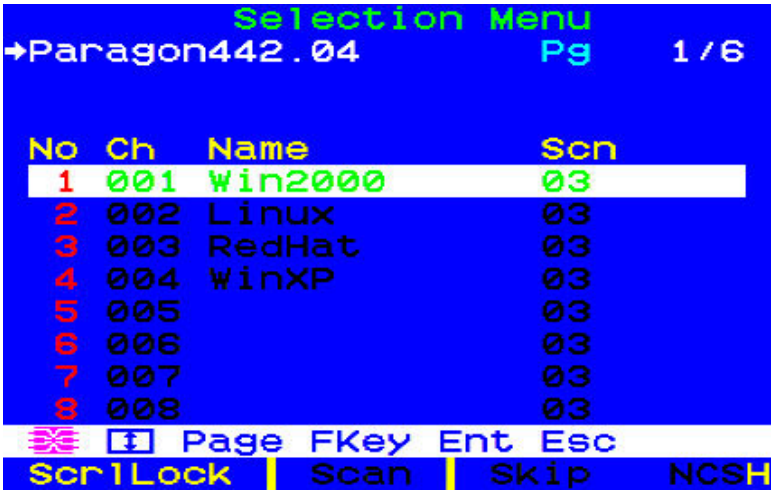

Figure 26 Selection Menu

C. Press **F5** to activate the Administration Menu. Use the ↑ and ↓ keys to move the highlight to the Channel Configuration entry and press **Enter** to select it.

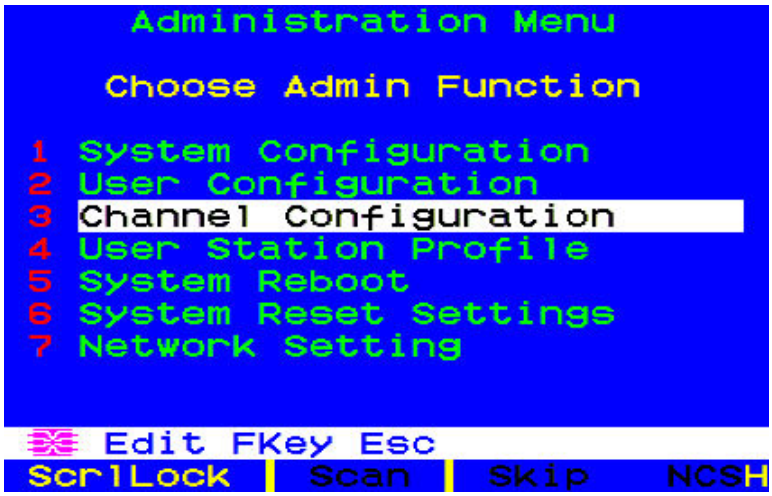

Figure 27 Administration Menu

D. The Channel Configuration menu appears. Use the ↑ and ↓ keys and **Page Up** and **Page Down** keys to approach channel ports to which subsidiary matrix switches are connected. The port default device names appear in the **Name** column and the device type in the **Device** column. ("P242" for a 2 x 42 matrix switch [P2-UMT242], "P442" for a 4 x 42 matrix switch [P2-UMT442], "P832" for an 8 x 32 matrix switch [P2-UMT832M], or "P1664" for a 16 x 64 matrix switch [P2-UMT1664M].

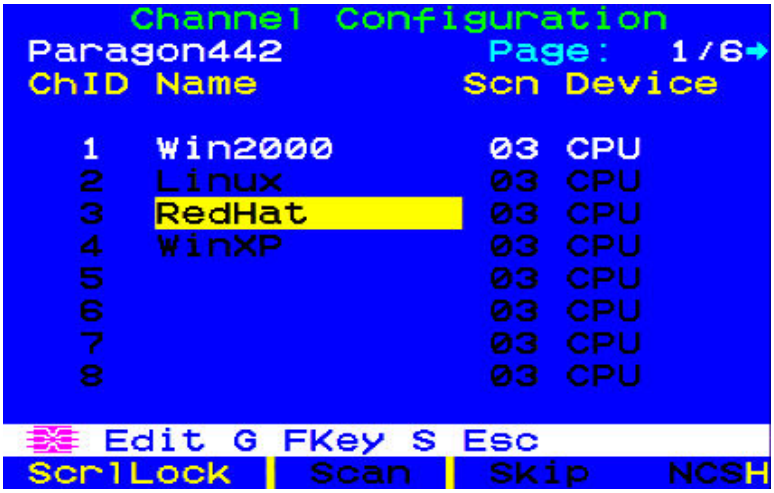

Figure 28 Channel Configuration Menu for a P2-UMT442

E. Continue using the ↑ and ↓ keys and **Page Up** and **Page Down** keys to move the yellow highlight to the **Name** field for the channel port number where a subsidiary matrix switch is installed and press **Enter**. The highlight should turn light blue.

F. Type in the name you want to assign to the subsidiary matrix switch on this channel port (the highlight should turn green when you start typing). Press **Enter** when finished, and then press **S** to save the new name. All other paths (channel ports) by which that subsidiary matrix switch is attached to the matrix switch above it will be given the same name automatically.

G. Press **F2** to reopen the Selection Menu; make sure that the channel port(s) of the second-tier matrix switch are properly established. All paths to that matrix switch should be displayed in purple.

H. Press **F5** to return to the Administration Menu. Select Channel Configuration again. Select a channel port that has been configured for the subsidiary matrix switch you just set up. Press **G** to activate a dedicated Channel Configuration menu for the subsidiary matrix switch.

I. Edit the names of all servers attached to this subsidiary matrix switch. Each highlight should turn green as you start typing. Press **Enter** when finished with each name. Press **S** to save all of the new names.

J. Press **F2** to access the dedicated Selection Menu for that subsidiary matrix switch. Verify that new names appear in green in the Selection Menu.

K. If you are configuring a second-tier subsidiary matrix switch, and there are any third-tier matrix switches attached to it, repeat steps **C** through **J** for a third-tier path configuration. Press **S** to save the configuration. Press **F2** to activate the Selection menu and verify that the third-tier matrix switch is properly configured: select a channel port for the second-tier path and press **Enter**, then a channel port for the third-tier path and press **Enter**, and then a channel port for a server attached to the third-tier matrix switch and press **Enter**. If you can properly access and operate the chosen server, the third-tier matrix switch is properly installed.

Note: *Repeat step **K** for all remaining third-tier matrix switches (if any) attached to this second-tier matrix switch.*

L. Press **S** to save the configuration. Press **F2** to activate the Selection menu and verify that the second-tier matrix switch is properly configured: Select a channel port for the second-tier path and press **Enter**, then a channel port for a server attached to the second-tier matrix switch and press **Enter**. If you can properly access and operate the chosen server, the second-tier matrix switch is properly installed.

M. Repeat steps **C** through **L** for all remaining (if any) second-tier matrix switches attached to the Master matrix switch.

N. Edit the names of any servers directly attached to the Master matrix switch and verify the Master matrix switch's configuration as described in steps **6B** through **6E** of the section **Installing a Paragon System with a Single Matrix Switch**, earlier in this chapter.

Important: If you rearrange a cascaded system or dismantle one and rebuild it differently later, you must recycle power to each matrix switch in the new cascade. A soft reset allows each matrix switch to retain all user and system profiles, and to auto-detect the current status of its channel ports and user ports. Follow the installation steps in this section to install the new cascade, but when you power on each matrix switch (which must be done in proper tier order, from base tier to upper tier), press FUNC on the unit's front panel until "Clear Database Hit Ent/ESC?" appears on the LCD panel. Press the ENT and the ESC buttons sequentially to execute a partial reset on the database. Please see the "Reset Uni" section in "Paragon II Front Panel Display and Controls" in Chapter 2 for additional information.

Installing the Paragon P2-UMT832S Stacking Unit

1. Make sure all Paragon switching units are powered OFF.
2. Connect a power cord to a Stacking Unit.
3. Connect one end of a stacking cable to "Expansion Port Out" on the back of the Stacking Unit. Connect the other end of the cable to "Expansion Port" on the Main Switching Unit.
4. Power ON all Paragon switching units.
5. On the front panel of the Main Switching Unit:
   A. Press the **FUNC** button and use the △ and ▽ buttons to select "Stacking Support." Press the **ENT** button to confirm the selection.
   B. Select the total number of Stacking Units (3 units maximum) and press the **ENT** button.
6. On the front panel of the Stacking Unit:
   A. Press the **FUNC** button and use the △ and ▽ buttons to select "Set Stack ID." Press the **ENT** button to confirm the selection.
   B. Assign the Stacking Unit ID using the △ and ▽ buttons. (Each Stacking Unit **MUST HAVE A UNIQUE ID [1-3]**, and sequential order is not necessary)**.**
7. Press the **ENT** button to save the ID setting.
8. Power OFF all units.
9. Power on the Stacking Unit.
10. Power on the Main Switching Unit.

Installing the Paragon P2-UMT1664S Stacking Unit

1. Make sure all Paragon switching units are powered OFF.
2. Connect a power cord to a Stacking Unit.
3. Connect one end of a stacking cable to "Expansion Port Out A" on the back of the Stacking Unit. Connect the other end of the cable to the *lower* "Expansion Port In" on the Main Switching Unit. Connect one end of the other stacking cable to “Expansion Port Out B” on the back of the other Stacking Unit. Connect the other end of the cable to the *upper* “Expansion Port In” on the Main Switching Unit.
4. Power ON all Paragon switching units.
5. On the front panel of the Main Switching Unit:
   A. Press the **FUNC** button and use the △ and ▽ buttons to select "Stacking Support." Press the **ENT** button to confirm the selection.
   B. Set the total number of Stacking Units (1 unit maximum) and press the **ENT** button to save the setting.
6. On the front panel of the Stacking Unit:
   A. Press the **FUNC** button and use the △ and ▽ buttons to select "Set Stack ID." Press the **ENT** button to confirm the selection.
   B. Assign the Stacking Unit ID using the △ and ▽ buttons.
7. Press the **ENT** button to save the setting.
8. Power OFF all switching units.
9. Power on the Stacking Unit.
10. Power on the Main Switching Unit.

Important Note about Powering Off the Stacking Unit

Never power off a Stacking Unit when it is still CONNECTED to a Main Switching Unit. Doing so will cause the channel color display on the OSUI Selection Menu to become incorrect. To power off the Stacking Unit, you must disconnect it from the Main Switching Unit first.

If the Stacking Unit is powered off by accident when it is still connected to the Main Switching Unit, do the following to restore the color display to normal:

1. Remove the stacking cable connected between Stacking and Main Switching Units.

2. Power off the Main Switching Unit.
3. Connect the stacking cable between Main Switching and Stacking Units.
4. Power on the Stacking Unit first.
5. Then power on the Main Switching Unit.

Installing a HubPac

P2-HubPac is available for use with Paragon II. HubPac units allow users of different Paragon switching units to access the same server(s). Each five-port cluster on a HubPac is capable of connecting a server to up to four Paragon matrix switches.

CIM models capable of connecting to a P2-HubPac include:

- P2CIM-APS2
- P2CIM-AUSB
- P2CIM-ASUN
- UKVMC

Installing a HubPac

Please use the Basic Installation instructions below to create the HubPack configuration that gives users of up to 4 Paragon switching units the capability to access the same server(s).

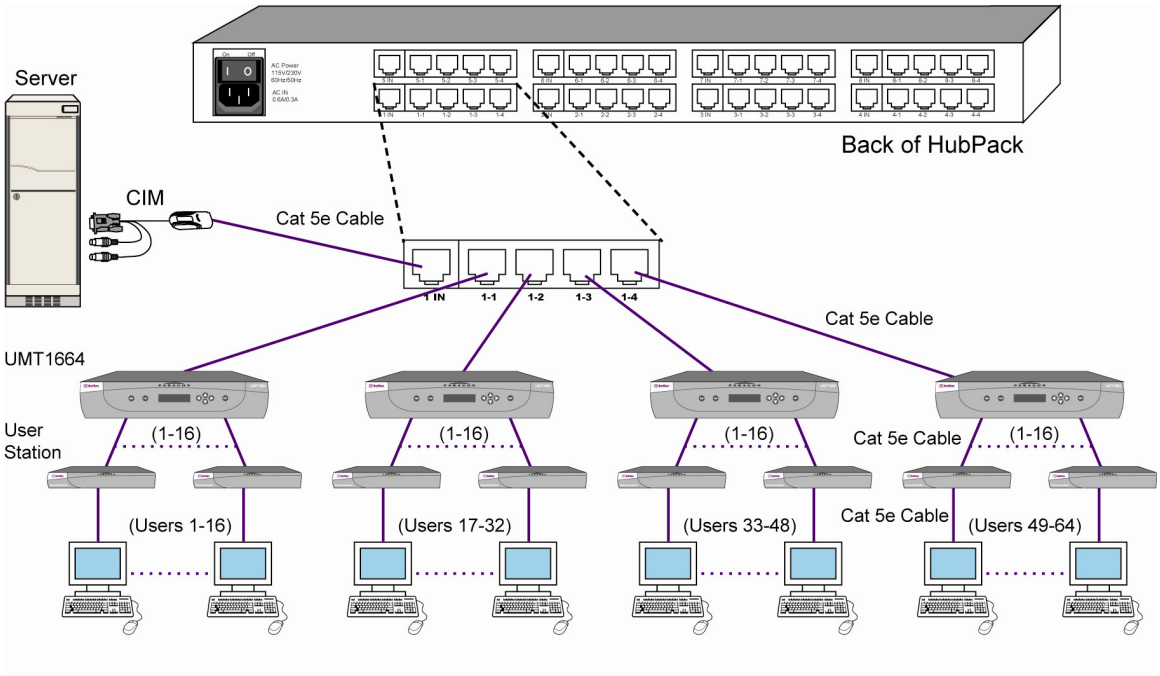

Figure 29 Connecting a P2-UMT1664M to a HubPac

1. Power OFF each Paragon switching unit.

   Note: *Prior to installation all Paragon switching units and HubPac units must be powered OFF. Servers and User Stations (USTs) to be connected can be in a powered ON state.*

2. Connect one HubPac 5-port cluster to four Paragon matrix switches, creating a 1 server by 4 Paragon switching units configuration:
   A. Attach a server, via CIM, to HubPac:

   Note: *Up to 8 servers can be connected to one HubPac. Each 5-port cluster on the HubPac represents one server connection, with four associated HubPac user ports. Each HubPac user port in a cluster can be attached to a separate Paragon switching unit, enabling users of these attached Paragon switching units the capability to access the same server.*

   B. Connect a CIM to a server – see **Appendix A: Specifications** for specific instructions on connecting different CIM types to a server.
   C. Connect one end of a Category 5e UTP cable to RJ45 port on a CIM.
   D. Connect the other end of cable to the RJ45 1-IN port on back of HubPac.
   E. Power ON the server.
   F. Repeat above steps to connect the remaining servers, connecting the Category 5e UTP cable to the HubPac at the RJ45 2-IN, 3-IN, 4-IN, 5-IN, 6-IN, 7-IN, and 8-IN port for each consecutive server (2 through 8) added.
3. Connect HubPac to each Paragon matrix switch by repeating all of the following steps for each 5-port cluster on HubPac:

   Note: *There are 8 five-port clusters on the HubPac. For each cluster the number in front of the RJ45 IN port represents the cluster number. For example, cluster 1's first RJ45 port is 1 IN, cluster 2's is 2 IN, etc. In the instructions below, "X" represents the cluster number (1 through 8).*

   A. Connect one end of a Category 5e UTP cable to the RJ45 X-1 port on the back of HubPac.
   B. Connect the other end of the cable to channel port # N on the back of one of the desired Paragon matrix switches.
   C. Connect one end of a Category 5e UTP cable to the RJ45 X-2 port on the back of HubPac.
   D. Connect the other end of the cable to channel port # N on the back of the second desired Paragon matrix switch.
   E. Connect one end of a Category 5e UTP cable to the RJ45 X-3 port on the back of HubPac.
   F. Connect the other end of the cable to channel port # N on the back of the third desired Paragon matrix switch.
   G. Connect one end of a Category 5e UTP cable to the RJ45 X-4 port on the back of HubPac.
   H. Connect the other end of the cable to channel port # N on the back of the fourth desired Paragon matrix switch.
4. Connect the power cord to the back of HubPac. Power ON HubPac
5. A HubPac represents 8 servers, and utilizes 4 different Paragon matrix switches for each server. Follow steps 3 & 4 above for each additional HubPac to be added.
6. Power ON each of the Paragon matrix switches.

Channel Configuration

Paragon recognizes a HubPac as an extension of a CIM, rather than as a device. As a result, each server connected to the HubPac is configured as a directly connected server would be.

1. On the **Selection Menu** (by channel number) each green line indicates an active channel (CIM/server). Highlight the CIM/server to be selected by using the ↑, ↓, or **Page Up**, **Page Down** keys. Press **Enter.**
2. Normal server access indicates successful connection. If necessary, manually adjust the video skew by pressing the + or - keys in the numeric keypad.
3. Enter a meaningful name for each server (channel).
   A. Press **F5** for Administration Menu. Select Channel Configuration submenu with ↑ or ↓ keys and press **Enter**.
   B. Channel Configuration Menu. Press ↑ or ↓ to highlight (in yellow) Name field for channel ID where CIM/server was just installed. Press **Enter.** The highlight turns light blue.
   C. Edit name (turns green when typing begins). Press **Enter** when completed. Press **S** to save new name.
   D. Press **F2** to return to Selection Menu (by channel number). Verify that new name appears on Selection Menu in green.
4. Repeat for each CIM/server desired.

Chapter 3: Operation – User Functions

User functions for configuration and operation of your Paragon II system are processed through the On-Screen User Interface (OSUI). To activate the OSUI at any time, press the hot key (default: **Scroll Lock**) twice in QUICK succession.

Login

Log on to Paragon II so you can access servers and other devices connected to the Paragon II system. The Login screen is automatically displayed on every User Station monitor after the single or Master Paragon II matrix switch (Base Unit) is powered on. To activate the Login screen on a user-station monitor at any other time, press the system's hot key (factory default: **Scroll Lock**) twice in QUICK succession to activate the OSUI, then press **F9**.

Note: *If a User Station monitor displays the message "…No Connection to Paragon…" instead of the Login screen, either the User Station is not connected properly to the matrix switch, the matrix switch is powered OFF, or the matrix switch is malfunctioning. Make sure that the cabling between the User Station and the matrix switch is intact and is securely connected at both ends. Make sure that when you turn the matrix switch off and back on, the LEDs run through the sequence described in step* ***1B*** *of* ***Installing a Paragon System with a Single Matrix Switch*** *in Chapter 2.*

The Device ID field in the login screen will initially contain the single or Master matrix switch's default device name: "Paragon II" followed by "2x42" for a P2-UMT242, "4x42" for a P2-UMT442, "8x32" for a P2-UMT832M, or "16x64" for a P2-UMT1664M. (The Administrator can assign a different name.) The User Port is the number of the user port on the matrix switch – from 1 to 16 depending on the model – to which this user and User Station are attached.

Paragon's Login screen is designed to move from corner to corner of the monitor, acting as a screen-saver. **"Saver"** mode is configurable in the **System Configuration** menu, under **Login Sleep.** Please see **System Configuration** in Chapter 4 for additional information.

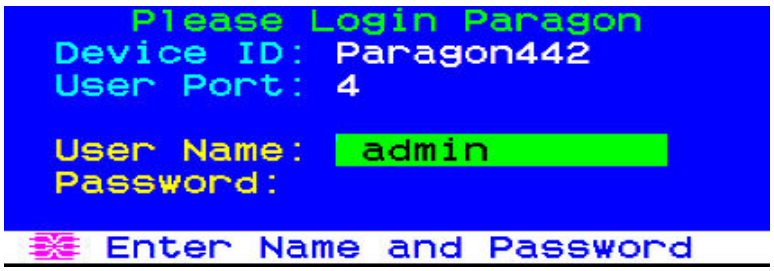

Figure 30 Login Menu

To log on at the Login screen and start operating the system:

1. Type in the user name assigned to you by the System Administrator. (If user names have not been assigned, use default names: **user01** through **user15**, depending on the model, for regular users and **admin** for the administrator. User names are not case-sensitive.) When finished, press **Enter**.
2. Paragon II will prompt you if a password is necessary. If so, type your password and press **Enter**. The default password for the **admin** user is **raritan** (all lowercase; passwords are case-sensitive). We recommend changing this password right away; please see the section **User Profile Customization** in this chapter for additional information.

3. The Selection Menu appears. To view other menus, use the function keys as described in the Help Menu section later in this chapter.

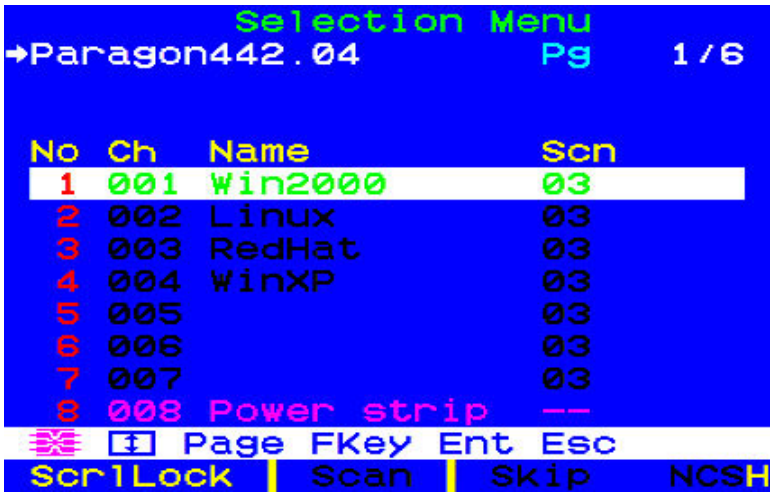

Figure 31 Selection Menu for a P2-UMT442

Note: *To Log out of the Paragon II system, press* ***F9*** *while the OSUI is on-screen.*

Below are the function keys used when working with the OSUI:

KEY	ACTION
F1	View the Help Menu
F2	Go to the Selection Menu for accessing channel ports
F3	View the Power Control Menu for associated Channel
F4	Go to the User Profile Menu for users to customize their settings
F5	Administrator only: Go to the Administration Menu for the administrator to manage the system settings
F6	Administrator only: Toggle the autoscan function on or off
F7	Administrator only: Toggle the autoskip function on or off
F8	View the Information Menu
F9	Log out of the system
Shift + F9	Disconnect from the currently accessed channel without logging out of the system
F10	Toggle the display of all channel ports (including inaccessible ones) on or off
F11	View the Unit Status Menu for connected Raritan Remote Power Control unit (available only from Power Control Menu)
F12	Toggle the Selection Menu's sorting way: numerically by port number or alphabetically by name
Esc	Exit the current OSUI (On-Screen User Interface) screen

Video Gain and Skew Compensation

When traveling the distance from the target server to the monitor connected to a User Station over different cables, Red, Green, and Blue (RGB) color signals may arrive at different times, causing color separation on your monitor; what should appear as a solid white line may instead be separated into three different colored lines: a Red, a Green, and a Blue.

Video Gain and Skew Compensation allow you to resynchronize the arrival of RGB signals by adding a time delay on any color signal (R, G, or B) that arrives at your User Station sooner. After successful skew compensation, the RGB signals are resynchronized and form a solid white line once more. **Note that Skew Compensation is only available in P2-EUST while Video Gain is both available in P2-EUST and P2-UST.**

Video Gain Adjustment and Skew Compensation in P2-EUST

Note that "Automatic" skew compensation is only available when you use P2-EUST and one of these CIMs: P2CIM-APS2, P2CIM-AUSB, P2CIM-ASUN, P2CIM-APS2DUAL, P2CIM-APS2-B or P2CIM-AUSB-B.

Automatic skew compensation adjusts the video quality automatically based on varying cable distances and cable types. If this video quality adjustment on an active CIM using the P2-EUST is unsatisfactory, you can manually adjust the video gain setting and skew delay of each color via the OSUI. Once adjusted, the gain setting and skew delay values are stored in the database of the matrix switch that the P2-EUST connects to. The memory space used to store gain setting and skew delay value is allocated dynamically in order to save memory space.

To adjust video quality on any channel, connect to the channel you wish to adjust. Press the Hot Key (default: **Scroll Lock)** twice QUICKLY to activate the Selection Menu and click on the * or / keys on your numeric keypad to select one of four options: AGC, skew delay of Red, skew delay of Green, and skew delay of Blue. Click on the + or - keys on your numeric keypad to increase or decrease the skew delay.

Skew compensation range is 0 to 31. The video gain changed adjustment value appears in the Message Banner; click the + and/or - keys to adjust video gain from -15 to +15 (for P2-UST) or from 0 to +6 (for P2-EUST) until you are satisfied with the video quality.

Please note that you must connect to each channel individually to adjust that channel's video gain and skew delay.

Please see **Video Display Adjustment for P2-EUST** under **Channel Configuration** in Chapter 4 for additional information.

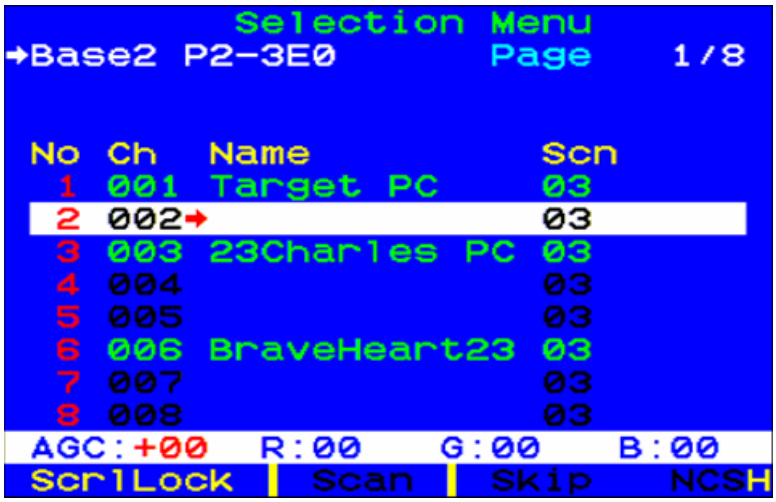

Figure 32 Manual Video Gain/Skew Delay Adjustment Display for P2-EUST

Video Gain Adjustment in P2-UST

A video-gain adjustment is available to focus the video image, which can be especially useful if you are using an LCD flat-panel monitor. To make this adjustment, activate the OSUI by pressing the hot key (default: **Scroll Lock**) twice QUICKLY, if you have not done so already**.** Use the + and - (plus- and minus-sign) keys on the keyboard's numeric keypad to adjust the video image until it appears to be in focus.

Figure 33 Manual Video Gain Adjustment for P2-UST

Selecting a Server

Immediately following user login, the Selection Menu appears. Users who are already switched to a server can activate the Selection Menu by pressing the hot key (default: **Scroll Lock**) twice QUICKLY.

The Selection Menu lists devices sorted either by channel number ("Ch. ID") or alphabetically by the name of the server or other device on that channel port ("Name"). You can toggle between these two views by pressing **F12**. Default sorting is by channel number, but unless the system is re-initialized, the last selected sort order will be shown the next time that the Selection Menu is activated.

Other columns in the channel number view include "No," row number, and "Scn," the individual scan-delay time in seconds (unless the channel port has a subsidiary matrix switch or tiered device attached to it, in which case the **Scn** column will show "- -".)

Figure 34 Selection Menu in Order by Channel Port Number

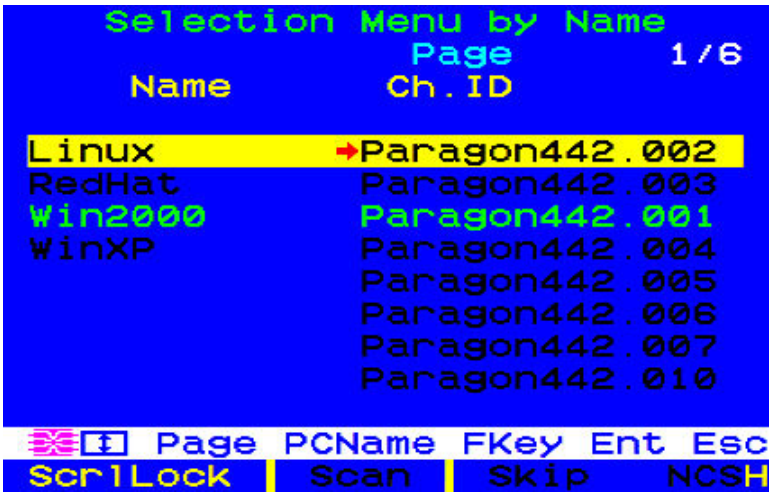

Figure 35 Selection Menu in Order by Port Name

The Selection Menu displays up to eight channel ports per page; total number of pages appears in the upper right-hand corner, for example "**Page 2/5**" indicates that you are on the second of five pages. Use the **Page Up** and **Page Down** keys on your keyboard to move between the pages. Once you have selected a server as described on the following pages, Paragon II will switch to that channel port. If "ID Display" is enabled in the User Profile configuration, a display will appear to identify the chosen channel port for the number of seconds set at the top of your screen.

To choose a server from the Selection Menu:

1. If you are not in the Selection Menu, press **F2**.
2. Press **F12** to toggle the menu to sort-order view of your choice (by channel number or alphabetically by device name). The entry for the channel port you currently have selected (if any) will be highlighted and will have a small red arrow to the left of its channel port name.

Note: *In the channel number view, the Selection Menu can display either all channel ports or only those channel ports that the current user is allowed to select (the default view). If the system administrator has set the "Display All Computers" option in the System Configuration menu (see* ***System Configuration*** *in Chapter 4) to "****Yes****," you can press* ***F10*** *to toggle between the restricted and unrestricted views. In the unrestricted "all channel ports" view, the Paragon displays a red "S" next to the scan rate of any channel port that the user is not permitted to access.*

---

3. Use the ↑ and ↓ keys (and, for switching between pages, the **Page Up** and **Page Down** keys) to move the highlight bar to the channel port you want to select, and then press **Enter**. Note that although the highlight will move, the small red arrow to the left of the channel port name will remain stationary, indicating the user's currently-selected channel port, until a new selection is made.
   A. In the channel number view, once all channel ports page are assigned, you can press the desired channel port's key number (**1** through **8**) to move the highlight to that channel port instantly.
   B. In name view, you can type the first few characters of the desired channel port's name to move the highlight to the first channel port whose name begins with that character sequence.
4. Press **Enter**

If it is a server attached to the chosen channel port and you are permitted to access it, Paragon II automatically switches you to that channel port for normal server operation, and the OSUI disappears. If it is a cascaded tier device attached to that channel port, an OSUI Selection Menu specific to that tier device will appear; keep moving through the Selection Menu layers until you reach the server you want.

Note*: To return to the main Selection Menu from any second- or third-tier device-specific Selection Menu, press the* ***Home*** *key on your keyboard once, or press the* ***Esc*** *key once or twice depending which tier you are currently on.*

Once you switch to a different channel port, you can continue switching by pressing the hot key (default: **Scroll Lock**) twice QUICKLY to activate the Selection Menu. If you want to return to your previously selected channel port without using any OSUI menus, press the "previous channel port" command key (default: **Num Lock**) twice QUICKLY.

In the Selection Menu, each channel port's availability is visually indicated by the following text colors. (For additional information about Private Mode, Public View Mode, and PC Share Mode, please see the bulleted item **Operation Mode** under **System Configuration** in Chapter 4.)

Black	No device is connected or the connected device is powered OFF.
Green	Server is connected and the channel port is active and available. However, if the Paragon system is in PC Share Mode, another user may currently be accessing the server.
Red	Channel port is unavailable, currently being accessed by another user. (This happens only when the Paragon II system is in Private Mode.) A blocked matrix switch will be in red in the Selection Menu (in order of channel number) either.
Yellow	Channel port is unavailable for control (being controlled by another user), but video can be viewed. (This happens only when the Paragon system is in Public View Mode. Please refer to the paragraphs below for information about other OSUI displays that appear when the system is in Public View Mode.)
Purple	A second- or third-tier cascaded matrix switch is connected to this channel port (please see **Installing a Cascaded Paragon System** in Chapter 2).
White	Channel port's current status is unknown. This should not happen if the Paragon II is operating normally.
Light Blue	Channel port is connected to a device and active, but is unavailable to access due to lack of tier path. It operates in Private mode only as 'Blocked Channels Identification'. Another possibility is the path you manually choose overlaps with another user's path partially or completely and limit your accessibility to any servers other than the server accessed by another user accordingly.

When the system is set to Public View Mode, if one user has already selected a server, another user can also select it, but the second user can only view video output, not control it or input any data with the keyboard and mouse. In this mode, other OSUI graphic elements will appear on the screen when you select various servers:

- When you select a server that someone else is already controlling, a message showing the name of the server being viewed will appear on your monitor. It cannot be removed, but will disappear after three seconds. Press **Esc** to return to the main Selection Menu.
- If another user chooses to view the video of a server you have already selected, you will see a message bearing that user's name for three seconds, twice – first when the second user begins viewing and then when the second user stops viewing.

When the system is set to Private mode, "Blocked Channels Identification" is activated automatically.

- When a blocked channel is detected, it will be displayed in light blue on Selection menu (whether in order of channel number or name) on OSUI to distinguish from a channel that is active and available to access (in green).

- When a blocked switch is detected, it will be displayed in red color in Selection menu (in order of channel number only) on OSUI to distinguish from a switch that has available path reach (in purple).
- The 'Blocked Channel/switch Identification' is User Station dependent. User login on different User Station may see different blocked channels.

Blocked Channels/Switch Identification

Definition of a blocked channel:

- Channel that is active and unoccupied by a user.
- User is unable to switch to that channel because there is no available path in upper tier.

Definition of a blocked switch:

- All tier paths from lower tier switches to that switch are occupied.
- User is unable to switch to servers that are connected to channel ports of the switch.

The identification of blocked channels is fully supported whether in a single base or multiple bases regular Paragon configuration with some limitations as below.

- Blocked channel/switch identification only functions within a regular Paragon configuration (no diamond connection and triangle connection inside). There is no guarantee that it will function correctly in diamond or triangle configuration (For additional information about these two configurations, see **Non-Standard Tier Configuration** in Chapter 7). However, from user's perspective, the user behavior on light blue channel (the blocked one) is the same as on green channel (the active and unoccupied one). Same does on the blocked switch.
- Blocked channel/switch identification are only activated in Private mode. This feature will be disabled when in PC Share or P-View modes.

Manually Selecting the Access Path

When all tiered devices in the Paragon II system are implemented with firmware version later than 3E3, you can manually choose a path to access a target server in the **channel number view**. For older Paragon I or Paragon II products to support this feature, see the note in the end of this section for more information.

1. Make sure you are in the channel number view in the Selection Menu. If not, press **F12** to toggle the view.
2. Press the ↑ and ↓ keys to highlight one of the channel ports in purple (available paths) or yellow (in PC share mode) which are connected to a tier device (a tier device is indicated with the symbol "--" displayed in the Scn field).

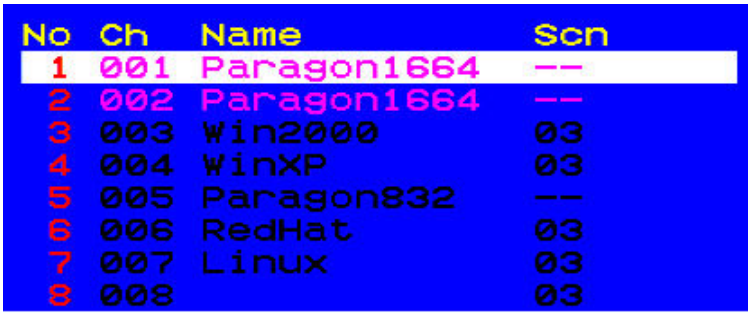

Figure 36 Selection Menu for Manually Selecting the Access Path

3. Press **Enter.** Both of the chosen path information and the channel list of the selected tiered device are displayed on the screen.

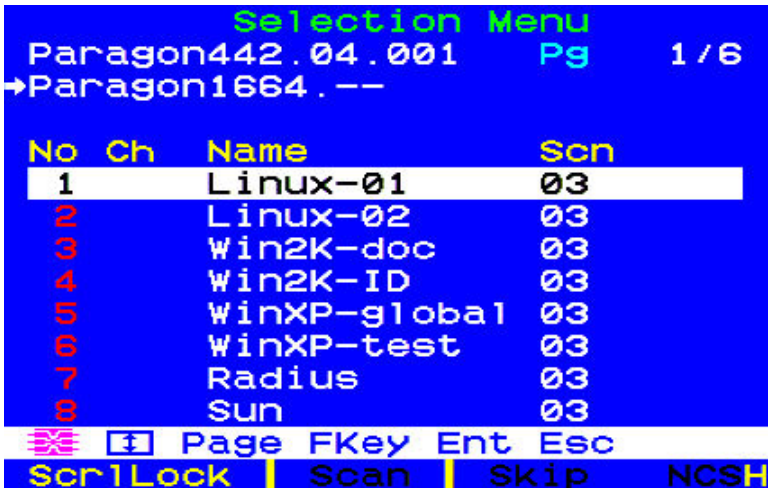

Figure 37 Selection Menu after Manually Selecting the Access Path

The path information includes "name of the base/tier device," "number of the selected user port" and "number of the selected channel port." If this symbol "--" is displayed, it indicates the port number is currently unknown, and this port number will be displayed only when you access to the next channel.

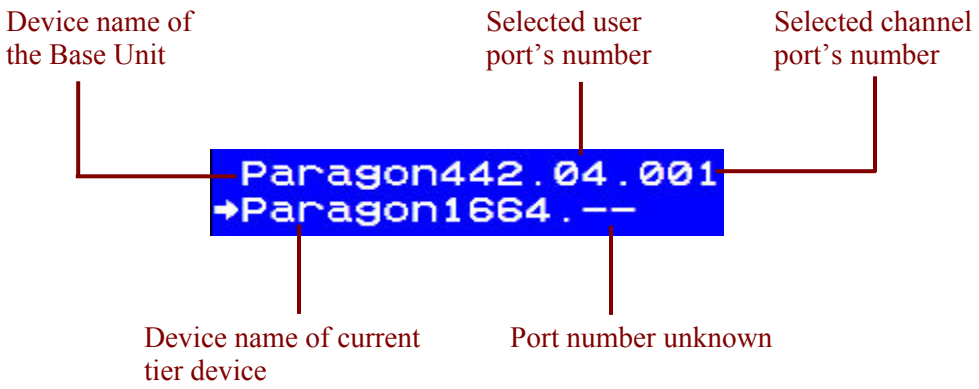

Figure 38 On-Screen Path Information

4. Repeat steps 2 to 3 if you want to access the third tier device.
5. Choose the channel port of the desired server in the specific tier device's Selection Menu.

Note: *Manual Path Selection is automatically disabled and replaced by Automatic Path Selection in one of the three situations:*

- The desired server is accessed in the channel name view instead of the channel number view.
- The path passes through Paragon II products with the firmware version older than 3E3. You must upgrade their firmware to support this function. See **Chapter 8: Firmware Upgrade** for more information.
- The path passes through Paragon I products. If the Paragon I hardware version is older than HW3, it is impossible to support the Manual Path Selection function. But if the hardware version is HW3 (the HW3 unit has only one stacking port), you can upgrade its firmware to support this function. See **Chapter 8: Firmware Upgrade** for more information.

Path Overlapping Constraint

The path you manually choose may completely or partially overlap a path having been selected by another user in the PC Share or Public View mode. In this case, Paragon either limits your server accessibility to the one accessed by the user with whom you share the path or disallow any server accessibility. To access a different server, you must choose a path not overlapping with anyone's path.

Detailed path overlapping instances are illustrated below:

Background: The UST-1 user manually chooses a path for accessing Server 1. Later the UST-2 user attempts to access a server and overlaps his path partially or completely with the UST-1 user's path.

Green straight line : Path chosen by the UST-1 user
Blue dotted line : Path chosen by the UST-2 user

***Result*: All servers connected to UMT-2 are inaccessible to the UST-2 user.**

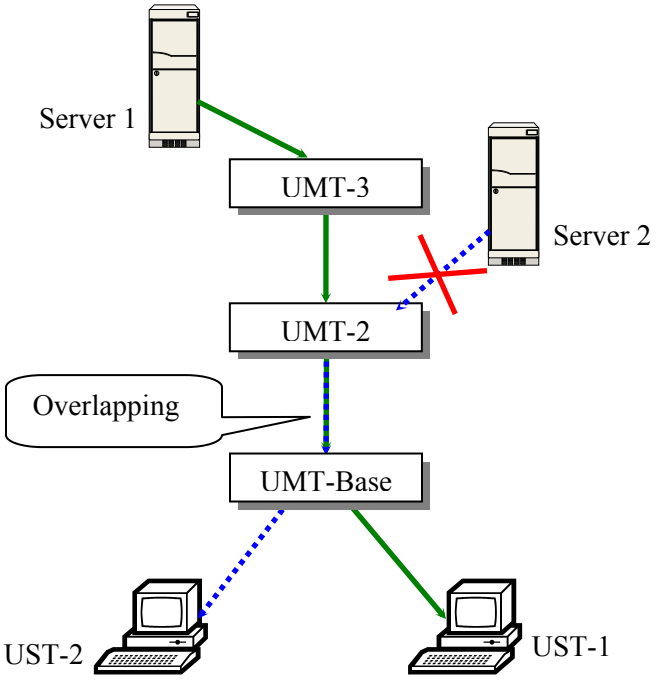

Figure 39 Path Overlapping Instance 1

***Result*: All servers connected to UMT-3 are inaccessible to the UST-2 user.**

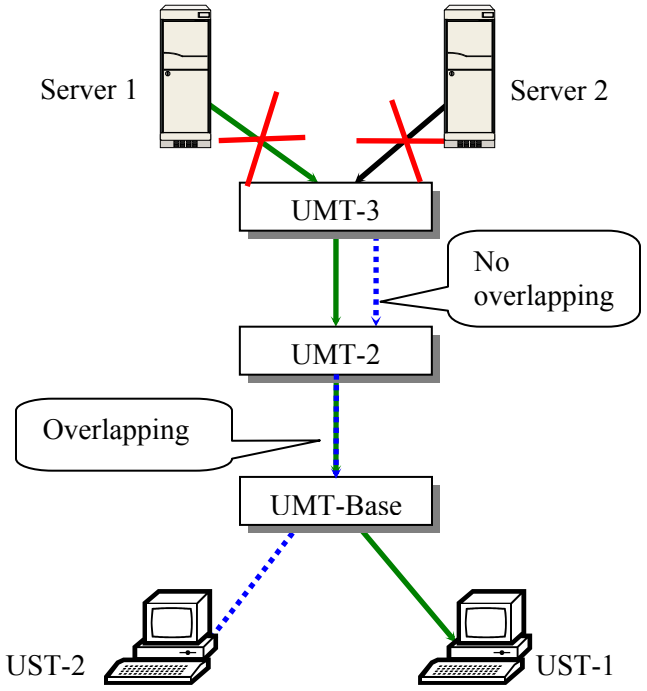

Figure 40 Path Overlapping Instance 2

***Result*: Only Server 1 on UMT-3 is accessible to the UST-2 user**

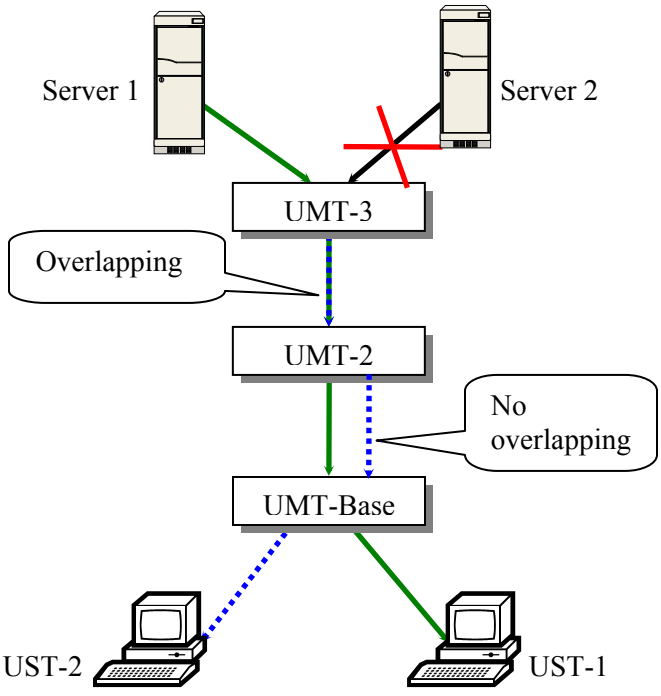

Figure 41 Path Overlapping Instance 3

***Result*: Only Server 1 on UMT-3 is accessible to the UST-2 user**

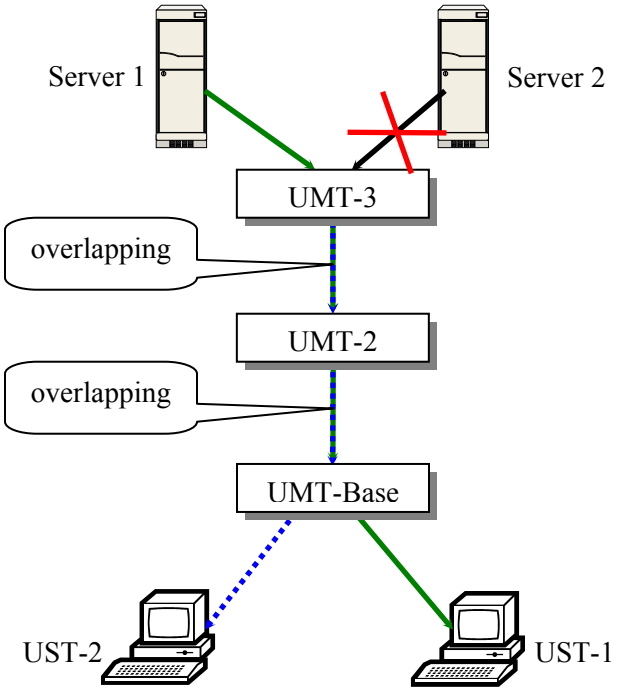

Figure 42 Path Overlapping Instance 4

User Profile Customization

Users can change their own profiles and Administrators can set blank user profiles or change an individual user profile on the **User Profile** screen. To access this menu, press **F4** when the OSUI is active. This menu displays Paragon II's configuration and allows you to set preferred operating parameters for individual user accounts or for a group of accounts, as Administrator, or change your profile as a logged-in User.

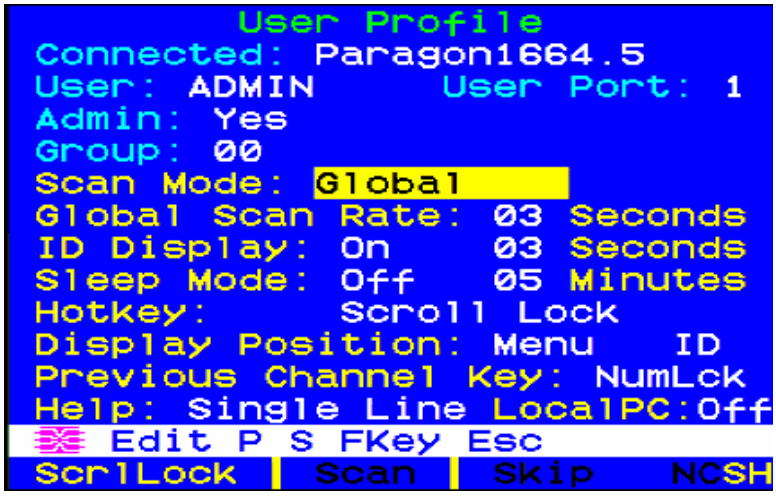

Figure 43 User Profile Menu

To view or change your user profile:

1. If the OSUI is not already active, activate it by pressing the hot key (default: **Scroll Lock**) twice in quick succession.

2. Press **F4** to access the User Profile menu. The topmost fields are identifiers that cannot be changed by the user:
   A. The Connected field displays the name and channel port ID of the currently selected device, if you are currently connected to a channel port.
   B. The User field displays the user name you entered at login.
   C. The User Port field shows which user port on the matrix switch your User Station is attached to.
   D. The Admin field shows whether or not you have Administrator privileges.
   E. The Group field displays the user's group ID(s) (see **Group Settings (Access Rights)** in Chapter 4).
3. To change any of the other fields, use your keyboard keys to select the field you want to edit: Press **Tab** to move forward through the editable fields, **Shift**+**Tab** to move backward, the ↑ and ↓ keys to move up and down, and the ← and → keys to move left and right.
   Press **Enter** to begin editing; the highlighted area will turn green, and the message text changes to the following:

Figure 44 Directional Prompts in Message Bar

   Please refer to the next section for interpreting specific User Profile entries.

   When finished, press **Enter** to retain the changes (the highlighted area will turn yellow) or press the **Esc** key to cancel the changes. When you are going to leave the menu, (for example, if you press a function key) the prompt in the prompt/message bar will change to "**Save the changes (Y/N/ESC)**" Press **S** to save the changes to long-term memory, **Esc** to discard your changes, or **N** to discard your changes and exit the menu.

Note: *When you type in new numeric values, always use the number keys at the top of your keyboard,* ***not*** *the number keys on your keypad. Paragon does not support the keypad number keys.*

User Profile Parameters and How to Change Settings

- **Scan Mode:** Indicates how Paragon II determines the length of time to pause at each channel port during autoscanning. Default setting is "**Global**" – the system pauses at each channel port for the same length of time set in the **Global Scan Rate** field. "**Individual**" setting indicates that the Administrator has set a specific length of time for each individual channel ports (as displayed in the Selection Menu). Use any of the arrow keys to toggle between these values.
- **Global Scan Rate:** If Scan Mode is set to "**Global,**" this parameter determines the length of time that the system pauses at each channel port while scanning. Using leading zeroes if necessary, type in a two-digit number of seconds from 01 to 24, or use the ↑ and ↓ keys to increment and decrement the current value by 1 respectively. The default setting is **03**.
- **ID Display:** The ID Display is a small window that can appear on-screen to display the name and ID of each channel port as you switch between them or scan them. Edit the two fields to determine how the system will show you this window:
  – Possible values in the first field are "**On**" (ID Display is shown, the default value) and "**Off**" (ID Display isn't shown). Use any of the arrow keys to toggle between these values.
  – If the ID Display is set to "**On**," the number in the second field, **Seconds,** indicates how many seconds it will remain on-screen. Using leading zeroes if necessary, type in a two-digit number of seconds from 01 to 24, or use the ↑ and ↓ keys to increment and decrement the current value by 1 respectively. If you type in a number greater than 24, the second field will be filled with a "- -", indicating that the ID Display will be shown at

all times. The default setting is **03**. If the ID Display is set to "**Off**," the number in this field will have no effect.

- **Sleep Mode:** A power-saving mode that is activated once a user logs in. Sleep mode acts as a screensaver if the User Station is idle (no keyboard or mouse activity) for a specified amount of time. Sleep mode is user-specific; whatever mode a user sets applies to only that user once logged in. Edit this field and the **Minutes** field that follows to determine how the system handles sleep mode. Possible values are Saver, Green, and Off.. Use the ↑ and ↓ keys to toggle between these values.
  - **Saver:** The OSUI, with or without background, is a "floater" and appears regularly in random locations on the screen.
  - **Green:** The monitor goes blank.
  - **Off:** Sleep Mode is disabled and the screen displays normal video indefinitely.
  - If Sleep Mode is set to **Saver** or **Green,** in the **Minutes** field, type the number of minutes of inactivity before Sleep Mode is triggered. Using leading zeroes if necessary, type in a two-digit number of minutes from 01 to 99, or use the ↑ and ↓ keys to increment and decrement the current value by 1 respectively. The default setting is **05**. If Sleep Mode is set to "**Off**," the number in this field will have no effect.
- **Hotkey:** The keyboard key that, when pressed twice quickly, activates the OSUI. The alternatives are **Scroll Lock** (the default), **Caps Lock**, **Num Lock**, the *LEFT* **ALT** key, and the *LEFT* **SHIFT** key. Use any of the arrow keys to switch between the choices. You cannot select the key currently being used as the Previous Channel Key (see below).
- **Display Position:** This position indicates where the OSUI menus and ID Display appear on your monitor. Move the highlight to "Menu" (for the OSUI) or "ID" (for the ID Display) and press **Enter** to highlight it, then use the ←, →, ↑, and ↓ keys to move the chosen window as desired. When finished, press **Enter** to save the change.
- **Previous Channel Key:** The keyboard key that, when pressed twice quickly, causes Paragon II to return to the previously selected channel port (provided that that channel port is still available) *without* going through the OSUI. The four alternatives are the left **ALT** key, the left **SHIFT** key, **Caps Lock**, **Num Lock** (the default), and "**None**" (no Previous Channel Key; function disabled). Use any of the arrow keys to switch between the choices, but You cannot select the key currently being used as the Hotkey (see above).
- **Help:** This parameter determines the format of the help message at the bottom of each OSUI menu. It is always set to "**Single Line**" and cannot be selected or altered.
- **Local PC:** Use any of the arrow keys to toggle Local PC Mode **On** or **Off** (the default) for the attached User Station. Turn PC Mode "**On**" only if you have used a Z-CIM to attach a local PC between the User Station and the matrix switch.

To change or delete your password

You can delete (if "Require Password" is set to "**No**"), or change a password while the User Profile Menu is on-screen by pressing **P**. Type your old password at the first prompt. Type a new password up to eight characters long at the next prompt, and press **Enter**. To delete your password, press **Enter** without typing anything in the field. Confirm the new password by typing it again at the third prompt; then either press **Enter** to save the new password or **Esc** to abort the change and continue using the old password.

Note: *Be careful when you change your password. If you forget or lose it, the Administrator has no way of recovering or erasing it – your account will have to be deleted and recreated.*

Figure 45 Prompt in Message Bar to Save Changes

Help Menu

When the OSUI is open, activate the Help Menu by pressing **F1**. This menu displays a list of the function keys and their help functions.

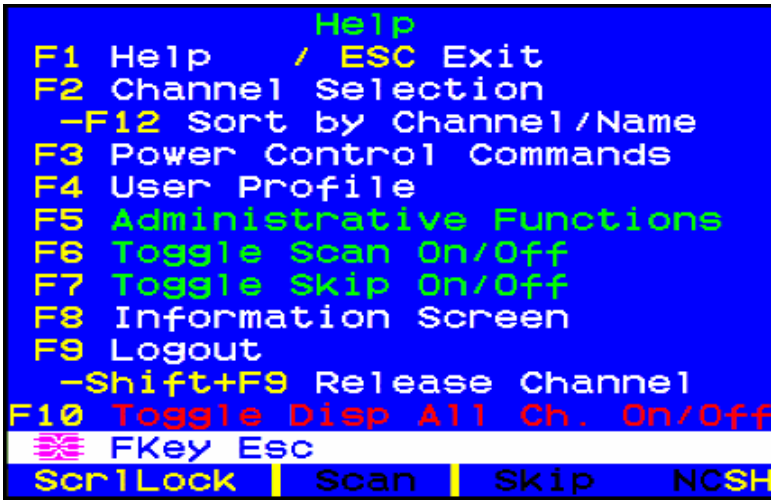

Figure 46 Help Menu

Keyboard-Controlled OSUI Functions

Use the following function keys to access the Paragon's OSUI (On-Screen User Interface) functions:

PRESS…	WHEN YOU WANT TO…
F1	View the Help Menu
F2	Access the Selection Menu in order to view or select channel ports or view group IDs or scan rates
F3	Access Power Control Menu for associated Channel
F4	Access the User Profile Menu in order to view and change user-specific operating parameters
F5	Administrator only: View the Administration Menu
F6	Administrator only: Toggle autoscan on or off
F7	Administrator only: Toggle autoskip on or off
F8	View the Information Menu to see the version numbers of the Paragon II's firmware and hardware, the number of accessible matrix switches, the total number of accessible servers, etc.
F9	Log out of the Paragon system (logs user out and invokes the login screen)
Shift + F9	If any OSUI screen is displayed; disconnect yourself from the active channel port without logging out
F10	If the administrator has set "Display All Computers" to "Yes" and the Selection Menu is sorted by channel port ID, toggle the display of all channel ports (including inaccessible ones) on or off
F11	Unit Status Menu for connected Raritan Remote Power Control unit (available only from Power Control Menu)
F12	If you are at the Selection Menu: Toggle the Selection Menu between sorting the channel port entries by name or by channel port ID
Esc	Exit the current OSUI screen (returns user to the Selection Menu, or to the login screen when no channel port is selected)

Notes:

→ *If a user is not the Administrator but has administrator privileges, functions **F6** and **F7** are displayed in red in the Help Menu, indicating that these functions are not available to them.*

→ *If a system administrator has set Display All Computers to "**No**," then **F10** is displayed in red in the Help Menu for all users, indicating that this function is not available (even for administrators).*

→ *We recommend that you use a Sun keyboard if there are any Sun servers in your system. (If you want to control Sun servers with a PS/2 keyboard, see **Appendix F: Extra Keyboard/Mouse Information and Settings**).*

Information Menu

When the OSUI is open, activate the Information Menu by pressing **F8**. This menu displays the "vital statistics" of the User Station that you are using, including its firmware, hardware, and FPGA revisions, its serial number, which console port (user port) and port number on the matrix switch attached to it, and the number of KVM switches and PCs (servers) that can be accessed through it.

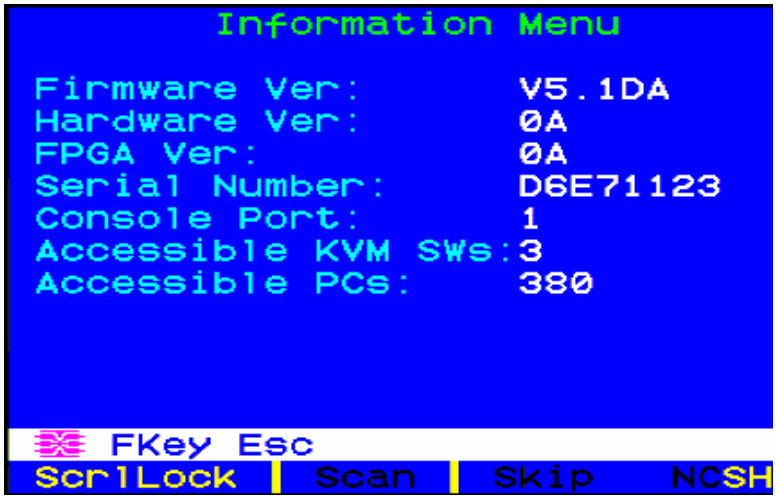

Figure 47 Information Menu

Concurrent Multiple Video Outputs

You can access one single channel and thus activate the video data outputs of another or several channels at the same time. That is, when a channel is selected in the Selection Menu, the other pre-configured channel(s) automatically output video data to subsequent User Stations. This function is called "Multiple Video" or "Port-Following Switch." It is especially useful if you have a multi-channel video server, or intend to set up a TV wall in the Paragon II system.

Performing this function requires the channel association to be configured in Paragon Manager. Only the Administrator is allowed to set up the channel association. If the desired association has not been configured, contact your Paragon II system administrator.

Illustration Example:

Four channels (number 2, 4, 6 and 7) of Paragon II system are connected to the same server which has multiple video ports. The Paragon administrator has configured these four channels as an association group in Paragon Manager, and **Channel 4 is set as the "first" channel**.

In this example, you use the User Station (UST) attached to the user port #2 to access the "first" channel – **Channel 4**. When you do this, channels 2, 6 and 7 will automatically output their video data to User Stations subsequent to your User Station, which are 3, 4 and 5.

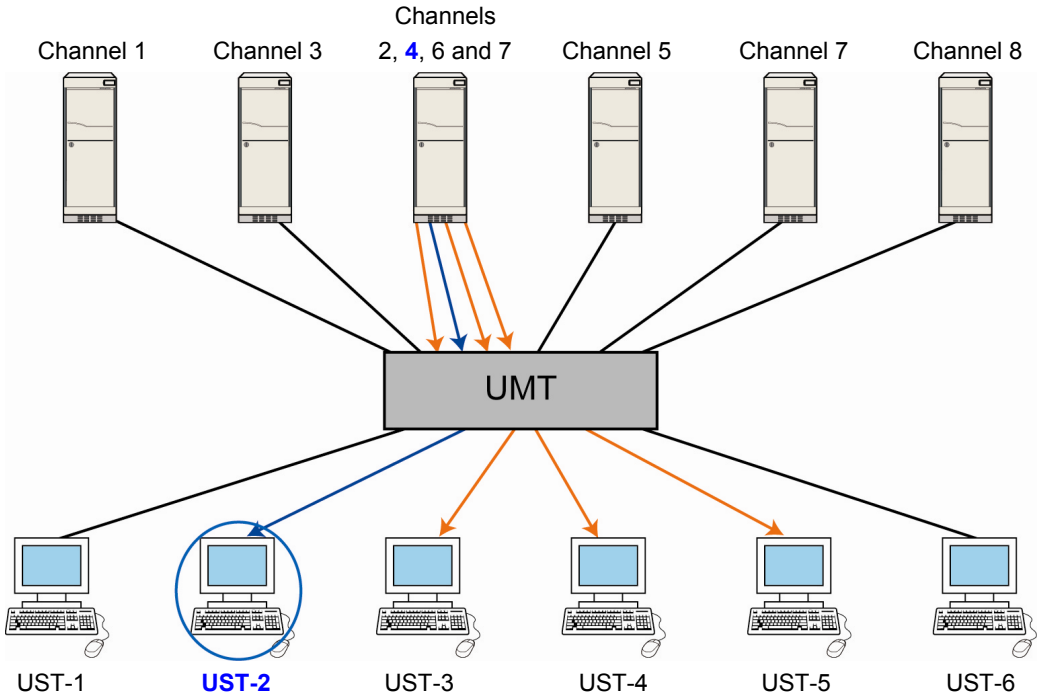

Figure 48 Illustration of Multiple Video

Note: *Depending on your purpose, the associated channels can also be connected to different servers and output the video data accordingly.*

Naming Convention for Multiple Video

For documentation purpose, the following name conventions will be used to describe the Multiple Video function:

NAME	MEANING
ACTIVATOR channel	The **"first"** channel of a channel association group. Only access to this channel causes the other channels of this group to output their data.
FOLLOWER channel	The channel(s) other than the ACTIVATOR channel in the association group. These channels automatically output their data once the ACTIVATOR channel is accessed.
ACTIVATOR User Station (port)	The User Station (port) that you use to access an ACTIVATOR channel of an association group.
FOLLOWER User Station (port)	The User Station (port) that receives the data outputs of the FOLLOWER channels after the Multiple Video function is activated. FOLLOWER User Stations (ports) are subsequent to the ACTIVATOR User Station (port).

Connecting CIMs to a Multi-Channel Video Server

A multi-channel video server is a server with multiple video ports. When you connect CIMs to this kind of server for multiple video outputs, make sure that each CIM gets its power from the server's PS/2 keyboard or USB port. Usually a server provides one PS/2 keyboard port only. Therefore, you must use P2CIM-AUSB for additional CIMs to gain power from available USB ports on the same server.

1. Fully connect one CIM to the server's ports, be it P2CIM-APS2 or P2CIM-AUSB.
   - P2CIM-APS2: Connected to the server's video, keyboard and mouse ports.
   - P2CIM-AUSB: Connected to the server's video and USB ports.

   ***Note**: This CIM must be set as the ACTIVATOR channel so please note down its channel number.*

2. Connect other P2CIM-AUSB to the remaining video and USB ports of the server. Make sure each CIM is connected to one USB port. If there are not enough USB ports on the server, connect their USB connectors to a USB hub's USB ports for power supply.
3. Connect these CIMs to the channel ports of the desired Paragon II unit using the Cat 5 cables.

Operation Rules

This section describes the general concept for operating the Multiple Video function, including the activation of the function and exiting the Multiple Video mode.

Activation

- Only access to the ACTIVATOR channel can trigger the function.
- The sequence of the ACTIVATOR and FOLLOWER user ports is consecutive. For example, with the precondition of four associated channels, if the ACTIVATOR user port is No. 3, the FOLLOWER user ports start from the next number, which are 4, 5, and 6.
- The function is forced regardless of the login status or the permissions of that logged-in users on the FOLLOWER User Stations.

- This function can be remotely triggered through Raritan's IP-Reach (if any).

***Note**: Accessing the ACTIVATOR channel with the Forced Video command CANNOT trigger the Multiple Video function. The associated channels will not output their data automatically.*

Exit the Multiple Video Mode

The hot key for triggering the OSUI is disabled on FOLLOWER User Stations. Therefore, choose one method below to make the User Station(s) exit the Multiple Video mode.

- On the ACTIVATOR User Station, press the hot key (default: **Scroll Lock**) twice quickly to trigger the OSUI, and then do one of the following. Both of the ACTIVATOR and FOLLOWER User Stations will exit the mode.
  - Press **Shift+F9** to disconnect the ACTIVATOR channel
  - Press **F9** to log out of the system
  - Choose another channel in the Selection Menu
- Directly power cycle the desired User Station(s), be it an ACTIVATOR or FOLLOWER User Station.

***Note**: If the User Station is P2-USTIP, it automatically enters the remote mode when logged out of the Multiple Video mode. Press **Ctrl+Alt+Delete** on the P2-USTIP if you want to return to the local mode.*

Limitation

The function is not applicable to those channels which share only one path via the tiered device, such as P2ZCIM, P2CIM-APS2-B or P2CIM-AUSB-B (for IBM BladeCenter servers).

Messages on the ACTIVATOR User Station

The success and/or failure of data outputs of the FOLLOWER channel(s) will be displayed on the screen of the ACTIVATOR User Station (see the sample image below).

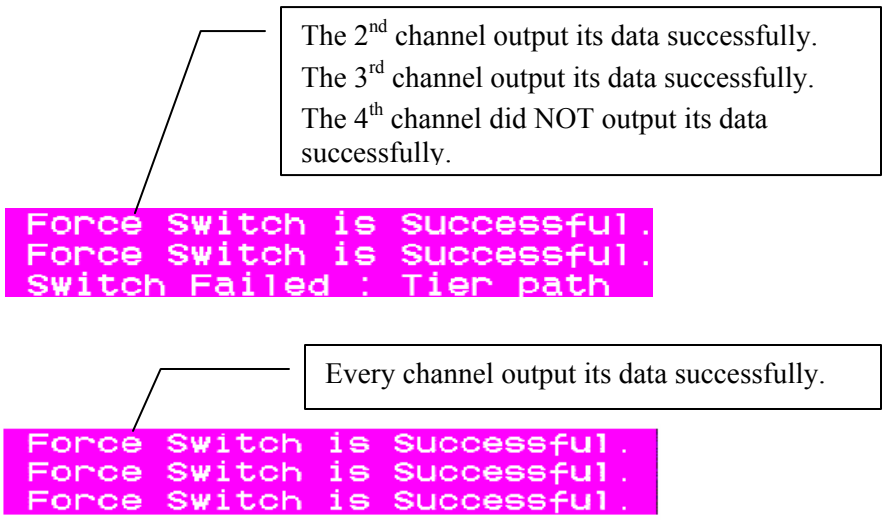

Figure 49 Sample Messages for Multiple Video Output Results

The failure of data output can be caused by one of the following reasons:

- Blockage to the FOLLOWER channel port(s). For example, other user(s) may be accessing one or more of the FOLLOWER channels in Private mode and thus block the access.

- Mouse/keyboard activity is detected on the FOLLOWER User Station(s) when the Multiple Video command is issued. Paragon will NOT execute Multiple Video in order to protect that server's operation.
- The FOLLOWER User Station is P2-USTIP which enters the remote mode (no OSUI displayed).
- The FOLLOWER User Station is set to Local PC mode.
- There are not enough FOLLOWER User Stations subsequent to ACTIVATOR User Station.

Messages on the FOLLOWER User Stations

When the Multiple Video command is issued, a message similar to the following will be displayed on the FOLLOWER User Stations. Any keyboard output on these User Stations is invalid in the Multiple Video mode.

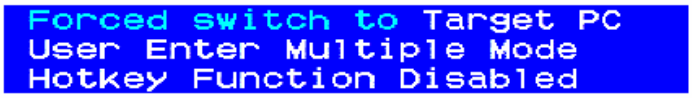

Figure 50 Multiple Video Message on the FOLLOWER User Stations

Using P2-USTIP for Multiple Video Outputs

P2-USTIP has two operation modes: remote and local modes.

In the remote mode (no OSUI displayed):

P2-USTIP CANNOT function as either the ACTIVATOR or FOLLOWER User Station in this mode. If a remote user accesses an ACTIVATOR channel via P2-USTIP, the Multiple Video function is NOT triggered at all.

In the local mode (OSUI displayed):

This is the only mode in which Multiple Video functions. Enter the local mode by pressing **Ctrl+Alt+Delete**. Then P2-USTIP can act as either the ACTIVATOR or FOLLOWER User Station.

Chapter 4: Operation – Administrator Functions

The Administration Menu

Administrators can use the Administration Menu to set security classes, maintain user names and privileges, and manage the system configuration, including controlling user access to Paragon II and all connected devices.

Note: *Administrative user IDs assigned to group 00 have complete access to all of the Administration Menu's submenus. Other administrative users have limited access and cannot select the System Configuration, User Configuration and Network Setting submenus.*

To reach any of the Administration Menu's submenus:

1. Log on using the **admin** user name (or your own user name if you have administrator privileges). The default password for the admin user is **raritan**, all lowercase, but we recommend this password be changed as soon as Paragon II is initially installed (see **User Profile Parameters and How to Change Settings** in Chapter 3 for additional information). After login, the Selection Menu appears.
2. Press **F5**. The Administration Menu appears.

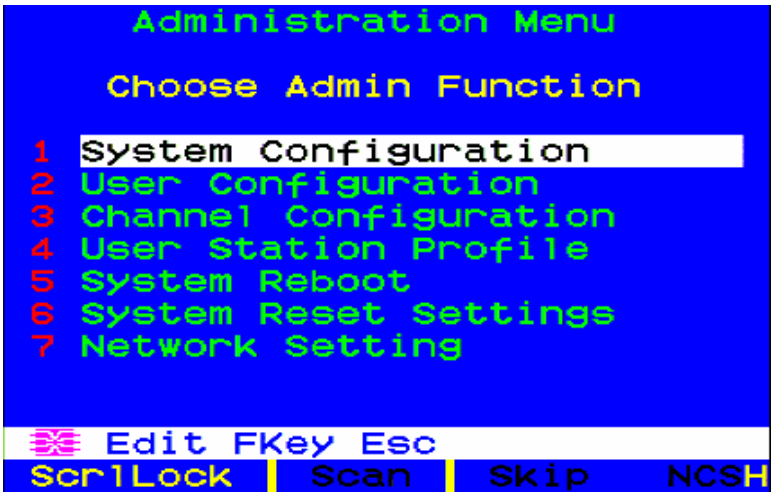

Figure 51 Administration Menu

3. Press any keyboard number from 1 through 7, or use the ↑ and ↓ keys to move the highlight to your desired option (submenu), and press **Enter**.

Guidelines for System Configuration

- Only one user should attempt to modify/update the System Administration Menu at one time (especially the User Configuration and Channel Configuration options).
- Z-CIMs should be added one at a time to a Z-CIM chain. The Administrator should read from message banner that the database has been completely updated before adding a new Z-CIM.
- If updating the system is necessary at Installation, make certain all users have logged out.
- When powering on existing stable configurations (i.e., if you are NOT replacing or adding switches and NOT swapping the order of switches) or when you are Power Cycling a cascaded configuration, Raritan recommends that you ① Power on the THIRD TIER switches (if a third tier exists), then ② Power on the SECOND TIER switches, and ③ Power on the Paragon II BASE TIER. User Stations can be powered on and off at any time as needed.

  Please note that this order is the reverse of upgrading a cascaded configuration: when upgrading, first ① Power on the BASE TIER, then ② Power on the SECOND TIER, and ③ Power on the THIRD TIER (if a third tier exists).

  For configurations where switches are added, replaced, or swapped (in order), we recommend Powering on starting FROM THE THIRD TIER, moving to the second tier, and then the base tier, and in addition, performing a partial reset of the database.
- When naming or renaming a CIM, switch to that CIM to activate it and to ensure the new name is stored or updated in the matrix switch's database.

System Configuration

To set certain global parameters, select option 1, **System Configuration,** from the Administration Menu and press **Enter**.

1. Press the ↓ or **TAB** key to move the highlight forward, or the ↑ or **SHIFT** + **TAB** to move the highlight backward to a desired field. Press **Enter** to edit the field. The highlighted area will turn green. Some fields have character or numeric values you can type in; others have values you can toggle between with the arrow keys. When editing is complete, either press **Enter** followed by **S** to save your changes, or press **Esc** to abort the changes and continue using the previous settings.

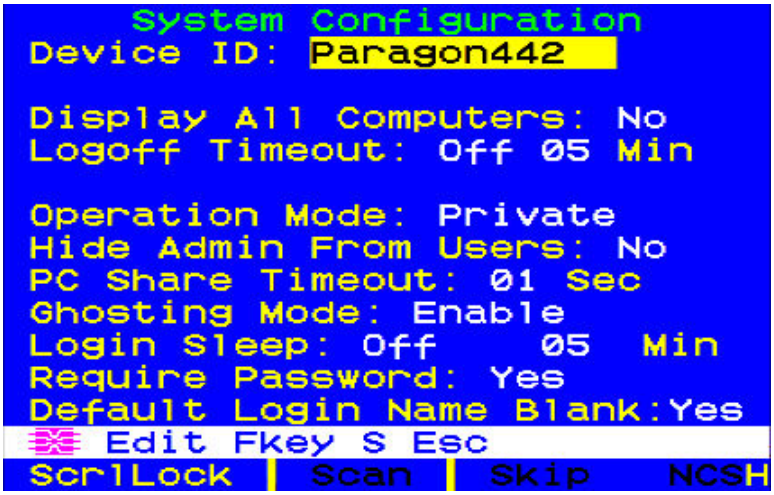

Figure 52 System Configuration Menu for P2-EUST

- **Device ID:** Type in the desired name for the single or Master Paragon II matrix switch (Base Unit). It is important for matrix switches in a "cascaded system with multiple matrix switches" to have distinctive names, so that users can tell them apart. (The system will assign

each matrix switch the default name "Paragon 'user ports''channel ports'": each P2-UMT242 will be named "Paragon 242, each P2-UMT442 "Paragon 442," etc.)

- **Display All Computers:** This option can be "**Yes**" or "**No**" to respectively allow or disallow users from viewing channel port listings for all connected devices through the OSUI, even if the user doesn't have the security privileges to access them. The factory-default setting is **No**.
- **Logoff Time Out:** If enabled, after the amount of time in minutes that a User Station can remain inactive (no keyboard or mouse activity), the logged-in user at that station is logged out of the Paragon II system.
  - Possible values in the first field are "**On**" (Logoff Timeout is enabled) and "**Off**" (Logoff Timeout is disabled – the default value). Use the ↑ and ↓ keys to toggle between these values.
  - If Logoff Timeout is set to "**On**," the number in the second field is the number of minutes of inactivity that must elapse before the timeout is triggered and the user is logged out. Using leading zeroes if necessary, type in a two-digit number of minutes from 01 to 99, or use the ↑ and ↓ keys to increment and decrement the current value by 1 respectively. The default setting is **05**. If Logoff Timeout is set to "**Off**," the number in this field will have no effect.
- **Operation Mode:** Any of the three ways in which the Paragon system handles requests from multiple users for access to the same channel port. Use the ↑ and ↓ keys to switch between the choices:
  - **Private:** A server or other device on a specific channel port can be accessed exclusively by only one user at a time. No other users can see or control that device until its controlling user selects a different channel port.
  - **Public View:** While one user is accessing a server or other device on a specific channel port, other users can select that channel port and view the video output from that device, but only the first user will have keyboard and mouse control. When the first user disconnects or selects a different channel port, the waiting user who is first to type or move his/her mouse is given keyboard and mouse control. Status messages showing users' identities appear on video-sharing users' monitors when Public View mode is in effect.
  - **PC Share:** A server or other device on a specific channel port can be selected and controlled by more than one user, but only one user has keyboard and mouse control at any one time. If the PC share timeout is enabled and the user in control is idle (no keyboard or mouse activity) for the duration of the timeout, the waiting user who is first to type or move his/her mouse is given keyboard and mouse control of the PC.
- **Hide Admin From Users:** When Operation Mode is set to "**Public View**," the user in control of a server is normally notified when other users start and stop viewing the channel port's video. However, when Hide Admin From Users is set to "**Yes**," administrators can view other users' video without activating this viewing-notification message. Use ↑ and ↓ to toggle between "**Yes**" and "**No**." The default setting is **No**.
- **PC Share Timeout:** If Operation Mode is set to "**PC Share**" and more than one user has selected a server, the first user to type or use his/her mouse will have control of the server. However, another user can gain control of the server if the first user's keyboard and mouse remain idle for the length of this timeout. Using leading zeroes if necessary, type in a two-digit number of seconds from 01 to 99, or use the ↑ and ↓ keys to increment and decrement the current value by 1 respectively. The default setting is **01**.
- **Ghosting Mode:** In a Paragon system, when a CIM (attached to a server) or tier device is removed from the system or powered off (manually or accidentally), a record of the CIM or CIMs connected to that device is reserved in the Paragon system. The target (or port) name continues to appear in black text on the OSD of local user ports, and also appears with inactive status in other Raritan clients that operate with Paragon II, such as Paragon Manager, RRC/MPC, PIISC, and CC. If Ghosting is set to **Enable,** when an active CIM is removed from one channel port and connected to another channel port ('hot-swapped'), you will see two identical CIM entries on the OSUI of Paragon Clients: one in green text (active) and another in black text (inactive). The inactive CIM is known as a 'ghost' CIM. To remove

records of the inactive CIMs after they are hot-plugged into a different port, select **Disable.** The default Ghosting Mode setting is **Enable.**

- **Login Sleep**: This is a power-saving mode that is activated once users log in. Login Sleep acts as a screensaver if the User Station is idle (no keyboard or mouse activity) for a specified amount of time. When an Administrator sets this mode, it applies to a Paragon unit and its attached configuration; individual users can change this mode in the **Login Sleep** field of their **User Profile** screens. Edit this field and the **Minutes** field that follows to determine how the system handles sleep mode. Possible values are Saver, Green, and Off. Use the ↑ and ↓ keys to toggle between these values.
  - **Saver:** The login screen or the OSUI are "floaters" and appear regularly in random locations on the screen.
  - **Green:** The monitor goes blank.
  - **Off:** Login Sleep is disabled and the screen displays normal video indefinitely.
  - If Login Sleep is set to **Saver** or **Green,** in the **Minutes** field, type the number of minutes of inactivity before Login Sleep is triggered. Using leading zeroes if necessary, type in a two-digit number of minutes from 01 to 99, or use the ↑ and ↓ keys to increment and decrement the current value by 1 respectively. The default setting is **05**. If Login Sleep is set to "**Off**," the number in this field has no effect.
- **Require Password:** Determines whether a user can specify a blank password, that is, delete any existing password and have no password at all. Use the ↑ and ↓ keys to toggle between "**No**" (users may delete their existing passwords) and "**Yes**" (the default setting; starting with the first time they change their password, users must always specify a password). Newly created users always start with no password, and must assign one to themselves during initial setup.
- **Default Login Name Blank:** Determines whether the User Name field in the Login screen will be blank, or if the field will contain the default user name (the first available "**userxy**" name, where "xy" is a two-digit number with leading zeroes—"user01," "user02," and so on). Use the ↑ and ↓ keys to toggle between "**Yes**" (the field is blank – the default value) and "**No**" (field contains the user name).

2. When you are finished, either press **Enter** followed by the letter **S** to save your changes, or press **Esc** to abort the changes and continue using the previous settings.

Video Redirection (Forced Video)

You can have any server send its video/keyboard/mouse data to any User Station other than yours. This function is called "Forced Video" and it can be performed using either OSUI or Paragon Manager.

As an Administrator, you can authorize specific normal users to perform this function. Both of the authorization and operation of these users can only be done through Paragon Manager. In addition, with Paragon Manager, you can connect to multiple Paragon II units at one time and remotely operate the Forced Video function. See **Paragon Manager User Guide** for additional information. This user guide is located on the **"**User Manuals & Quick Setup Guides**"** CD, or you can visit Raritan's Product Documentation Web page:
http://www.raritan.com/support/productdocumentation.

Those who have the permission to perform Forced Video include:

- Administrator (by default)
- Users with administrator privileges (by default)
- Users who are authorized to perform the Forced Video function; however, these users must operate the function through Paragon Manager only instead of OSUI

Illustration Example

You are operating on the User Station 1 (UST-1). Now you can issue the Forced Video command to direct one server to output its data to one of the User Stations connected to the same Paragon II matrix switch as your UST-1. Note that you cannot direct the server output its data to User Stations connected to a Paragon matrix switch other than the Base Unit, such as UST-A or UST-B in the diagram below.

The permitted data direction is shown below:

- One of the base-tier servers **(Base-1 to Base-3)** → one of the base-tier User Stations **(UST-1 to UST-3)**

- OR -

- One of the upper-tier servers **(such as 2T-1 to 2T-3)** → one of the base-tier User Stations **(UST-1 to UST-3)**

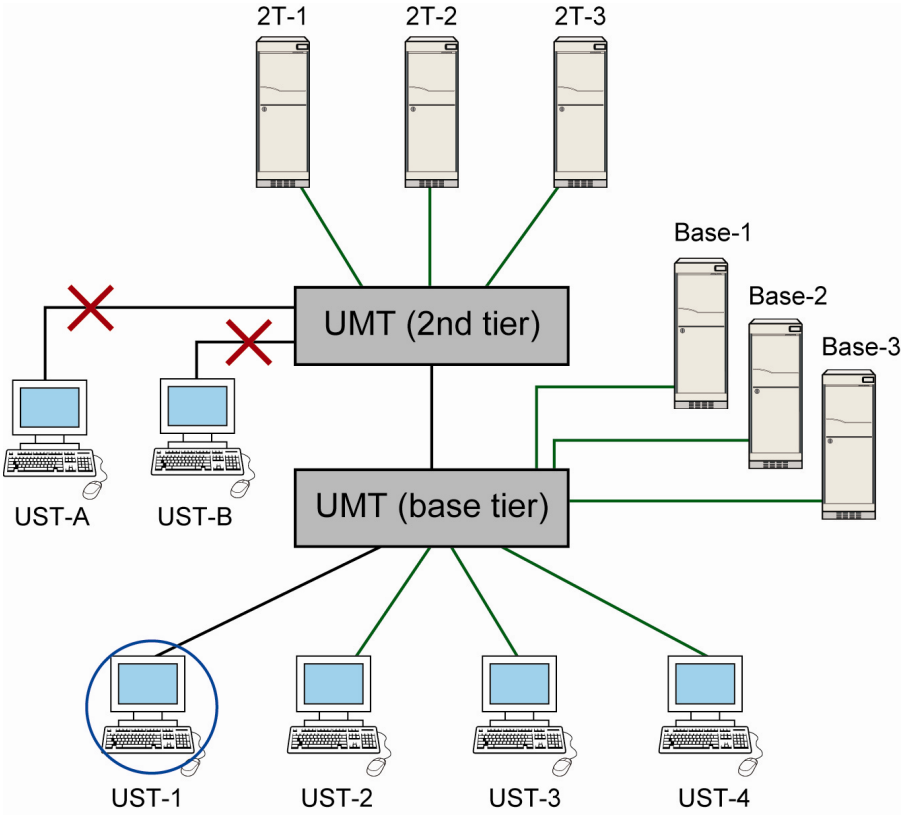

Figure 53 Illustration of Forced Video

Operating Forced Video Using OSUI

1. At the Selection Menu, press the ↑ and ↓ keys to highlight the channel number of the server whose video/keyboard/mouse data output you want to redirect.

2. Press **Tab**, and the OSUI message bar displays a switch message.

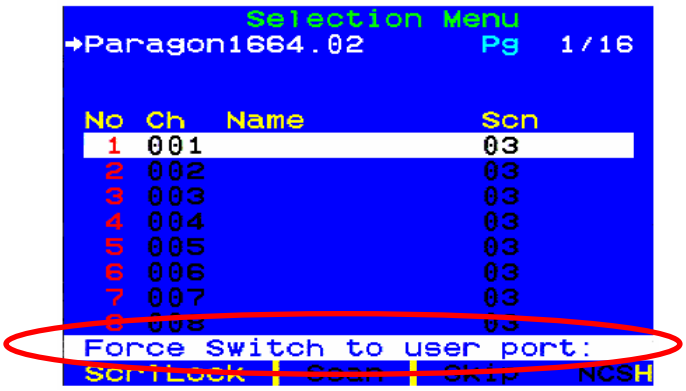

Figure 54 Forced Video Switch Message

3. Type the two-digit number of the user port to which the data output is redirected.
4. Press **Enter** to have the data output to the assigned user port or press **Esc** to cancel.

The Forced Video function is always performed regardless of the login status or the permissions of that logged-in user on the assigned User Station. If it is performed successfully, the following message appears on the screen of the Administrator.

Figure 55 Successful Forced Video Message

Possible Failure Causes

Several scenarios will lead to the failure of the function:

- There is blockage to the selected channel because it has been accessed by another user.
- Mouse/keyboard activity is detected on the assigned User Station when the Forced Video command is issued. Paragon will NOT execute Forced Video in order to protect the server operation.
- Multiple Video (Port-Following Switch) function is being applied to the assigned User Station.
- The User Station is set to Local PC mode.
- No available path between the server and the User Station.
- The assigned user port is not attached to any User Station.

When the failure occurs, a failure message is displayed on the screen of the Administrator.

Operating Forced Video Using Paragon Manager

You can also use Paragon Manager in a remote PC to redirect the video/keyboard/mouse output. Paragon Manager can connect to multiple Paragon II units of different models so you can operate Forced Video by switching between different units. For more information, see **Paragon Manager User Guide**. This user guide is located on the "User Manuals & Quick Setup Guides" CD, or you can visit Raritan's Product Documentation Web page: http://www.raritan.com/support/productdocumentation.

Guidelines

- When Paragon Manager is connected to one Paragon II unit, do NOT connect Paragon Manager to that unit's upper tier(s) again.

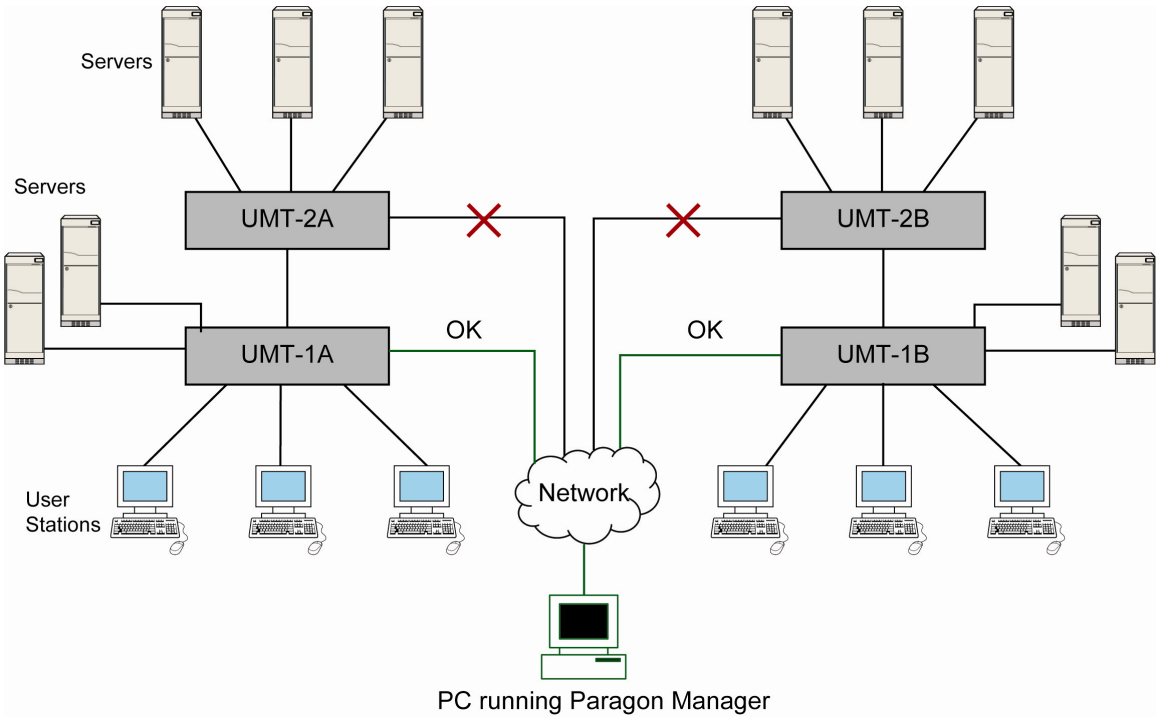

Figure 56 Paragon Manager Connection to Different Paragon Units

- There are two upper limits for the number of units to which Paragon Manager can connect at one time.
  - Up to 8 Paragon II units
  - Up to 64 User Stations in total of all connected units

User Station Receiving Forced Video

When the Forced Video command is issued, a message similar to the following appears on the User Station which receives the forced video output.

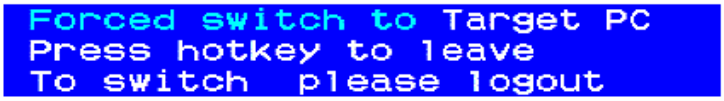

Figure 57 Message on the Forced Video User Station

To Exit the Forced Video Mode:

1. Press the hot key (default: **Scroll Lock**) twice quickly, this message appears.

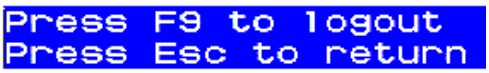

Figure 58 Logout Prompt on the User Station Receiving Forced Video

2. Press **F9** to log out of the system.

***Note**: Pressing Esc will return you to the current forced video mode.*

Channel Association for Multiple Video

"Multiple Video" (or called Port-Following Switch) enables up to four User Stations to simultaneously receive the video output of a server that has multiple video ports.

In order to perform this function, the Administrator must configure channel port association in Paragon Manager. See **Paragon Manager User Guide** for more information. This user guide is located on the "User Manuals & Quick Setup Guides" CD, or you can visit Raritan's Product Documentation Web page: http://www.raritan.com/support/productdocumentation.

Note: *Depending on your purpose, the associated channels can also be connected to different servers and output the video data accordingly.*

The association setup can only be done by those listed below, but any normal user can perform the Multiple Video function once the association setup is finished.

- Administrator
- Users with administrative privileges

For more information on this operation, see **Concurrent Multiple Video Outputs** in Chapter 3.

Channel Association Guidelines

This section describes the general concept for associating channels.

- This function applies to both **Paragon II** Main Switching and Stacking Units.
- Channel ports of the same association group are all on the same Paragon II Main Switching Unit (either with or without any Stacking Units connected).
- Set the channel intended to activate other channels as the "first" channel in the association.
- Association of two or four channel ports is permitted for most Paragon II models except P2-UMT242, that comes with two user ports only.
- The sequence of associated channels can be random.
- Each channel port belongs to one association group only.
- Only channel ports connected to servers are available for association.
- Up to 256 association groups are allowed per Paragon II system.

Limitations:

The Multiple Video function is not applicable to those channels which share only one path via the tiered device, such as P2ZCIM, P2CIM-APS2-B or P2CIM-AUSB-B (for IBM BladeCenter servers).

User Configuration

To view the current connection status for each user and to add, delete, and edit user names and security rights, select option 2, **User Configuration,** from the Administration menu.

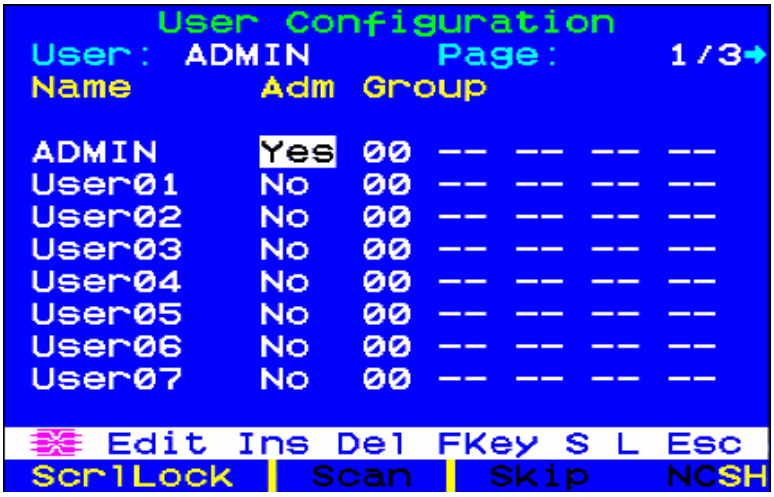

Figure 59 Left Panel of the User Configuration Menu

This menu displays one user's information in each row. There are two panels of this menu – left and right panels, as indicated by the right-pointing arrow (→) at the top of the menu. The fields and columns in the left panel of this menu include:

- **User:** Your user name. This field cannot be edited.
- **Name:** The user names assigned to all user accounts. Except for the special user name "**admin**," these user names can be edited: You can type in new names up to eight alphanumeric characters long (not case-sensitive).
- **Group:** The ID numbers of the security groups to which users are assigned.
- **Adm:** Indicates whether any given user has administrator privileges. You can use the ↑ and ↓ keys to toggle between "**Yes**" and "**No**" (the default setting).

Use the arrow keys, **Tab**, **Shift** + **Tab**, **Page Up**, and **Page Down** to move within this menu and its submenus. Press **Enter** to edit a highlighted field; it will turn green. When you finish editing a field, press **Enter** to save the changes or press **Esc** to abort changes.

Press **Tab** or the → key to move through the fields to the right panel of the menu and display users' connection information. The Connection column displays which channel port (if any) each active user is currently connected to.

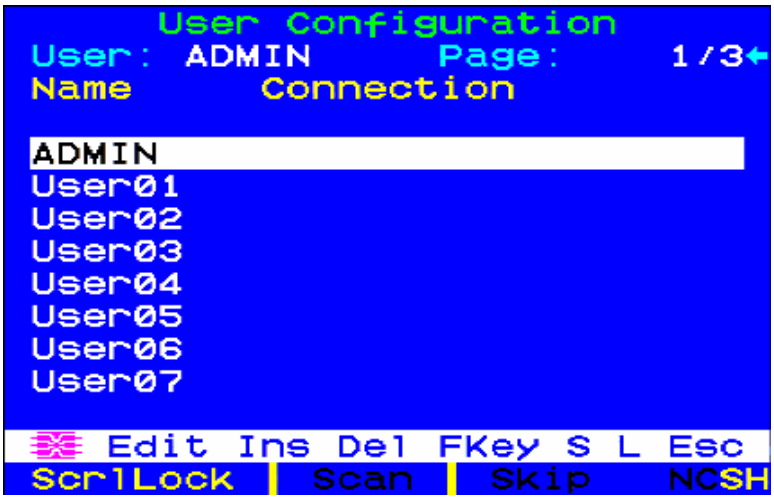

Figure 60 Right Panel of the User Configuration Menu

You can also perform three other functions at this menu:

- Add a new user by pressing the **Insert** key. A new default user name will be added in the end of the existing list (for example, if users "user01" through "user25" already exist and a new one is added, its default name will be "user26"); you can edit the name as desired. The maximum number of users is 127 (512 with an added memory card).
- Delete a user by moving the highlight to a user name and pressing **Delete**. Paragon II will ask for confirmation; if you respond by pressing **Y**, that user account will be deleted from the system.
- A user with administrator privileges can log out another connected user by highlighting a user name and pressing **L**. That user name will then be disconnected from the Paragon system.

Channel Configuration

To edit or initialize a P2CIM, change the device name, individual scan rate, device type, and group IDs associated with each server or device, select option 3, **Channel Configuration,** from the Administration Menu. When you save Channel Configuration changes, Paragon II will update each affected P2CIM as necessary.

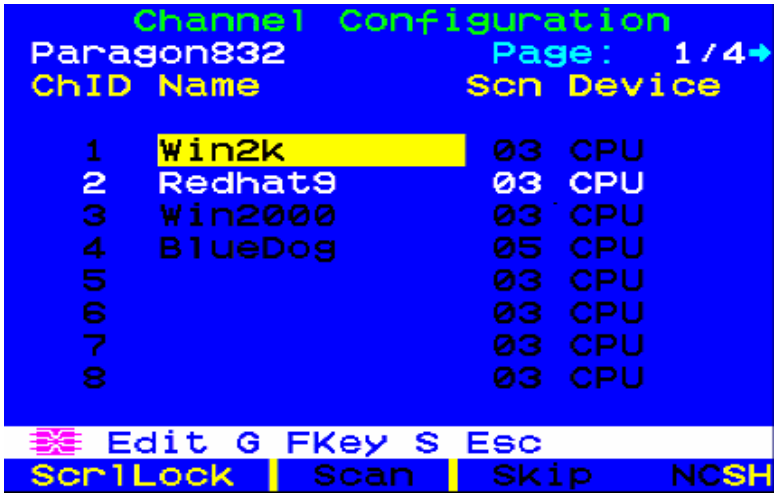

Figure 61 Left Panel of the Channel Configuration Menu

This menu displays one channel port's information in each row. If the Paragon system detects a powered device on that channel port, it will display the text in that row in green; otherwise, it will display it in black. Again, there are two panels in this menu – left and right panels, indicated by the right-pointing arrow (→) at the top of the menu. The fields and columns on the left panel of this menu:

- **ChID:** The channel port's number.
- **Name:** The name of the device attached to that channel port. Device names are case-sensitive and may be up to twelve alphanumeric characters long. As shown with channel port #1 in and elsewhere, you may leave a device name blank if you wish, but we do not recommend this.
- **Scn:** Displays the device's individual scan rate (the length of time that the system pauses while scanning that channel port for those users who set their Scan Mode to "Individual" rather than "Global"). Using leading zeroes if necessary, type in a two-digit number of seconds from 01 to 24, or use the ↑ and ↓ keys to increment and decrement the current value by 1 respectively. The default setting is **03**.

Use the arrow keys, **Tab**, **Shift** + **Tab**, **Page Up**, and **Page Down** to move within this menu and its submenus. Press **Enter** to edit a highlighted field; it will turn green. When you finish editing a field, press **Enter** followed by **S** to save the changes, or press **Esc** to abort them.

While the cursor is in the Device column, press **Tab** or → key to move to the right panel of this menu and display device group information: The Group columns display which groups (if any) the device has been assigned to.

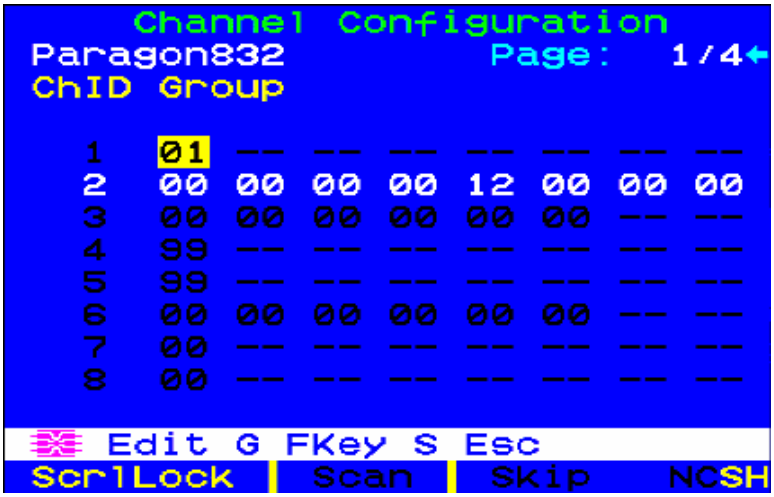

Figure 62 Right Panel of the Channel Configuration Menu

Video Display Adjustment for P2-EUST

The P2-EUST has additional capabilities for allowing adjustment of your video display. Specify skew levels for Automatic Gain Control (AGC), Red (R), Green (G), and Blue (B) to improve video quality.

After switching to a channel from P2-EUST, press the hot key twice quickly to activate the OSUI. The Selection menu will be displayed with an RED arrow (➔) on the left side of the name of the server you are accessing. Press the * (asterisk) key to view the skew delay settings, which appear in the bar at the base of the menu. See **Video Gain Adjustment and Skew Compensation in P2-EUST** in Chapter 3 for additional information.

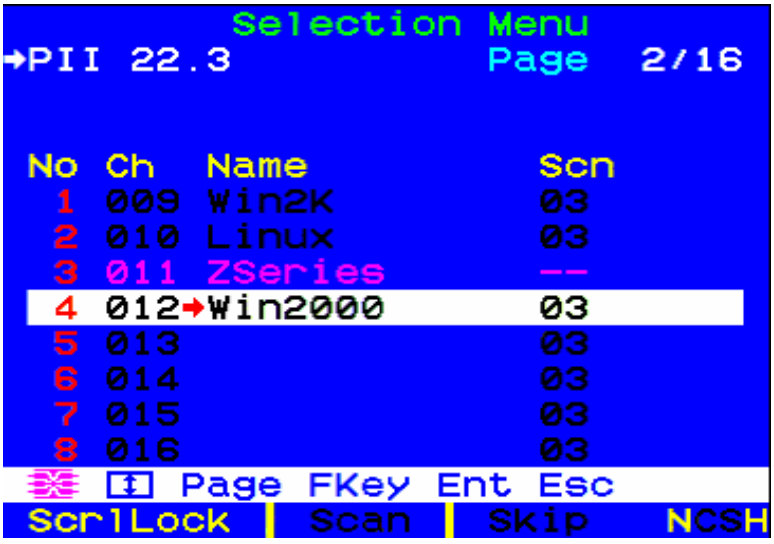

Figure 63 Selection Menu

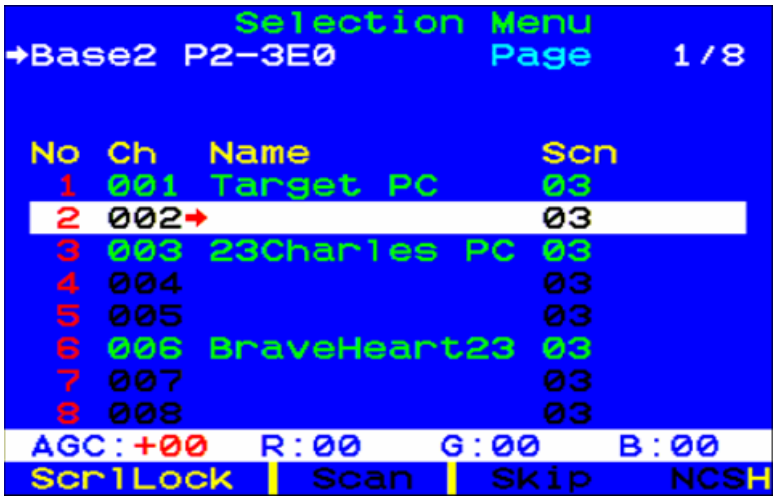

Figure 64 Selection Menu with RGB Skew Delay Active

Use the numeric keypad for the following operations:

To select the value to change (when selected, the value appears in red):

Press / (forward slash) to move cursor to the left

Press * (asterisk) to move curser to the right

To change values:

Press + (plus sign) to increase the value

Press - (hyphen or minus sign) to decrease the value

Once you have specified video values and the video quality is acceptable, the values will be stored on your system until you change them again.

User Station Profile

To activate the User Station Profile and set the global keyboard type and video delay, select option 4, **User Station Profile,** from the Administration Menu.

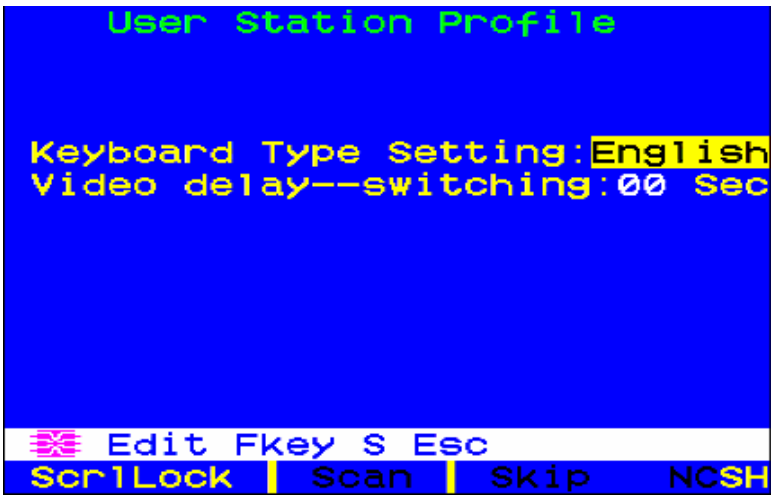

Figure 65 User Station Profile Screen

Keyboard Type

The OSUI supports three types of keyboard mappings: Select either "English" – the default is **U.S. English**, "French," or "German." If you are using a non-English keyboard, you must temporarily attach an English-language keyboard to change the keyboard type; use arrow keys to move the highlight to the **Keyboard Type Setting** field, press **Enter** to turn the highlight green, use any of the arrow keys to toggle the field to the correct keyboard type, and press **Enter** again to select it.

Press **S** to save your changes or **Esc** to exit without saving. You can now attach the keyboard type you selected.

Video Delay

If channel switching or autoscanning takes too long to sync up on Paragon II, especially when your servers are set with different resolutions, it may create a displaying issue with your monitor. At this time, set a video delay for channel port switching at your User Station.

If you set the video delay to any number of seconds greater than zero, Paragon II will wait until a video signal is constant for that number of seconds before passing it through to the monitor. To set video delay, use any of the arrow keys to move the highlight to the **Video delay--switching** field, press **Enter** to turn the highlight green, type in the desired two-digit delay from 00 to 30 seconds (or use the ↑ and ↓ keys to increment or decrement the field by 1), and press **Enter** again to select it.

Press **S** to save the changes, or press **N** to exit without saving. The changes are applied only to your User Station (the station at which the change was made).

Group Settings (Access Rights)

To assign access rights to users and security levels to servers in a Paragon system, assign users to user groups with defined rights and servers to channel port groups with defined accessibility. Each group can contain multiple users or servers. By default, all users start out assigned to user group 00 and all servers start out assigned to channel port group 00. You can create groups numbered from 00 to 99 for both users and servers; each user can belong to a maximum of five user groups and each server can belong to a maximum of eight channel port groups.

Note: *Cascade channel ports cannot be assigned to groups.*

	USER GROUPS:	COMPUTER GROUPS:
Available Group IDs for Assignment	00 – 99	00 – 99
Maximum Number of Group IDs available	5	8

Users and computers communicate according to the following Group ID access rules:

GROUP ID FOR USERS:	CAN ACCESS COMPUTERS WITH GROUP IDS:
00	00 through 99 (all computers)
FOR IDS 01 THROUGH 09:	
0x through 0x	00, 0x; and x0, x1, x2, x3, x4, x5, x6, x7, x8, and x9
For example:	
05	*00, 05; and 50, 51, 52, 53, 54, 55, 56, 57, 58, and 59*
FOR IDS 10 THROUGH 99:	
x0 through x9	00, 0x, and exact same computer ID# as the user's ID#
For example:	
98	*00, 09 and 98*

GROUP ID FOR COMPUTERS:	CAN BE ACCESSED BY USERS WITH GROUP IDS:
00	00 through 99 (all users)
FOR IDS 01 THROUGH 09:	
0x through 0x	00, 0x; and x0, x1, x2, x3, x4, x5, x6, x7, x8, and x9
For example:	
08	*00, 08; and 80, 81, 82, 83, 84, 85, 86, 87, 88, and 89*
FOR IDS 10 THROUGH 99:	
x0 through x9	00, 0x, and exact same computer ID# as the user's ID#
For example:	
12	*00, 01, and 12*

THESE USER GROUPS...	...CAN ACCESS THESE CHANNEL PORT GROUPS:
00	00 through 99 (all servers)
0x (01 through 09)	00, 0x, and x0 through x9
For example:	
01 can access 00, 01, and 10 through 19;	
02 can access 00, 02, and 20 through 29, etc.	
xy (10 through 99)	00, 0x, and xy
For example:	
10 can access 00, 01, and 10	
23 can access 00, 02, and 23	
97 can access 00, 09, and 97, etc.	
THESE CHANNEL PORT GROUPS...	**...CAN BE ACCESSED BY THESE USER GROUPS:**
00	00 through 99 (all users)
0x (01 through 09)	00, 0x, and x0 through x9
For example:	
01 can be accessed by 00, 01, and 10 through 19	
02 can be accessed by 00, 02, and 20 through 29, etc.	
xy (10 through 99)	00, 0x, and xy
For example:	
10 can be accessed by 00, 01, and 10	
45 can be accessed by 00, 04, and 45	
86 can be accessed by 00, 08, and 86, etc.	

Recommendations

Systems Requiring High Security:

We recommend assigning IDs of **10 through 99** to computers requiring high protection. This will make them less accessible than computers with IDs of **00 or 01 through 09.**

Main System Administrator and Assistant Administrators:

Although any user may be assigned Administrative Privileges, we recommend the user ID "**00**" for the Main System Administrator, and user IDs **01 through 09** for Assistant Administrators. These IDs provide a broader scope of access.

Correspondingly, we recommend that those servers that all users will need to access, such as application or document servers, be assigned to channel port group **00**, and that servers needing the most security protection be assigned to channel port groups from **10 to 99**.

System Reboot and System Reset

System Reboot and System Reset commands affect your entire Paragon configuration, that is, if you perform a System Reset on your Base Unit, the 3rd-tier matrix switch(es) will reset, then the 2nd-tier matrix switch(es) will reset, and finally the Base Unit will reset. Each matrix switch sends a Ready-to-Reset report to Paragon clients (P2SC, Paragon Manager, UST-IP, etc.) as an event log.

System Reboot

To reboot your Paragon II from the OSUI, select option 5, **System Reboot**, from the Administration Menu, and press **Enter**.

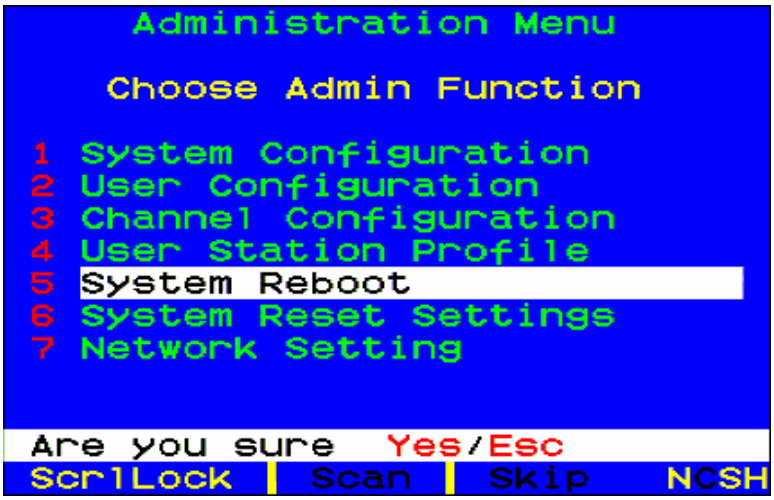

Figure 66 System Reboot

A message in the message bar asks you to confirm the System Reboot command. You must type **Y-E-S**, the complete word 'Yes,' and press **Enter** to confirm, or press **Esc** to cancel. A "Reset" message screen appears and remains on-screen while your system reboots. If you have multiple tiers, the reboot will take slightly longer than if you are rebooting only a single Paragon unit.

System Reset

To reset the Device Name, Network Settings, User Profiles, System Configuration, and Channel Configuration, returning them to the original factory default values, without having to physically go to each switch to reset it, select option 6**, System Reset Settings,** from the Administration Menu. You can reset one, several, or all system settings in any combination.

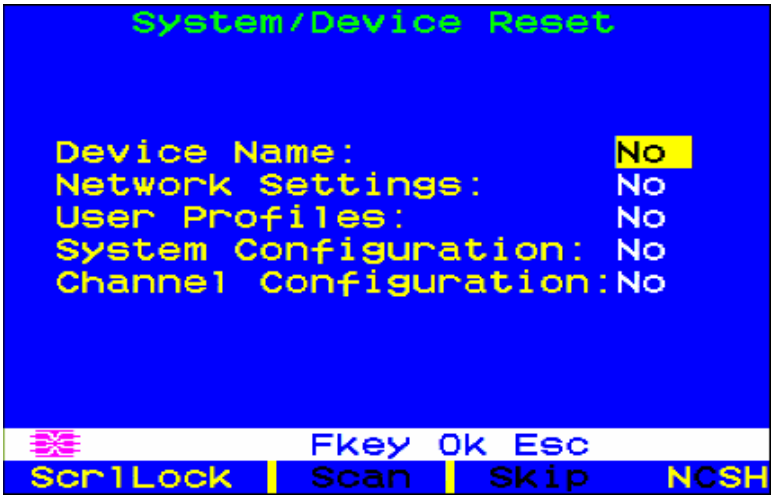

Figure 67 System/Device Reset Screen

1. On the System/Device Reset menu, press ↑, ↓, or **Tab** to move to the field you want to reset.
2. Press **Enter**, and then press the arrow keys to toggle between **Yes** and **No.** When finished, press **Enter.**
3. When finished, press the letter **O** on your keyboard.
4. A message in the message bar asks you to confirm the System Reset command. You must type **Y-E-S**, the complete word 'Yes,' and press **Enter** to confirm, or press **Esc** to cancel.
5. The matrix switch logs out all local users, disconnects all connections, and then sends a Ready-to-Reset report to all Paragon clients. A progress indicator appears on the message bar to indicate the current update percentage. During the database update, users are unable to operate the OSUI functions.

Figure 68 Data Update Message

After the reset is complete, the Paragon clients can log in again.

Network Settings

To configure Paragon II's network settings from the OSUI, select option 7, **Network Settings,** from the Administration Menu.

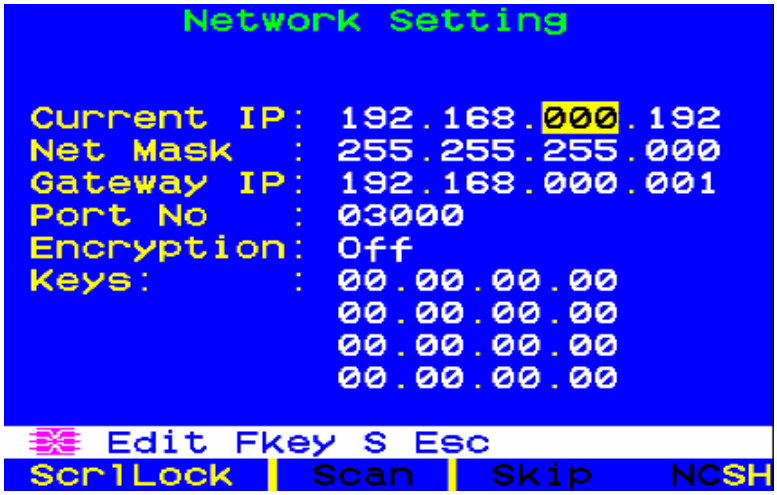

Figure 69 Network Settings Menu

- **Current IP:** This field allows administrators to configure the Paragon II's address on the network. Use the arrow keys to scroll over to each byte and change the IP as needed. The default IP address is **192.168.0.192**.
- **Net Mask:** The net mask for the Paragon II unit is set at a default value of **255.255.255.0**. Reset this as necessary.
- **Gateway IP:** This default is set to **192.168.0.1**. Reconfigure as needed.
- **Port No**: Default is 3000.
- **Encryption:** If you enable Encryption for the network port, communications between the Paragon II unit and Paragon Manager clients run from an admin PC are encrypted with a 128-bit key. Default setting is **Off**.

Note: *The Ethernet port on the Paragon II is hard coded (not configurable) and supports only 10-BaseT/Half duplex.*

- **Keys** (16-field encryption key)**:** These fields are designed to contain the hexadecimal encryption key used in encrypting network traffic. Only a valid hexadecimal number will be accepted in these fields. Default value of each field is set to **00**.

After saving the changes, the Paragon II will automatically reboot with the new network settings.

When building a tiered system of Paragon II units, each Paragon II should be connected to the network with a unique IP address. In such a system, changing the network settings through a User Station will change the network settings of the Paragon II that User Station is physically connected to. For example, a P2-UST connected to the base tier of a system will change the IP address only of that Base Unit, while a P2-UST connected to a third tier Paragon II will change the IP address of that particular third-tier unit.

It is essential to put all matrix switches in a Paragon II system on the network, as firmware upgrades are pushed across the system through TCP/IP.

Autoscan and Autoskip

As administrator, you can press **F6** to turn autoscanning on and off. When autoscanning is turned on and you press **Esc** to leave the OSUI screen, Paragon II switches sequentially and automatically from one channel port to the next, displaying each channel port's video for the duration of the user's global scan rate or the channel port's individual scan rate (see **User Profile Customization** in Chapter 3), starting over at port 1 when it reaches the last channel port.

In a cascaded system, when the scan reaches a channel port to which a subsidiary matrix switch is attached, it "drops down" to the subsidiary's channel ports and scans them before resuming with the higher-level channel ports.

To stay on a given channel port while Paragon is switching between channels one by one due to autocanning, you must turn **off** autoscanning. Press the hot key (default: **Scroll Lock**) twice quickly to trigger the OSUI when the desired channel is displayed and press **F6** to turn off the function. The word "Scan" at the bottom of the OSUI menus will appear in black when autoscan is off or yellow when autoscan is on.

In Paragon II's default setting, autoscanning will display all channel ports (including vacant ones, which are not connected to any devices), except those occupied by servers that the user has no rights to access, that is, the servers that are not in one of the user's permitted groups – see the section **Group Settings (Access Rights)** in this chapter. To allow a user to see servers that he or she cannot otherwise access, an administrator must set "Display All Computers" to "**Yes**" (see the section **System Configuration** in this chapter). To force the system to skip over vacant channel ports, an administrator must turn on autoskipping.

After logging into Paragon II, administrators can press **F7** to turn autoskipping on and off. When autoskipping is on, Paragon will automatically skip vacant channel ports during autoscanning or when a user tries to switch to such a port manually. The word "Skip" at the bottom of the OSUI menus will appear in black when autoskip is off or yellow when autoskip is on.

Power Management

An administrator can control power to connected devices directly via the Paragon II OSUI. To use the power management features of Paragon II, you will need Raritan's Remote Power Control Unit in one of the four models, depending on your needs:

PRODUCT FAMILY	NUMBER OF OUTLETS	RACK SPACE	CORRESPONDING DEVICE TYPE OPTION IN THE OSUI
PCR8/8A series	8	1U rack mount	PCR8
PCS12/12A series	12	0U vertical mount	PCS12
PCS20/20A series	20	0U vertical mount	PCS20
*PCR20/20A series	20	2U rack mount	PCS20

** Please note the corresponding device type for model PCR20/20A series is the "PCS20" option in the OSUI.*

A special Raritan Power CIM (P2CIM-PWR) is available for use with this kind of power strip. Attach this CIM to the RJ45 port on the Power Strip, and then connect the power strip into an AC source. Connect the CIM to one of the channel ports on a Paragon unit.

Configuring and Naming the Power Strip

Activate the Paragon II OSUI by logging into the system or pressing the hot key (default: **Scroll Lock**) twice quickly. The new power strip should appear in the appropriate channel port with the name PCR8, PCS12, or PCS20, depending on the model type. The Power Strip will be treated exactly like a tier device.

1. Press **F5** to activate the Administrative Menu.
2. Select option 3, "Channel Configuration," and press **Enter**.
3. Select the Power Strip's channel port, and edit the name of the Power Strip as it is displayed in the OSUI. The model type should already be selected as the appropriate type.
4. Press **S** to save the changes.
5. If you want to configure the individual power outlets on the power strip, press **G** to enter the "Outlet Configuration" Menu.
6. When finishing the configuration, press **S** to save the changes.

Associating a Device with a Power Outlet

Since Paragon II cannot detect which type of device is connected to which power outlet, associations of devices with individual power outlets must be done manually.

1. Press **F5** to activate the "Administration Menu."
2. Select option 3, "**Channel Configuration**," and press **Enter**.
3. Highlight the connected power strip and press **G** to enter the "Outlet Configuration" Menu. The physical outlet number corresponds to the number under the "Ch. ID" column.
4. Under the "Type" column, highlight an outlet and press **Enter** to configure the device type:
   A. **PWR:** This is the default association type and refers to devices not connected to the Paragon II system (a router or a monitor).
   B. **CPU:** Select this type for all devices connected to the Paragon II system (including "non-server" devices such as matrix switches).
5. Press → to highlight the name field. Then press **Enter** to configure the name of a device associated with that outlet.
   A. If the type is set to **PWR**, users will be able to change the name of the device as desired.
   B. If the type is set to **CPU**, the OSD will request you to save changes ("Y/N/ESC"), then display a "Select Powered Device" menu. This is an alphabetized list of all devices connected to the Paragon II system, allowing the user to indicate which device is powered by the newly configured outlet. Highlight the desired device and press **Enter**.
6. The selected device (if any) will be automatically associated with that power outlet. The outlet name will be the name of the selected server. Press **S** to save the configuration.
7. Press → to scroll to the next page of the configuration menu for setting security groups for a power outlet. See **Group Settings (Access Rights)**, earlier in this chapter for more information on setting access rights. This allows administrators to limit who is authorized to control power to various devices. The default setting for each group on that outlet is "- -", which means no accessibility to any user other than the Admin user. Note, once a group ID setting is changed, it can never return to the original "- -" state.

Controlling Power to an Outlet

The addition of a power strip to the Paragon II system allows administrators to control the power to devices in two ways:

Control Power from the Channel/Server Selection Menu

Normal Paragon II operation involves browsing the list of servers in the OSUI and pressing **Enter** to switch to that server. By pressing **F3** instead of **Enter** when a server is highlighted, Paragon II will check that server for Power Strip outlet associations:

- If Paragon II does not detect any associations with that server, a message indicating ”No Outlets / Access Denied” appears, and the action is cancelled.
- If the server has associated power outlets, but the user is not authorized to control those outlets, a ”No Outlets / Access Denied” message appears and the action is cancelled.
- If Paragon II sees that this server is associated with at least one power outlet, it will switch to that server. The OSUI will remain on-screen, displaying a list of power outlets associated with the specific server. This allows users to see the server before power is cycled to it.
  - Four choices are offered in this menu: Power Off (X), Power On (O), Recycle Power (R), and Select All (A).
    - If the server is powered OFF, pressing **O** will power ON the outlet instantly.
    - If the server is powered ON, pressing **X** or **R** will activate a confirmation dialog “Are you sure (yes/no)?” As a safeguard, type in the whole word “**yes**”, to confirm cutting power to the server. Typing in “y” only, or any word other than “**yes**” will be taken as a “no” response.
    - In the case of a server associated with multiple outlets, such as a server with dual power supplies, pressing **A** will highlight all of the associated outlets, allowing them to be turned on, off, or recycled simultaneously.

Control Power from the Outlet Selection Menu

A connected power strip is treated as a tiered device. The power strip, therefore, has its own device menu consisting of “ports” for each power outlet with which power can be controlled on a per-outlet basis.

- Navigate the Paragon II OSUI Selection Menu, select the Raritan Power Strip and press **Enter**. You will now be at the “Outlet Selection” menu.
- A list of outlets (up to 8 per page) will appear. Outlets in green are switched ON; outlets in black are switched OFF.
- Press **X**, **O**, or **R** to turn off, turn on, or recycle power to the outlet respectively. Type “**yes**” to confirm turning off the power if you select **X** or **R**.

Get Power Strip Unit Status from the Outlet Selection Menu

At any time while navigating the “Outlet Selection” Menu, pressing **F11** will provide a status screen showing certain parameters of the connected power strip. These parameters vary depending on the model of the power strip, and they may include:

- Average power
- True RMS Current
- True RMS Voltage
- Internal Temperature
- Apparent Power
- Maximum Detected
- Outlet Circuit Breaker

Note: *Unlike second tier channel ports, the power outlet “channel ports” will not appear in the list of channels when the OSUI is in the “channel name” view.*

Paragon II Network Port

Paragon II has a network port and is designed as a network-aware device. This network port is used to communicate with Paragon Manager administrative software, packaged with the Paragon II unit (see **Paragon Manager User Guide** for additional information; this user guide is located on the “User Manuals & Quick Setup Guides” CD, or you can visit Raritan’s Product Documentation Web page: http://www.raritan.com/support/productdocumentation).

Note: *The Ethernet port on the Paragon II is hard coded (not configurable) and supports 10-BaseT/Half duplex only.*

Chapter 5: Paragon II and P2ZCIMs/Z-CIMs

Introduction

Many CIMs (Computer Interface Modules), including P2ZCIMs and Z-CIMs (UKMSPD and UKVMSC), enable access and control of multiple servers from a Paragon User Station, occupying only one channel port on your Paragon II unit. P2ZCIMs or Z-CIMs are set up in a chain-like server-to-server arrangement, with each P2ZCIM or Z-CIM connected to the keyboard, video, and mouse ports of each server and linked with standard Cat5 UTP cables. Through this chained cabling, they transmit keyboard, video, and mouse signals to the system. You can access and control any server connected in the chain via the OSUI and new servers can be added at any time without interrupting server operation.

Paragon II operates using P2ZCIMs and Z-CIMs (UKVMSPD and UKVMSC). Although all these CIMs are installed the same way, certain CIMs will not function if used in the same chain as other CIMs.

P2ZCIMs

- For use with the Paragon II unit
- Can be used on Paragon I unit whose hardware version is HW3 (running Paragon II code)
- Support PS2 (P2ZCIM-PS2), USB (P2ZCIM-USB) and Sun (P2ZCIM-SUN) interfaces
- Support up to 42 units in any mixed arrangement on a Cat5 chain
- Span up to 1,000 feet (304 m.) from the User Station to the last P2ZCIM on a Cat5 chain
- Cannot be mixed on a Cat5 chain with Z-CIM (UKVMSPD or UKVMSC)
- P2ZCIM-USB can be used for either SUN USB and PC USB (controlled by a toggle switch on the back of the unit)
- “L” models (e.g., P2ZCIM-PS2L) are available, which feature longer cables 36" (91 cm) for use with cable management arms

Note: *The easiest way to determine if the hardware version of your Paragon I unit is HW3 is to check the number of its stacking ports on the rear side. If there is only one stacking port, then the hardware version is HW3.*

Z-CIMs (UKVMSPD and UKVMSC)

- For use with Paragon and Paragon II units
- Support PS2 interface only
- Support up to 42 units on a single Cat5 chain
- Span up to 1,000 feet (304 m.) from the User Station to the last Z-CIM on a Cat5 chain
- Cannot be mixed on a Cat5 chain with P2ZCIMs
- UKVMSC Z-CIM features local KVM ports

Note: *UKVMSPD is supported with Paragon II, but is no longer available for purchase.*

Paragon II and P2ZCIMs

P2ZCIM installation requires that each server be assigned a channel name as it is added to the P2ZCIM chain. Server channels are organized alphanumerically by the assigned names or the default names of P2ZCIMs -- the serial numbers, rather than in the order of their placement within the P2ZCIM chain. We recommend that users assign channel names before connecting all servers to eliminate any difficulty in locating the respective channel for each server. When naming or renaming a P2ZCIM, switch to that P2ZCIM to activate it, thereby ensuring that its new name is updated in the matrix switch's database.

Connecting P2ZCIMs as Tiers

The following diagram shows the final setup when connecting Paragon II Z-CIMs (P2ZCIMs) as a tier:

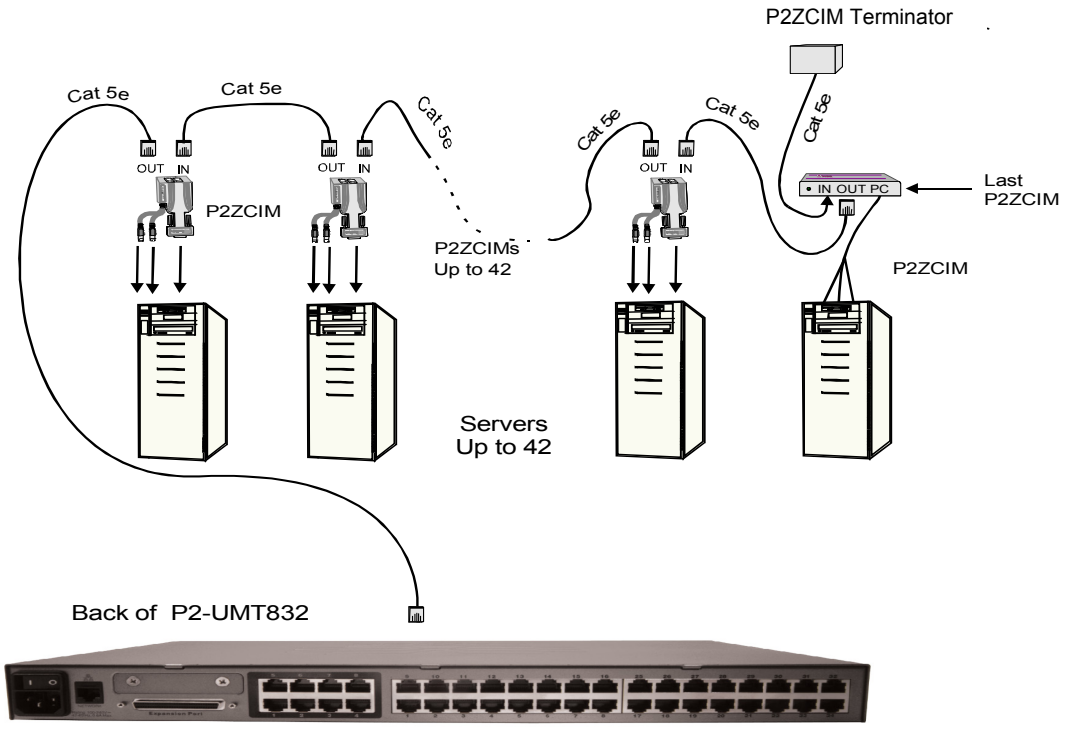

Figure 70 Connecting P2ZCIMs as Tiers to Paragon II

All Paragon II components must be powered ON prior to P2ZCIM tier installation. All servers in the P2ZCIM chain must be powered OFF prior to installation.

When following the installation and configuration instructions below, sort the Selection Menu by channel number, not by name. Display the menu by pressing the **F2** key on your keyboard and change the sorting method by pressing the **F12** key.

Connect a P2ZCIM as a Tier:

1. Connect a Category 5e UTP cable to the channel port on the Paragon II matrix switch reserved for the P2ZCIM chain.
2. Connect the other end of this Category 5e UTP cable to the UTP OUT (O) port on a P2ZCIM, which will be the first P2ZCIM in the chain.
3. Connect a server to the first P2ZCIM.
   A. Connect the 6-pin mini-DIN keyboard and mouse and HD15 video connectors on the P2ZCIM to computer's keyboard, mouse, and video ports.
   B. Place the P2ZCIM Terminator in the P2ZCIM's UTP IN (I) port.
   C. Power ON the server.

Perform P2ZCIM Channel Configuration

1. At a User Station Login Menu, type **admin** in the User Name field and press **Enter**.
2. Type the default password **raritan** or your new password, if already changed, in the Password field and press **Enter**.
3. Press **F5** to go to the Administration Menu and select the Channel Configuration submenu.
4. Use the ↑ and ↓ or the **Page Up** and **Page Down** keys to highlight the Paragon II channel where the P2ZCIM was just added.
5. Ensure that the Device field reads **P2-ZCIM** for a P2ZCIM .
6. If **P2-ZCIM** does not appear in the Device field:
   A. Press **Tab** until the Device field is highlighted and then press **Enter** - the highlight will turn light blue.
   B. Use the ↑ and ↓ keys to change device type to **P2-ZCIM** and press **Enter** - the light blue highlight will return to yellow.
   C. Press **S** to save the change, or press **Esc** to exit without saving.
7. If a more descriptive name is desired:
   A. Hold the **Shift** key and press **Tab** to go back to the Name field, then press **Enter** - the highlight will turn light blue.
   B. Edit the default name and press **Enter** - the highlight will turn green as you begin to type.
   C. Press **S** to save the change, or press **Esc** to exit without saving.
8. Press **F2** to go to the Selection Menu, select the tiered P2ZCIM device, and press **Enter** to validate that the second-tier P2ZCIM is properly configured..

Name the Server Channel on the Tiered Selection Menu of P2ZCIM

1. When viewing the Paragon II Selection Menu or any OSUI menu, press **F5** to go to the Administration Menu.
2. Select the Channel Configuration submenu, and press **Enter**.
3. Select the P2ZCIM device channel.
4. Press **G** to bring up a Channel Configuration menu for the CIM chain.
5. Use the ↑ and ↓ keys to highlight the Name field of the server just connected via P2ZCIM. The channel will display in black and the highlight will turn yellow when it is selected.
6. Press **Enter** - the highlight will turn light blue.
7. Type the desired computer name - the highlight will turn green as you begin to type.
8. Press **Enter** - the highlight will turn yellow.
9. Press **S** to save the new name.
10. Press **F2** to return to the Selection Menu. Go to the Z-CIM channel to verify both of the name change and the server operation are OK

Resize the P2ZCIM Chain

The size limit for a P2ZCIM chain is 42 units. If you never resize the chain, it displays 42 channels (that is, 6 pages) no matter how many P2ZCIMs are actually added in the chain. After resizing, only the number of channels you specify will be shown on the OSUI screen. Resizing the P2ZCIM chain does not change the name of the chain. It changes only the size. Next time when you add new P2ZCIMs to the chain, remember to resize it again so the new P2ZCIMs can be displayed on the OSUI.

1. At a User Station Login Menu, type **admin** in the User Name field and press **Enter**.
2. Type **raritan** or your new password in the Password field and press **Enter.**
3. If the Selection Menu is not in the channel number view, press **F12** to toggle the view.
4. Press the **F5** key.
5. Select the Channel Configuration submenu and press **Enter**.
6. Use the ↑ and ↓ or the **Page Up** and **Page Down** keys to select the P2ZCIM chain you wish to resize.

7. Press **Enter** and type **SetPZSize-NN** (NN represents the two-digit number for the size of your chain, from 01-42).

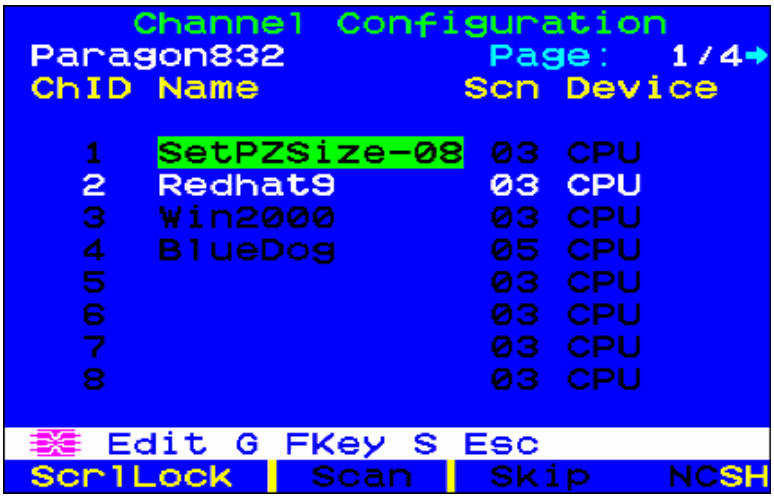

Figure 71 Resizing the P2ZCIM Chain

8. Press **Enter.**
9. Press **S** to save the new chain size.
10. Press **F2** to go to the Selection Menu and verify that the chain size has changed.

Refresh a P2ZCIM Chain

The Refresh command resets the Communication Addresses of each P2ZCIM by reassigning all Communication Addresses sequentially. All active P2ZCIM channels will be rearranged so they are placed together in the former part of the channel list.

1. At a User Station Login Menu, type **admin** in the User Name field and press **ENTER.**
2. Type **raritan** or your new password in the Password field and press **ENTER.**
3. If the Selection Menu is not in the channel number view, press **F12** to toggle the view.
4. Press the **F5** key.
5. Select the Channel Configuration submenu and press **Enter**.
6. Use the ↑ and ↓ or the **Page Up** and **Page Down** keys to select the P2ZCIM chain you wish to refresh.
7. Press **Enter** and type **RefreshPZ**.

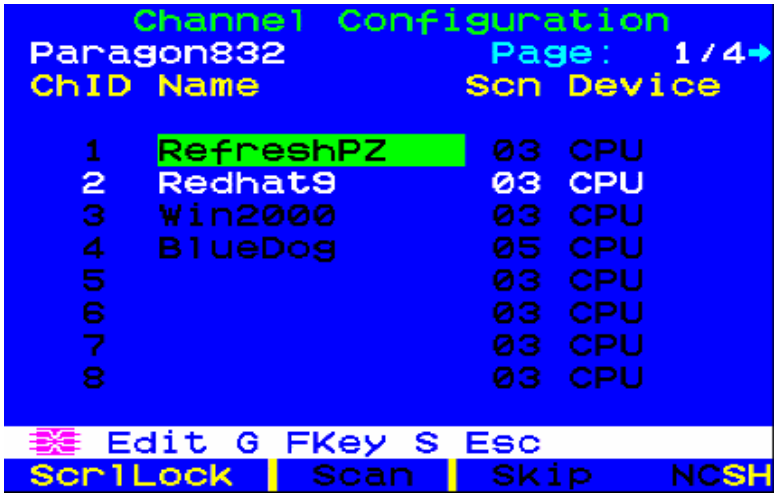

Figure 72 Refreshing the P2ZCIM Chain

8. Press **Enter** again.

9. Press **S** to refresh the chain.
10. Press **F2** to go to the Selection Menu and verify that channel order of the chain have been refreshed.

Important: Please follow the guideline here to ensure that there is enough power to support all P2ZCIMs in a chain.
For Paragon I UMT242, 442, 832 and 1664 with hardware III and Paragon II firmware, and Paragon II matrix switches; in chains up to 20 individual P2ZCIM units at least one P2ZCIM must be powered ON; In P2ZCIMs chains from 21 to 42 ZCIM units, at least 15 P2ZCIMs must be powered ON.

P2ZCIM LED Status

The LED on each P2ZCIM indicates its operational state:

- If the LED blinks rapidly: P2ZCIM does not have a confirmed Communication Address.
- If the LED is primarily off and blinks on every two (2) seconds: P2ZCIM has a confirmed Communication Address but is not switched to that Address.
- If the LED is on and blinks on/off rapidly when there is keyboard/mouse traffic: CIM has a confirmed Communication Address and is switched to that Address.

Note: *The P2ZCIM will blink from time to time even if there is no keyboard/mouse traffic; this demonstrates that the P2ZCIM is operating normally and not locked.*

- If the LED is blinking on and off but at a regulated, moderate speed (i.e., every half second): that P2ZCIM is acting as Manager of the chain.

Paragon II and Z-CIMs

Z-CIM installation requires that servers are assigned names when added to the Z-CIM chain. The default name of any Z-CIM is its serial number, which is not meaningful to you. In order to name the Z-CIM, it must be connected to a server that is powered on and to the matrix switch's to get status and name assignment.

To organize and track Z-CIMs and the servers to which they are connected, we recommend one of two methods:

- Record the serial numbers of the Z-CIMs connected to each server, and then name all Z-CIMs at one time once the chain is complete.
- First complete the chain and then power on the Z-CIMs one at a time, checking the serial number on the Z-CIM as it is connected, and assigning the proper name to the proper server Z-CIM.

When naming or renaming a Z-CIM, switch to that Z-CIM to activate it, thereby ensuring that its new name is updated in the matrix switch's database.

Connecting Z-CIMs as Tiers

The following diagram shows setup guidelines for connecting Z-Series Z4200U Z-CIMs (UKVMSPD):

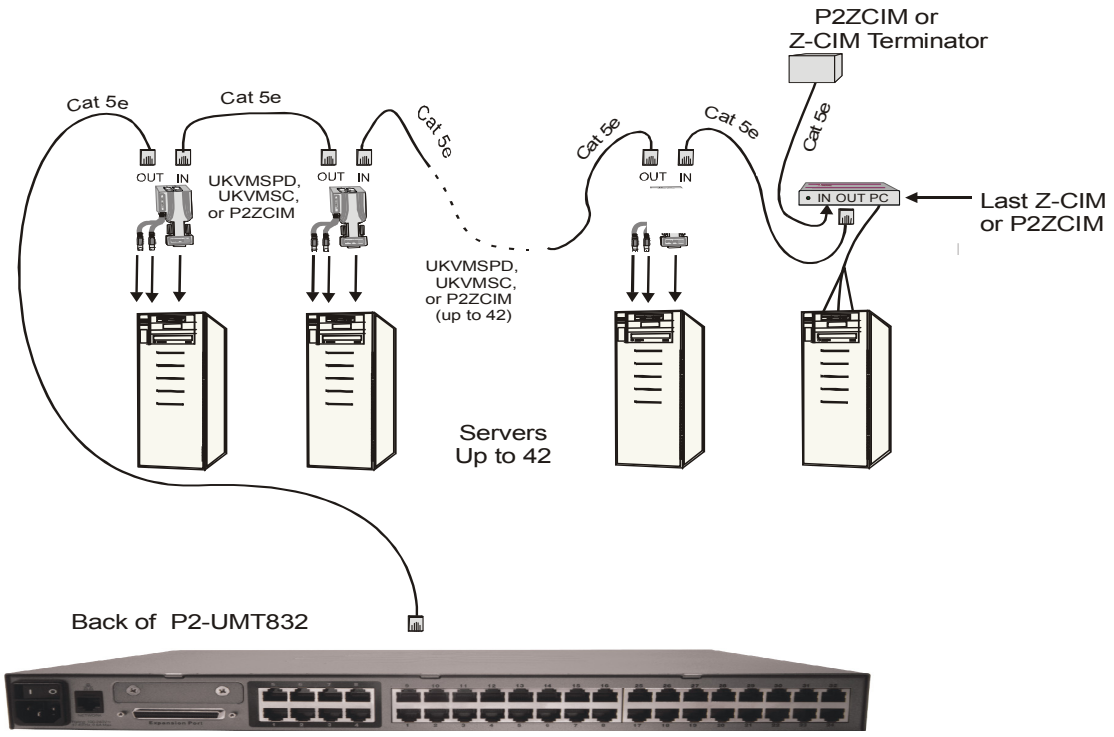

Figure 73 Connecting Z-CIMs or P2ZCIMs as Tiers

All Paragon II components must be powered ON prior to Z-CIM tier installation. All servers and components in the Z-CIM chain must be powered OFF prior to installation.

When following the installation and configuration instructions below, sort the Selection Menu by *channel number*, not by name. Display the menu by pressing the **F2** key on your keyboard and change the sorting method by pressing the **F12** key.

Connect a Z-CIM as a Tier

1. Connect a Category 5e UTP cable to the channel port on the Paragon II unit reserved for the Z-CIM chain.
2. Connect the other end of this Category 5e UTP cable to the UTP OUT port on a Z-CIM, which will be the first Z-CIM in the chain.
3. Connect a server to the first Z-CIM.
   A. Connect the 6-pin mini-DIN keyboard and mouse and HD15 video connectors on the CIM to server's keyboard, mouse, and video ports.
   B. Place the CIM Terminator in the CIM's UTP IN port.
   C. Power ON the server.

Perform Z-CIM Channel Configuration

1. At a User Station Login Menu, type **admin** in the User Name field and press **Enter**.
2. Type the default password **raritan** or your new password, if already changed, in the Password field and press **Enter**.
3. Press **F5** to go to the Administration Menu and select the Channel Configuration submenu.
4. Use the ↑ and ↓ or the **Page Up** and **Page Down** keys to highlight the Paragon II channel where the Z-CIM was just added.
5. Ensure that the Device field reads **ZSeries** for a Z-CIM .
6. If **ZSeries** does not appear in the Device field:
   A. Press **Tab** until the Device field is highlighted and then press **Enter** - the highlight will turn light blue.
   B. Use the ↑ and ↓ keys to change device type to **ZSeries** and press **Enter** - the light blue highlight will return to yellow.
   C. Press **S** to save the change, or press **Esc** to exit without saving.
7. If a more descriptive name is desired:
   A. Hold the **Shift** key and press **Tab** to go back to the Name field, then press **Enter** - the highlight will turn light blue.
   B. Edit the default name and press **Enter** - the highlight will turn green as you begin to type.
   C. Press **S** to save the change, or press **Esc** to exit without saving.
8. Press **F2** to go to the Selection Menu, select the tiered Z-CIM device, and press **Enter** to validate that the second-tier Z-CIM is properly configured.

Name the Server Channel on the Tiered Selection Menu of Z-CIM

1. When viewing the Paragon II Selection Menu or any OSUI menu, press **F5** to go to the Administration Menu.
2. Select the Channel Configuration submenu, and press **Enter**.
3. Select the Z-CIM device channel.
4. Press **G** to bring up a Channel Configuration menu for the CIM chain.
5. Use the ↑ and ↓ keys to highlight the Name field of the server just connected via Z-CIM. The channel will display in black and the highlight will turn yellow when it is selected.
6. Press **Enter** - the highlight will turn light blue.
7. Type the desired server name - the highlight will turn green as you begin to type.
8. Press **Enter** - the highlight will turn yellow.
9. Press **S** to save the new name.
10. Press **F2** to return to the Selection Menu, and verify that the server name on the Z-CIM chain is changed successfully, and the server operation is normal.

Attach a New Z-CIM to the Existing Z-CIM Chain

1. Remove the Z-CIM Terminator from the UTP IN port of the last Z-CIM in the chain and set aside.
2. Connect a Category 5e UTP cable to UTP IN port on the last Z-CIM in the chain.
3. Connect the other end of this Category 5e UTP cable to the UTP OUT port on the next Z-CIM/server currently being added to the chain.
4. Place the Z-CIM Terminator in the added Z-CIM's UTP IN port.
5. Power ON the server.
6. **(Optional)** Connect a local user console to the UKVMSC Z-CIM.
7. Name the newly added server by repeating the steps described in **Name the Server Channel on the Tiered Selection Menu of Z-CIM**.
8. Press **F2** to return to the Selection Menu. Go to the Z-CIM channel to verify both of the name change and the server operation are OK.

Repeat the steps on the above sections for each server to be added to the chain. Name and test each server as it is added. Follow the steps below to add the rest of the Z-CIM chain of servers.

→ Insert a new Z-CIM in the chain

→ Name the server channel on the tiered Selection Menu of Z-CIM

Important: Please follow these guidelines to ensure that there is enough power to support all Z-CIMs in a chain.

☞ **For Paragon I UMT242, 442, 832 and 1664 with hardware III and Paragon II firmware, and Paragon II matrix switches; in chains up to 20 individual Z-CIM units at least one Z-CIM must be powered ON; In Z-CIMs chains from 21 to 42 Z-CIM units, at least 15 Z-CIMs must be powered ON.**

☞ **At least 75% of UKVMSPD Z-CIMs in the chain must be powered ON in order for the chain to be recognized by the Paragon unit.**

Using a UKVMSPD Z-CIM with a Local PC

To grant specific access to a local PC from a certain User Station and to access the Paragon system servers also, insert a UKVMSPD dual-access CIM between a User Station and a Base Unit.

1. If you have not already done so, install your Paragon system as described in **Chapter 2: Installation**.
2. Disconnect the cable that connects the User Station to the Base Unit from the Base Unit's user port.
3. Connect the free end of this cable to the UKVMSPD RJ45 port labeled "UTP OUT."
4. Connect another CAT5e cable from the UKVMSPD RJ45 port labeled "UTP IN" to the Base Unit's user port (where you just disconnected the other cable).
5. Plug the UKVMSPD HD15 strand into the HD15 VGA video port of the server you want to access. Plug the purple 6-pin mini-DIN keyboard strand into the server's 6-pin mini-DIN keyboard port. Plug the light green 6-pin mini-DIN strand into the server's 6-pin mini-DIN mouse port.
6. Plug in and power ON the server. If the UKVMSPD is installed and operating properly, the UKVMSPD green LED will start blinking (once per second when the UKVMSPD is idle, more quickly while data passes in either direction).

Once this installation is finished, activate Local PC Mode on the User Station:

1. Log on at the attached User Station.
2. Press the hot key (default: **Scroll Lock**) twice rapidly to activate the OSUI.

3. Press **F4** to activate the User Profile Menu.

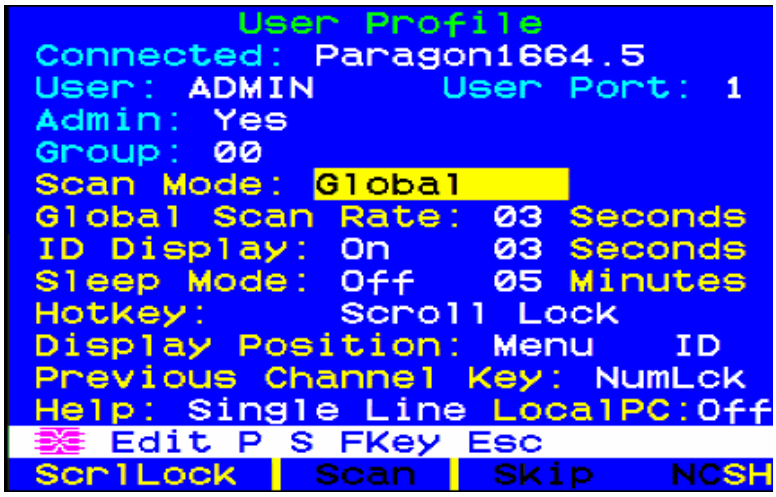

Figure 74 User Profile Menu

4. Use **Tab** or the ↑ and ↓ keys to move the highlight to the **Local PC** field.
5. Press **Enter**. The **Local PC** field will turn green.
6. Use the ↑ or ↓ to toggle the value of the field to "**On**."
7. Press **Enter**. The highlight will turn yellow.
8. Press **S** to save the change. If you do not wish to save changes, press the **Esc** key to abort the change.

Once Local PC Mode is turned on, you can access the dedicated local PC server from this User Station by pressing the **Home** key twice rapidly while viewing the OSUI. The User Station will immediately switch you to the local PC. To return to the Paragon system and its switched servers, activate the OSUI by pressing the hot key twice (default: **Scroll Lock**), and access any of the listed servers from the Selection Menu.

Chapter 6: Managing IBM BladeCenter Servers

Paragon II connects to all blade servers installed in one IBM BladeCenter® chassis via one single CIM so only one user can access servers in one chassis at one time. The CIM specific to IBM BladeCenter is either P2CIM-APS2-B for PS/2 keyboard and mouse, or P2CIM-AUSB-B for USB keyboard and mouse.

Paragon treats one IBM BladeCenter chassis as one tier device similar to the Z-CIM chain. However, Paragon II does not detect and display the real-time blade server status in the OSUI as it does to the Z-CIM chain. **You must issue a refresh command** for the following scenarios:

- Connection of the IBM BladeCenter to the Paragon system for the first time
- There have been changes to BladeCenter's hardware configuration, such as unplugging, plugging or swapping any blade server(s), or powering off any blade server(s)

The refresh command updates the OSUI channel information of blade servers to reflect current blade server status.

Refreshing Channel Status

1. Log into the Paragon system as an Administrator. Type **admin** in the User Name field, press **Enter**, and type the password (default: **raritan**, all lowercase) in the Password field.
2. Make sure you are in the channel number view. If not, press **F12** to toggle the view.
3. Press **F5** to enter the Administration Menu.
4. Select the Channel Configuration submenu, and press **Enter**.
5. Use the ↑ and ↓ or the **Page Up** and **Page Down** keys to select the channel port to which the IBM BladeCenter is connected, and press **Enter**.
6. Type **RefreshBLD-I**. Please note this is a *case-sensitive* command.

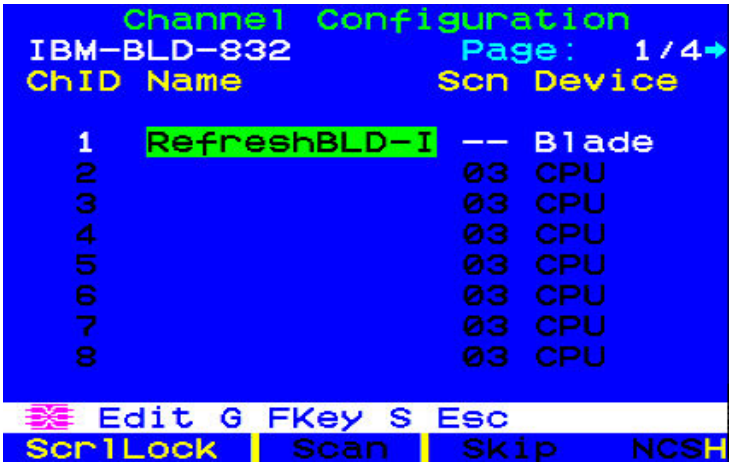

Figure 75 Refresh IBM BladeCenter Servers

7. Press **Enter**.
8. Press **S** to refresh the BladeCenter channel status. It takes 2 to 4 minutes to complete refreshing, depending on your blade servers' installation status.

9. Press **F2** to go to the Selection Menu and verify that blade server status has been updated. Green channels indicate that there is a blade server installed and it is powered on; black channels indicate that either there is no blade server installed or the installed blade server is powered off.

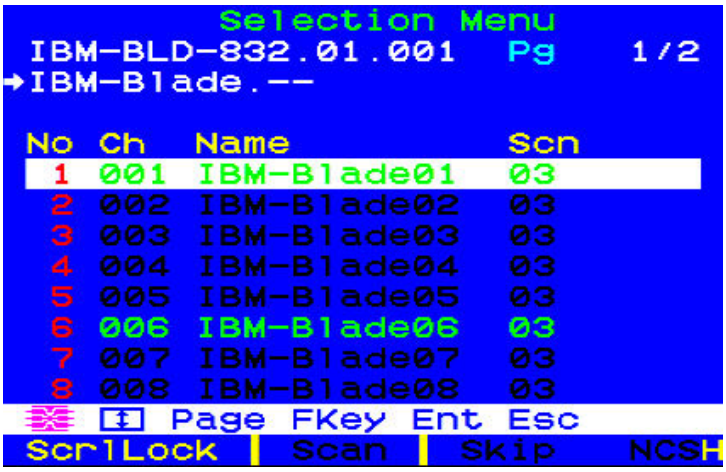

Figure 76 IBM Blade Server Status After Refreshing

If any user is accessing any blade server while the refresh command is issued by the Administrator, two results are possible:

- If the keyboard/mouse activity has been idle for more than 200ms, the user(s) will be disconnected and the refresh command is executed.
- Otherwise, the refresh command is NOT executed and the message "BladeServer is occupied" will be displayed in the message bar.

Renaming a BladeCenter Chassis

By default, IBM BladeCenter is named as "IBM-Blade" in the Selection Menu of Paragon system

1. When Paragon's OSUI is on the screen, press **F5** to go to the Administration Menu.
2. Select the Channel Configuration submenu, and press **Enter**.
3. Select the IBM BladeCenter's channel and press **Enter**. The highlight turns light blue.

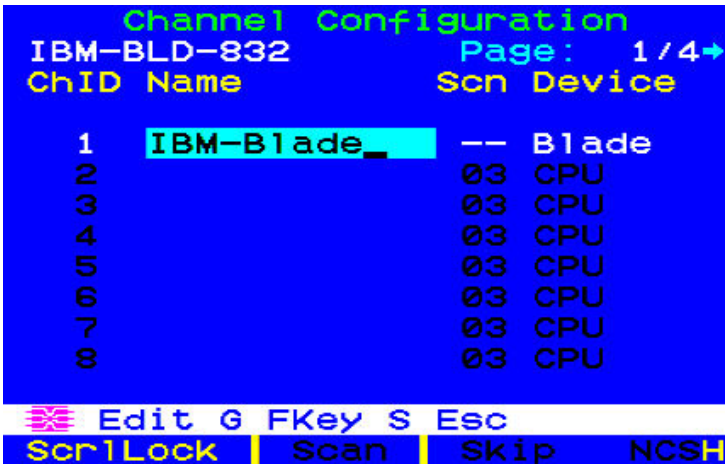

Figure 77 Renaming the Channel of IBM BladeCenter Chassis

4. Type the desired server name - the highlight will turn green as you begin to type.
5. Press **Enter** - the highlight will turn yellow.
6. Press **S** to save the new name.

7. Press **F2** to verify the new name in the Selection Menu.

Renaming a Blade Server

By default, each of IBM BladeCenter server is named as "IBM-Blade01," "IBM-Blade02," and so on.

1. When Paragon's OSUI is on the screen, press **F5** to go to the Administration Menu.
2. Select the Channel Configuration submenu, and press **Enter**.
3. Select the IBM BladeCenter's channel.
4. Press **G** to bring up a Channel Configuration menu for the IBM BladeCenter servers.
5. Use the ↑ and ↓ keys to highlight the Name field of any server whose name you want to edit.

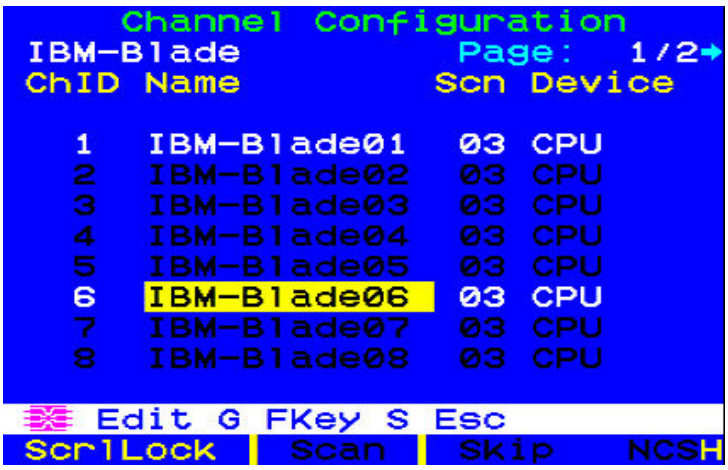

Figure 78 Renaming the IBM Blade Server's Channel

6. Press **Enter** - the highlight will turn light blue.
7. Type the desired server name - the highlight will turn green as you begin to type.
8. Press **Enter** - the highlight will turn yellow.
9. Repeat steps 5 through 8 if you want to edit other servers' names.
10. Press **S** to save the new name(s).
11. Press **F2** to go to the Selection Menu and check whether the server names are changed.

Chapter 7: Configurations

The aim of the Main Switching Units (UMT "M") and Stacking Units (UMT "S") is to allow users to build the Paragon system to include additional channel ports and the tiers up to three levels, so that more users and channels can be configured to control more servers. The system does not need to be over-redundant in accessibility, but administrators should consider the configurations illustrated in this chapter. In more complex stacked Paragon setups, there are important guidelines about legal and illegal device configurations that must be followed to ensure functionality.

Principles of Re-Connection

When a change is made to a connected tiered device, we recommended that power to **all** devices is recycled, if possible. This includes the device where the connection is changed directly, as well as all devices below it in the system architecture.

The sequence of power recycling should start from HIGHEST tiered device and end with the Master Base Unit. For example, in a "Single Base" configuration (only one UMT as the Base Unit), if a connection change is made at a device on the third tier, the sequence of power recycling should be as follows:

- The third-tier device with the changed connection
- The second-tier device connected to the third-tier device
- The Base Unit (first tier)

Tiered Configurations

Standard Tiering Configurations

Common Guidelines for Tiering Configuration

- Only Paragon I with hardware version HW3 (running Paragon II code) or Paragon II Main Switching Unit (M unit) can serve as Base Units (the first tier).
- The version of Base Unit(s), both hardware and firmware, must always be later than or at least equal to the version of other tier devices.
- A maximum of three (3) tiers, including the Base Unit, is permitted.
- Devices that are not Paragon II matrix switches but come with two or more channel ports, such as Raritan MasterConsole, CompuSwitch, Z-CIM, or P2ZCIM, are treated as *tier devices*. These devices cannot act as base devices in a Paragon II system and can be connected only to a Base Unit or to a second-tier Paragon II unit.

Note: *The easiest way to determine if the hardware version of your Paragon I unit is HW3 is to check the number of its stacking ports on the rear side. If there is only one stacking port, the hardware version is HW3.*

Guidelines for Single Base Configuration

A single base configuration could be two-tier or three-tier configuration. It is composed of one Paragon UMT "M" Base Unit and second-tier or even third-tier device(s).

Initialization

- After all devices have been connected, power on the devices from UPPER tier to lower tier. For example, power on the second-tier device(s) first and then the first-tier device in a two-tier configuration.
- After initialization, each tiered device has an updated database.

Guidelines for changing connections of tiered devices:

Example A: Relocating a higher-tier device (refer to dotted line)

1. Disconnect some or all of the user ports on the third-tier unit (UMT-3A) that connect to the channel ports of the second-tier unit (UMT-2A) and re-connect the user ports to the channel ports of another second-tier unit (UMT-2B).
2. Recycle the power of all impacted devices. This is recommended to build a clean database for the UMTs. Sequence of recycling power is from the HIGHEST tier (third tier) to the Base Unit. In our example: UMT-3A → UMT-2A→ UMT-2B → UMT-Base.
3. The operation is the same for devices that are not UMT matrix switches.

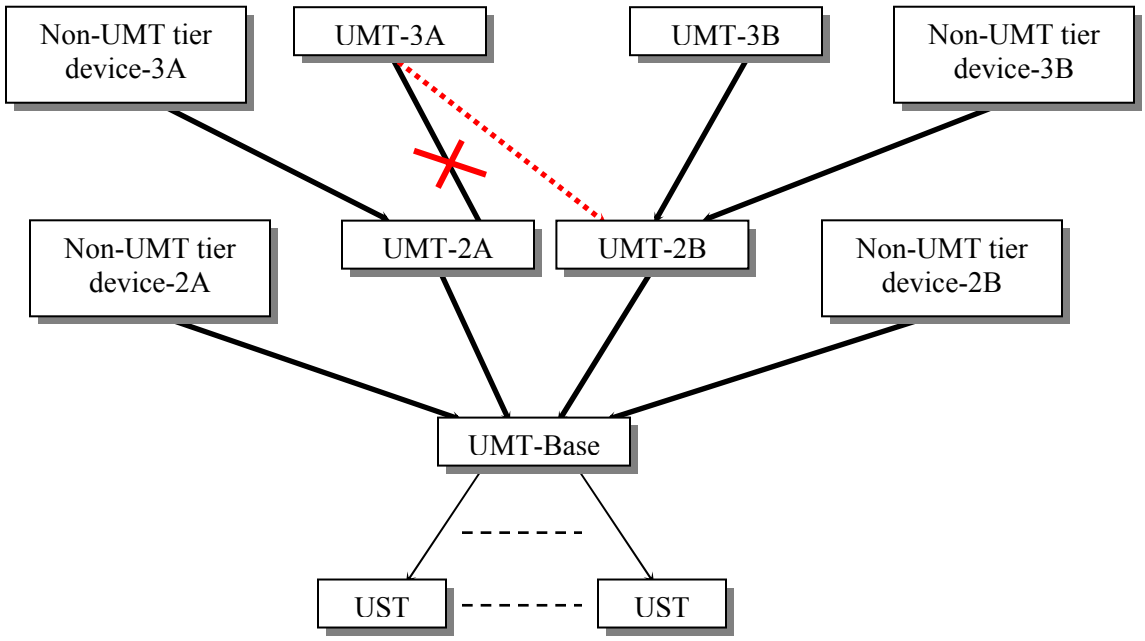

Figure 79 Single Base Configuration

Guidelines for Multiple Base Configuration

A multiple base configuration could be two-tier or three-tier configuration. It is composed of more than one Paragon UMT "M" Base Units and second-tier or even third-tier devices.

Initialization

- After all devices have been connected, power on the devices from UPPER tier to lower tier. For example, power on the second-tier device(s) first and then the first-tier device(s) in a two-tier configuration.
- After initialization, each tiered device has an updated database.

Guidelines for changing connections of tiered devices:

Example A: Relocating a third-tier device with multiple second-tier connections (refer to dotted line in the diagram):

1. Disconnect some or all of the user ports on an third-tier unit (UMT-3A) that connect to the channel ports of second-tier units (UMT-2A and UMT-2C) and re-connect the user ports to the channel ports of another second-tier unit (UMT-2B).
2. Recycle the power of all impacted devices. This is recommended to build a clean database for the UMTs. Sequence of recycling power is from the HIGHEST tier (third tier) to the Base Unit. In our example: UMT-3A → UMT-2A → UMT-2B → UMT-2C → UMT-Base 1 → UMT-Base 2.

Example B: Relocating a second-tier device with multiple base connections (refer to dashed line in the diagram):

1. Disconnect some or all of the user ports on a tiered unit (UMT-2C) that connect to the channel ports of a Base Unit (UMT-Base 1) and re-connect those user ports to another Base Unit (UMT-Base 2).
2. Recycle the power of impacted devices. This is recommended to build a clean database for the UMTs. Sequence of recycling power is from the HIGHEST tier (second tier) to the Base Unit. In our example: UMT-2C → UMT-Base 1 → UMT-Base 2.
3. The operation is the same for devices that are not UMT matrix switches.

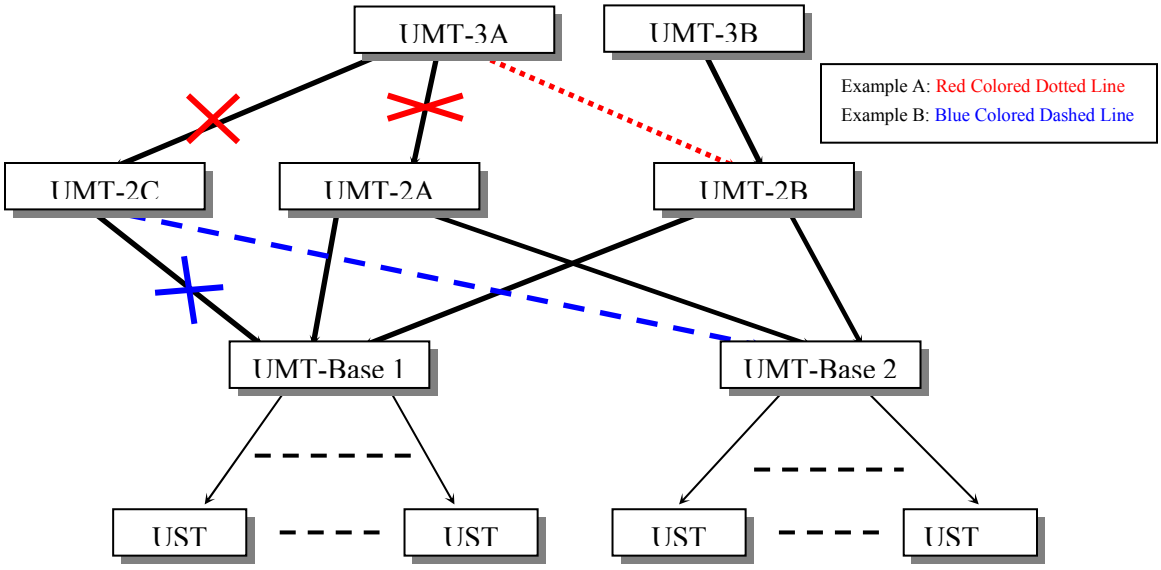

Figure 80 Multiple Base Configuration

Stacked Configurations

Definition of stacking configuration:

- The P2-UMT Stacking Unit (S Unit) expands the number of available channel ports in a single switching unit. It does not add user ports.

  - P2-UMT1664S has four 68-pin expansion ports. Two are input ports and two are output ports. P2-UMT832S has only one 68-pin expansion input port and one output port.
- The P2-UMT Main Switching Unit (M Unit) comes with both of user ports and channel ports. It has a database to store information such as system configuration, user profiles, channel configuration, etc.
  - P2-UMT1664M has two 68-pin expansion ports, and P2-UMT832M has one 68-pin expansion port. These represent input ports.
- One or more P2-UMT Stacking Units connect to a P2-UMT Main Switching Unit through stacking cables in a daisy chain connection – that is, the expansion port of a P2-UMT832M connects to the expansion output port of a P2-UMT832S, and the expansion input port of this P2-UMT832S connects to the expansion output of another P2-UMT832S to form a daisy chain.
- For purpose of documentation here, this P2-UMT Main Switching Unit is called the Main Unit, and the P2-UMT Stacking Unit is called the Stacking Unit in this section.
- The Main Unit can be a Base Unit or a second-tier or third-tier unit.
  - The Stacking Unit that connects to a Main Unit becomes an automatic extension of the Main Unit.

System Constraints:

- The Base Unit should be a P2-UMT1664M / P2-UMT832M Main Unit.
- The Base Unit's hardware and firmware versions must always be the latest released version of Paragon II product in a closed configuration system.
- A Paragon I product with hardware version HW3 (running Paragon II firmware) can accommodate only one Stacking Unit.

Note: *The easiest way to determine if the hardware version of your Paragon I unit is HW3 is to check the number of its stacking ports on the rear side. If it has only one stacking port, then the hardware version is HW3.*

- Up to three P2-UMT832S units (Stacking Units) can be connected to one P2-UMT832M unit (Main Unit).
- Only one P2-UMT1664S unit (Stacking Unit) can be connected to one P2-1664M unit (Main Unit).
- A maximum of 128 channel ports (Main Unit + Stacking Units) is permitted. When a P2-UMT1664M unit acts as the Main Unit, only one P2-UMT1664S Stacking Unit can be in daisy chain with it. When a P2-UMT832M unit acts as the Main Unit, up to three P2-UMT832S Stacking Units can be in the daisy chain.
- You cannot mix unlike configurations of Main Units and Stacking Units. For example, you cannot use a P2-UMT832S Stacking Unit with a UMT1664 Main Unit and vice-versa.
- These cannot be used as Stacking Units: P2-UMT1664M, P2-UMT832M, UMT1664, UMT832 (Paragon I with hardware version HW3).

Important: Never power off a Stacking Unit when it is still CONNECTED to a Main Unit. Doing so will cause the channel color display on the OSUI Selection Menu to become incorrect. To power off the Stacking Unit, you must disconnect it from the Main Unit first. See "Important Note about Powering Off the Stacking Unit" in Chapter 2 for additional information.

Standard Stacking Configurations

Single Base with Stacking

Example A: Non-blocked System – P2-UMT1664M

Standard configuration – any user can access any channel port in the system.

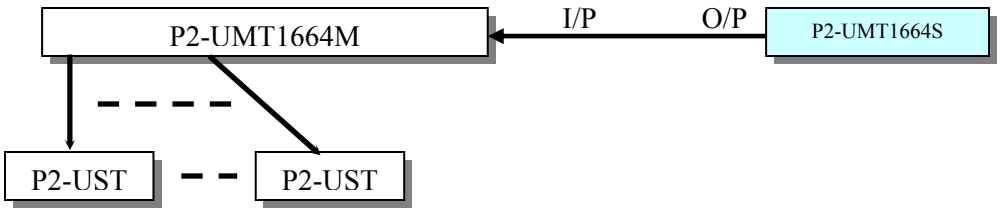

Figure 81 Stacking - Single Base Configuration with P2-UMT1664M and P2-UMT1664S

Example B: Non-blocked System – P2-UMT832M

Standard configuration – any user can access any channel port in the system.

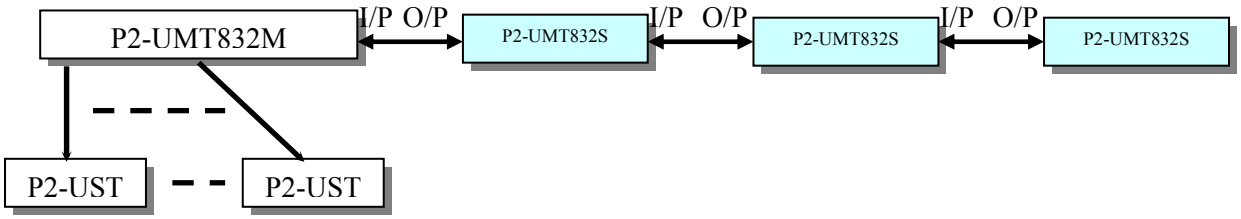

Figure 82 Stacking - Single Base Configuration with P2-UMT832M and P2-UMT832S

Example C: P2-UMT1664M -- Stacked and Tiered

Standard configuration – any user can access any channel port in the system.

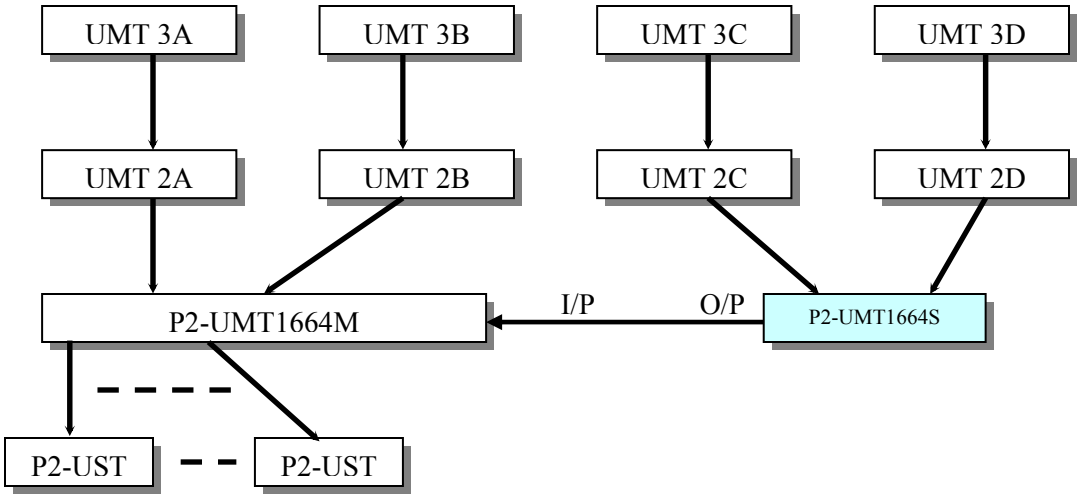

Figure 83 Stacking - Single Base Configuration with P2-UMT1664M and P2-UMT1664S

Example D: P2-UMT832M -- Stacked and Tiered

Standard configuration – any user can access any channel port in the system.

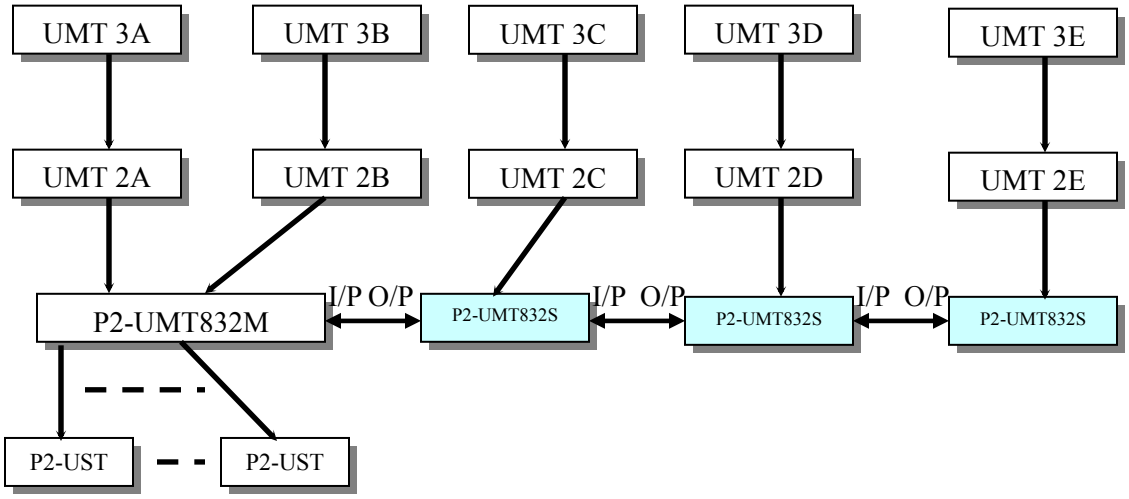

Figure 84 Stacking - Single Base Configuration with P2-UMT832M and P2-UMT832S

Example E: ILLEGAL Configuration

Illegal configurations are those that are not currently supported by Paragon.

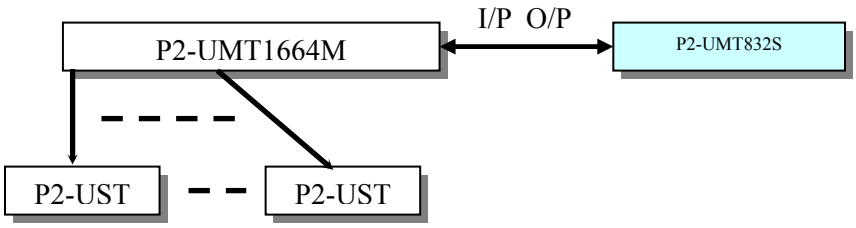

Figure 85 ILLEGAL Stacking - Single Base Configuration with P2-UMT1664M and P2-UMT832S

Example F: ILLEGAL Configuration

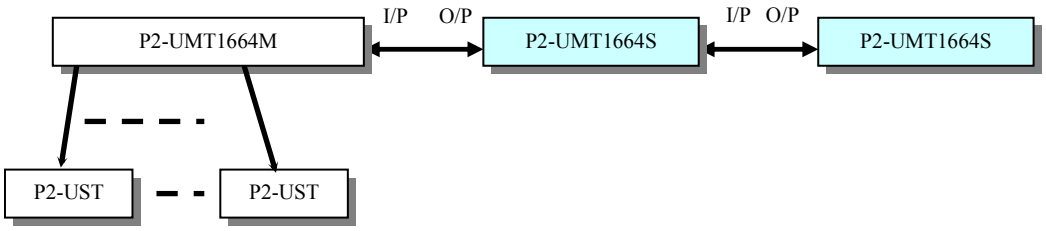

Figure 86 ILLEGAL Stacking - Single Base Configuration with P2-UMT1664M and P2-UMT1664S

Example G: ILLEGAL Configuration

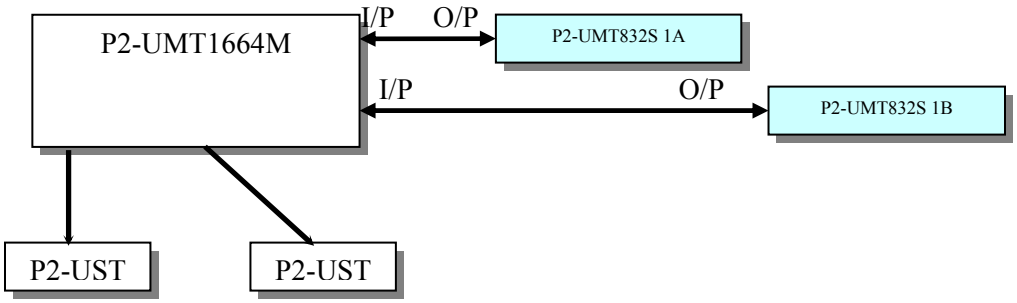

Figure 87 ILLEGAL Stacking - Single Base Configuration with P2-UMT1664M and P2-UMT832S

Example H: ILLEGAL Configuration

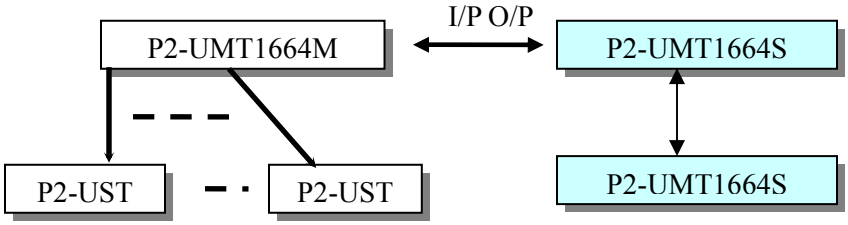

Figure 88 ILLEGAL Stacking - Single Base Configuration with P2-UMT1664M and two P2-UMT1664S

Non-Standard Tier Configuration

Guidelines for Existing Firmware Versions

Non-Standard tier configurations are those configurations supported by Paragon II, but require special procedures in order to function properly. These include:

- Triangle Configuration
- Single Diamond Configuration
- Redundant Configuration

Recovery:

- After any re-connection subsequent to the Non-Standard tier configuration, all UMTs should undergo a **FUNC** reset to clear the database. See **Reset Unit** under **Paragon II Front Panel Display and Controls** in Chapter 2 for more information on clearing the database. This procedure should be performed starting from the third-tier device down to the Base Unit.
- Whenever a third-tier UMT is replaced, all of the second-tier and base UMTs should undergo a **FUNC** reset.
- Whenever a second-tier UMT is replaced, all of the base UMTs should undergo a **FUNC** reset.
- Whenever a base UMT is replaced, only the new UMT should undergo a **FUNC** reset.
-

Triangle Configuration

The following procedure must be followed to ensure this configuration functions properly:

After re-connection, all UMTs must undergo a FUNC reset to clear the switch database. See **Reset Unit** under **Paragon II Front Panel Display and Controls** in Chapter 2 for more information on clearing the database. This procedure should be performed starting from the third-tier device down to the Base Unit.

- Execute the **FUNC** reset in the following order: UMT-3A → UMT-2A → UMT-Base 1.

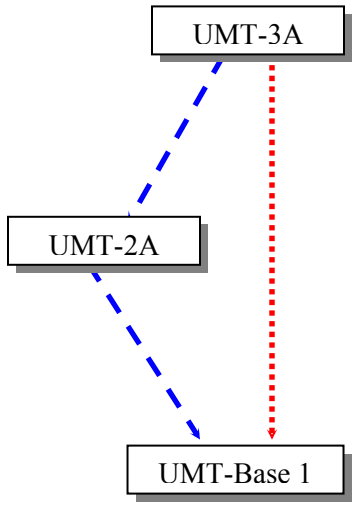

Figure 89 Triangle Configuration

Diamond Configurations

Single diamond configuratioin:

A user configured on the second tier and connected to UMT-2A has access only to UMT-3A, while a user connected to UMT-2B can access both UMT-3A and UMT-3B. The base administrator has access to all UMTs in the single diamond configuration.

The following procedure must be followed to ensure this configuration functions properly:

- After re-connection, all UMTs should undergo a FUNC reset to clear the database. See **Reset Unit** under **Paragon II Front Panel Display and Controls** in Chapter 2 for more information on clearing the database. This procedure should be performed starting from the third-tier device down to the Base Unit.
- Execute the **FUNC** reset in the following order: UMT-3A → UMT-2A → UMT-2B → UMT-Base 1.

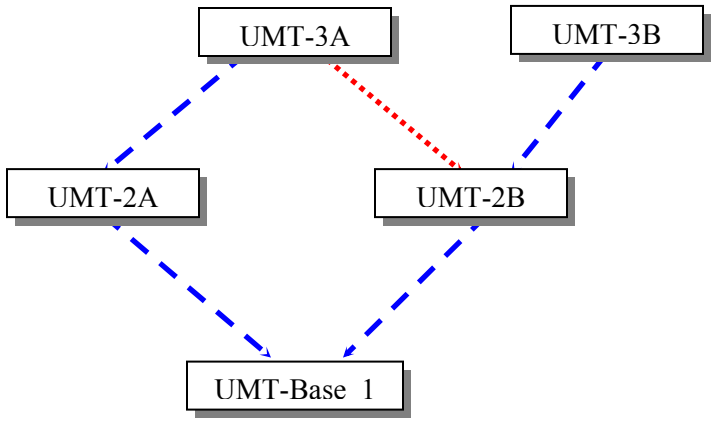

Figure 90 Single Diamond Configuration

Double diamond configuration:

Officially, the Double Diamond configuration is NOT a Raritan-approved solution if stacking units or P2-HubPac is included in the configuration. Therefore, it is highly recommended to avoid this configuration especially when using Paragon II stacking units or the P2-HubPac.

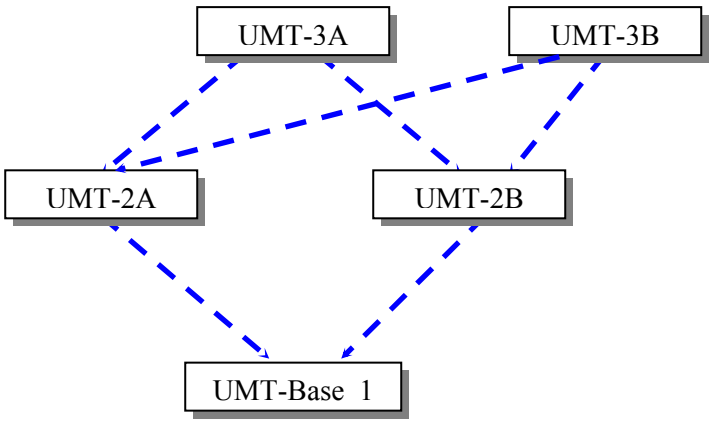

Figure 91 Double Diamond Configuration

Redundant Configuration

These configurations are simply more complex configurations, and might be used to ensure redundancy; every UMT is configured to another, in case of individual system failure.

The procedure outlined below must be followed to ensure this configuration functions properly:

- After installation, all UMTs should undergo a FUNC reset to clear the database. See **Reset Unit** under **Paragon II Front Panel Display and Controls** in Chapter 2 for more information on clearing the database. This procedure should be performed starting from the third-tier device down to the Base Unit.
- Execute the **FUNC** reset in the following order: UMT-3A → UMT-3B → UMT-2A → UMT-2B → UMT-Base 1 → UMT-Base 2.
- Whenever a third-tier UMT is replaced, all of the second-tier and base UMTs should undergo a **FUNC** reset.
- Whenever a second-tier UMT is replaced, all of the base UMTs should undergo a **FUNC** reset.
- Whenever a base UMT is replaced, only the new UMT should undergo a **FUNC** reset.

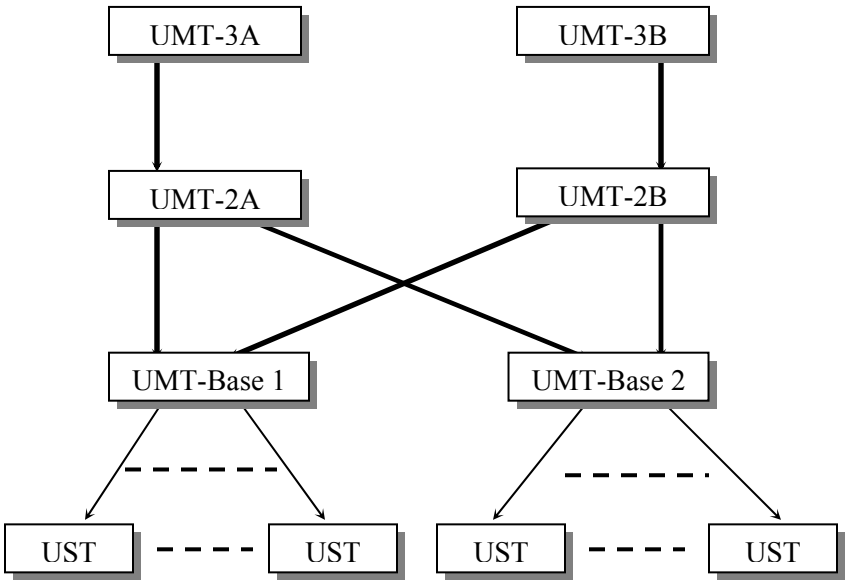

Figure 92 Redundant Configuration

In order to make a redundant configuration system operate more efficiently, the following connection scheme between tiers is recommended:

- Assume there are two UMT Base Units: UMT-Base 1 and UMT-Base 2
- Assume there are three UMT second-tier devices: UMT-2A, UMT-2B, and UMT-2C
- Channel connection of UMT-Base 1
  - Channel ports 3*N+1 (1, 4, 7….) connect to UMT-2A user ports sequentially, starting from user port 1
  - Channel ports 3*N+2 (2, 5, 8….) connect to UMT-2B user ports sequentially, starting from user port 1
  - Channel ports 3*N (3, 6, 9….) connect to UMT-2C user ports sequentially, starting from user port 1
- Channel connection of UMT-Base 2
  - Channel ports 3*N+1 (1, 4, 7….) connect to UMT-2A user ports sequentially, starting from the available user port.
  - Channel ports 3*N+2 (2, 5, 8….) connect to UMT-2B user ports sequentially, starting from the available user port.
  - Channel ports 3*N (3, 6, 9….) connect to UMT-2C user port sequentially, starting from the available user port.

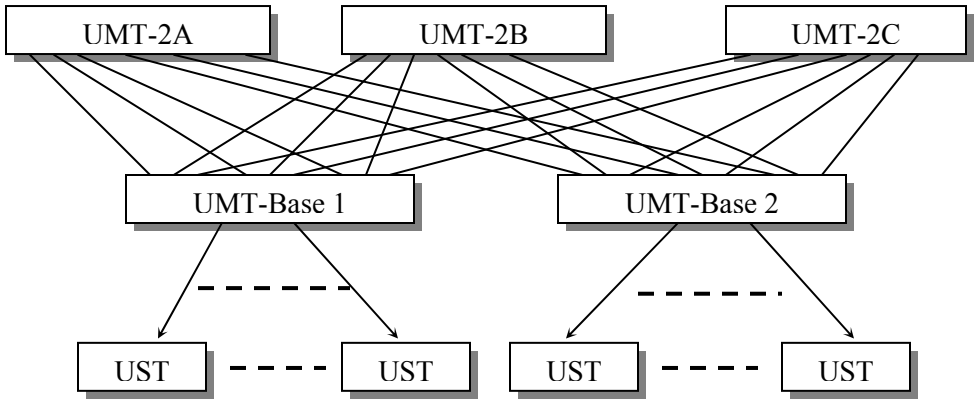

Figure 93 Recommended Redundant Configuration Connection Scheme

Loop-Back Configuration

This dead-loop setup will cause Server database conflict and should therefore never be used.

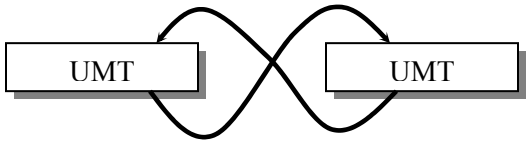

Figure 94 Illegal Loop-Back Configuration

Chapter 8: Firmware Upgrade

To incorporate the newest Paragon II features, you can upgrade Paragon II Main Switching Units, Stacking Units and User Stations with the latest firmware on Raritan's Website. Upgrade can be done via network or the RS-232 connection.

General Update Procedure

Procedures for firmware upgrade of the Paragon II Main Switching Unit, Stacking Unit, and User Stations (P2-UST and P2-EUST) all include these three major steps.

STEP 1: Download the latest firmware

STEP 2: Verify the connection between the device and the PC running Paragon Update

STEP 3: Launch the Paragon Update utility

STEP 1: Download the Latest Firmware

1. Use your browser to visit Raritan's Firmware Upgrades Web page: http://www.raritan.com/support/sup_upgrades.aspx.
2. Click **Paragon II** to locate the latest firmware version for the device you want to upgrade.
3. Click that firmware.
4. Click **START DOWNLOAD**.
5. Click **Save** and specify the location to save the file.
6. After the download completes, unzip the downloaded file. The extracted files include release notes, the newest Paragon Update utility, .hex files, etc. The .hex file is a firmware file.
7. Read the release notes for any necessary information.

Note: *Usually the .hex file for updating the firmware of both the Main and Stacking Units is the one whose name starts with "P2-" unless you are updating these units for obtaining failsafe upgrade feature or it is an update failure case for the Stacking Unit. If so, please refer to later sections in this chapter for the appropriate .hex file.*

STEP 2: Verify the Connection between the Device and the PC Running Paragon Update

The device intended to upgrade must be connected to the PC that will run the Paragon Update utility. There are two types of connections depending on your device.

- **Network**: If your device comes with a LAN port, such as Paragon II Main Switching Unit, upgrade it by connecting it to the network and assigning an IP address to it. However, for Paragon II Stacking Unit, it must be upgraded by connecting to the Main Switching Unit which is connected to the network.

  Note: *When upgrading the Stacking Unit, it is necessary to keep only "one" Stacking Unit connected to the Main Switching Unit, and set both of the Main Switching Unit's stacking support and the Stacking Unit's Stacking ID to 1. See the "Stacking Support" section under* ***Paragon II Front Panel Display and Controls*** *and* ***Installing the Paragon P2-UMT1664S Stacking Unit*** *in Chapter 2 for additional information.*

- **RS-232 Cable**: For those devices without the network port, such as User Stations, this is the only method to upgrade them.

STEP 3: Launch the Paragon Update Utility

Specify the device(s) to upgrade and the appropriate firmware in the Paragon Update utility. Note that Paragon Update utilized to upgrade devices must be the latest version which is extracted from the downloaded firmware's ZIP file. This is to ensure the upgrade is performed successfully. For details on the operation of the Paragon Update utility, see **Paragon Manager User Guide**.

Failsafe Upgrade Feature

In the past, whenever a firmware update failure occurred on the Paragon II Main Switching Unit, Stacking Unit or a P2-UST User Station, a return to Raritan is required for function restoration. Now Raritan provides the FAILSAFE upgrade capability, which enables you to restore its function back to normal by yourself when any update failure occurs.

The following table lists the firmware and/or boot loader versions required for different devices to support the failsafe upgrade feature.

DEVICE	REQUIRED VERSION
Main Switching Unit	Firmware version: Any version after 3B0K Boot Loader version: 0C4 or later
Stacking Unit	Main Switching Unit's Firmware version: 3E5 or later Stacking Unit's Boot Loader version: 0C5 or later
P2-EUST User Station	Any version
P2-UST User Station	Firmware version: 1F9 or later

***Note**: Boot Loader is displayed as "F/W Loader" on the front LCD panel.*

The abovementioned devices in Paragon II 4.2 are already implemented with the failsafe upgrade feature. If your devices belong to earlier versions, you can simply upgrade them with the appropriate Paragon Update utility (version 2.4.1 or later). See next sections for how to upgrade different devices for failsafe upgrade feature.

Main Switching Units

Updating Main Switching Units for Failsafe Upgrade Feature

To obtain the failsafe capability for your Paragon II Main Switching Unit, you must follow three major steps.

STEP 1: Remove the Stacking Units
STEP 2: Upgrade the boot loader
STEP 3: Upgrade the firmware code

Important: During the boot loader upgrade process, it is not accessible to the Main Switching Unit's settings. Therefore, please note down your Main Switching Unit's IP address before starting the upgrade process.

STEP 1: Remove the Stacking Units

If any Stacking Unit(s) is connected to the Main Switching Unit, remove all of them.

1. Disconnect any Stacking Unit(s) from the Main Switching Unit.
2. Set the Main Switching Unit's stacking support to "0." See the "Stacking Support" section under **Paragon II Front Panel Display and Controls** in Chapter 2 for additional information.
3. The Main Switching Unit restarts itself.

STEP 2: Upgrade the Boot Loader

Although you may upgrade the Main Switching Unit through TCP/IP, it is highly recommended to upgrade the boot loader by connecting the cross-over network cable between the Main Switching Unit and the PC with Paragon Update to avoid any possible risk.

1. Download the appropriate firmware version from Raritan's Website. See **STEP 1: Download the Latest Firmware** under **General Update Procedure** in this chapter for additional information.
2. Launch the Paragon Update utility, and select "R-P2BL-0C4.hex" as the firmware update file. See **Paragon Manager User Guide** for additional information.
3. Wait until the upgrade process finishes.

Important: Interrupting the upgrade process could result in permanent damage to the system.

4. When the update completes, a message "Device Update Successful" appears on the VGA monitor. The Main Switching Unit's LCD panel displays the following message, which indicates the boot loader is upgraded successfully.

Figure 95 Main Switching Unit -- Boot Loader Successfully Upgraded

STEP 3: Upgrade the Firmware Code

Follow the procedures described in **General Update Procedure** in this chapter to upgrade the Main Switching Unit with the latest firmware whose name begins with "P2-".

Verify the Firmware Version

Use the Function Menu on the Front Panel to check the firmware version. See **Paragon II Front Panel Display and Controls** in Chapter 2 for more information.

Recovering Main Switching Units after Upgrade Failure

When any upgrade failure takes place, you can simply return the function back to normal with the Main Switching Unit's failsafe capability.

1. Check the Front Panel LCD display to see whether the Main Switching Unit enters the boot loader mode as shown below:

Figure 96 Boot Loader Mode of Main Switching Unit

   If not, press and hold ◁ and ▷ on the Front Panel of the Main Switching Unit simultaneously, and power cycle the Main Switching Unit at the same time. This forces it to enter the boot loader mode.
2. Follow the steps outlined in **General Update Procedure** in this chapter to upgrade your Main Switching Unit.

Stacking Units

Updating Stacking Units for Failsafe Upgrade Feature

If the boot loader version of your Stacking Unit is older than 0C5, it does not have the failsafe capability, and you must upgrade it if the failsafe feature is desired. The upgrade of the Stacking Unit for failsafe capability requires these requisites:

- Keep only one Stacking Unit connected to the Main Switching Unit at one time.
- The Main Switching Unit must be implemented with Paragon II 4.2 firmware or later as detailed below.

FIRMWARE PART	VERSION
Boot loader	0C4 or later
Firmware code	3E5 or later

The major upgrade procedures may vary depending on the situation of your devices. For example, if the firmware version of your Main Switching Unit is already 3E5, then you can skip STEP 1.

STEP 1: Update the Main Switching Unit's firmware to 3E5 or later

STEP 2: Keep only one Stacking Unit connected

STEP 3: Update the Stacking Unit's Firmware

STEP 1: Update the Main Switching Unit's Firmware to 3E5 or Later

If the Main Switching Unit's firmware is older than 3E5, you must upgrade it by following the steps below:

1. Disconnect all Stacking Units, if any, from the Main Switching Unit.
2. Set the Main Switching Unit's stacking support to 0. See the "Stacking Support" section under **Paragon II Front Panel Display and Controls** in Chapter 2 for additional information.
3. Follow the steps described in **General Update Procedure** in this chapter to start the upgrade.

STEP 2: Keep Only One Stacking Unit Connected

To upgrade the Stacking Unit, only one unit is allowed to connect to the Main Switching Unit. If there are more than one Stacking Unit or no Stacking Unit connected to the Main Switching Unit, you must do the following:

1. Power off the Main and Stacking Units.
2. Connect only one Stacking Unit to the Main Switching Unit.
3. Power on the Stacking Unit first.
4. Power on the Main Switching Unit.
5. Set the Main Switching Unit's stacking support to 1. See the "Stacking Support" section under **Paragon II Front Panel Display and Controls** in Chapter 2 for additional information.
6. Set the Stacking Unit ID to 1. See step 6 of **Installing the Paragon P2-UMT1664S Stacking Unit** in Chapter 2 for additional information.
7. Power off both units.
8. Power on the Stacking Unit.
9. Power on the Main Switching Unit.

STEP 3: Update the Stacking Unit's Firmware

Both of the firmware code and boot loader will be updated after the following is done.

1. Make sure the Main Switching Unit is connected, via network, to the PC that will run Paragon Update.

2. Launch the Paragon Update utility, and choose the .hex file whose name is "R-P2SBLR-0C5.hex" as the firmware file. See **STEP 3: Launch the Paragon Update Utility** under **General Update Procedure** for additional information.

Important: Do NOT interrupt the upgrade process. Otherwise it results in permanent damages.

3. Stacking Unit automatically restarts itself after the update completes.

Verify the Firmware Version

Use the Function Menu on the Front Panel to check the firmware version. See **Paragon II Front Panel Display and Controls** in Chapter 2 for more information.

Recovering Stacking Units after Upgrade Failure

If a Stacking Unit encounters the update failure, with its failsafe capability, you can restore the Stacking Unit's function by yourself.

1. Make sure only one Stacking Unit (the one that encounters the update failure) is connected to the Main Unit. If not, refer to **STEP 2** in the previous section **Updating Stacking Units for Failsafe Upgrade Feature** for instructions.
2. Check the Front Panel LCD display on the Stacking Unit to see whether it enters the boot loader mode as one of the picture shown below:

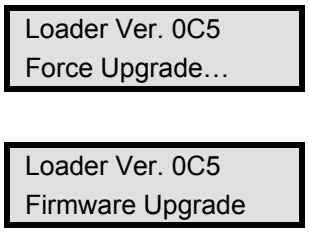

Figure 97 Boot Loader Modes of Stacking Unit

   If not, press and hold **FUNC** and **ESC** on the Front Panel of the Stacking Unit simultaneously, and power cycle the Stacking Unit at the same time. This forces it to enter the boot loader mode.
3. Follow the steps outlined in **General Update Procedure** in this chapter to upgrade your Stacking Unit., but you must choose the .hex file, "R-P2SBLR-0C5.hex," as the firmware file.

User Stations

Updating User Stations for Failsafe Upgrade Feature (P2-UST Only)

The failsafe capability is a standard feature of the P2-EUST. P2-UST with a version older than 1F9 does not have this feature. For an older P2-UST, you can simply upgrade its firmware to get the failsafe feature.

The procedures are the same as those outlined in **General Update Procedure**. Note that the filename for upgrading the User Station for failsafe capability is "V5_1F9.hex" or later.

Verify the Firmware Version

On the upgraded User Station, activate the OSUI screen, and press **F8** to display the User Station's version information.

Recovering User Stations after Upgrade Failure

As long as your User Station has the failsafe capability, you can restore its function whenever the upgrade failure occurs.

1. Power cycle the User Station.
2. Repeat the same upgrade process until the upgrade is finished successfully.

Appendix A: Specifications

PARAGON II UNIT	DESCRIPTION	DIMENSIONS	WEIGHT	POWER
P2-UMT1664M	16 users x 64 server ports, expansion slot, stacking port, network port	17.32" (W) x 11.41" (D) x 3.5" (H) 440mm (W) x 290mm (D) x 89mm (H)	12.52 lbs 5.68 kg	100V/240V 50/60 Hz 0.6A
P2-UMT832M	8 users x 32 server ports, expansion slot, stacking port, network port	17.32" (W) x 11.41" (D) x 1.75" (H) 440mm (W) x 290mm (D) x 44mm (H)	9.83 lbs 4.46 kg	100V/240V 50/60 Hz 0.6A
P2-UMT442	4 users x 42 server ports, expansion slot, network port	17.32" (W) x 11.41" (D) x 1.75" (H) 440mm (W) x 290mm (D) x 44mm (H)	10.13 lbs 4.59 kg	100V/240V 50/60 Hz 0.6A
P2-UMT242	2 users x 42 server ports, network port	17.32" (W) x 11.41" (D) x 1.75" (H) 440mm (W) x 290mm (D) x 44mm (H)	10.03 lbs 4.54 kg	100V/240V 50/60 Hz 0.6A

PARAGON II STACKING UNIT	DESCRIPTION	DIMENSIONS	WEIGHT	POWER
P2-UMT1664S	64 expansion server ports for stacking with P2-UMT1664M	17.32" (W) x 11.41" (D) x 3.5" (H) 440mm (W) x 290mm (D) x 89mm (H)	11.99 lbs 5.44 kg	100V/240V 50/60 Hz 0.6A
P2-UMT832S	32 expansion server ports for stacking with P2-UMT832M unit	17.32" (W) x 11.41" (D) x 1.75" (H) 440mm (W) x 290mm (D) x 44mm (H)	8.99 lbs 4.08 kg	100V/240V 50/60 Hz 0.6A

PARAGON II USER STATION	DESCRIPTION	DIMENSIONS	WEIGHT	POWER
P2-UST	Analog access point with PS/2, USB and Sun consoles	11.4" (W) x 10.1" (D) x 1.75" (H) 290mm (W) x 255mm (D) x 44mm (H)	4.3 lbs 1.9 kg	100V/240V 50/60 Hz 0.6A
P2-EUST	Analog access point that provides enhanced video for PS/2, USB and Sun consoles	11.4" (W) x 10.1" (D) x 1.75" (H) 290mm (W) x 255mm (D) x 44mm (H)	4.3 lbs 1.9 kg	100V/240V 50/60 Hz 0.6A
P2-USTIP1	Remote digital access point for one KVM/IP user	17.2" (W) x 11.46" (D) x 1.72" (H) 440mm (W) x 291mm (D) x 44 mm (H)	8.05 lbs (3.65 kg)	115V/230V 50/60 Hz 0.3A
P2-USTIP2	Remote digital access point for two KVM/IP users	17.2" (W) x 11.46" (D) x 1.72" (H) 440mm (W) x 291mm (D) x 44 mm (H)	8.16 lbs (3.7 kg)	115V/230V 50/60 Hz 0.6A

PARAGON CIMS	DESCRIPTION	DIMENSIONS	WEIGHT
P2CIM-APS2	CIM for PS/2., provides automatic skew compensation with P2-EUST	1.3” (W) x 3.0” (D) x 0.6” (H) 32mm (W) x 77.4mm (D) x 15.6mm (H)	0.20 lb 0.07 kg
P2CIM-APS2-B	CIM for IBM BladeCenter with PS/2, provides automatic skew compensation with P2-EUST	1.3” (W) x 3.0” (D) x 0.6” (H) 32mm (W) x 77.4mm (D) x 15.6mm (H)	0.20 lb 0.07 kg
P2CIM-ASUN	CIM for SUN, provides automatic skew compensation with P2-EUST	1.3” (W) x 3.0” (D) x 0.6” (H) 32mm (W) x 77.4mm (D) x 15.6mm (H)	0.13 lb 0.06 kg
P2CIM-AUSB	CIM for USB, provides automatic skew compensation with P2-EUST	1.3” (W) x 3.0” (D) x 0.6” (H) 32mm (W) x 77.4mm (D) x 15.6mm (H)	0.20 lb 0.07 kg
P2CIM-AUSB-B	CIM for IBM BladeCenter with USB, provides automatic skew compensation with P2-EUST	1.3” (W) x 3.0” (D) x 0.6” (H) 32mm (W) x 77.4mm (D) x 15.6mm (H)	0.20 lb 0.07 kg
P2CIM-PWR	CIM for Integrated Power Control	1.3” (W) x 3.0” (D) x 0.6” (H) 32mm (W) x 77.4mm (D) x 15.6mm (H)	0.066 lb 0.03 kg
P2CIM-APS2DUAL	CIM that allows IPC to expand in order to double the number of users, and provides automatic skew compensation with P2-EUST	1.42” (W) x 3.39” (D) x 0.65” (H) 36mm (W) x 86mm (D) x 16.5mm (H)	0.17 lb 0.08 kg

CAT5 Cable Guidelines

Use only straight-through-pinned four-pair (eight-wire) Category 5 unshielded twisted pair (UTP) cables, terminated with standard RJ45 plugs, for the CAT5 cabling links in your Paragon system.

If your existing CAT5 site-wiring system meets these requirements, feel free to send the signals through your site's patch panels, existing wiring, etc., but you should keep the number of patches and splices to a minimum to avoid degrading the video signals. Maximum end-to-end cabling distance from any server to any User Station should not exceed 1000 feet (304 m).

Please note that although users and servers can be located up to 1000 feet apart, for optimal video quality, limit cable length between the User Station and CIM to less than 100 feet (30.5 m). For good video quality, limit cable length between the User Station and CIM to less than 500 feet (152 m).

Looking into an RJ45 socket on any Paragon component, or looking at the cable plug from behind with the tab on the bottom, Pin 1 should be on the left and Pin 8 on the right, and the wires should be arranged this way, as per the TIA-568B standard:

Pin	Color	Function	Pair
1	White/Orange	TX (transmit signals)	Pair 2
2	Orange/White	RX (receive signals)	Pair 2
3	White/Green	TX	Pair 3
4	Blue/White	RX	Pair 1
5	White/Blue	TX	Pair 1
6	Green/White	RX	Pair 3
7	White/Brown	TX	Pair 4
8	Brown/White	RX	Pair 4

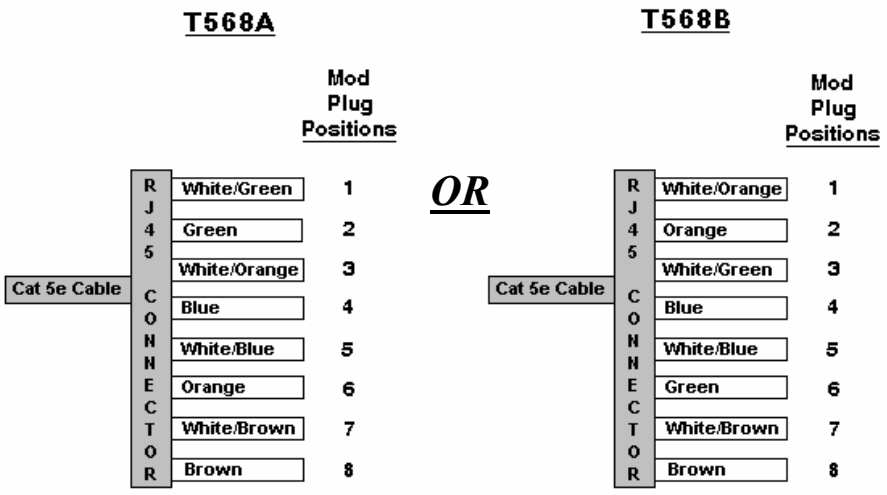

Figure 98 Cat5 Cable Diagram

Note: *Use the configuration for the T568A* ***OR*** *the configuration for T568B.*

Appendix B: User Station Direct Mode

A Paragon User Station set to Direct Mode can be directly connected to a Paragon CIM, either temporarily for emergency "crash cart" access or permanently for non-switched extension purposes, without having to go through a Paragon Base Unit.

To create a "Direct Mode" connection:

1. If you have not already done so, follow the instructions in steps 5A and 5B of **Installing a Paragon System with a Single Matrix Switch** in Chapter 2 to attach the CIM to the server.
2. If you have not already done so, plug in and power on your server or computer.
3. Power off the User Station.
4. Run CAT5 cabling directly between the User Station and the CIM.
5. Power on the UST. It should display a "DIRECT Mode: CIM connected" message on the screen.

While the User Station is in Direct Mode, if the CAT5 cabling between the User Station and the CIM becomes disconnected at any point for more than three to four seconds, the User Station will exit Direct Mode. To re-establish Direct Mode, repeat the above steps.

To return to normal operation from "Direct Mode":

1. Power OFF the User Station.
2. Disconnect the opposite end of the CAT5 cabling from the CIM.
3. Connect the opposite end of the CAT5 cabling to a user port of a Paragon Base Unit.
4. Run other CAT5 cabling from the channel port of a Paragon Base Unit to the CIM.
5. Power ON the User Station.

Appendix C: Tiering and Compatibility

Tiering Matrix

		BASE TIER			
		UMT x HW2	UMT x HW3 with 3A3 Firmware	UMT x HW3 with 3.2 Firmware[2]	P2-UMT1664M/ 832M/442/242
Upper/Lower Tiers	P2-UMT1664M / 832M/442/242				✓
	P2-UMT1664S/832S[1]			Stack[1]	Stack[1]
	UMT x HW3 with 3.2 Firmware[2]			✓	✓
	UMT x HW3 with 3A3 Firmware		✓	✓	✓
	UMT x HW2	✓	✓	✓	✓
	UKVMSPD Z-CIM	✓	✓	✓	✓
	P2ZCIM			✓	✓
	AUATC	✓	✓	✓	✓
	IBMX-330	✓	✓		
	HubPac	✓	✓		
	P2-Hubpac			✓	✓
	Blade CIMs				✓

As a general rule, the very latest hardware and firmware should reside on the lowest tier (first tier).

1. Stacking Unit has no user ports so it cannot be cascaded as an upper tier to a lower tier switch.

2. UMT x HW3 has no memory card slot, so maximum servers/expandability will be 1800 servers.

Note: *The easiest way to determine if the hardware version of your Paragon I unit is HW3 is to check the number of its stacking ports on the rear side. If there is only one stacking port, the hardware version is HW3.*

Compatibility Matrix

	Paragon I			Paragon II
Feature/Component	**HW2/2Z**	**HW3 (3A3 Firmware)**	**HW3 (P2 Firmware)**	**HW4M or above**
Y-CIMs	Yes	Yes	Yes	Yes
C, P, PD CIMs	Yes	Yes	Yes	Yes
UKVMSPD Z-CIMs	Yes	Yes	Yes	Yes
P2ZCIMs	No	No	Yes	Yes
P2-EUST	No	No	Yes (UMT-3E0 and above)	Yes (UMT-3E0 and above)
P2-UST (V5)	No	No	Yes (UMT-3B0K and above/UST-1A7 and above)	Yes
UST1 (V1)	Yes (with 4L9P Firmware)	Yes (with 4L9P Firmware)	Yes (with 5J1 Firmware/ FPGA-0C and above)	Yes (with 5J1 Firmware/ FPGA-0C and above)
P2-USTIP1/2	No	Yes	Yes	Yes
Stacking ready	No	No	Yes	Yes
Hubpac8-RK	Yes	Yes	No	No
P2-Hubpac	No	No	Yes	Yes
Paragon Manager	No	No	Yes	Yes via LAN
Network Firmware upgrade	No	No	No	Yes
Integrated Power Control	No	No	Yes	Yes
Maximum Servers - 1664	N/A	1,800	1,800	10000 with optional memory card
Maximum Servers - 832	1,800	1,800	1,800	10000 with optional memory card
Maximum Servers - 442	1,800	1,800	1,800	10000 with optional memory card
Maximum Servers - 242	1,800	1,800	1,800	1,800
Maximum Servers - 2161	1,800	1,800	1,800	N/A
Maximum User Names	127	127	127	512 with optional memory card
PCCI 1.2 compatibility	Yes - as a 2nd tier	Yes - as a 2nd tier	No[1]	No[1]

1. PCCI compatibility is not available for Paragon version 4.2 only, but remains available for earlier version.

Note: *Only one Stacking Unit can be connected per Paragon I HW3 switch.*

Double Diamond Configuration:

Officially, the Double Diamond configuration is NOT a Raritan-approved solution if stacking units or P2-HubPac is included in the configuration. Therefore, it is highly recommended to avoid this configuration especially when using Paragon II stacking units or the P2-HubPac.

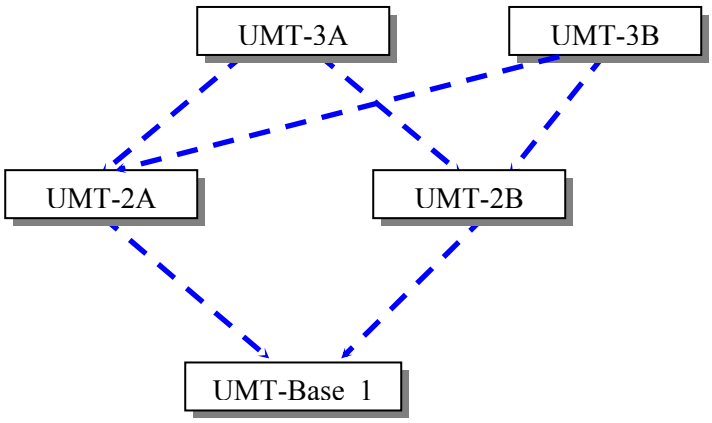

Figure 99 Double Diamond Configuration

Appendix D: Paragon II Rack Mount

Paragon II User Stations and most matrix switches can be mounted in 1U (1.75", 4.4 cm) of vertical space in a standard 19" equipment rack, except that P2-UMT1664M matrix switch shall be mounted in 2U (3.5", 8.9 cm) of space. To rackmount a matrix switch, use the brackets and screws that came with the unit; to rackmount a User Station, use Raritan's RMKSMU rackmount kit. (If you lose or damage a matrix switch's brackets, replace them with the RMKSM1 kit for any 1U matrix switch or RMKSM2 for a P2-UMT1664M.) You can mount a matrix switch or User Station facing the front of the rack or facing the rear.

Forward Mount

1. Secure the cable-support bar to the back end of the side brackets using two of the included screws.
2. Slide the User Station or matrix switch between the side brackets, with its rear panel facing the cable-support bar, until its front panel is flush with the "ears" of the side brackets.
3. Secure the User Station or matrix switch to the side brackets using the remaining included screws (three on each side).
4. Mount the entire assembly in your rack and secure the side brackets' ears to the rack's front rails with your own screws, bolts, cage nuts, etc.
5. When you attach cables to the connectors on the rear panel of the User Station or matrix switch, drape them over the cable-support bar.

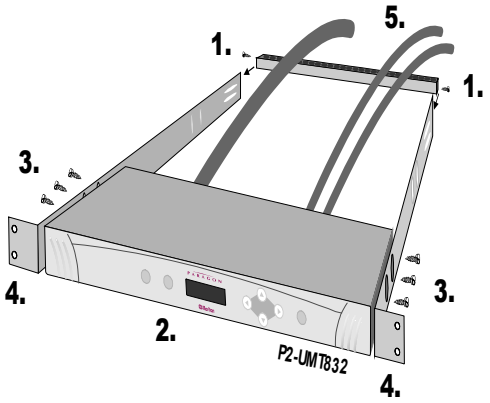

Figure 100 Front Rackmount of a P2 Matrix Switch

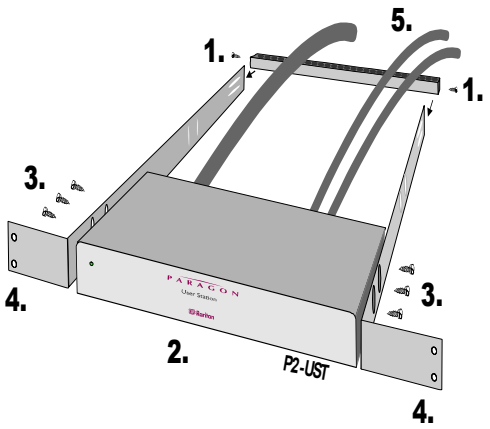

Figure 101 Front Rackmount of a P2 Matrix Switch

Rear Mount

1. Secure the cable-support bar to the front end of the side brackets, near the side brackets' "ears," using two of the included screws.
2. Slide the User Station or matrix switch between the side brackets, with its rear panel facing the cable-support bar, until its front panel is flush with the back edges of the side brackets.
3. Secure the User Station or matrix switch to the side brackets using the remaining included screws (three on each side).
4. Mount the entire assembly in your rack and secure the side brackets' ears to the rack's front rails with your own screws, bolts, cage nuts, etc.
5. When you attach cables to the connectors on the rear panel of the User Station or matrix switch, drape them over the cable-support bar.

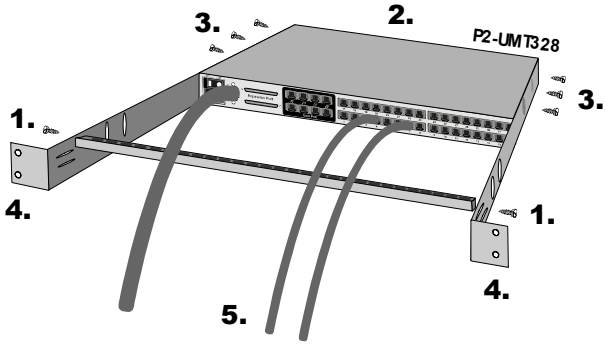

Figure 102 Rear Rackmount of a P2 Matrix Switch

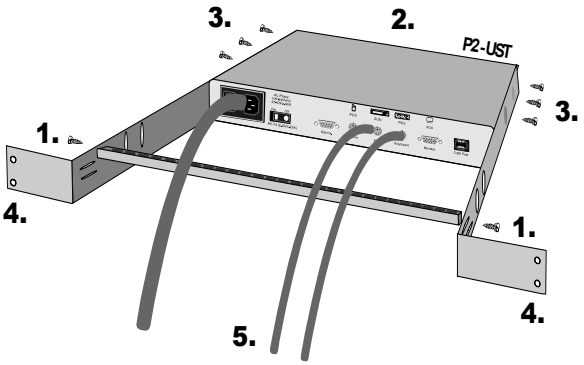

Figure 103 Rear Rackmount of a P2 Matrix Switch

Appendix E: Connecting Serial Devices to Paragon II System

Introduction to Serial CIMs

To connect an ASCII serial device, LAN/WAN component or a server through a serial port (RS-232) to Paragon II system, use one of our serial CIMs. They are P2CIM-SER, P2CIM-SER-EU and AUATC. These CIMs can emulate an ASCII terminal and convert the serial data from the ASCII device to VGA video (800x600x60) and PS/2 keyboard signals. This conversion allows users to access and operate any ASCII serial device connected to the Paragon II system.

The table lists the port difference of the serial CIMs:

MODEL	SERIAL PORT	LOCAL PORT
P2CIM-SER	✓	
P2CIM-SER-EU	✓	
AUATC	✓	✓

Usually the use of P2CIM-SER or P2CIM-SER-EU is enough to satisfy your needs to access a serial device, unless you need to connect a local PS/2 or Sun keyboard and a VGA monitor to the device. In that case, choose AUATC, which provides a local port.

Here are some useful features of serial CIMs:

- Interoperates with an ASCII device in the On Line Mode as if the device were attached to a text terminal
- Edits, copies, marks, and/or resends data to the ASCII serial device or server in the Buffer Edit Mode
- Maintains eight pages of data in a circular buffer
- Provides 12 programmable keys for frequently-used character strings or commands

Installing a Serial CIM

Take these steps to attach a serial CIM to the serial port of a serial device or server and to your Paragon II system.

Installing P2CIM-SER or P2CIM-SER-EU

The installation of P2CIM-SER or P2CIM-SER-EU is quite easy.

1. Connect the CIM to a serial port on the serial device or server, using its serial DB9 connector.
2. Connect the CIM to the Paragon system using a standard Category 5e UTP cable.
3. Connect the CIM's USB connector to a powered USB port, or to a separately available Raritan PWR-USB-4 power adapter, to obtain power.

For additional information on the installation, see **Paragon and Dominion KX Serial Device CIM User Guide**. This user guide can be downloaded from Raritan's Website: http://www.raritan.com/_downloads/pdfs/products/P2CIM-SER%20User%20Guide.pdf.

Installing AUATC

1. Run an appropriate cable from AUATC's DB25 female DTE connector to the device's serial port. The type of cable will depend on what type of connector the port is and whether it's pinned as DTE (for a data source/destination such as a server) or DCE (for a data-communicating device such as a modem). Here are the product codes of some cables we recommend if the port is:
   A. DB9 male DTE (most PCs, some routers, etc.)

B. DB25 male DTE (some older PCs, routers, etc.)
C. DB25 female DCE (many external modems, etc.)
If the device has some other type of serial port, call Raritan Technical Support.

2. If you need temporary "crash cart" access or permanent local control, you can set up a "local user station" (consisting of a keyboard and VGA monitor only) to AUATC. The keyboard can be either PS/2 or Sun type; a Sun keyboard will require a special setting in the Setup Screen.
   To set up a "local user station," plug a PS/2 keyboard into AUATC's 6-pin mini-DIN connector, or a Sun keyboard into its 8-pin mini-DIN connector. Then plug a VGA monitor into AUATC's HD15 connector.

Note: *This local station will contend for keyboard control with the remote User Stations attached to Paragon User Stations based on a fixed one-second activity timeout. As soon as there has been no keyboard activity from the local station for one second, a remote station can take keyboard control, and vice versa.*

3. Plug in and turn on the device. If possible, set it to communicate at 9600 bps, 8 data bits, no parity, and 1 stop bit. (These don't have to be the permanent serial settings, but the device must be set this way to establish initial communication with AUATC; later you can configure both the device and AUATC to better settings. If the device can't be configured for these settings, you'll need to temporarily attach a server or other device that can be.)
4. Plug AUATC's power supply into AUATC and a working AC outlet. If AUATC is installed and operating properly, AUATC's green LED will start blinking: once per second while the CIM is idle, more quickly while it's passing data in either direction.
5. Connect one end of a CAT5 UTP cable to the RJ45 port on AUATC. Connect the other end of the cable to RJ45 channel port #1 on the back of one of your Paragon Base Units, or to the RJ45 port on the back of a User Station if you want Direct Mode access (see **Appendix B: User Station Direct Mode** for additional information).

Operating a Serial CIM

P2CIM-SER or P2CIM-SER-EU

These CIMs provide different communication modes for you to operate the ASCII serial device.

- **On Line --** Communicating with an ASCII device. The terminal screen area displays the interactions with the ASCII device.
- **Help --** Help screen displayed (Pressing **Alt+F1** displays the Help screen.)
- **Set Up --** Setup screen displayed. (Pressing **Alt+F2** or **Alt+F3** enters set-up mode.)
- **Buffer Edit --** Buffer displayed. (Pressing **Alt+F4** enters buffer review/edit mode.)

Raritan provides a detailed user guide about the operation and configuration of the two CIMs. Please see **Paragon and Dominion KX Serial Device CIM User Guide** for additional information. This user guide can be downloaded from Raritan's Website: http://www.raritan.com/_downloads/pdfs/products/P2CIM-SER%20User%20Guide.pdf.

AUATC

Screen Layout

AUATC produces eight-color video at 800 x 600 resolution, which can accommodate 32 lines of 80 text characters each. A typical ASCII terminal uses 24 lines, so AUATC uses the eight extra lines to provide system-status and help information. These eight lines are divided so that four are at the top of the screen and four are at the bottom.

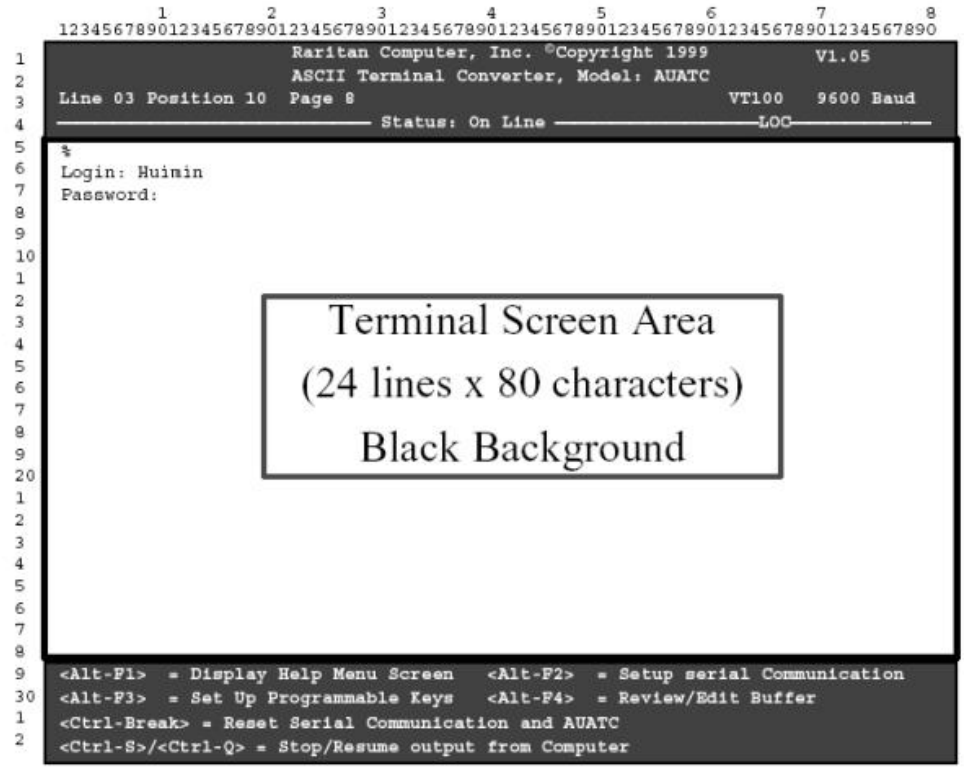

*Figure 104 AUATC Screen Layout (*On Line *Mode)*

- In line 1 of the top pane, AUATC's firmware version is displayed at the right.
- In line 3 of the top pane, the cursor position and buffer-page number are displayed at the left and the terminal type and data rate are displayed at the right.
- In line 4 of the top pane, the communication status is displayed. This status can be:
  - **On Line:** AUATC is communicating with the server and displaying the interactions in its terminal-screen area.
  - **Help:** If you press **ALT** + **F1**, the Help screen appears.
  - **Set Up:** If you press **ALT** + **F2** or **ALT** + **F3**, AUATC enters the Setup Mode.
  - **Buffer Edit:** If you press **ALT** + **F4**, AUATC enters the Buffer Edit Mode.

- In addition, the access type is shown at the right of line 4 of the top pane. The access type can be:
  - **LOC** (The local keyboard/monitor user station is active.)
  - **RMT** (A remote Paragon User Station is active.)
  - **NO** (There is no current user-station activity – AUATC is idle and will grant keyboard and mouse control to the first User Station that attempts to assert it.)
- The four lines in the bottom pane display command keys specific to the current screen.

On Line Mode

When you operate AUATC in On Line Mode, the main screen area displays your interactions with the ASCII device, as if it were the screen of an ASCII terminal. Simultaneously, the data stream being output by the device is stored in an eight-page circular buffer, so you can not only access and operate the device, but you can also review its historical data as needed. Because the buffer is circular, it always retains the most recent eight pages of data from the device; the newest data will overwrite the oldest data.

Conveniently, you may program any of the PC keyboard's twelve function keys to trigger your most-often-used data-stream commands. Pressing any key set this way causes Paragon II to send the corresponding command to the device. During the online session, you can also send any of the following key combinations (press and hold **Ctrl** or **Alt**, press and release the command key, and release **Ctrl** or **Alt**) to control your communication with the device or to access AUATC's help and setup screens:

- **Ctrl** + **Break** (the **Pause**/**Break** key next to the **Scroll Lock** key): Resets both AUATC and the serial communication with the device.
- **Ctrl** + **S** (not case-sensitive): Sends a command to the device to temporarily stop it from sending any data; until the flow is allowed to resume, all output data will be queued by the device.
- **Ctrl** + **Q** (not case-sensitive): Sends a command to allow the device to resume sending data after being halted by the **CTRL** + **S** command.
- **Alt** + **F1**: Displays the Help screen.
- **Alt** + **F2**: Displays the Setup screen.
- **Alt** + **F3**: Displays the Set Up Programmable Keys screen.
- **Alt** + **F4**: Switch to Buffer Edit Mode.

Help Mode

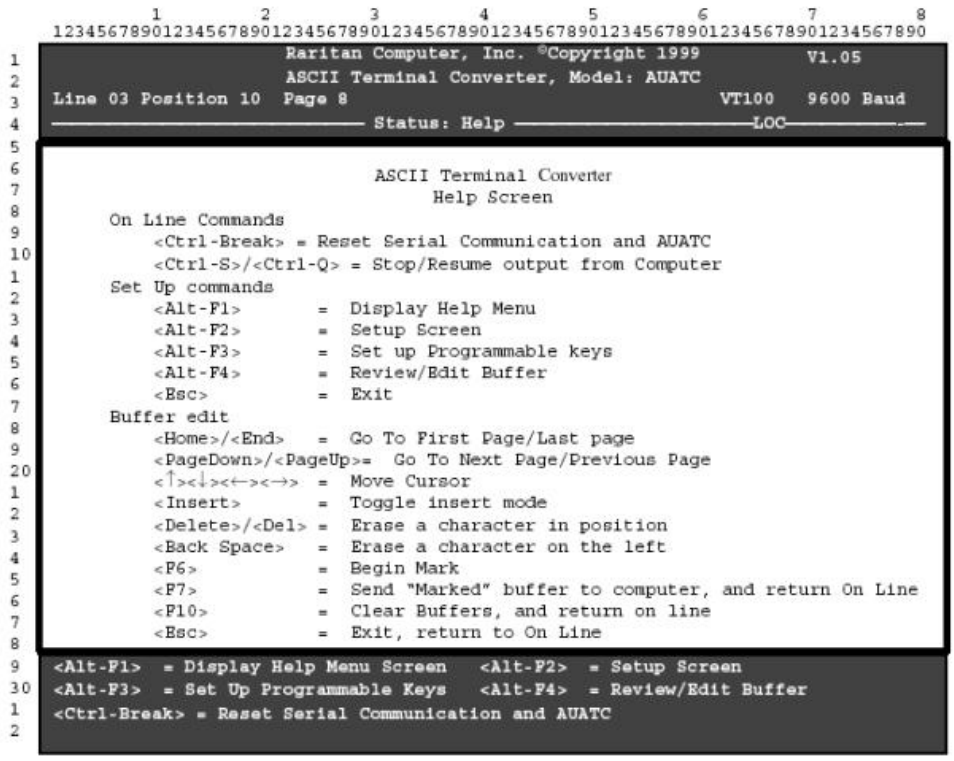

Figure 105 Help Screen

Buffer Edit Mode

AUATC stores the most recent eight pages of data from the attached ASCII device in a circular buffer. After switching the AUATC from On Line Mode to Buffer Edit Mode by pressing **Alt** + **F4**, you can review the contents of the buffer by moving the cursor with the arrow keys, **Page Up** , **Page Down** , **Home**, and **End**. You can also edit the data in the buffer with **Insert**, **Delete**, **Backspace**, and the other keys listed in the Help screen.

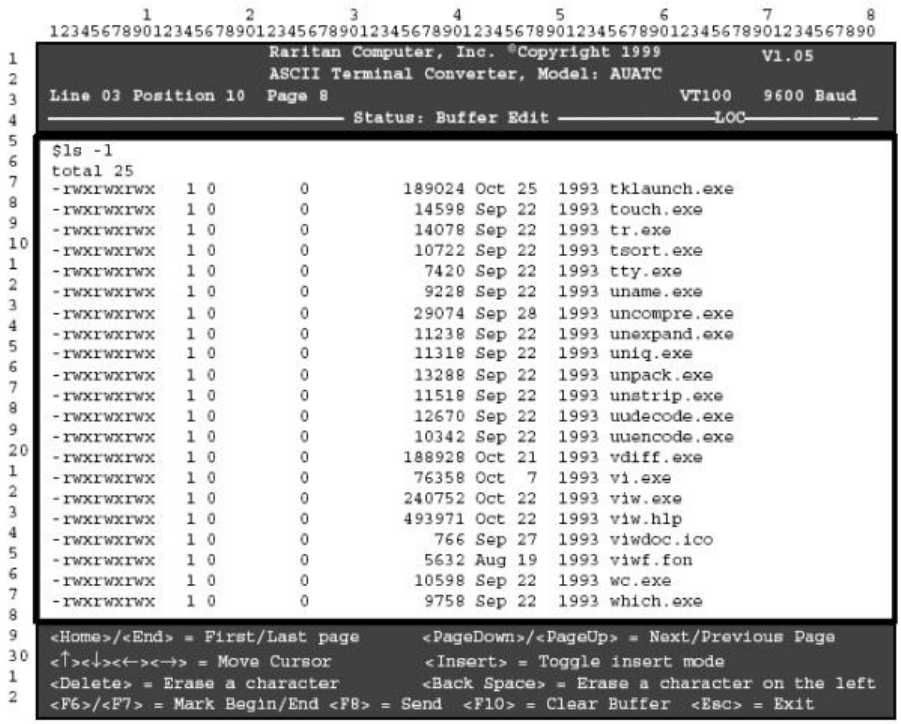

Figure 106 Buffer Edit Mode Screen

Configuring AUATC

Press **Alt** + **F2** to activate the Setup Screen, where you can select your desired serial-communication parameters (baud rate, etc.) and type of local video output. The initial parameters will always start at their factory defaults, so make sure that the serial port or device to which AUATC is attached is temporarily configured for 9600 bps, 8 data bits, no parity, and 1 stop bit. (If the port or device cannot support all of these settings, you must temporarily attach one that can.) Also, if you want to perform initial configuration with a "local user station," it must consist of a PS/2 keyboard and a VGA monitor.

Available data-rate ("Baud Rate") settings are 2400, 4800, 9600, and 19,200 bps. You can select even, odd, or no ("None") parity; 7 or 8 data bits; and 1 or 2 stop bits (but 7 data bits requires 2 stop bits). The terminal type is fixed at VT100.

To force local VGA output even when your local keyboard is a Sun type, access AUATC from a User Station with a PS/2 keyboard and a VGA monitor. Activate the Setup Screen and change the video option from **Sun keyboard** to **VGA**. You can then access AUATC from Sun type user stations.

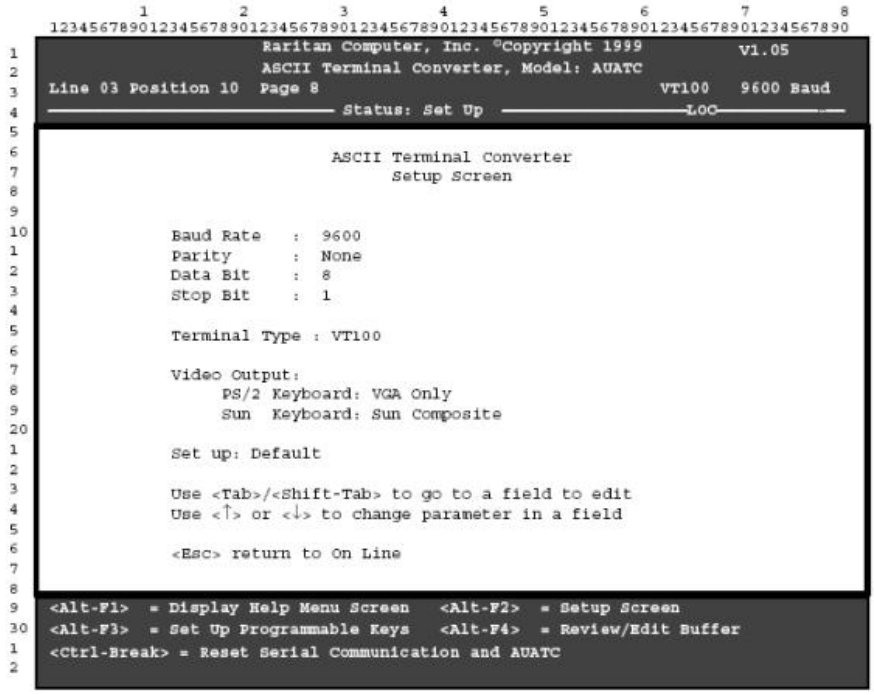

Figure 107 Setup Communication Screen

To program any of your keyboard's twelve function keys with commands or data items you frequently have to send the device, activate the Set Up Programmable Keys screen by pressing **Alt** + **F3**. Once a string (with a maximum length of sixteen characters) has been assigned to a key, pressing that key while in On Line Mode will send the entire string to the device.

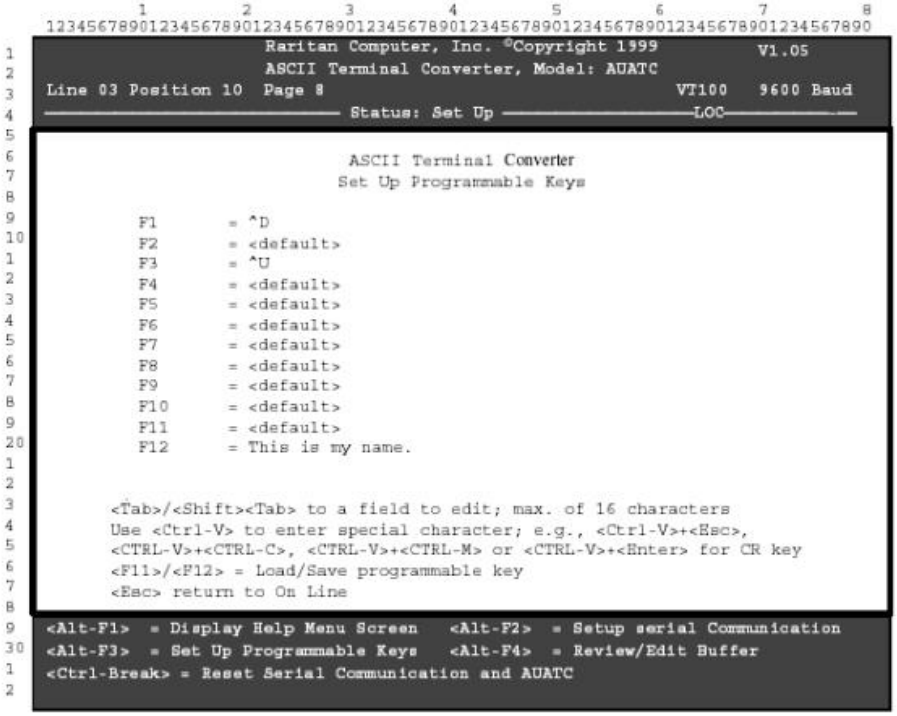

Figure 108 Set Up Programmable Keys Screen

Troubleshooting AUATC

If you do not get a device prompt:

1. If AUATC's screen is displayed on your monitor with the top and bottom help windows, make sure that it indicates **On Line** status. If not, press **Esc** to return to On Line Mode.
2. Make sure that AUATC and the attached device are both receiving power. AUATC's power supply should be securely connected to both AUATC and a working outlet. Its LED (next to the 6-pin mini-DIN PS/2 mouse connector) should flicker quickly if data is being transmitted and blink once per second at other times.
3. Make sure that the cable between AUATC and the device is securely attached at both ends. This must be the null-modem cable included with AUATC or one just like it.
4. Make sure that the serial-communication settings of AUATC match those of the device. Press **Alt** + **F2** to check AUATC's settings in its Setup Screen.

If you do not get any video or the video is degraded or distorted:

1. Make sure that all of your cables are connected securely.
2. Make sure that your monitor can handle 800 x 600 video resolution at a refresh rate of 60 Hz.
3. If you are at a remote User Station's monitor, make sure that you are not running CAT5 cable too far end-to-end. The total length of CAT5 cabling from the serial device to the monitor should not be greater than 1000 feet (304 m).
4. If you are using a Sun keyboard at the "local user station," AUATC will, by default, try to output legacy Sun compatible composite video on its HD15 connector. You must temporarily attach a PS/2 keyboard, press **Alt** + **F2** to activate the Setup Screen, and change the video setting so that AUATC outputs VGA video even when a Sun keyboard is attached.

Appendix F: Extra Keyboard/Mouse Information and Settings

Emulating Sun Keys with a PS/2 Keyboard

We recommend that you use a Sun keyboard and mouse at your User Stations if there are any Sun servers in your Paragon system. If you must use a PS/2 keyboard to control a Sun server attached to your Paragon system, Paragon is able to perform some keyboard emulation. To emulate most of the special "extra" keys that are present on Sun keyboards but not on PS/2 keyboards, first press and hold either **Scroll Lock** or the combination of **Ctrl** and **Alt**; these function as permanent "Sun keystroke hot keys." (If **Scroll Lock** is your OSUI hot key or previous-channel hot key, you will want to use **Ctrl** + **Alt**.) Then press the corresponding character on the PS/2 keyboard:

WHILE PRESSING A CHARACTER HOTKEY, PRESS THIS PS/2 KEYBOARD KEY...	...TO GENERATE THIS SUN KEYBOARD KEYSTROKE:
F2	Again
F3	Props
F4	Undo
F5	Front
F6	Copy
F7	Open
F8	Paste
F9	Find
F10	Cut
F11	Help
F12	Mute
* on the keypad	Compose
+ on the keypad	Vol +
– on the keypad	Vol –

The one exception to this procedure is the Sun keyboard's Stop character. To generate Stop with a PS/2 keyboard, hold down the **Pause/Break** key and press the letter **A**.

Changing the Keyboard Layout Settings

Different language versions of keyboards are provided for use in different countries. For example, the layout of a French keyboard is different from that of a US English keyboard. The Paragon CIMs enable you to change the keyboard's layout setting to match your keyboard if you are not using a US English keyboard (the factory default). Please note that different CIMs come with different keyboard setting methods so you should change your keyboard setting based on the CIMs.

USB Keyboard Layout Settings (P2CIM-AUSB, P2CIM-AUSB-B or P2ZCIM-USB)

When you attach the server with a USB CIM and your keyboard is not US English (code 33), you will have to change the keyboard layout setting. You need to press different hot key combinations to enter the setting mode based on your CIM types.

1. Select the channel of the desired server in the Selection Menu, and press **Enter**.
2. Activate a text editor, such as Notepad, on the server.
3. Press **Left Ctrl** + **NumLock** to enter the setting mode. A message similar to the following appears in the text editor.
   - **For P2CIM-AUSB:**

```
usb 0d0 hw2
----
keyboard layouts
33 english us
32 english uk
08 french
09 german
26 swedish
19 norwegian
15 japanese
25 spanish
14 italian
----
mouse layouts
m0 standard 3 button wheel mouse
m1 4-8 button wheel mouse
----
current options
keyboard layout is 33
mouse layout is 0
----
enter an option or escape to exit
```

Current keyboard layout is set to US English (code 33).

Figure 109 Keyboard Layout Setting (P2CIM-AUSB)

   - **For P2CIM-AUSB-B or P2ZCIM-USB:**

```
usb 0b8 hw1
--
popular keyboard layouts
33 usa
32 uk
08 french
09 german
26 swedish
19 norway
15 japan
25 spanish
14 italian
--
the current keyboard layout code is 33
enter a new country code or escape to exit
```

Current keyboard layout is set to US English (code 33).

Figure 110 Keyboard Layout Setting (P2ZCIM-USB or P2CIM-AUSB-B)

4. Press the appropriate keyboard layout code (refer to the following table for codes).

5. Either press **Esc** to exit the setting mode or close the text editor.

Generic Keyboard Layout Code

LANGUAGE	LAYOUT CODE	LANGUAGE	LAYOUT CODE
Arabic	01	**Netherlands**	18
Belgian	02	**Norwegian**	19
Canadian-Bilingual	03	**Persian**	20
Canadian-French	04	**Poland**	21
Czech Republic	05	**Portuguese**	22
Danish	06	**Russia**	23
Finnish	07	**Slovakia**	24
French	08	**Spanish**	25
German	09	**Swedish**	26
Greek	10	**Swiss/French**	27
Hebrew	11	**Swiss/German**	28
Hungary	12	**Switzerland**	29
International (ISO)	13	**Taiwan**	30
Italian	14	**Turkish**	31
Japan	15	**UK**	32
Korean	16	**USA (Default)**	33
Latin American	17	**Yugoslavia**	34

Sun Keyboard Layout Settings (P2CIM-SUN or P2CIM-ASUN)

When you connect a Sun keyboard to the User Station to access a Sun server which is attached with P2CIM-SUN or P2CIM-ASUN, you must change the Sun keyboard's layout setting.

1. Select the channel of the desired Sun server in the Selection Menu, and press **Enter**.
2. Activate a text editor on the server.
3. Press **Left Ctrl** + **Delete** to enter the setting mode. A message similar to the following appears in the text editor.

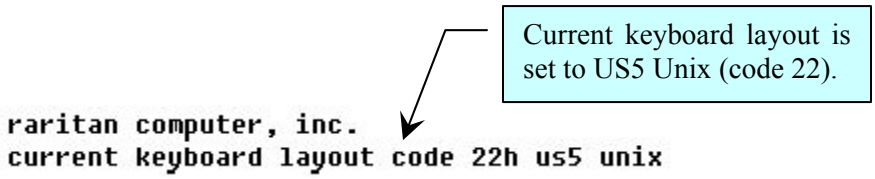

Figure 111 Sun Keyboard Layout Setting – Initial Message

4. Press the appropriate keyboard layout code (refer to the following table for codes).
5. When you see a "setup end" message similar to the following, the setting is changed successfully.

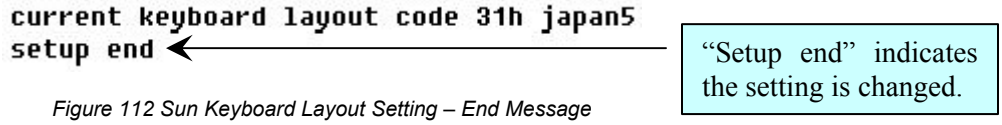

Figure 112 Sun Keyboard Layout Setting – End Message

6. Either press **Esc** to exit the setting mode or close the text editor.

Sun Keyboard Layout Code

COUNTRY	LAYOUT CODE	COUNTRY	LAYOUT CODE
Canada Fr5	32	**Netherland5**	27
Canada Fr5 Tbits5	3F	**Norway5**	28
Czech5	35	**Poland5**	34
Denmark5	24	**Portugal5**	29
Estonia5	3A	**Russia5**	36
France5	23	**Spain5**	2A
Germany5	25	**Sweden5**	2B
Greece5	39	**Switzer Fr5**	2C
Hungary5	33	**Switzer Ge5**	2D
Italy5	26	**Taiwan5**	30
Japan5	31	**Turkey5**	38
Korea5	2F	**UK5**	2E
Latvia5	37	**US5**	21
Lithuania5	3B	**US5 Unix (Default)**	22

Sun Keyboard Layout Settings (P2ZCIM-SUN)

When you connect a Sun keyboard to the User Station to access a Sun server which is attached with P2ZCIM-SUN, you may need to change the Sun keyboard's layout setting.

1. Select the channel of the desired server in the Selection Menu, and press **Enter**.
2. Activate a text editor, such as Notepad, on the server.
3. Press **Left Ctrl** + **NumLock** to enter the setting mode. A message similar to the following appears in the text editor.

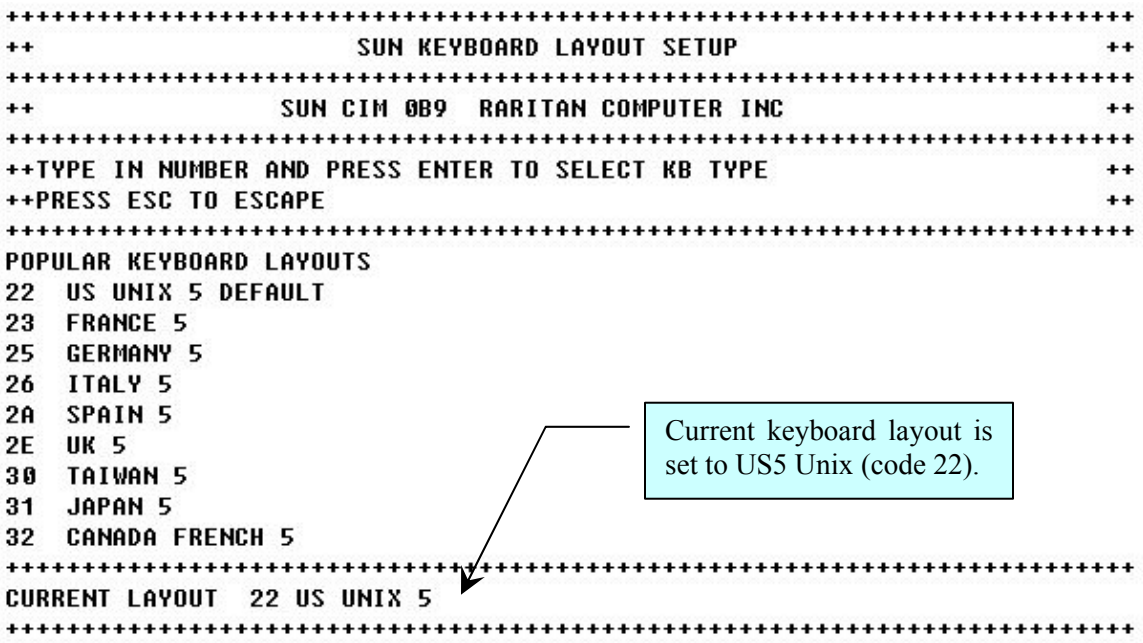

Figure 113 Sun Keyboard Layout Setting (P2ZCIM)

4. Press the appropriate keyboard country code (refer to the above "Sun Keyboard Layout Code" table for codes).

5. Either press **Esc** to exit the setting mode or close the text editor.

Switching between 101 and 102 keys (P2CIM-APS2)

In some operating systems, the pipe key (|) on the 102-key keyboard is not recognized and cannot be displayed on the screen. To make this key recognized, you should change the keyboard setting from 101-key to 102-key type. This function is supported by P2CIM-APS2 with firmware version 3C0 or later.

1. Select the channel of the server where the pipe key is not recognized, such as a Unix server.
2. Activate a text editor on the server.
3. Press **Left Ctrl + Delete** to enter the setting mode. The following message appears in the text editor, indicating that you can change the keyboard setting now.

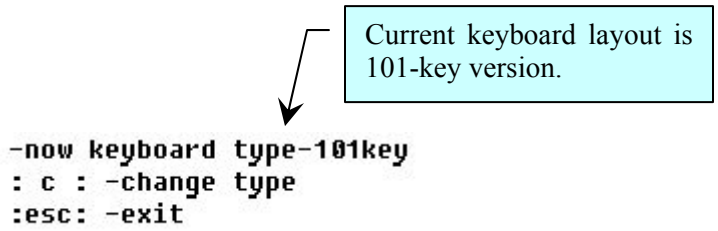

Figure 114 Keyboard Layout Setting (101-Key)

4. Press **c** to change the keyboard type.
5. **(Optional)** You can press **Left Ctrl + Delete** again to verify whether the current keyboard setting is 102-key. If the message shows "*now keyboard type-102key*"in the text editor, the current setting is 102-key keyboard.

```
-now keyboard type-102key
: c : -change type
:esc: -exit
```

Figure 115 Keyboard Layout Setting (102-Key)

6. Either press **Esc** to exit the setting mode or close the text editor.

To reverse the keyboard type from 102 keys to 101 keys, simply repeat the above steps 1 through 4.

Kensington Mouse Type Settings

With P2CIM-AUSB (with firmware version 0D0 or later) and P2-UST/P2-EUST User Station, you can use two types of multi-button Kensington mouse: one is Expert Mouse, and the other is Turbo Mouse trackball. By default the CIM allows you to use a 3-button wheel mouse, and you must change the mouse setting in order to use more buttons on the Kensington mouse.

1. Select the channel of the desired server in the Selection Menu, and press **Enter**.
2. Activate a text editor, such as Notepad, on the server.
3. Press **Left Ctrl + NumLock** to enter the setting mode. A message similar to the following appears in the text editor.

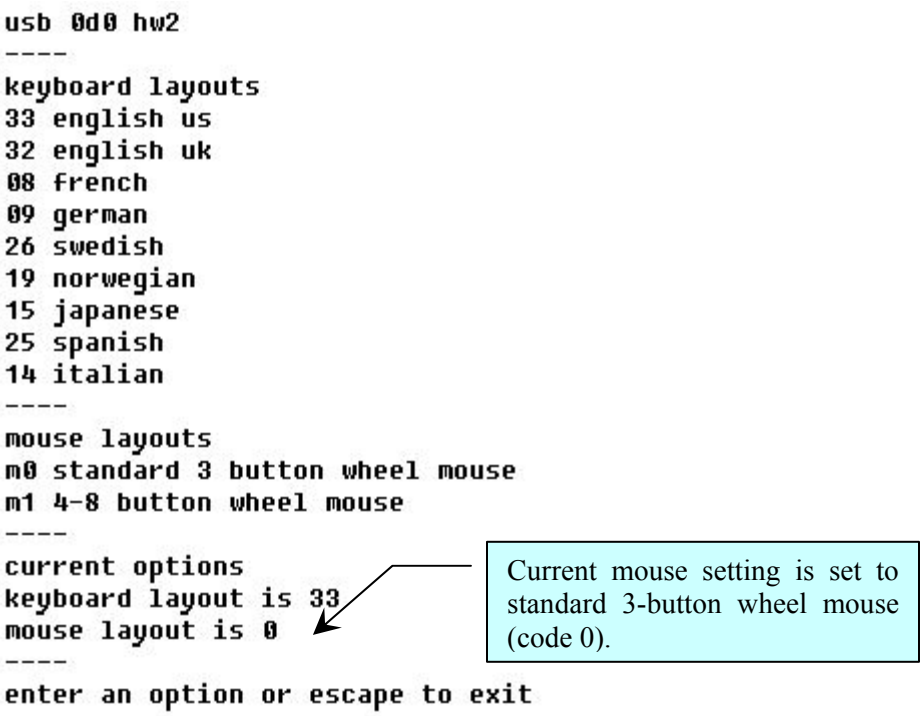

Figure 116 Kensington Mouse Setting (P2CIM-AUSB)

4. Type **m1** to have the CIM support the use of 4-8 button wheel mouse.
5. Either press **Esc** to exit the setting mode or close the text editor.
6. Press the hot key (default: **Scroll Lock**) twice quickly to trigger the OSUI Selection Menu and reselect the same channel to make the new mouse setting effective.

To reverse the mouse type from 4-8 buttons to 3 buttons, simply repeat the above steps 1 through 3, and then type **m0**.

Macintosh Key Mapping

If you use a Macintosh keyboard, you may want to know which keys are supported or recognized by Paragon II system. This is especially important when you want to use the Command Key combinations. Actually Paragon II system only recognizes regular PC keyboard and therefore all Macintosh keys are mapped with the PC keys based on each key's position. For unique Macintosh keys which regular PC keyboard does not have, such as F13 to F15, Paragon II system can neither recognize nor support them.

Mapped PC Keys for Macintosh Keys

MACINTOSH KEY	MAPPED PC KEY
Command key	Windows key
Option	Alt
Shift	Shift
Control	Control
Tab	Tab
Left/Right/Up/Down Arrow	Left/Right/Up/Down Arrow
Caps Lock	Caps Lock
Escape	Escape

MACINTOSH KEY	MAPPED PC KEY
All alphabetical keys (A ~ Z) and numeric keys (0~9)	All alphabetical keys (A ~ Z) and numeric keys (0~9)
F1 ~ F12	F1 ~ F12
*F13 ~ F15	No mapping
Page Up/Down	Page Up/Down
Home/End	Home/End
Delete	Delete
*Power	No mapping
*Help	Insert
*Volume control keys	No mapping

* No appropriate mappings are found for these keys on PC keyboards, and these keys may not function properly.

Appendix G: Recommendation for Better Video Quality

Deployment Recommendations

In Paragon II system, video quality is usually affected by these factors:

- Type of User Station: P2-UST or P2-EUST
- UTP cable length between the User Station and the CIM (server)
- UTP cable type: Belden or non-Belden cable

P2-EUST has the function of automatic skew compensation when used with P2CIM-APS2, P2CIM-AUSB, or P2CIM-ASUN, and the like, and thus provides better video quality than P2-UST. Belden cable is proven to provide better video quality than non-Belden cable in Raritan's lab. Therefore, our recommendation for good or even excellent video quality is as follows:

- With non-Belden cables

CABLE LENGTH (FEET)	DEPLOYMENT
0 ~ 1000	* P2-EUST

- With Belden cables

CABLE LENGTH (FEET)	DEPLOYMENT
< 500 or = 500	P2-UST or P2-EUST
501 ~ 1000	* P2-EUST

* For P2-EUST to provide automatic skew compensation, make sure this User Station is used with the appropriate CIM type: P2CIM-APS2, P2CIM-AUSB, P2CIM-APS2DUAL, P2CIM-ASUN, P2CIM-APS2-B, or P2CIM-AUSB-B.

Supported Resolutions on P2-EUST

CABLE LENGTH (FEET)	RESOLUTION	VIDEO REFRESH RATE (HZ)
0 ~ 700	Up to 1600x1200	60, 75, 85
0 ~ 1000	Up to 1280x1024	60, 75, 85

Appendix H: Other Components Working with Paragon II

Paragon Manager Overview

Paragon Manager, Raritan's appliance management and configuration application, offers one coordinated graphical user interface that displays Device, User, Log, and Outlet information for your Paragon system. Paragon Manager can work with your Paragon II matrix switch (UMT), and allows you to manage various Paragon II units. This program is available on Raritan's Website.

Installing Paragon Manager

To download Paragon Manager, please use the following steps. See **Paragon Manager User Guide** for additional information. This user guide is located on the **"**User Manuals & Quick Setup Guides**"** CD, or you can visit Raritan's Product Documentation Web page: http://www.raritan.com/support/productdocumentation.

1. In your browser, navigate to Raritan's Website, www.raritan.com.
2. Click **Support** in the top navigation bar
3. Click **Firmware Upgrades** in the left navigation bar to expand it.
4. Click **Paragon** to open its page.
5. Scroll down the page to locate the **Paragon Manager** section, and click on the desired Paragon Manager ZIP file link to download Paragon Manager.
6. Click **START DOWNLOAD**.
7. Click **Save** to save this file to your system, and browse to the location where you want it stored. Click **Save** to continue.
8. The file is approximately 14MB and download takes a few minutes. When download is complete, navigate to the saved ZIP file and unzip it.
9. Extract the files to your system; the documents included contain important information about this version of Paragon Manager, you should read them as soon as possible.
10. Navigate to where the files are saved on your system and click on the **PM Setup.exe** file to install Paragon Manager. Accept the default settings.

When installation is complete, Paragon Manager launches automatically. A shortcut to the application has been added to your **Start** menu.

PCCI Integration

In the PCCI (Paragon CommandCenter Integration) environment, Paragon II works within the PIISC setup, and we recommend you first read the **Paragon II System Controller (PIISC)** user manual for initial installation and configuration of your Paragon II System Controller unit. This document is found on the **"**User Manuals & Quick Setup Guides**"** CD included with your shipment, or can be downloaded from the **Support** section of your local Raritan Website.

In North or South America, do the following:

1. Visit http://www.raritan.com/support/productdocumentation with your browser.
2. Scroll down the page to the **Paragon II System Controller** heading.
3. Click on the User Guide link.

Special Note:

Paragon II Release 4.2 is not compatible with the Paragon II System Controller. Release 4.2 is considered a "standalone" release and is not supported for installation in a Raritan PCCI environment. PCCI integration is planned for an upcoming release.

Current Paragon II System Controller customers who wish to expand their Paragon II infrastructure by adding Paragon II switches and user stations are advised to specially request new equipment that is provided with firmware version level 4.1 when placing an order.

Appendix I: Troubleshooting

Symptoms and Probable Causes

SYMPTOM:	PROBABLE CAUSE:
No Power.	• Loose Power Cord. • Power switch is off. • Paragon II matrix switch or User Station surge protection invoked during a power recycling process. Power off the unit, wait for 20 seconds, and then power the unit on.
All computers have no video display.	• Loose Category 5e UTP cable. • Loose monitor connection • User Station is connected and functioning properly if **Num Lock** key lights keyboard's Num Lock LED.
Monitor video display for some connected computers is distorted.	Monitor type does not match video output designation from the server.
Keyboard non-functional, even though there is no keyboard error at power up. Cannot input to any computer.	• Loose keyboard connection to User Station. • Loose Category 5e UTP cable. • Keyboard broken. Hot-swap with a new keyboard.
Repeated "Keyboard ERROR" at computer power-up.	• Loose cable from the server to the CIM. • Loose Category 5e UTP cable. • Paragon II components may be out of order. Verify that the server recognizes a keyboard that is directly connected. Contact Raritan Technical support for assistance. See the last page for global contact information.
Keyboard suddenly locks-up when a particular computer is selected, but operates normally when other computers are selected.	• Loose keyboard cable connection. • Voltage spike (increase) or brown out (decrease) in power supply to connected Paragon II matrix switch unit. Power off the Switch, wait for 20 seconds, and then power on the unit. Powering Switch from a UPS avoids variation in power supply to Switch.
Repeated "MOUSE INSTALLATION FAILURE" at computer power-up.	• Loose mouse cable from the server to the CIM • Loose Category 5e UTP cable. If an error occurs only with new servers being added to the system, contact Raritan Technical Support for assistance – mouse emulation firmware may need to be upgraded for compatibility with newer servers. See the last page for global contact information.
Mouse suddenly locks up when a particular computer is selected, but operates normally when other computers are selected.	• Loose cable from the server to the CIM. • Loose Category 5e UTP cable. • Paragon II components may be out of order. Verify that the server works with a mouse directly connected. Contact Raritan Technical support for assistance. See the last page for global contact information.

On-Screen User Interface (OSUI) non-functional.	Replace the keyboard. OSUI works only with PS/2 or extended AT-style keyboards.
Video is "fuzzy" or out of focus.	Video Gain Adjustment is required (especially needed with LCD flat panel monitors). – Activate OSUI (by hitting the **Scroll Lock** key twice rapidly). – Use numeric keypad + and - keys to adjust the video image until it is in focus.

Powering-On Sequence of Multi-Tier Configuration

In a multi-tier configuration, the order of powering ON is critical to proper function.

When powering ON existing stable configurations (i.e., if you are NOT replacing or adding matrix switches and NOT swapping their order) or when you are Power Cycling a cascaded configuration, we recommend that you power on the matrix switches in the following sequence:

1. Power ON the third tier (if a third tier exists).
2. Power ON the second tier.
3. Power ON the Paragon II base tier (first tier).

Note that this order is reversed when upgrading a cascaded configuration.

1. Power ON the Paragon II base tier.
2. Power ON the second tier.
3. Power ON the third tier (if a third tier exists).

For configurations where matrix switches are added, replaced, or swapped (in order), we recommend: powering ON starting from the third tier, then moving to the second tier, and then the base tier, and in addition, performing a partial reset of the database.

User Stations can be powered ON and OFF at any time as needed.

There is a five-second ON/OFF down time in the matrix switch or Paragon II power cycle.

Paragon II FAQs Online

Frequently Asked Questions for Paragon II are now located online at:

http://www.raritan.com/support/technicalfaq.

DIREKTRONIK
e-mail: info@direktronik.se
tel: 08-52 400 700 fax: 08-520 18121