Raritan.

MasterConsole CAT (MCCAT18/116)

User Guide
Release 1.1

FCC Information

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential environment may cause harmful interference.

VCCI Information (Japan)

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Raritan is not responsible for damage to this product resulting from accident, disaster, misuse, abuse, non-Raritan modification of the product, or other events outside of Raritan's reasonable control or not arising under normal operating conditions.

If a power cable is included with this product, it must be used exclusively for this product.

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.

In Raritan products that 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 **Specifications** in online help.
- 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.

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Chapter 1 Introduction

Congratulations on purchasing a Raritan "one-user" **MasterConsole CAT** KVM (keyboard/video/mouse) switch—MCCAT18 or MCCAT116. This User Guide explains how to use these KVM switches to access and control multiple computers (or servers).

In This Chapter

Product Overview

MCCAT switch is a KVM (keyboard/video/mouse) switch that enables you to control multiple computers from a single set of keyboard, mouse, and monitor. Connect the keyboard, mouse, monitor and all computers to an MCCAT switch, and you will be able to switch among computers connected to the MCCAT switch. If cascading MCCAT switches to form a two-tier MCCAT system, the number of accessible computers can be expanded up to a maximum of 256 computers.

MCCAT switch features the use of standard Category 5 (Cat5) unshielded twisted-pair (UTP) cables for connecting computers. In terms of operation, it provides front panel buttons for easy and fast access to connected computers in addition to a friendly OSD (On-Screen Display) interface for simple system configuration.

You need these components to set up one MCCAT system:

- MCCAT switch
- MCCAT Computer Interface Modules (MCIMs)

Note: MCIMs are compatible with MCCAT18/116 switches, but MCUTP cables are NOT. Do NOT use MCUTP cables to connect computers to MCCAT18/116 switches. For information on MCUTP cables, see the MCCAT28/216 User Guide, which can be downloaded from the **Raritan website** *(***http://www.raritan.com***).*

MCCAT Switch

The MCCAT switch provides ports for connecting computers and a set of keyboard, mouse, and monitor. There are two types of MCCAT switches: one-user and two-user types. The difference between one-user and two-user types is that the two-user type additionally provides *USB* ports for connecting the USB keyboard and mouse, and an *RJ-45* port for connecting an MCCAT user station.

- ONE-USER type

  Only one user can gain access to the "one-user" MCCAT switch and connected computers at a time.

  There are two models: MCCAT18 and MCCAT116.

- TWO-USER type

  Two users can gain access to the "two-user" MCCAT switch and connected computers at a time.

  There are two models: MCCAT28 and MCCAT216.

Note: This User Guide describes ONE-USER type only. For information on "two-user" MCCAT switches, see the *Quick Installation and Setup Guide* that comes with them, or download the MCCAT28/216 User Guide from Raritan website's **Support page** (**http://www.raritan.com/support/**).

MCCAT Computer Interface Module (MCIM)

The MCIM transmits keyboard, mouse and video signals between the connected computer and the MCCAT switch. One computer requires one MCIM only. There are two types of them.

- USB type

  MCIM-USB comes with an HD15 VGA connector and a USB connector.

- PS/2 type

  MCIM-PS2 comes with an HD15 VGA connector, a PS/2 keyboard connector, and a PS/2 mouse connector.

Product Photos

Model: MCCAT18 (Front and Rear View)

Model: MCCAT116 (Front and Rear View)

Product Features

- One user can control up to 16 computers per unit. The number of computers that can be controlled varies depending on the model purchased:
  - **MCCAT18**: allows control of 8 computers
  - **MCCAT116**: allows control of 16 computers

- A maximum of 256 computers can be controlled in a two-tier cascaded MCCAT system
- The unit interconnects with each computer via the standard Cat5 UTP cables
- The units can be cascaded to form a two-tier KVM switch system
- The OSD interface features simple system control and management
- Support the video resolution up to 1600x1200
- The user can be located at a distance up to 100 feet (30.4 meters) from the connected computers
- With the "keep-alive" technology, users can add, remove, and hot-swap components without interruption to the computers.
- LEDs in the front panel indicate the status of computers
- Buttons in the front panel provide fast access to computers
- Multi-platform support, including MS-DOS, Windows 2000/2003/NT/Me/XP/Vista, Linux (Red Hat, Novell Suse), and SCO Unix
- Support IBM, Dell, and HP servers
- The **Scan** function allows the system to automatically cycle through all of the channels at the default or user-customized rates
- The **Skip** function allows the system to bypass inactive channels during the channel scanning
- The **Password Security** function, providing one administrator and 5 user passwords, prevents unauthorized access to the connected computers
- Support the use of a standard keyboard and mouse

Package Contents

- MCCAT switch x 1
- Power cord x 1
- Rackmount kit x 1 (including brackets and associated screws)
- Warranty card x 1
- Quick Setup Guide x 1

Chapter 2   Quick Start

This chapter addresses only the basic connections for setting up an MCCAT system and basic operations for interacting with the computers being connected to the system. For advanced hardware installation or OSD operations, see Chapter 4, **Advanced Operation and System Configuration** (on page 21) and Chapter 5, **Two-Tier System** (on page 36) for details.

In This Chapter

A Glance at the Product

This section briefly introduces the components on the front and rear sides of the MCCAT switch and the initial OSD menu that you will see after the product starts to work.

Front View

The front panel provides the model number for identification and push buttons for convenient operation of frequently used functions.
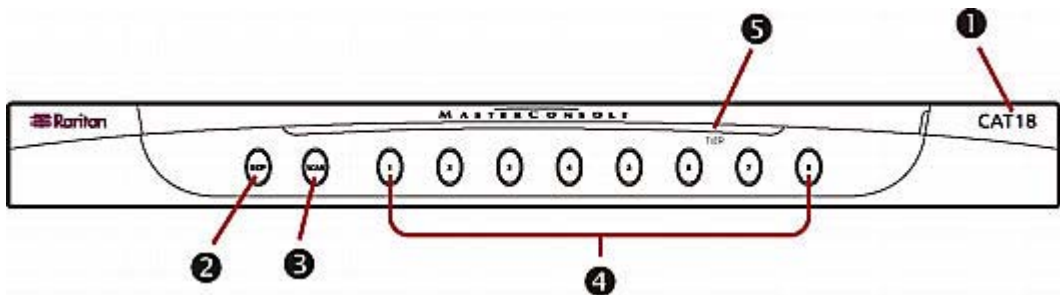
No.	Component	Description
❶	Model name	▪ **CAT18** indicates the unit is MCCAT18. ▪ **CAT116** indicates the unit is MCCAT116.
❷	SKIP button	Toggles **AutoSkip** on/off. When the **AutoSkip** function is on, the system skips inactive channels and accesses active ones only.

No.	Component	Description
❸	SCAN button	Toggles **AutoScan** on/off. When the **AutoScan** function is on, the system automatically cycles through all channels until the function is turned off.
❹	Channel buttons	These buttons enable immediate access to the computer connected to the corresponding channel. In addition, each channel button can show each channel's status through its LED color change. • *Off*: Either no device is connected to the channel, or the connected device is NOT powered. • *Orange*: A device, which is powered, is connected to the channel. • *Green*: The channel is being selected and accessed.
❺	TIER LED	Shows the unit's tier status. • *Off*: The MCCAT switch is programmed as the first-tier device. This is the factory default. • *On*: The unit is programmed as the second-tier device. For details about setting the unit as the second-tier device, see ***Setting Up a Two-Tier System*** (on page 37).

Rear View

The rear side comes with a number of connectors for connecting various devices or cables, such as the monitor.
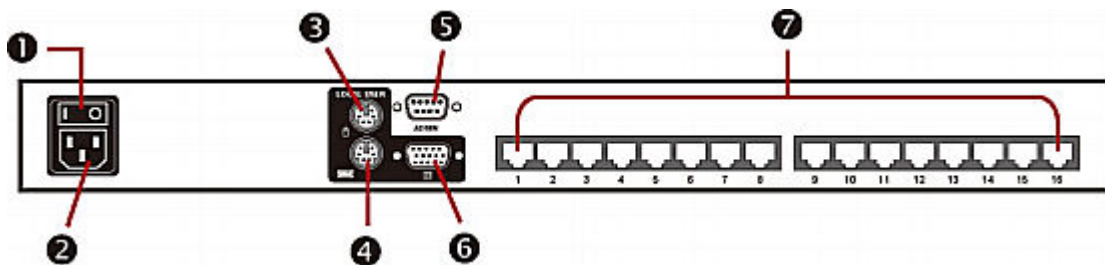
No.	Component	Description
❶	Power switch	Toggles power on/off.
❷	Power socket	Connects to a power cord.
❸	PS/2 mouse port	Connects to a PS/2 mouse for computer operation.
❹	PS/2 keyboard port	Connects to a PS/2 keyboard for both of the computer operation and system management.
❺	Admin port	Connects to a computer via a serial cable for upgrading the MCCAT's firmware.

No.	Component	Description
❻	HD15 video port	Connects to a monitor for displaying the MCCAT OSD and the video of the accessed computer.
❼	Channel ports	Connect to computers via standard Cat5 UTP cables. The number of available channels varies depending on the model you purchased.

Rack-Mounting MCCAT Switches

MCCAT switches can be mounted in 1U (1.75", 4.4cm) of vertical space in a standard 19" equipment rack. To rack-mount an MCCAT switch, use the brackets and screws (Bracket Assy of P2-HUBPAC) that came with the device. You can mount the MCCAT switch facing the front of the rack or the rear.

Attaching the Cable-Support Bar (Optional)

If there are any concerns regarding the cabling weight, you can install the cable-support bar between two rackmount brackets to bear the weight of cables connected to the rear of MCCAT switch. Depending on how you rack-mount the MCCAT switch, the position to attach the cable-support bar varies:

- If the MCCAT switch's front panel will face the front of the rack, fasten the cable-support bar to the L-shaped holes far from the ears of the rackmount brackets.
- If the MCCAT switch's front panel will face the rear of the rack, fasten the cable-support bar to the L-shaped holes close to the ears of the rackmount brackets.

▶ **To attach the cable-support bar**

1. Insert one end of the cable-support bar into the L-shaped hole on a rackmount bracket, with the bar's concave slot facing the top of the upper L-shaped hole or the bottom of the lower L-shaped hole.

![Raritan logo]
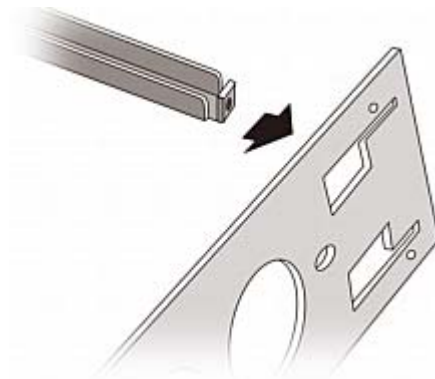
2. Move the cable-support bar upward or downward to make the concave slot hold the top edge of the upper L-shaped hole or the bottom edge of the lower L-shaped hole.

3. Slide the bar horizontally along the edge of the L-shaped hole until the hole on the end of the bar is aligned with the threaded hole above or below the L-shaped hole.

4. Secure the cable-support bar with one of the included cap screws.
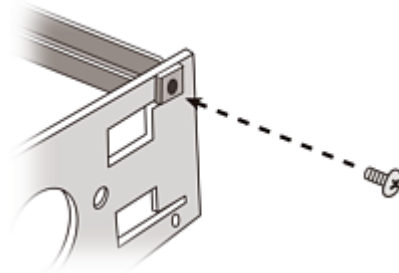
5. Repeat Steps 1 to 4 to secure the other end of the cable-support bar to the other rackmount bracket.
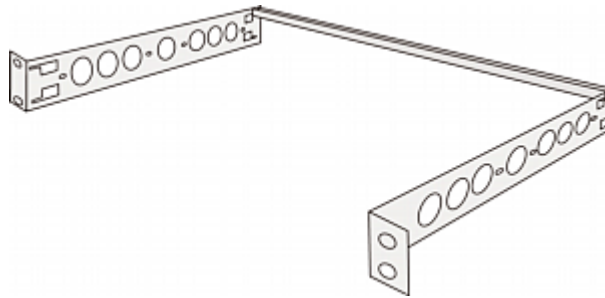
After securing the cable-support bar, you can attach the bracket assembly to the MCCAT switch and mount the device in your rack. See **Forward Mount** (on page 9) or **Rear Mount** (on page 9).

▶ **Before attaching the bracket assembly to the MCCAT switch**

If you attach the cable-support bar to the upper L-shaped holes, turn the bracket assembly upside down.
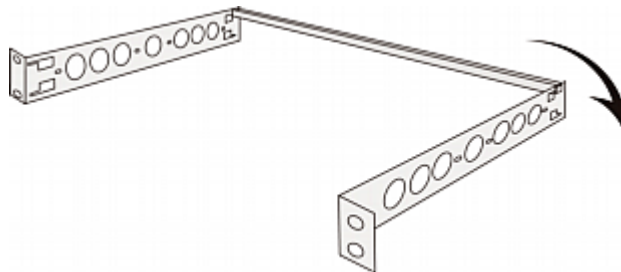
Forward Mount

▶ **To rack-mount the MCCAT switch with the front panel facing the front of the rack**

1. Let the MCCAT switch's front panel and the bracket's "ear" face toward you.

2. Align two oval-shaped holes close to the ear of the bracket with two threaded holes on one side of the MCCAT switch.

3. Secure the bracket to the MCCAT switch with two of the included screws.

4. Repeat Steps 1 to 3 for securing the other bracket to the other side of the MCCAT switch.

5. Mount the entire assembly in the rack, and secure the brackets' ears to the rack's front rails with your own screws, bolts, cage nuts, and so on.
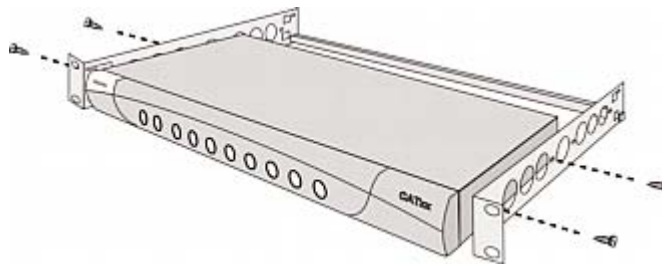
Rear Mount

▶ **To rack-mount the MCCAT switch with the front panel facing the rear of the rack**

1. Let the MCCAT switch's rear panel and the bracket's "ear" face toward you.

2. Align two oval-shaped holes far from the ear of the bracket with two threaded holes on one side of the MCCAT switch.

3. Secure the bracket to the MCCAT switch with two of the included screws.

4. Repeat Steps 1 to 3 for securing the other bracket to the other side of the MCCAT switch.

5. Mount the entire assembly in the rack, and secure the brackets' ears to the rack's front rails with your own screws, bolts, cage nuts, and so on.

Connecting Computers

Prepare the following components or devices before connecting computers to the MCCAT switch:

- Cat5 UTP cables (one cable per computer)

- Computer Interface Modules (CIMs): MCIM-PS2 or MCIM-USB (one CIM per computer)
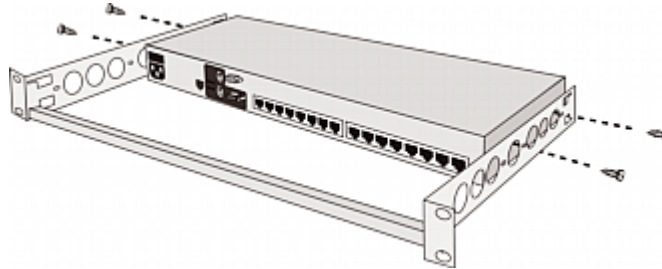
Note: MCIMs are compatible with MCCAT18/116 switches, but MCUTP cables are NOT. Do NOT use MCUTP cables to connect computers to MCCAT18/116 switches. For information on MCUTP cables, see the MCCAT28/216 User Guide, which can be downloaded from the **Raritan website** *(***http://www.raritan.com***).*

- A standard keyboard

- A standard mouse

- A standard monitor

Note: For better video quality, the use of "Belden" Cat5 UTP cable is strongly recommended.

1. Make sure the MCCAT switch and all devices are switched OFF, including the monitor and computer(s) that you want to connect.

2. Connect a PS/2 or USB MCIM to the computer.

   If the MCIM is a PS/2 CIM:

   - Plug the PS/2 mouse connector of the CIM into the PS/2 mouse port of the computer.

   - Plug the PS/2 keyboard connector of the CIM into the PS/2 keyboard port of the computer.

- Plug the HD15 video connector of the CIM into the HD15 video port of the computer.
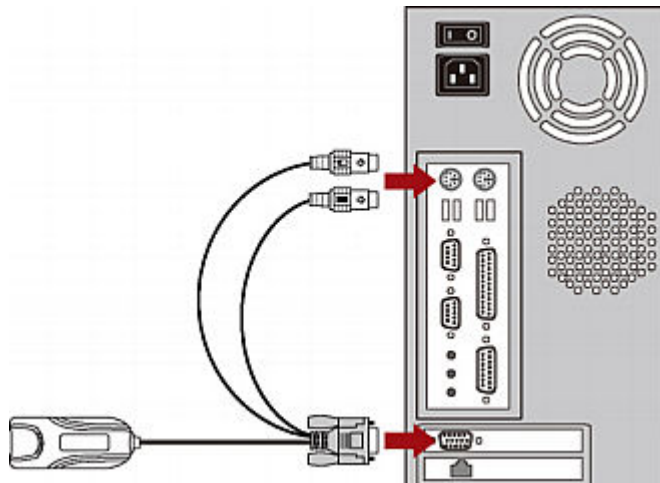
If the MCIM is a USB CIM:

- Plug the USB connector of the CIM into one of the USB ports of the computer.

- Plug the HD15 video connector of the CIM into the HD15 video port of the computer.
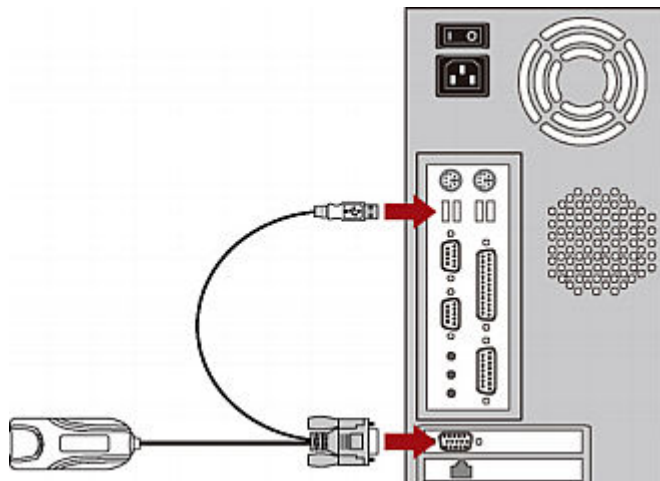
3. Use a Cat5 UTP cable to connect from one of the channels ports of the MCCAT to the RJ45 port of the MCIM being connected to the computer.

4. Repeat Steps 2 to 3 to connect more computers.

5. Connect a keyboard, mouse, and monitor to the MCCAT switch.

   a. Plug the mouse's connector into the PS/2 mouse port of the MCCAT switch.

   b. Plug the keyboard's connector into the PS/2 keyboard port of the MCCAT switch.

   c. Plug the monitor's connector into the HD15 video port of the MCCAT switch.

   d. Plug the monitor's power cord into the appropriate power outlet.
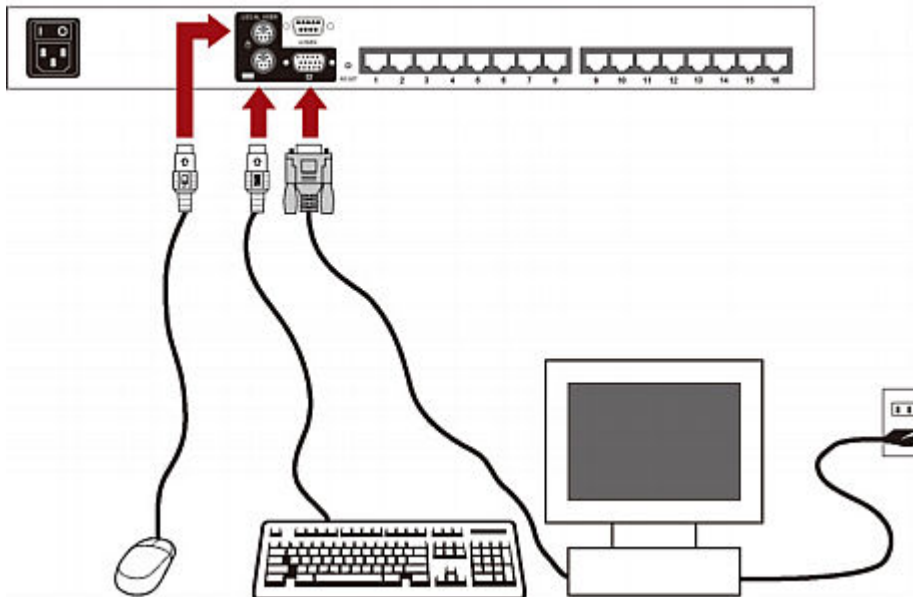
6. Plug one end of the MCCAT's power cord into its power socket and the other end into the appropriate power outlet.
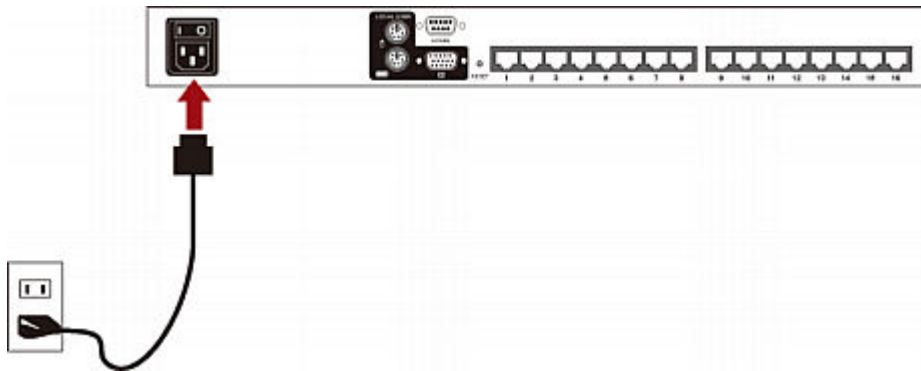
7. Turn on the monitor, connected computer(s), and the MCCAT switch.

Selecting a Channel

After finishing the hardware installation, try to access one or more channels to verify the connections. Use one of the following to access channels:

- Front panel buttons
- OSD

Note: If you establish a two-tier MCCAT system, the only way to access the second-tier channels is through the OSD. For more information, see Chapter 5, **Two-Tier System** *(on page 36).*

Front Panel Operation

Press the channel button whose number corresponds to the channel you want to access. The video of the accessed channel is displayed on the screen and you can control the computer with the keyboard and mouse connected to the MCCAT switch.
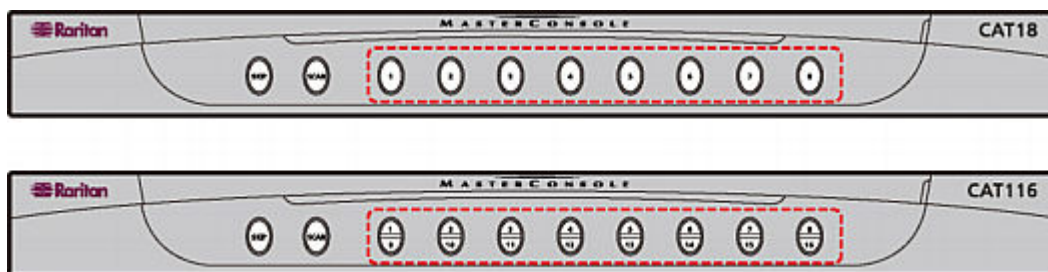
Note: The front panel operation becomes invalid if the OSD remains displayed on the screen. Therefore, make sure the OSD is NOT displayed on the screen when operating with the front panel buttons.

OSD Operation

1. **Press the hot key twice QUICKLY (default: Scroll Lock) to activate the OSD.**

2. The *Selection Menu* similar to the following image appears, with eight channels shown on one page. Note that the default name *PC<XXXX>* (*<XXXX>* indicates the channel number) is displayed only when the MCCAT switch detects that a device is being connected to the channel.

3. (Optional) Press **Page Down** or **Page Up** to switch between pages if your MCCAT contains more than eight channels and the channel to access is not shown on the current page.

4. Press ⬇ or ⬆ to move the yellow highlight bar to the channel you want. Or press the number shown in the "Key" field of that channel to immediately access it.

5. Press **Enter** and the video of the accessed channel is displayed on the screen.

Now you can control the computer with the keyboard and mouse connected to the MCCAT switch.

Warning!! MCCAT does not support real-time channel detection when channel changes occur. Therefore, if you disconnect the computer from the channel you are accessing now and reconnect another computer to that channel, you must activate the OSD to select the same channel again. Otherwise, you may have mouse or keyboard input issues with the channel being accessed.

Changing Channel Names

By default, the connected device or computer's name is shown "PC<XXXX>," and a second-tier MCCAT switch's name is shown "/MCCAT<XX>" in the On-Screen Display (OSD). <XXXX> or <XX> indicates the channel number but may not be meaningful for you to identify the connected device. Therefore, it is recommended to change the default channel name(s) for better identification.

1. (Optional) If the OSD is not displayed on the screen, press the hot key twice QUICKLY (default: **Scroll Lock**) to activate it. The *Selection Menu* appears.

Key	Ch. ID	Name	Status
1	01	PC0001	+S05
2	02	PC0002	+S05
3	03	PC0003	+S05
4	04	PC0004	+S05
5	05	PC0005	+S05
6	06	PC0006	+S05
7	07	PC0007	+S05
8	08	PC0008	+S05

Selection Menu — MC: MCCAT18 — Page 1/1 — Raritan

F1 F2 F3 F4 F5 F6 F7 F8 Esc

F12 To Toggle Sorting

2. Press **F3** to go to the *Edit Names and Scan Rate* menu.

Edit Names and Scan Rate — MC: MCCAT18 — Page 1/1

Ch. ID	Name	Scan Rate
01	PC0001	05
02	PC0002	05
03	PC0003	05
04	PC0004	05
05	PC0005	05
06	PC0006	05
07	PC0007	05
08	PC0008	05

F1 F2 F3 F4 F5 F6 F7 F8 Esc

Type New Name or Tab or Enter

3. Press the arrow keys (↑, ↓, ←, →), **Tab** or **Shift+Tab** to select the channel name. The selected character blinks, indicating where the selection is.

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4. Type the new name up to eight characters and each blinking character is replaced one by one. However, you cannot change the first character (that is, the slash "/") of a *second-tier device* so type only up to seven characters for such a device name.

5. If there are more than one device or computer's name to modify, repeat Steps 3 to 4.

6. Press **Esc** to leave the current OSD menu.

7. The message "Save the changes: [Y/N]" is shown on the message bar. Press **Y** to save the new name(s) or **N** to abort the name(s).
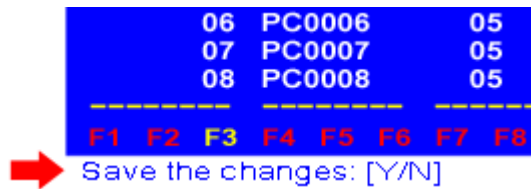
The OSD returns to the *Selection Menu*. Verify if the names have been changed successfully.

Chapter 3   Introduction to the On-Screen Display (OSD)

The product provides a simple OSD user interface for both of the channel selection and system configuration. In addition, the OSD shows information relevant to the MCCAT switch or the channel being accessed.

In This Chapter

Activating the OSD

To activate the OSD, press the system's hot key twice QUICKLY. The default hot key is **Scroll Lock**. You can change it in the Con*figuration Menu. F*or more information, see **System Configuration** (on page 30).

OSD Layout

The OSD interface usually has a layout like this:
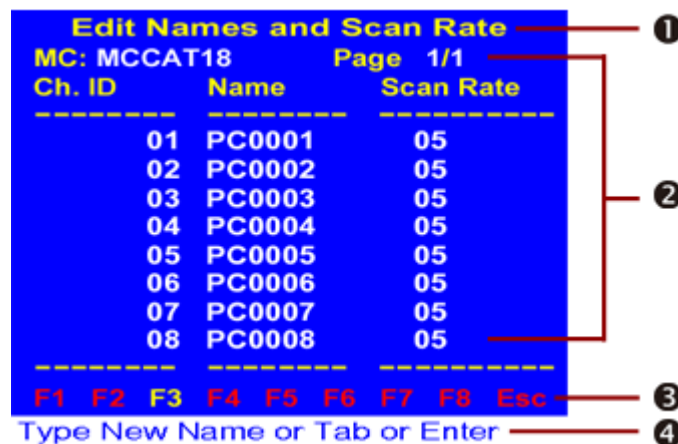
❶	Current menu's title
❷	The area of system data or configuration fields
❸	Function keys that can be used while the OSD is displayed on the screen
❹	Message bar, which shows the options or keys that are applicable to the selected field, or shows prompt messages for the action being performed

Frequently Used Keys

The following keys are frequently used with the OSD operation.

- **Tab** and **Shift+Tab**: Use these keys to move between fields.
- **Arrow keys** (↑, ↓, ←, →): These keys, usually the Up and Down arrow keys, are mainly used to change the numeric values or to switch between available options of the selected field. However, sometimes they can also be used to move between fields or alphanumeric characters, such as the *Edit Names and Scan Rate* menu.
- **Esc**: Press this key when quitting the current OSD.

OSD Menus

The OSD interface provides five menus in total. You can go to any of them by pressing a specific function key when the OSD is displayed on the screen.

Function key	Menu	Description
F1	Help Menu	Shows all available function keys and the product's firmware version
F2	Selection Menu	Lists all channels for channel selection and shows each channel's scan time for "Individual scan mode"
F3	Edit Names and Scan Rate	You can change each channel's name and the scan time for "Individual scan mode"
F4	Configuration Menu	You can set up a number of system configurations, such as the power-saving mode, etc.
F5	Administration Menu	You can set up the security settings for preventing unauthorized access to the system

Introduction to the Selection Menu

You can access channels through the *Selection Menu*, which shows all channels of the system. In addition, the menu displays the scan time setting for "Individual scan mode" of each channel . Every time when you activate the OSD, the system always displays the *Selection Menu* similar to the image below.

Field	Meaning	Description
MC	Name of the MCCAT switch	The default is the model name: MCCAT18 or MCCAT116. This name can be customized and it helps you identify the current MCCAT switch if more than one unit exist in the system. For more information, see **System Configuration** (on page 30).
Page	Page information	Page information comprises two parts: "current page" and "total number of pages." Each page displays a maximum of eight channels.
Key	Selection number for the channel	You can access the channel immediately by pressing this number on the keyboard.
Ch. ID	Channel port number	This is the number of the channel where the computer or device is connected. If the channel number contains four numeric digits with a dot in between, like 01.03, the digits prior to the dot is the channel number of the first tier, where the second-tier MCCAT switch is connected, and the digits following the dot is the channel number of the second tier, where the computer or device is connected.
Name	Name of the device or computer connected to the channel	If there is any computer or device connected to the channel, the default name is PC<XXXX>, where <XXXX> indicates the channel number. For example, the computer connected to channel number 3 is shown PC0003. The name can be

Field	Meaning	Description
		changed. For more information, see **_Changing Channel Names_** (on page 15).
Status	Channel status	It is always shown +S<XX> and has two meanings:
		• The presence of this channel status indicates the channel is active while its absence indicates the channel is inactive.
		• <XX> indicates the scan time setting of the single channel for "Individual" scan mode and the unit of the scan time is in seconds.

Switching between Pages

If there are more than one page of channels, use the following keys to change pages:

• Press **Page Up** or **Page Down** to go to previous or next page.

• Press **Home** or **End** to go to the first or the last page.

Chapter 4   Advanced Operation and System Configuration

In this chapter, you will learn more about the OSD or front panel operations for advanced features, such as updating the channel status, setting up the security feature, etc.

If your MCCAT is a two-tier system, you must perform these operations on the first-tier MCCAT switch. Make sure you have programmed all of the second-tier MCCAT switches as the second-tier devices; otherwise, any operation or setting you have done will apply to the first-tier MCCAT switch only instead of the whole system. For information on how to programme an MCCAT switch as a second-tier device, see **STEP 1: Programme an MCCAT Switch as a Second-Tier Device** (on page 37).

Note: In a two-tier system, SCAN, SKIP, and channel buttons of all second-tier devices are automatically disabled. However, these buttons work properly on the first-tier MCCAT switch.

In This Chapter

Toggling the Channel Sorting

The OSD *Selection Menu* can sort channels by two ways: channel numbers and names. The default sorting is by channel numbers.

1. (Optional) If the OSD is not displayed on the screen, press the hot key twice QUICKLY (default: **Scroll Lock**) to activate it.

2. If the current OSD menu is not the *Selection Menu*, press **F2** to have the *Selection Menu* displayed.

3. Press **F12** to toggle the sorting.

TIP: When the channels are sorted by channel name, you can type the first character of your channel's name, the system will jump to the channel whose name begins with that character.

Cycling Through Channels

Instead of manually selecting the channel to view its video, you can turn on the **AutoScan** function to make the MCCAT system automatically display the video of all channels one after another.

There are two types of **AutoScan** modes: *Global* and *Individual*. The default **AutoScan** mode is *Global*. Their differences are described below:

- Global scan mode:

  The scan time for each channel is the same and it is based on the setting configured in the *Configuration Menu*.

- Individual scan mode:

  The scan time for each channel can be different and it is based on the settings configured for each channel in the *Edit Names and Scan Rate* menu.

For instructions on changing the scan mode and time, see ***System Configuration*** (on page 30) later in this chapter.

You can turn on the **AutoScan** function with one of the following ways:

- Front panel buttons
- OSD

Front Panel Operation

1. (Optional) If the OSD remains displayed on the screen, quit it by pressing the **Esc** button.

2. Press the **SCAN** button on the front panel. The LED under the button is lit.
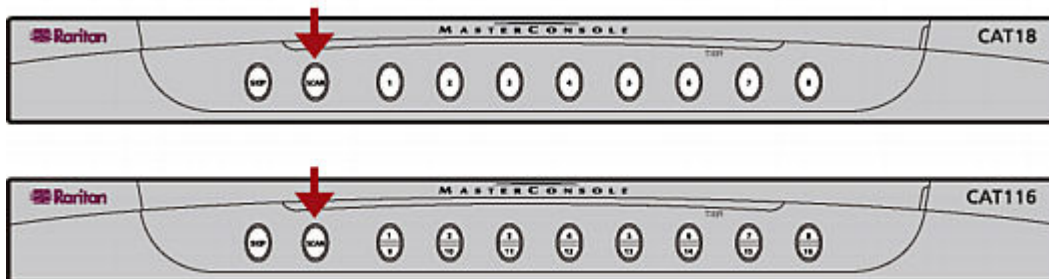
Starting from the currently selected channel, the system displays the video of each channel one after another. Each channel's number and name (if available) will pop up temporarily on the screen when accessed.

Turn off AutoScan

Press the **SCAN** button so the LED light is off. The system will stop at the last scanned channel.

Cycling Through Active Channels Only

When **AutoScan** is on, the system cycles through all channels, including 'active' and 'inactive' ones. To shorten the scanning time, you can have the system skip inactive channels by activating the **AutoSkip** function.

Turn on the AutoSkip Function:

Press the **SKIP** button on the front panel. The LED under the button is lit.

Turn off AutoSkip

Press the **SKIP** button and the LED light is off.

OSD Operation

1. (Optional) If the OSD is not displayed on the screen, press the hot key twice QUICKLY (default: **Scroll Lock**) to activate it.

2. Press **F6** to turn on the **AutoScan** function.

3. The OSD disappears, indicating the system enters the **AutoScan** mode.

Starting from the currently selected channel, the system displays the video of each channel one after another. Each channel's number and name (if available) will pop up temporarily on the screen when the channel is accessed.
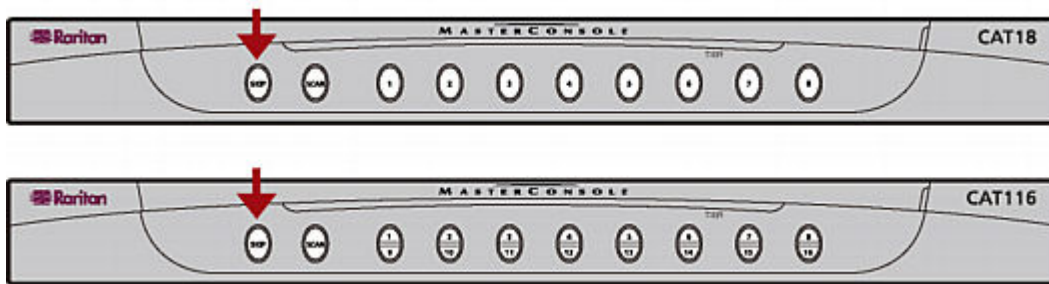
Turn off AutoScan

Activate the OSD again and press **Alt+F6**.

Cycling Through Active Channels Only

You can skip inactive channels through the OSD after the **AutoScan** function is turned on. Therefore, only active channels are scanned.

1. (Optional) If the OSD is not displayed on the screen, press the hot key twice QUICKLY (default: **Scroll Lock**) to activate it.

2. Press **F7** to turn on the **AutoSkip** function.

3. The OSD disappears, indicating the system enters the **AutoSkip** mode.

Turn off AutoSkip

Activate the OSD again and press **Alt+F7**.

Returning to the Previous Channel

You can quickly return to the previously selected channel, if any, by using a hot key without triggering the OSD or looking for the corresponding button on the front panel.

Requisite for performing this function:

You must have turned on the "Previous Channel" function in the *Configuration Menu*. Otherwise, the hot key will not work. See *System Configuration* (on page 30) for details.

Operation:

1. You accessed a specific channel (computer).

2. Then select a different channel by using the OSD or pressing the channel button.

3. To switch back to the channel selected in Step 1, press the hot key twice quickly (the hot key is the one you specified for the **Previous Channel Key** field in the *Configuration Menu*).

Now you are switched to the previously selected channel again.

Refreshing the Channel Status

From the OSD or LED status, you can tell which channel is connected to a powered device and which is not. However, MCCAT does not support real-time channel detection. Besides, the OSD remembers and shows the last second-tier channel status instead of re-detecting the second-tier channel status after the MCCAT switch is power cycled. Therefore, you need to refresh the channel status shown in the OSD or LED if you have made any changes to the hardware configuration, such as channel swapping or disconnection and reconnection of computers. MCCAT provides two methods to update the channel status:

- Use the **F8** function key
- Use the **AutoScan** function

Using the F8 Function Key

1. (Optional) If the OSD is not displayed on the screen, press the hot key twice QUICKLY (default: **Scroll Lock**) to activate it.

2. Press **F8** to upgrade the status. The system starts to check each channel one by one and displays "Upgrade PC Status...." on the screen.

3. Once the status checking is complete, both of the OSD and LED status is updated.

Using the AutoScan Function

The MCCAT switch checks all of the channels one by one and updates both of the OSD and LED status after the **AutoScan** function is performed. For instructions on activating the **AutoScan** funciton, see *Cycling Through Channels* (on page 23).

Accessing Active Channels Only

To avoid accessing inactive channels by accident when selecting channels, you can turn on the **Autoskip** function *without turning on the Autoscan function.*

1. Turn on the **Autoskip** function by either pressing the **SKIP** button on the front panel, or pressing **F7** when the OSD is displayed on the screen.

2. Select any channel, and the system automatically accesses the next active channel if the channel you select is not an active one.

The Security Feature

You can prevent unauthorized access to the system and the connected computers by activating the security feature. When the security feature is ON, the system will enter the security mode after the mouse and keyboard activity is not detected for a preset period of time. Users have to enter a password in order to access the system in the security mode.

Activating the Security Feature

1. (Optional) If the OSD is not displayed on the screen, press the hot key twice QUICKLY (default: **Scroll Lock**) to activate it.

2. Press **F5** and the prompt message "Admin. Password" appears on the screen.

3. Type the Admin password (default: **raritan**) and press **Enter**. Note that the password is case sensitive. The *Administration Menu* appears.
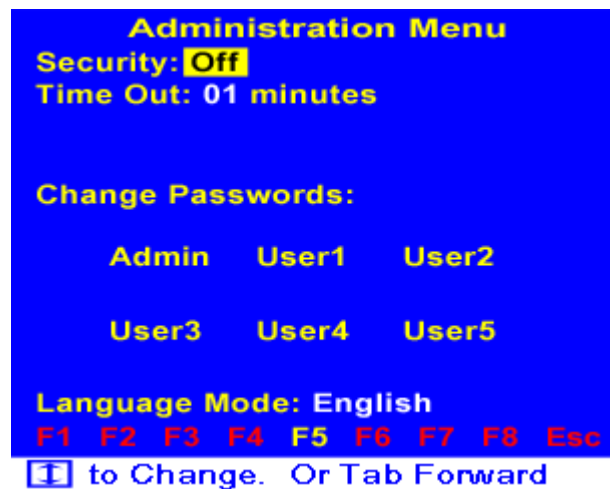
4. Make sure the **Security** field is already highlighted. If not, press **Tab** or **Shift+Tab** to highlight the field.

5. Press ⬆ or ⬇ to change the option to **On**.

6. Press **Tab** to highlight the **Time Out** field. This field determines the length of time for which keyboard and mouse activity can remain inactive before the system enters the security mode.

7. Type two numeric digits or press ⬆ or ⬇ to adjust the time.

8. Press **Esc** to quit the current menu.

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Accessing the System in the Security Mode

After the system or the MCCAT switch enters the security mode, the message "Security Mode Protected"appears on the screen. Do the following to access the system:

1. Press any key and the prompt message "Password:" appears.

2. Type either the administrator (Admin) or user password and press **Enter**. Unless changed, type one of the default passwords listed below.

User type	Default password (case sensitive)
Administrator (Admin)	raritan
User1	111
User2	222
User3	333
User4	444
User5	555

Video of the currently selected channel is displayed on the screen if the password is entered correctly. Now you can activate the OSD or press the channel button to access any channel in the system.

Changing Passwords

MCCAT provides one administrator (Admin) password and five user passwords by default. You can access the system with these passwords after it enters the security mode. It is strongly recommended to change the default passwords before turning on the security feature.

1. (Optional) If the OSD is not displayed on the screen, press the hot key twice QUICKLY (default: **Scroll Lock**) to activate it.

2. Press **F5** and the prompt message "Admin. Password" appears on the screen.

3. Type `raritan` and press **Enter**. Note that the password is case sensitive. The *Administration Menu* appears.

4. Press **Tab** or **Shift+Tab** to highlight the field of which you want to change the password; for example, if you want to change the administrator password, highlight **Admin**.

5. Press **Enter** and the following fields appear.

6. Type the new password in the **Enter New Passwd** field and press **Enter**. The maximum length of the password is eight characters.

7. Type the same password in the **Confirm New Passwd** field and press **Enter**.

Now the password has been changed. In case you will forget new passwords, it is suggested to note down new passwords and keep them in a safe place.

Changing the Keyboard Layout Setting

If you are using a non-English keyboard, such as a French or German keyboard, change the keyboard language setting to match the one you are using.

1. (Optional) If the OSD is not displayed on the screen, press the hot key twice QUICKLY (default: **Scroll Lock**) to activate it.

2. Press **F5** and the text "Admin. Password" appears on the screen.

3. Type the Admin password (default: **raritan**) and press **Enter**. Note that the password is case sensitive. The *Administration Menu* appears.

4. Press **Tab** to highlight the **Language Mode** field. There are three options available: **English**, **German**, and **French**.

5. Press ⬆ or ⬇ to select the appropriate option.

6. Press **Esc** to quit the OSD menu.

System Configuration

Many system settings are available in the *Configuration Menu*. Press **F4** to go to this menu when the OSD is displayed on the screen.
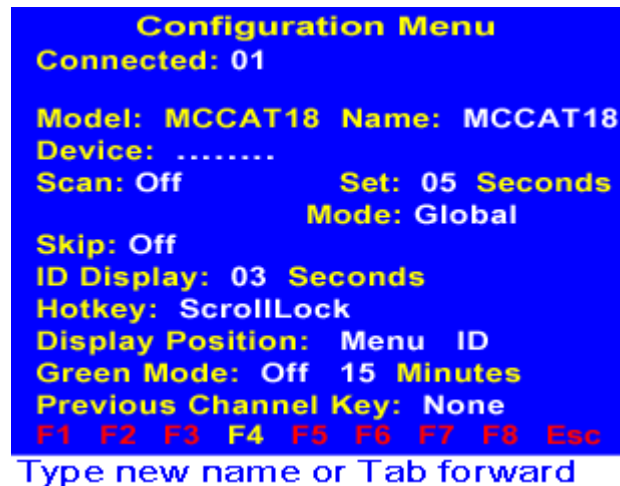
Most of the settings can be adjusted by following this procedure:

1. Press **Tab** or **Shift+Tab** to move between fields.

2. Press ⬆ or ⬇ to change the value or switch between options of the selected field.

Exception: You need to type a letter or symbol in the Device field to change its values, instead of using the arrow keys.

The table below explains the functions and available options of each field in the menu.

Field	Available options	Description
Connected	No options	The field CANNOT be configured. It shows the number and name of the channel being accessed now.
Model	No options	The field CANNOT be configured. It shows the model name of the MCCAT switch.
Name	No options	You can assign a name to the current MCCAT switch for identification. The default is its model name.
Device	x, y, z, . (dot)	Specifies the type of the device connected to each channel of current MCCAT switch. If you connect a second-tier KVM switch, it is a must to specify the type of this switch. The characters of this field represent channel numbers 1, 2, 3, and so on from left to right. The default value is "." (dot).
		The following lists the characters representing different types of devices:
		. (dot) = computer
		x = MCC4
		y = MCCAT18, MCC8
		z = MCCAT116, MCC16
Scan	On, Off	Toggles the **AutoScan** mode on or off.
		If it is ON, after you quit the OSD, the system enters the scan mode (*Global* or *Individual* scan mode) and cycles through all channels.
Set	05 ~ 99 (seconds)	Determines the length of time for which the system scans each channel in the "Global"scan mode.
Mode	Global, Individual	Determines which scan mode is applied once the **AutoScan** function is turned on. There are two scan modes: *Global* and *Individual*.
		• Global scan mode: The scan time for each channel is the same.

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Field	Available options	Description
		• Individual scan mode: The scan time for each channel varies depending on the settings you have set for each channel in the *Edit Names and Scan Rate* menu.
Skip	On, Off	Toggles the **AutoSkip** mode on or off.
		If it is ON, after you quit the OSD, only active channels can be accessed.
ID Display	01 ~ 99 (seconds)	Determines the length of time for which the accessed channel's number (ID) is displayed on the screen when the channel is selected.
Hotkey	ScrollLock, LftAlt (left Alt), LftSht (left Shift), CapsLock, NumLock	Determines which hot key can activate the OSD. The default is **Scroll Lock**.
		Note that if you have set any hot key in the **Previous Channel Key** field, the same key will not be available in the **Hotkey** field.
Display Position	Menu, ID	Determines the horizontal and vertical positions where the *Menu* (OSD menu) or the *ID* (channel number) is displayed. To change the position, do the following:
		a. Highlight the option of which you want to change the position.
		b. Press **Enter** and the image of the selected option (Menu or ID) appears on the screen.
		c. Use arrow keys (↑, ↓, ←, →) to move the Menu or ID image until it reaches the position you prefer.
		d. Press **Esc** or **Enter** to save the changes.
Green Mode	On, Off	Toggles the power-saving function on or off. If setting the mode to **On**, the MCCAT switch will enter the power-saving mode after no keyboard/mouse activity is detected for a period of time specified in the **Minutes** field.
Minutes	01~99 (minutes)	Determines the length of time for which no keyboard/mouse activity is detected before the MCCAT switch enters the power-saving mode.
Previous Channel Key	None, LftAlt (left Alt), LftSht (left Shift), Caplck (CapsLock), Numlck (NumLock), Scrlck (Scroll Lock)	Determines which hot key is used for returning to the previously selected channel. The default is **None**.
		Note that the hot key which you have set in the **Hotkey** field will not be available in the **Previous**

Field	Available options	Description
		Channel Key field.

Setting the Scan Time for Individual Scan Mode

The scan time setting in the *Configuration Menu* is for "Global" scan mode. To set the scan time for "Individual" scan mode, go to the *Edit Names and Scan Rate* menu. Unlike the universal scan time for "Global" scan mode, you can specify different scan time in different channels for "Individual" scan mode.

1. If the OSD is not displayed on the screen, press the hot key twice QUICKLY (default: **Scroll Lock**) to activate it.

2. Press **F3** and the *Edit Names and Scan Rate* menu appears.

3. Press **Tab**, **Shift+Tab**, or arrow keys (↑, ↓, ←, →) to select the **Scan Rate** column of the channel you want to modify. The selected character blinks.

4. Type numeric digits to change the scan time. The scan time is measured in seconds.

5. Press **Esc** to quit the current menu.

6. The message "Save the changes [Y/N]" is displayed on the message bar. Click **Y** to save the changes or **N** to abort them.

Accessing the Help Menu

While the OSD is displayed on the screen, you can view the OSD help at any time by pressing **F1**. This displays the *Help Menu*, which lists all function keys available and the current version of the firmware.
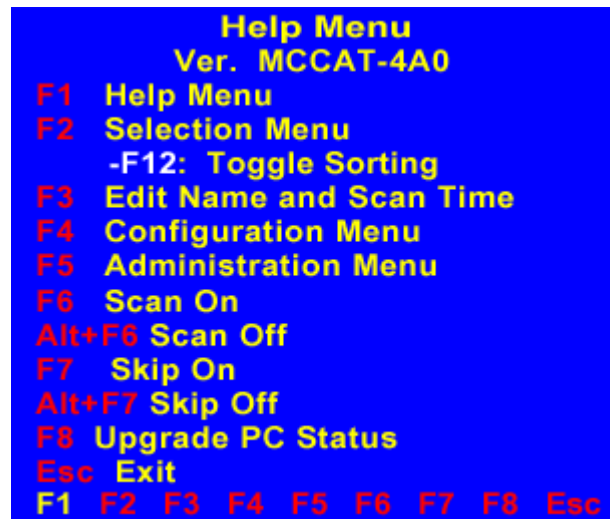
Functions Keys

You can use any of the functions keys to go to any specific menu or perform certain functions as long as the OSD remains displayed on the screen:

Function key	Description
F1	Displays the *Help Menu*.
F2	Displays the *Selection Menu*.
F3	Displays the *Edit Names and Scan Rate* menu.
F4	Displays the *Configuration Menu*.
F5	Displays the *Administration Menu*.
F6	Turns on the **AutoScan** function.
Alt+F6	Turns off the **AutoScan** function.
F7	Turns on the **AutoSkip** function.
Alt+F7	Turns off the **AutoSkip** function.
F8	Checks channels one by one and updates the channel status accordingly.
F12	Toggles the channel sorting between sorting by "channel number" and sorting by "name" in the *Selection Menu*.

Function key	Description
Esc	Quits the current menu or the OSD interface.

Resetting the System

To restore all MCCAT settings back to factory defaults, follow the procedure below. Note that this function should be performed on the first-tier MCCAT switch alone f yours is a two-tier system.

1. Turn OFF the MCCAT switch.

2. Press and hold down the channel number 3 button on the front panel; then switch ON the MCCAT switch.

3. Continue holding down the channel number 3 button until you hear the beep sound.

Warning!! If you perform the reset function on a two-tier system, all of the second-tier units will be programmed back as the first-tier units. Therefore, you need to programme them as the second-tier devices once again. For instructions on programming an MCCAT switch as a second-tier device, see **STEP 1: Programme an MCCAT Switch as a Second-Tier Device** (on page 37).

Chapter 5   Two-Tier System

You can cascade various MCCAT switches to organize a two-tier KVM switch system and expand the number of available channels accordingly. A mixture of different MCCAT models is permitted. If the two-tier system completely comprises the MCCAT116 models, the number of connected computers can even be expanded up to 256 computers.

In This Chapter

Overview

When one or multiple MCCAT switches are connected to the channel ports of a single MCCAT switch, this KVM switch system is the so-called "two-tier system." The former MCCAT switches belong to the second tier, and the latter is the first tier. You can connect computers to all channel ports available in such a system, including those of the first tier and those of the second tier.
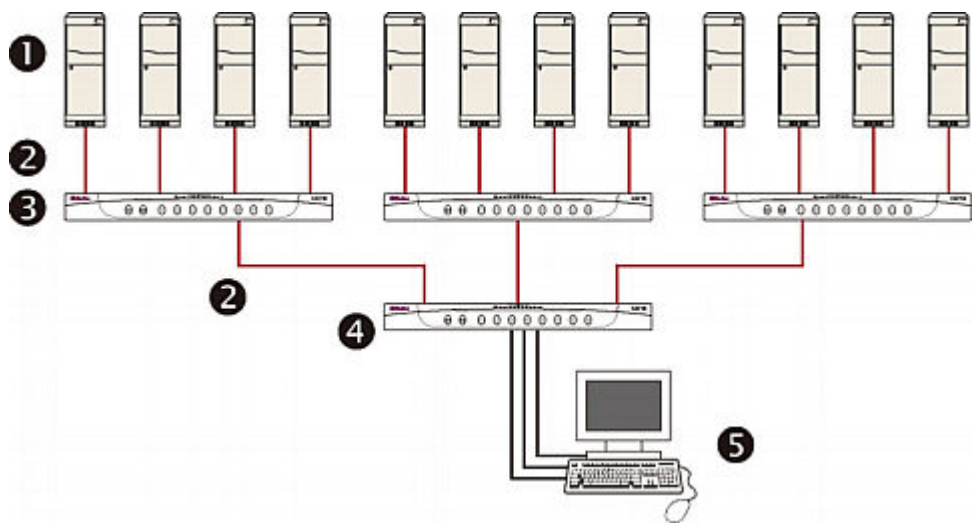
❶	Computers with CIMs connected
❷	Cat5 UTP cables
❸	Second-tier MCCAT switches
❹	First-tier MCCAT switch
❺	Keyboard, mouse, and monitor (connected to the first-tier unit only)

Setting Up a Two-Tier System

Basically, there are five major steps to set up a two-tier system:

- STEP 1: Programme an MCCAT switch as a second-tier device

- STEP 2: Connect the second-tier MCCAT switch to the first-tier MCCAT switch

- STEP 3: Connect the keyboard, mouse, and monitor to the first-tier MCCAT switch

- STEP 4: Specify the type of the second-tier device in the Configuration Menu

- STEP 5: Connect computers to any MCCAT switch in the system

STEP 1: Programme an MCCAT Switch as a Second-Tier Device

Each MCCAT switch is programmed as a first-tier device when shipped out of the factory. To set up a two-tier MCCAT system, you have to programme some MCCAT switches as the second-tier devices before proceeding with the hardware installation.

1. Turn OFF the MCCAT switch.

2. Press and hold down the channel number 2 button on the front panel; then switch ON the MCCAT switch.

3. Continue holding down the channel number 2 button until you hear the beep sound.

4. The TIER LED (the top-right one) on the front panel is lit continuously, indicating the device is now programmed as a second-tier device.

5. Repeat Steps 1 to 4 if more MCCAT switches are to be programmed as second-tier devices.

Note: To programme a second-tier device back as the first-tier device, follow the same procedure described above, but press the channel number 1 button instead while the MCCAT switch is being powered ON. The TIER LED turns off, indicating it is now programmed as a first-tier device.
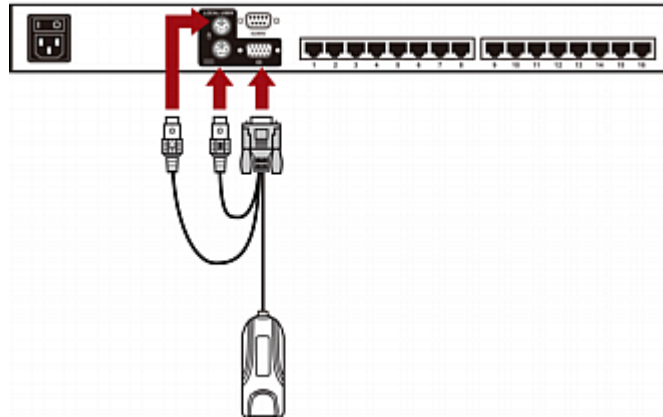
STEP 2: Connect the Second-Tier MCCAT Switch

Now you need to connect the second-tier MCCAT switches to the first-tier MCCAT switch. A mixture of different MCCAT models is permitted in such a system. For example, you can connect the MCCAT18 to the MCCAT116 unit.

Important: Use only MCIM-PS2 to connect the second-tier KVM switches. Do NOT use other CIMs for connecting the second-tier switches.

1. Make sure all of the MCCAT switches are switched OFF.

2. Connect an MCIM-PS2 to an MCCAT switch that is programmed as a second-tier device:

   a. Plug the PS/2 keyboard connector of the CIM into the PS/2 keyboard port of the MCCAT switch.

   b. Plug the PS/2 mouse connector of the CIM into the PS/2 mouse port of the MCCAT switch.

   c. Plug the HD15 video connector of the CIM into the HD15 video port of the MCCAT switch.

≡❯❮Raritan.

3. Plug one end of the Cat5 UTP cable into the RJ45 port of the CIM being connected to the second-tier MCCAT switch; plug the other end of the cable into one of the channel ports of the first-tier MCCAT switch.
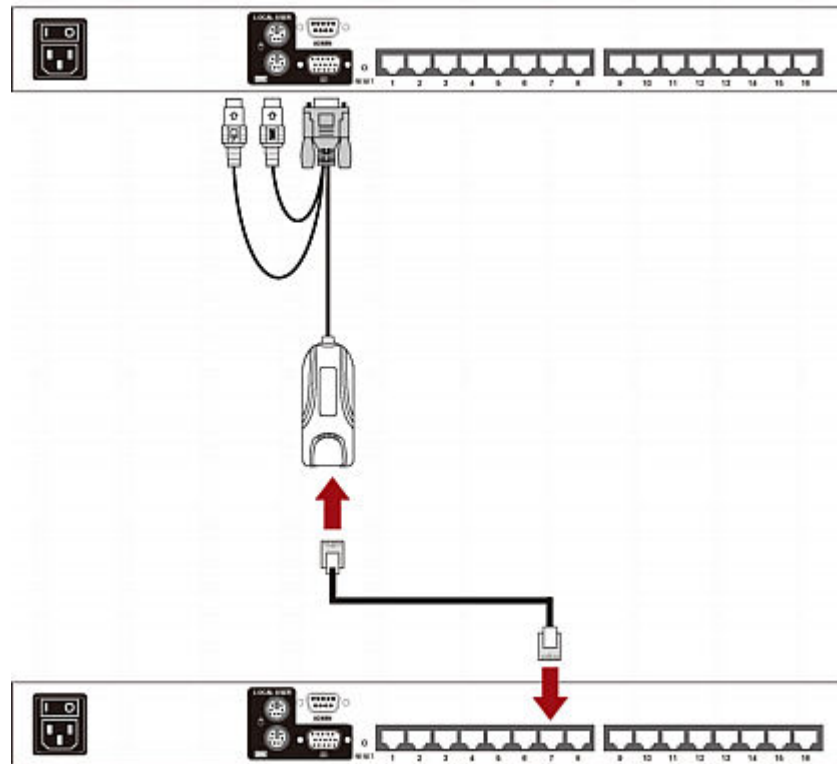
4. Plug one end of the power cord into the power socket of the MCCAT switch and the other end into the appropriate power outlet.

5. If you want to connect more second-tier MCCAT switches to the first-tier MCCAT switch, repeat Steps 1 to 4.

6. Turn ON the second-tier devices first. After hearing the beep sounds of the second-tier devices, switch ON the first-tier device.

Note: Make sure you follow the above power-on sequence; otherwise, the first-tier device may show incorrect channel status.

**STEP 3: Connect the Keyboard, Mouse, and Monitor to the First-Tier Device**

Connect a keyboard, mouse, and monitor to the first-tier MCCAT switch. For details, see Step 5 in **Connecting Computers** (on page 10).

STEP 4: Specify the Type of the Connected Second-Tier Device in the OSD

MCCAT cannot detect which type of the second-tier device is connected. Therefore, you must specify the type(s) by yourself. Otherwise, you cannot properly access the second-tier channels.

To specify the type:

1. (Optional) If the OSD is not displayed on the screen, press the hot key twice QUICKLY (default: **Scroll Lock**) to activate it.

2. Press **F4** and the *Configuration Menu* appears.
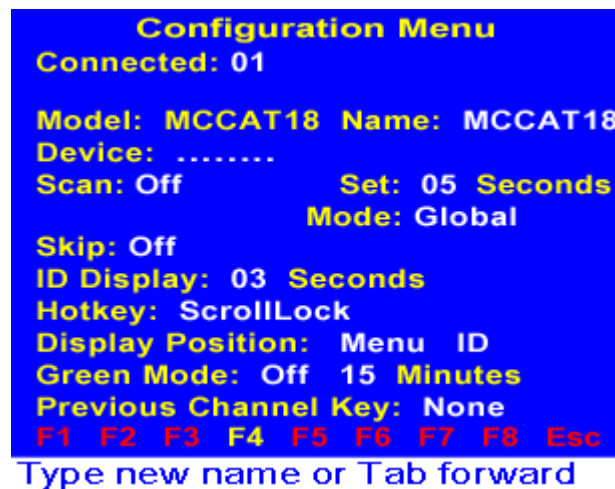
3. Press **Tab** or **Shift+Tab** to select the **Device** field. The first character (usually a dot) blinks when the field is selected.

4. The characters or dots (see the figure below), from left to right, represent channel numbers 1, 2, 3, and so on of the first-tier unit. If the first-tier unit contains 16 channels, you will see 16 characters or dots in the field. Press ← or → to select the character representing the channel where the second-tier device is connected.
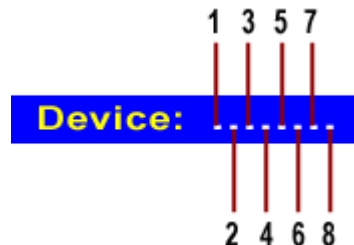
5. Type the appropriate code that corresponds to the type of the connected second-tier device. For example, if you connect an MCCAT18 unit to the channel number 3 of the first-tier unit, type **y** in the third character.

Device: ..y.....

See the following table for all codes representing different types of devices.

Code	Device type
.	computer (or server)
x	MCC4
y	MCCAT18, MCC8
z	MCCAT116, MCC16

Note: For detailed information on other types of MasterConsole products, please see MasterConsole II User Manual on Raritan website's **Support page** *(***http://www.raritan.com/support/***).*

Default Name of the Second-Tier Device

The following default names of the second-tier devices are shown in the channel list after assigning the device type. Note that <XX> represents the number of the channel where the device is connected.

- /MCC<XX>—This device is a MasterConsole II switch.
- /MCCAT<XX>—This device is an MCCAT switch.

STEP 5: Connect Computers to the MCCAT System

You can connect computers to available channel ports of any MCCAT switches in the two-tier system, including those of the first-tier and second-tier MCCAT switches. For details, see Steps 2 to 4 in **Connecting Computers** (on page 10).

Accessing the Second-Tier Channels

Unlike the first-tier channels, there is only one way to access the second-tier channels, that is, through the OSD. If you have properly followed the procedure described in **Setting Up a Two-Tier System** (on page 37), the second-tier channels will be displayed in the OSD, following the page(s) of the first-tier channels. To access these channels, do the following:

1. (Optional) If the OSD is not displayed on the screen, press the hot key twice QUICKLY (default: **Scroll Lock**) to activate it. The *Selection Menu* appears. Note that the names of all second-tier devices start with "/" like channel numbers 3 and 6 illustrated below.

2. There are several methods to go to the second-tier channels. Do one of the following:

   - Press ↓ or ↑ to highlight the first-tier channel where the second-tier device connects and press **Enter**.

   - Press the number shown in the "Key" field of the first-tier channel where the second-tier device connects.

   - Press **Page Down** or **Page Up** until you see the page where the second-tier channel is available.

Note: A second-tier channel is always shown with two channel numbers: the first one is the number of the first-tier channel where the second-tier device connects, and the second one is the number of the second-tier channel where the computer connects.

3. Press ⬇ or ⬆ to highlight the channel you want from the second-tier channels.

4. Press **Enter** to select the channel.

Now you can control the accessed computer with the keyboard and mouse connected to the first-tier MCCAT switch.

Important: If you have made physical changes to channels, such as disconnection or swapping of connected computers, it is strongly recommended to refresh the channel status before accessing the channels through OSD. This is because MCCAT does not automatically update its channel status when the changes occur. For instructions on refreshing the channel status, see *Refreshing the Channel Status* (on page 26).

Chapter 6   Firmware Upgrade

You can upgrade MCCAT's firmware to benefit from the latest enhancements and features whenever new MCCAT firmware is released on Raritan's website. The upgrade process mainly incorporates four steps:

- STEP 1: Download the latest firmware and upgrade utility
- STEP 2: Connect the MCCAT switch to the computer running the upgrade utility
- STEP 3: Launch the upgrade utility
- STEP 4: Power cycle the upgraded MCCAT switch

Note: If your system consists of two or more MCCAT switches, you should upgrade each of them, starting from the first tier to the second tier.

In This Chapter

STEP 1: Download the Latest Firmware and Upgrade Utility

1. Use your browser to visit **Raritan website** (***http://www.raritan.com***).

2. Click **Support** > **Firmware and Documentation**.

3. Locate the product name on the left pane and click it.

4. Click the appropriate version (or model) on the right pane.

5. Click **Firmware Upgrade**. The webpage showing a list of firmware files opens.

   - If this is your first time to download the firmware from the Raritan website, the Firmware Request form opens. Fill in the form, and click **Submit**.

6. When you see the hyperlinks or files on the right pane, click the appropriate one.

7. Click **Save** to save the file on your computer.

8. Specify the location where you want to save the file, and click **Save**. Wait until the download completes.

9. Extract the file if it is a compressed file.

10. (Optional) If the downloaded file does not include the 'release notes' document, locate the release notes on the Firmware and Documentation section, and double-click it to open or download it.

11. Read the release notes for any necessary information.

STEP 2: Connect the MCCAT Switch to the Computer Running the Upgrade Utility

1. Prepare one DB9 male-to-female serial (RS-232) cable.

   Note: If you don't have this cable, contact Raritan technical support for details.

2. Connect one end of the serial cable to one of the serial ports of the computer; connect the other end to the **Admin** port of the MCCAT switch.
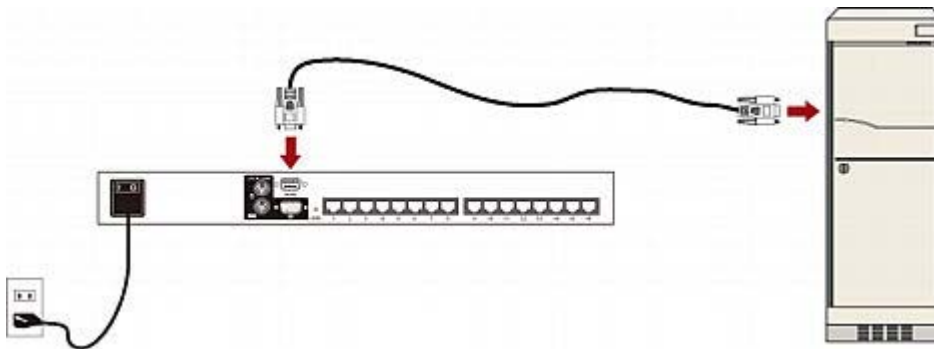
## STEP 3: Launch the Upgrade Utility

The upgrade utility for MCCAT is the same one for Raritan's Paragon products, that is, the ParagonUpdate utility. However, the ParagonUpdate utility which is implemented with the capability to upgrade the MCCAT switches starts from version 2.4.3. To ensure the success of the upgrade, it is strongly recommended to use the upgrade utility downloaded along with the MCCAT firmware when upgrading MCCAT switches.

1. Double-click the downloaded upgrade utility—*ParagonUpdate_XXX.exe*, where XXX represents the version number. The firmware upgrade utility appears.
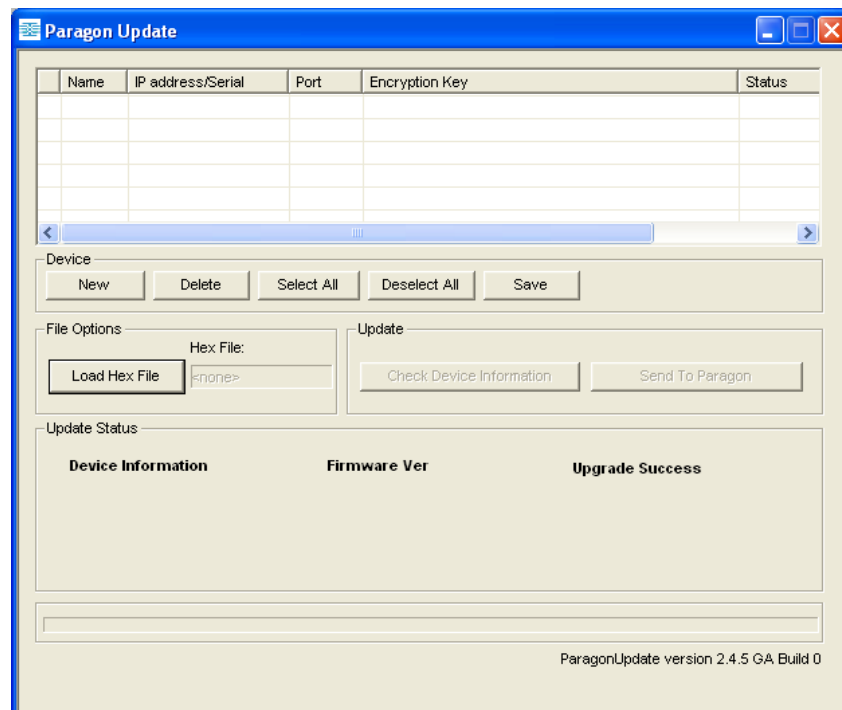

2. If the MCCAT switch intended to upgrade is already listed in the dialog, go to Step 3. If not, do the following to specify the device that you want to upgrade:

   a. Click **New** to start adding the device information.

   b. Click the **Name** field and type the appropriate name for the MCCAT switch you want to upgrade.

   c. Ensure <Default Serial> is selected in the **IP address/Serial** field for the serial connection between the MCCAT switch and the computer you are operating.

d. Click the **Port** field and type the appropriate number of the serial port. For example, if the MCCAT switch connects to the computer via *COM 1*, type **1**.

e. Ensure <Default No Encryption> is selected in the **Encryption Key** field.

f. (Optional) Click **Save** to save the device information so next time you don't have to specify the same information again.
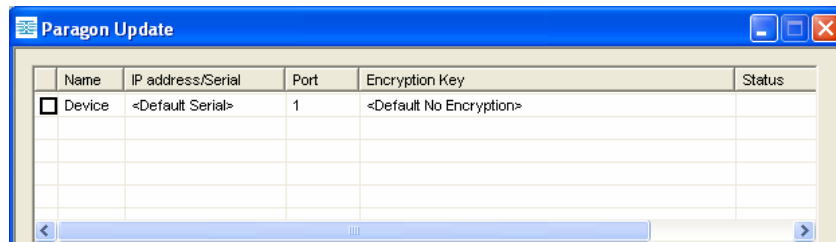
3. Select the checkbox next to the MCCAT switch.
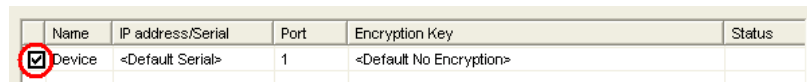
4. Click **Load Hex File** . The *Open* dialog appears.

5. Navigate to where the appropriate firmware file (*.hex) is stored, select it and click **Open**.
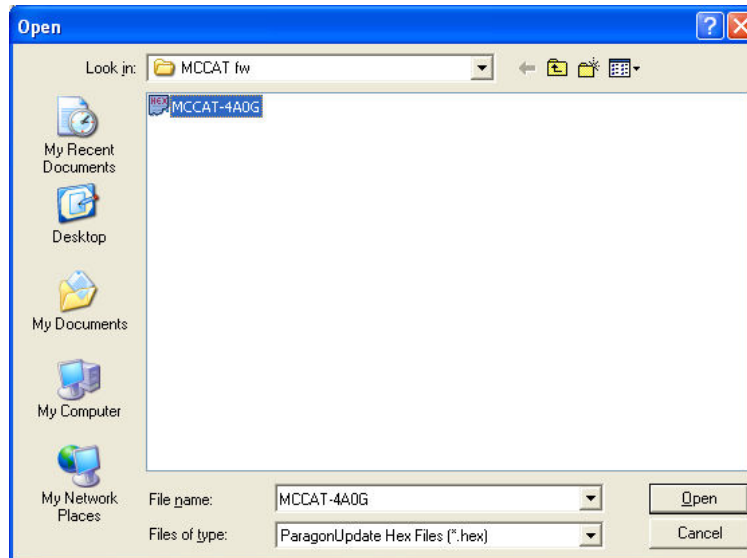
6. Click **Raritan MasterConsole** to perform the upgrade.

Note: The "Check Device Information" button does NOT work for the MCCAT switch. Therefore, never click it when the device intended to upgrade is MCCAT.

7. Click **Yes** when the following message box appears.
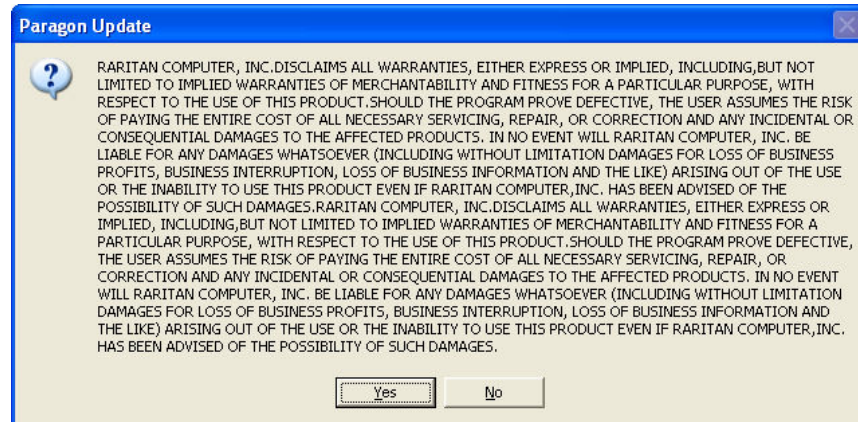
8. A progress indicator is shown on the bottom of the dialog, displaying the upgrade status. The upgrade may last for several minutes.
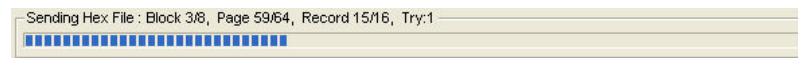
9. The "Device Update Successful" message appears when the upgrade completes successfully. Click **OK**.

For more information on the ParagonUpdate utility, see **Paragon Manager User Guide** on Raritan's *Firmware and Documentation webpage* (*http://www.raritan.com/support/*).

STEP 4: Power Cycle the Upgraded MCCAT Switch

After completing the firmware upgrade, you must switch OFF and then switch ON the upgraded unit to ensure the upgrade success.

Appendix A Specifications

In This Chapter

Measurement

MCCAT18 *(8-channel model)*	1U rackmountable	**Dimension:** 17.32"(W) x 7.76"(D) x 1.73"(H) or 44 cm (W) x 19.7 cm (D) x 4.4 cm (H)	**Weight:** 5.30 lb or 2.40 kg
MCCAT116 *(16-channel model)*	1U rackmountable	**Dimension:** 17.32"(W) x 7.76"(D) x 1.73"(H) or 44 cm (W) x 19.7 cm (D) x 4.4 cm (H)	**Weight:** 5.35 lb or 2.42 kg

Supported Resolutions

Screen resolution	Refresh rate (HZ)
640x350	70, 85
640x400	85
640x480	60, 67, 72
720x400	70, 85
800x600	56, 60, 70, 75, 85, 100
1024x768	60, 70, 75, 85, 100
1152x864	75
1280x960	60, 85
1280x1024	60, 75, 85
1600x1200	60

Appendix B MCCAT Default Settings

Field or function	Factory default setting
Administration password	raritan (note the password is case sensitive)
AutoScan	OFF
AutoScan mode	Global
AutoSkip	OFF
Scan time per channel in the Individual scan mode	5 seconds
Device	"." (a dot represents the device is a computer)
Scan time per channel in the Global scan mode	5 seconds
Hot Key	Scroll Lock
ID Display Interval	3 seconds
MCCAT tier configuration	First tier
Power-saving mode (Green Mode)	OFF
Power-saving delay time	15 minutes
Security	OFF
Security activation delay time	15 minutes
Selection Menu sorting	Channel number (ID)
User password	User 1: 111 User 2: 222 User 3: 333 User 4: 444 User 5: 555

Appendix C Compatibility with Other Raritan Products

You can connect other Raritan products to the MCCAT switch, such as MasterConsole II, which can work as the second tier, or P2CIM-SER, which can connect an ASCII serial device to the MCCAT switch.

In This Chapter

Compatible CIMs

In addition to MCIM-PS2 and MCIM-USB, MCCAT is also compatible with other Raritan CIMs (see the table below).

The procedure of connecting these CIMs is the same as that of connecting MCIM. For details, see *Connecting Computers* (on page 10).

CIM	Connector type
P2CIM-APS2	PS-2 and HD15 (video) connectors
P2CIM-AUSB **	USB and HD15 (video) connectors
P2CIM-PS2	PS-2 and HD15 (video) connectors
P2CIM-USB	USB and HD15 (video) connectors
DCIM-APS2	PS-2 and HD15 (video) connectors
DCIM-USB	USB and HD15 (video) connectors
DCIM-USB G2 **	USB and HD15 (video) connectors
P2CIM-SER	RS-232 (serial) and USB connectors
P2CIM-SER-EU	RS-232 (serial) and USB connectors

*** When connecting a P2CIM-AUSB or DCIM-USB G2 to the computer, ensure that the slide switch on the back of the CIM is moved to P for PC-based servers instead of S for SUN servers because MCCAT18/116 supports the PC mode but NOT the SUN mode.*

Important: Although MCCAT supports the use of P2CIM-APS2, it does NOT support the use of Pinnacle FastAction keyboard.

Connecting a Serial Device via the Serial CIM

To connect an ASCII serial device, LAN/WAN component or a computer through an RS-232 serial port to the MCCAT system, use one of Raritan's serial CIMs: *P2CIM-SER* or *P2CIM-SER-EU*. 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. With this conversion, you can access and operate any ASCII serial device connected to the system.

Here are some useful features of the serial CIMs:

- Interoperates with an ASCII device in the On Line Mode as if the device were connected to a text terminal
- Edits, copies, marks, and resends data to the ASCII serial device or computer 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

Note: The P2CIM-SER and P2CIM-SER-EU are functionally identical. The only difference between the two is that the P2CIM-SER-EU supports a wider variety of non-English language keyboards and character sets.

❶	DB9 connector
❷	USB connector
❸	RJ-45 connector

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

▶ **To install a Serial CIM:**

1. Connect the CIM to a serial port on the serial device or computer, using its serial DB9 connector.

2. Connect the CIM to the KVM switch, using a standard Cat5 UTP cable.

3. Plug the CIM's USB connector into a powered USB port, or into a separately available Raritan PWR-SER-4 power adapter, to obtain power.

For detailed information on the CIMs, see *Paragon and Dominion KX Serial Device CIM User Guide*, which is downloadable from the **Raritan website** (*http://www.raritan.com*).

▶   **To download the Paragon and Dominion KX Serial Device CIM User Guide:**

1. Use your browser to visit Raritan website's **Support page** (*http://www.raritan.com/support/*).

2. In the "Choose a Product" field, click the drop-down arrow.

3. Select Paragon II from the list to open the Paragon II webpage.

4. Scroll down and click "Other Support Files."

5. Click the P2CIM-SER User Guide (filename: p2ser-0e-e.pdf).

6. (Optional) You can save it on your computer by clicking the Save icon.

Compatibility with MasterConsole II

MCCAT is able to work in conjunction with MasterConsole II products, including MCC4, MCC8, and MCC16. These MasterConsole II switches can function as the second-tier devices of the MCCAT system.

The procedure of connecting MasterConsole II products is the same as that of connecting MCCAT switches.

*   STEP 1: Programme a MasterConsole II switch as a second-tier device

*   STEP 2: Connect the second-tier MasterConsole II switch to the first-tier MCCAT switch

*   STEP 3: Specify the type of the second-tier device in the Configuration Menu

For more information on the MasterConsole II products, see **MasterConsole II User Manual** on Raritan's **Support page** (*http://www.raritan.com/support/*).

STEP 1: Programme a MasterConsole II Switch as a Second-Tier Device

1. Turn OFF the MasterConsole II switch.

2. Press and hold down the channel number 2 button on the front panel for 2 to 3 seconds while powering ON the MasterConsole II switch.

3. The rightmost LED on the front panel is lit, indicating the device is now programmed as a second-tier device.

4. Repeat Steps 1 to 3 if more MasterConsole II switches are to be programmed as the second-tier devices.

STEP 2: Connect the Second-Tier MasterConsole II Switches

1. Connect a PS/2 CIM to a MasterConsole II switch that is programmed as a second-tier device.

2. Plug one end of the Cat5 UTP cable into the RJ45 port of the CIM being connected to the second-tier MasterConsole II switch; plug the other end of the cable into one of the channel ports of the first-tier MCCAT switch.

3. Plug one end of the power cord into the power socket of the MasterConsole II switch and the other end into the appropriate power outlet.

4. If you want to connect more second-tier MasterConsole II switches to the first-tier MCCAT switch, repeat Steps 1 to 3.

5. Turn ON the second-tier devices first and then the first-tier MCCAT switch.

STEP 3: Specify the Type of the Connected Second-Tier Device in the OSD

You must specify the type of the connected device in the *Configuration Menu*. Otherwise, you may not be able to access the second-tier channels. For instructions on specifying the type, see ***STEP 4: Specify the Type of the Connected Second-Tier Device in the OSD*** (on page 40).

Note: The second-tier MasterConsole II switch is shown "/MCC<XXXX>" in the OSD, where <XXXX> represents the channel number.

Appendix D Troubleshooting

Problem	Solution
No power	- Check the power cord. - Make sure the power switch is turned ON. - Check the cable connection from the computer to MCCAT.
No video display for one or all computers	- Check video cable's connection to the computer. - Check the monitor and computer: Switch off MCCAT and the computers. Connect the monitor to the computer directly, boot the computer, and make sure the monitor has the proper display. If it does not, the problem is either with your computer, or the monitor is not compatible with your computer. If it does display, continue to the troubleshooting below.
The monitor cannot correctly display the video output from some of the computers	- The monitor probably does not match the video outputs. If the monitor is a single mode type VGA, all computers must have the same type of video output. *(Note: this problem occurs most often with some IBM PS/2s and IBM 63xx, 85xx, and 95xx monitors.)* The intelligent type display card outputs video signals based on the monitor ID-pin setting in the connector of the monitor cable. If the ID-pin setting is incorrect, the monitor connected to the MCCAT may have no display, become monochrome instead of color, or become unstable. If this is the case, you will need to provide a proper ID-pattern to the display card. Call Raritan technical support (see the last page) for help if necessary.
All computers powered up without keyboard error, but the keyboard connected to MCCAT has no control (cannot input to any computer)	- Make sure the keyboard is connected firmly to MCCAT. Disconnect and reconnect the keyboard. - Replace the keyboard. (MCCAT allows hot re-connection of the keyboard at its Keyboard port.) - In a two-tier configuration, check that the MCCAT with the keyboard connected is the first tier.
Repeated "KB ERROR" at power-up of computer	- The keyboard cable from the CIM to the computer is loose. Secure the connection and switch on the computer again. - If the problem occurs after MCCAT has been installed for a period of time, and occurs on computers that have previously worked with MCCAT, then some components are out of order. Verify that the computer works with the keyboard when connected directly. Then contact your dealer or Raritan for service.
After a period of trouble-free operation, the keyboard connected to MCCAT locks (unable to input keystrokes) when a particular	The most likely cause of the problem is either a voltage "spike" (increase) or a "brown out" (decrease) in the power supply, which would cause the microprocessors in the MCCAT to malfunction. A short-term solution to the problem is to try to recover operation by turning the MCCAT power switch off and on. Then, if necessary, restart all computers. The long-term method of avoiding this

Problem	Solution
computer is selected, but works normally when other computers are selected	problem is to power MCCAT from a UPS. • Check the keyboard connection.
Repeated "MOUSE INSTALLATION FAILURE" at power-up of computer.	• The mouse cable from the CIM to the computer is loose. Secure the connection and switch on the computer again. • If the problem only occurs to new computers which are just added to the system, the firmware in the KVM (MCCAT internal mouse emulator) may need to be upgraded to a later version to be compatible with newer computers. Contact your dealer or Raritan for service.
After a period of trouble-free operation, the mouse connected to MCCAT locks (unable to control mouse functions) when a particular computer is selected, but works normally when other computers are selected.	• Try to identify if the problem is originating from the computer by reconnecting the computer to a different channel with a different cable. Then switch on the computer. If the problem is not with the cable or with a specific channel, connect the mouse directly to the computer. If the problem persists, then the computer's mouse port is out of order. Otherwise, contact your dealer or Raritan for service. • If the problem occurs after MCCAT has been installed for a period of time, and occurs to computers that have previously worked with MCCAT, then some components are out of order. Contact your dealer or Raritan for service.
Unit does not operate in the OSD interface.	Replace the keyboard. OSD interface works only with PS/2 or extended AT style keyboards.
Unable to select channel	Scan function is active; press the Scan button once to toggle Scan OFF so the light below the button is off.

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