IBM

RCM

**NetBAY Advanced Connectivity Technology
Remote Console Manager**

Installer and User Guide

For 32P1651, 1735-R16 and 32P1653

INSTRUCTIONS
This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

DANGEROUS VOLTAGE
This symbol is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

POWER ON
This symbol indicates the principal on/off switch is in the on position.
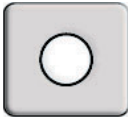
POWER OFF
This symbol indicates the principal on/off switch is in the off position.

PROTECTIVE GROUNDING TERMINAL
This symbol indicates a terminal which must be connected to earth ground prior to making any other connections to the equipment.

Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الآمنية

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 Safety Information
(安全信息)。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας
(safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się
z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по
технике безопасности.

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto, lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

Important:

All caution and danger statements in this documentation begin with a number. This number is used to cross reference an English caution or danger statement with translated versions of the caution or danger statement in the IBM NetBAY Rack Safety Information book.

For example, if a caution statement begins with a number 1, translations for that caution statement appear in the IBM NetBAY Rack Safety Information book under statement 1.

Be sure to read all caution and danger statements in this documentation before performing the instructions. Read any additional safety information that comes with your server or optional device before you install the device.

Statement 4:

DANGER

Electrical current from power, telephone, and communication cables is hazardous.
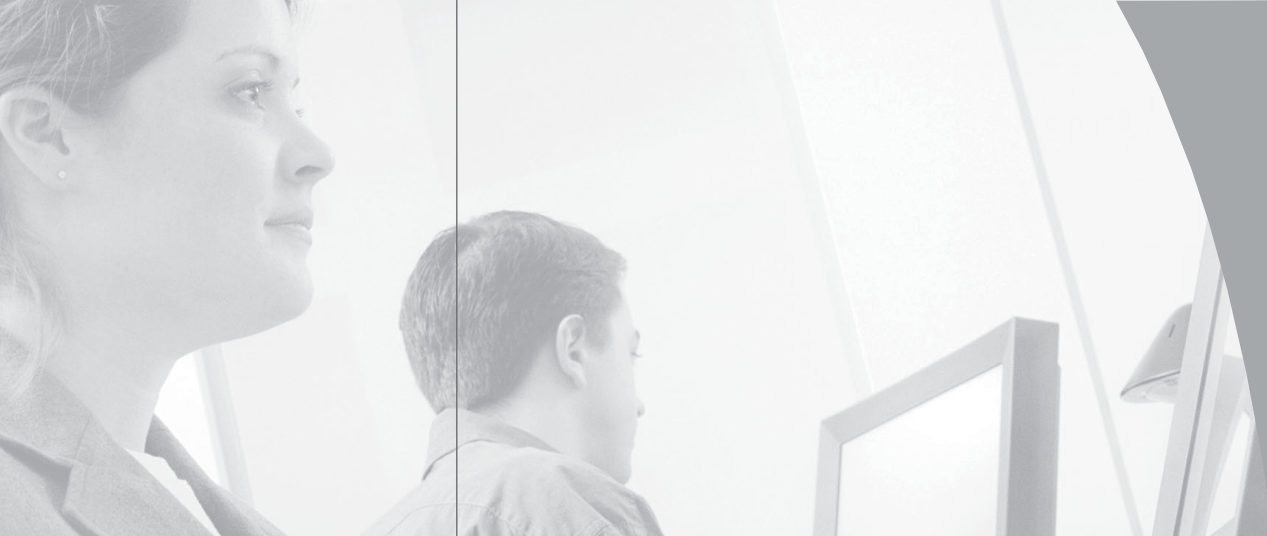
To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet.**
- **Connect to properly wired outlets any equipment that will be attached to this product.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect:	To Disconnect:
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

RCM

Installer and User Guide

Table of Contents

1 Product Overview

- ## *Contents*

Chapter 1: Product Overview

Features and Benefits

The IBM® NetBAY™ Remote Console Manager (RCM) combines analog and digital technology to provide flexible, centralized control of data center servers. This solution delivers a significant reduction of cable volume as well as secure digital access and flexible server management from anywhere at any time.

The RCM consists of a rack mountable keyboard, video and mouse (KVM) switch configurable for analog or digital connectivity. Each RCM has 16 Analog Rack Interface (ARI) ports (for connecting devices) and operates over standard LAN connections. Users can access servers across a 100BaseT Ethernet connection or directly through an analog port on the RCM for analog KVM connectivity and administration. Through the analog port, you can achieve enhanced video quality of up to 1600 x 1280 with an end-to-end cable length of up to 15 meters (49.2 feet). Digital users can achieve video resolution of up to 1280 x 1024 with a cable length of up to 10 meters (32.8 feet) between the RCM and the server.
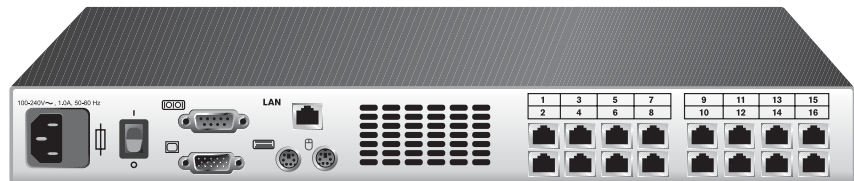

Figure 1.1: RCM Model

CO intelligent cabling

The KVM Conversion Option (KCO), C2T Conversion Option (CCO) and USB Conversion Option (UCO) intelligent cables (generically called CO cables) with CAT 5 design dramatically reduce cable clutter, while providing optimal digital display resolution and video settings. The built-in memory of the CO simplifies configuration by assigning and retaining unique server identification codes for each attached server. This integrated intelligence enhances security and prevents unauthorized access to a server through cable manipulation. The CO cable is powered directly from the server and provides Keep Alive functionality even if the RCM is not powered.

Access via network connection

No special software or drivers are required on the attached computers. Digital users access the RCM and all attached systems via Ethernet from a PC running the IBM NetBAY Virtual Console software (NetBAY VC). This software resides on the user's PC only. User PCs can be located anywhere a valid network connection exists. The RCM can be configured on a separate network from

your data network, allowing access to your servers even if your applications network is down.

Point and click control with NetBAY VC software

The NetBAY VC software is a cross-platform management application that allows you to view and control the RCM and all attached servers. The NetBAY VC software provides secure authentication, data transfers and username/password storage. By utilizing a browser interface for navigation with an intuitive split-screen interface, this software provides you with a single point of access for your entire system. From here, you can manage the RCM, install a new RCM or launch a video session to a system server. Multiple servers can be accessed by one user; each additional computer's video will appear in a separate program window.
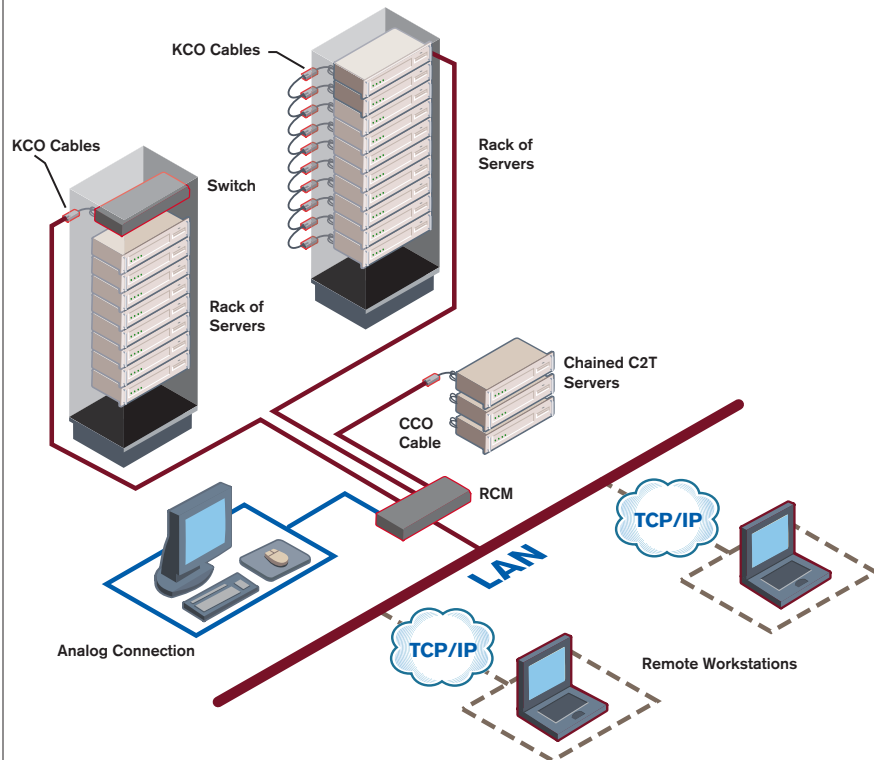

Figure 1.2: Example RCM Configuration

Safety Precautions

Statement 4:

DANGER

> **Electrical current from power, telephone, and communication cables is hazardous.**
>
> **To avoid a shock hazard:**
>
> • **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
> • **Connect all power cords to a properly wired and grounded electrical outlet.**
> • **Connect to properly wired outlets any equipment that will be attached to this product.**
> • **When possible, use one hand only to connect or disconnect signal cables.**
> • **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
> • **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
> • **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect:	To Disconnect:
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

To avoid potential video and/or keyboard problems when using IBM products:

• If the building has 3-phase AC power, ensure that the computer and monitor are on the same phase. For best results, they should be on the same circuit.

• Use only IBM-supplied cable to connect computers and KVM switches. IBM warranties do not apply to damage resulting from user-supplied cable.

To avoid potentially fatal shock hazard and possible damage to equipment, please observe the following precautions:

• Do not use a 2-wire extension cord in any IBM product configuration.

- Test AC outlets at the computer and monitor for proper polarity and grounding.

- Use only with grounded outlets at both the computer and monitor. When using a backup uninterruptible power supply, power the computer, the monitor and the RCM off the supply.

NOTE: The AC inlet is the main disconnect.

Rack mount safety considerations

- Elevated Ambient Temperature: If installed in a closed rack assembly, the operation temperature of the rack environment may be greater than room ambient. Use care not to exceed the rated maximum ambient temperature of the unit.

- Reduced Air Flow: Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

- Mechanical Loading: Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

- Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Consider equipment nameplate ratings for maximum current.

- Reliable Earthing: Reliable earthing of rack mounted equipment should be maintained. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).

2 Installation

Contents

Chapter 2: Installation

The RCM system requires that the NetBAY VC software be installed prior to use. NetBAY VC software allows a user to view and control a server attached to the RCM system, configure and maintain the system and prevent unauthorized access to the RCM via IP connection.

NOTE: The analog port does not require the NetBAY VC software for operation. The analog port uses the On-Screen Configuration and Activity Reporting interface (OSCAR®) for IBM. For more information, see Chapter 3.

The RCM system uses Ethernet networking infrastructure and TCP/IP protocol to transmit keyboard, video and mouse information between operators and connected computers. Although 10BaseT Ethernet can be used, a dedicated, switched 100BaseT network provides improved performance.

Getting Started

Before installing your RCM, refer to the following lists to ensure you have all items that shipped with the RCM as well as other items necessary for proper installation.

Supplied with the RCM
- RCM
- Power cord
- Four packages of terminators (Four per package)
- One CAT 5 cable, 1.8 meters (6 feet) in length
- Rack mounting kit
- RCM Installer and User Guide on CD
- NetBAY VC software Installer and User Guide on CD
- RCM Quick Installation Guide
- One straight-through serial cable

Additional items needed
- One KCO cable per attached PS/2 server or switch
- One UCO cable per attached USB server
- One CCO cable per attached IBM C2T server chain

Setting up your network

The RCM system uses IP addresses to uniquely identify the RCMs and the computers running NetBAY VC software. The RCM supports both BootP (a subset of DHCP) and static IP addressing. IBM recommends that IP addresses be reserved for each unit and that they remain static while the RCMs are connected to the network.

Installing Your RCM

Your RCM ships with rack mounting brackets. Before installing the RCM and other components in the rack cabinet (if not already installed), stabilize the rack in a permanent location. Install your equipment starting at the bottom of the rack cabinet, then work to the top. Avoid uneven loading or overloading of rack cabinets.

Statement 4:

DANGER

> **Electrical current from power, telephone, and communication cables is hazardous.**
>
> **To avoid a shock hazard:**
> - **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
> - **Connect all power cords to a properly wired and grounded electrical outlet.**
> - **Connect to properly wired outlets any equipment that will be attached to this product.**
> - **When possible, use one hand only to connect or disconnect signal cables.**
> - **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
> - **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
> - **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect:	To Disconnect:
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

Vertical installation in the side of a rack cabinet

1. Line up the small holes of the L-shaped brackets with the screw holes in the switch.

2. With a Phillips screwdriver, fasten the mounting brackets to the switch using two 8/32" x 1/2" pan head screws on each side.

3. Mount the switch assembly to the rack by matching the long slots on each bracket to an appropriate set of holes on your equipment rack. Next, insert a combination hex head screw through the slots in the bracket and the holes in the side brace. Cap the screw with a hex serrated flange nut and tighten.

NOTE: The mounting holes on the upper and lower side braces in a rack side compartment must be between 50.8 cm (20.0 in.) and 57.3 cm (22.6 in.) apart. If your rack cabinet has movable side braces, refer to your rack documentation for information about relocating side braces if they are not already spaced for this installation.
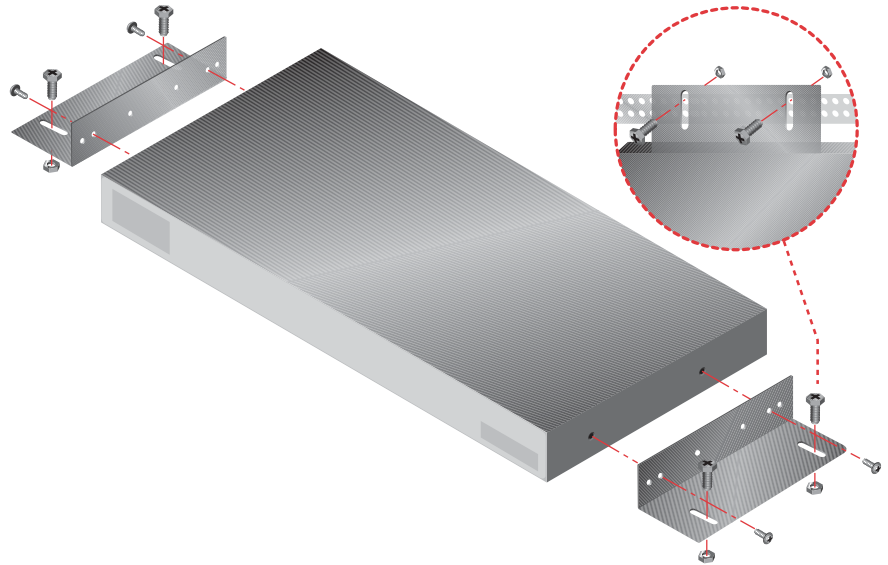

Figure 2.1: RCM Vertical Installation

Horizontal installation in the 1U rack mounting space

1. Line up the holes in the "long side" of the kit's side brackets with the screw holes in the switch.

2. With a Phillips screwdriver, fasten the mounting brackets to the switch using two 8/32" x 1/2" pan head screws on each side.

3. Attach the four cage nuts or clip nuts to the rack mounting flange of the rack cabinet so that the nuts are positioned on the inside of the rack.

4.   Mount the switch assembly to the rack cabinet by matching the holes in the "short side" of each bracket to an appropriate set of matching holes on your rack cabinet. Next, insert the combination hex head screws through the slots in the bracket and the holes in the mounting rail, then into the cage nuts or clip nuts.
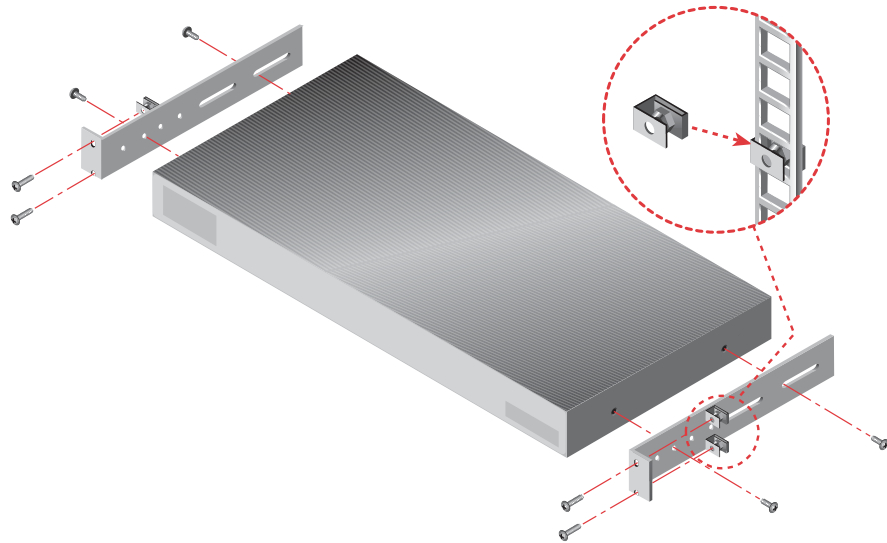

Figure 2.2: RCM Horizontal Installation

Cabling the RCM

Figure 2.3 illustrates one possible configuration for your RCM. Follow the detailed set of procedures following Figure 2.3 to successfully install your RCM.
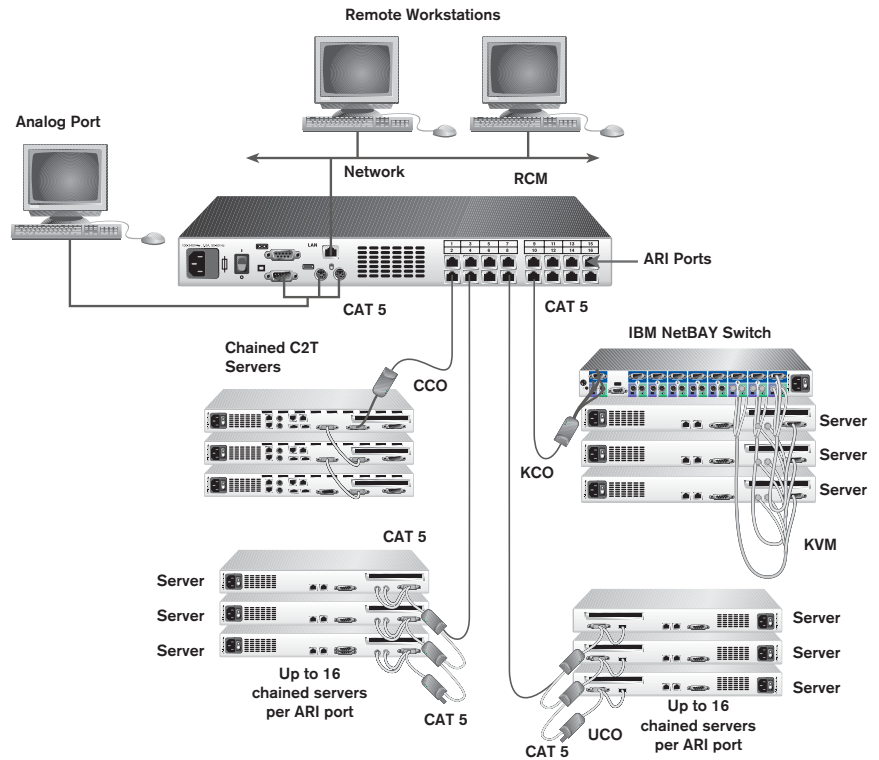

Figure 2.3: Basic RCM Configuration

ATTENTION: To reduce the risk of electric shock or damage to your equipment -
- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) outlet that is easily accessible at all times.
- Disconnect the power from the unit by unplugging the power cord from either the electrical outlet or the unit.

Statement 4:

DANGER

> **Electrical current from power, telephone, and communication cables is hazardous.**
>
> **To avoid a shock hazard:**
> - **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
> - **Connect all power cords to a properly wired and grounded electrical outlet.**
> - **Connect to properly wired outlets any equipment that will be attached to this product.**
> - **When possible, use one hand only to connect or disconnect signal cables.**
> - **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
> - **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
> - **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect:	To Disconnect:
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

To install the RCM hardware:

1. Connect a terminal or PC running terminal emulation software (such as HyperTerminal) to the configuration port on the back panel of the RCM using a straight-through serial cable. The terminal should be set to 9600 baud, 8 bits, 1 stop bit, no parity and no flow control.

2. Plug the supplied power cord into the back of the RCM and then into an appropriate power source.

3. When you turn on the power, the Power indicator on the back of the unit will blink for 30 seconds while performing a self-test. Approximately 10 seconds after it stops blinking, press the **Enter** key to access the main menu.

To configure the RCM hardware:

1. You will see the Terminal Applications menu with six options. Select option 1, **Network Configuration**.
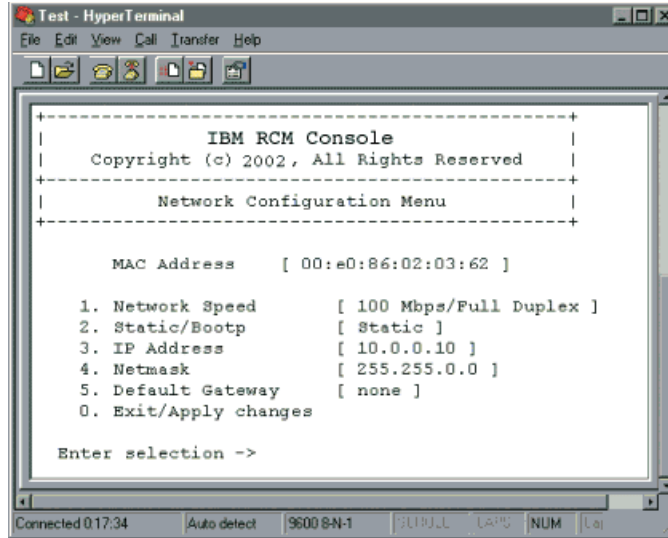

Figure 2.4: Network Configuration Menu

2. Select option 1 to set your network speed. When possible, you should set your connection manually without relying on the auto negotiate feature. Once you enter your selection, you will be returned to the Network Configuration menu.

3. Select option 2 and specify if you are using a static or BootP IP address. Use a static IP address for ease of configuration. If you are using a BootP address, please configure your BootP server to provide an IP address to the RCM, skip step 4 and continue to the next procedure.

4. Select options 3-5 from the Network Configuration menu, in turn, to finish configuring your RCM for IP address, Netmask and Default Gateway. Once this is completed, type a **Ø** to return to the main menu.

To adjust the mouse acceleration:

Before a server can be connected to the RCM, an adjustment to mouse acceleration must be made. Use the default Microsoft® Windows® PS/2 mouse driver for all attached Microsoft Windows systems attached to the RCM.

For Microsoft Windows NT® (using default drivers):

1. From the desktop, select **Start** - **Settings** - **Control Panel** - **Mouse**.

2. Click on the **Motion** tab.

3. Set the pointer speed to **Slow**. Do this for any Windows NT user account that will be accessing the Windows NT system through the RCM.

For Microsoft Windows 2000/Windows XP:

1. From the desktop, select **Start** - **Settings** - **Control Panel** - **Mouse**.

2. Click on the **Motion** tab.

3. Set the Acceleration setting to **None** and the speed setting to the default of **50%**.

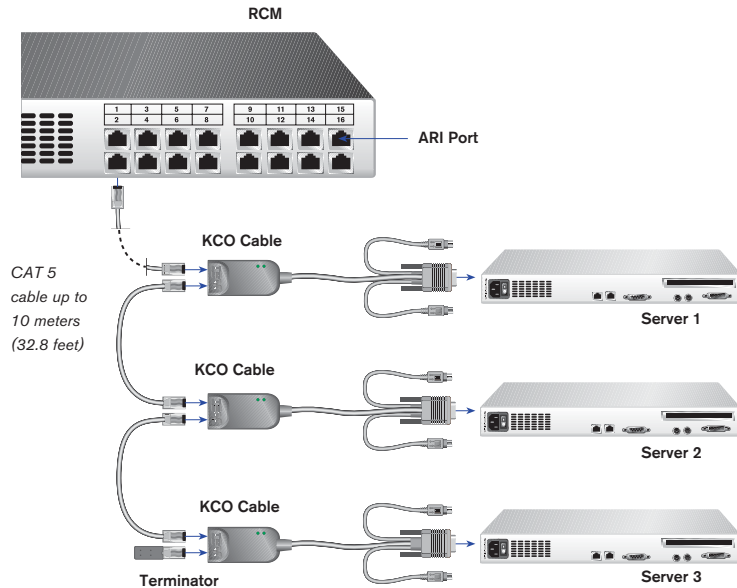## To chain servers together using KCO cables:

Figure 2.5: Chaining Servers Together with KCO Cables

1. Locate the KCO cables and CAT 5 cabling for your RCM.

2. Attach one end of the CAT 5 cabling that will run from your KCO to the RCM to the RJ45 connector on the KCO cable.

3. Connect the other end of the CAT 5 cable to an ARI port on the RCM.

4. Attach the appropriately color-coded cable ends to the keyboard, monitor and mouse ports on the first server you will be connecting to this RCM.

5. Attach one end of the CAT 5 cabling that will connect the first two servers to the second RJ45 connector on the KCO cable for Server 1.

6. Attach the other end of this cable to the first RJ45 connector of the KCO cable for Server 2.

7. Repeat steps 4-6 for all servers you chain together.

8. When you reach the end of the chain, attach a terminator to the second RJ45 connector on the last KCO cable in the chain.

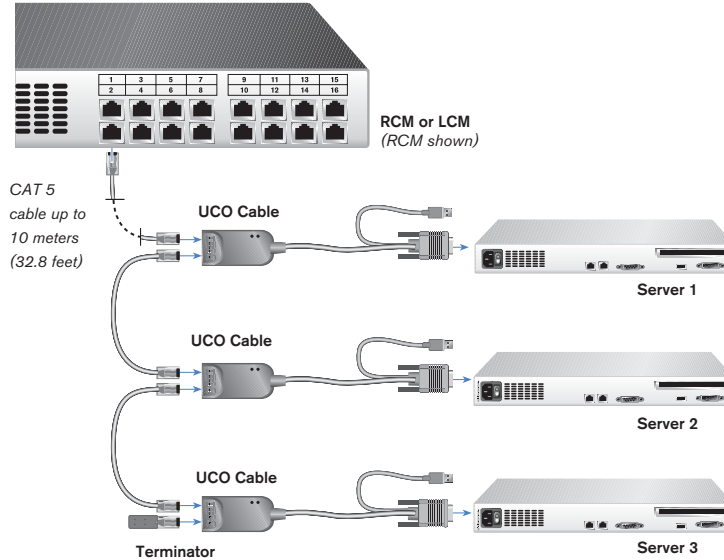### To chain servers together using UCO cables:

Figure 2.6: Chaining Servers Together with UCO Cables

1. Locate the UCO cables and CAT 5 cabling for your RCM.

2. Attach one end of the CAT 5 cabling that will run from your UCO to the RCM to the RJ45 connector on the UCO cable.

3. Connect the other end of the CAT 5 cable to an ARI port on the RCM.

4. Attach the appropriately color-coded cable ends to the USB and monitor ports on the first server you will be connecting to this RCM.

5. Attach one end of the CAT 5 cabling that will connect the first two servers to the second RJ45 connector on the UCO cable for Server 1.

6. Attach the other end of this cable to the first RJ45 connector of the UCO cable for Server 2.

7. Repeat steps 4-6 for all servers you chain together.

8. When you reach the end of the chain, attach a terminator to the second RJ45 connector on the last UCO cable in the chain.

To connect a CCO cable to an IBM C2T server:

1. Locate the CCO cables and CAT 5 cabling for your RCM.

2. Attach one end of the CAT 5 cabling that will run from your CCO to the RCM to the RJ45 connector on the CCO cable.

3. Connect the other end of the CAT 5 cable to an ARI port on the back of your RCM.

4. Attach C2T connector from the CCO cable into the appropriate port on the back of your C2T server.

To add a legacy KVM switch:

You can add your cascade switches to the RCM system. In a cascaded system, each ARI port will accommodate up to 24 servers, depending on how many servers you can attach to your legacy KVM switch.
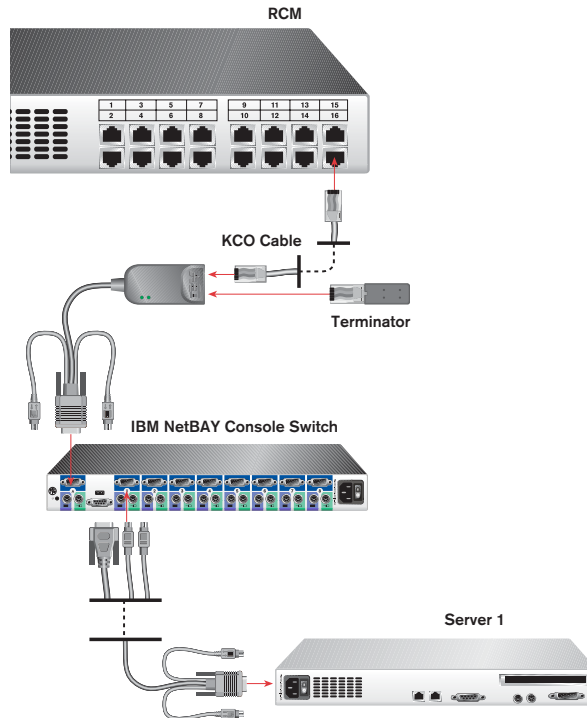

Figure 2.7: RCM Configuration with a Legacy KVM Switch

1. Mount the KVM switch into your rack cabinet. Locate a length of CAT 5 cabling to connect your RCM to the KCO cable for your switch.

2. Attach one end of the CAT 5 cabling to the RJ45 connector on the KCO cable. Attach a terminator to the second RJ45 connector on the KCO.

3. Connect the other end of the CAT 5 cable to a port on the back of your RCM.

4. Attach the keyboard, monitor and mouse connectors of the KCO cable to a user port on your cascade switch.

5. Connect the servers to your cascade switch according to the switch manufacturer's recommendations.

6. Repeat steps 2-5 for all cascade switches to be attached to your system.

To operate your RCM with a cascaded multi-user legacy switch:

You can cascade a NetBAY 2x8 Console Switch under your RCM or LCM. In a cascaded configuration, the remote and analog workstations can both access servers attached to the cascaded switch. If both the remote and analog workstations want to access different servers on the switch at the same time, you can attach a KCO cable to both user ports to avoid one user blocking the other.

Preemptive behavior

By default, the console switch operates in preemptive mode. This means that one user can disconnect another user from a server connection without warning. For example, if the analog user is accessing server 1 via KCO cable A and the remote user switches to the same server via KCO cable B, the analog user will be preempted and the remote user will take command of the connection. The analog user's screen will go blank and they will receive no disconnect warning.

If you will have users performing sensitive tasks who should not be preempted, you can connect only one KCO cable to the switch. This will ensure that no user can preempt another without administrative privileges at the remote console.
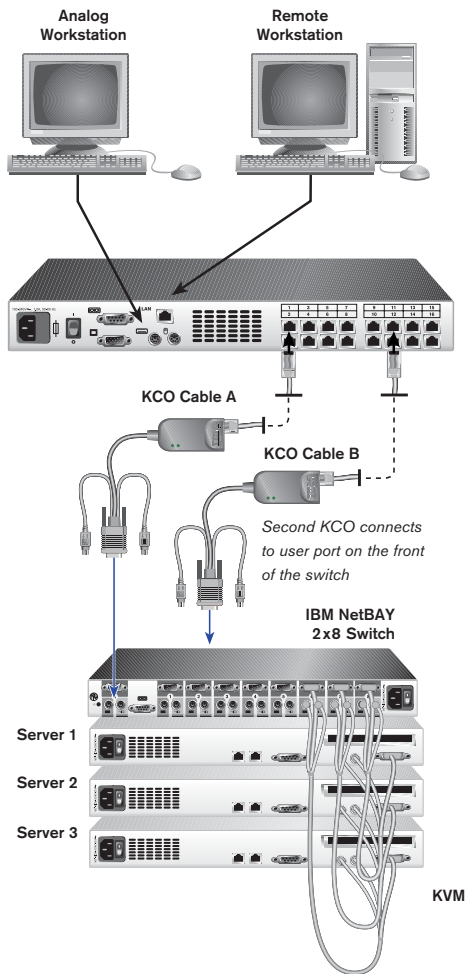
Figure 2.8: Cascaded Multi-user Legacy Switch Configuration

To connect the network and turn on your RCM:

1. Connect your network cable from the LAN port on the rear of the RCM to your network.

2. The components in the RCM system can be turned on in any order. However, since the CO cables are powered by the servers, turn on the servers first and then turn on all attached RCMs and switches for the most efficient startup.

To install your NetBAY VC software:

See the *NetBAY Virtual Console Software Installer and User Guide* that ships with your RCM system.

To use more than one language keyboard in a system:

You can configure your remote console to synchronize with a target server if the keyboard of that server is set up for a different language than your remote console. For instance, if you are using a French (AZERTY) keyboard on the remote console and you connect to a target server that is using an English (QWERTY) keyboard, you will need to create a second keyboard on the remote workstation (English keyboard).

To verify a target server's keyboard language:

1. Launch the Virtual Console software at the remote workstation.

2. Click the **Devices** tab and then the target server.

3. Click the **Connect Video** task button.

4. On the target server, for Microsoft Windows 2000, select **Start** - **Settings** - **Control Panel** - **Regional Options**. For other operating systems, see the user guide that comes with your system.

5. Verify the language.

To synchronize languages with the target server:

1. At the remote station, for Microsoft Windows 2000, select **Start** - **Settings** - **Control Panel** - **Regional Options**. Select the language for the target server. For other operating systems, see the user guide that comes with your system.

2. The languages should now be synchronized.

Setting up your RCM/NetBAY VC system

The RCM system has an analog port that allows you to attach a monitor and a PS/2 keyboard and mouse to the back of the unit. First, set up your servers at the analog port via OSCAR before proceeding to the NetBAY VC software to finish configuring your system. Proceed to Chapter 3 in this *Installer and User Guide* for detailed instructions on OSCAR setup and configuration. Once your servers are named, you will want to use a digital station to configure the NetBAY VC software. See the *RCM Quick Installation Guide* for an overview of the hardware and software installation procedure.

3 Analog Port Operation

Contents

Chapter 3: Analog Port Operation

Controlling Your System at the Analog Port

The RCM includes an analog port on the back of the unit that allows you to connect a monitor and a PS/2 keyboard and mouse for direct analog access. The RCM uses the On-Screen Configuration and Activity Reporting interface (OSCAR®) for IBM, which utilizes intuitive menus to configure your system and select computers.

Viewing and Selecting Ports and Servers

Use the OSCAR Main dialog box to view, configure and control servers in the RCM system. You can view your servers by name, port or by the unique electronic ID number (eID) embedded in each CO cable. You will see an OSCAR-generated Name list by default when you first launch OSCAR.

The port column indicates the ARI port to which a server is connected. If you connect a legacy KVM switch to the RCM, the port numbering displays the ARI port first, then the port to which the server is connected. For example, in Figure 3.1, servers 06-03 and 01-02 are connected to legacy switches.

To access the Main dialog box:

Press **Print Screen** to launch OSCAR. The Main dialog box appears.
-or-
If a password has been assigned, the Password dialog box appears. Type in your password and click **OK**. The Main dialog box appears. For more information, see *Setting console security* in this chapter.

Figure 3.1: Example of Configured Main Dialog Box

NOTE: You can also press the **Control** key twice within one second to launch OSCAR. You can use this key sequence in any place you see **Print Screen** throughout this *Installer and User Guide*.

Viewing the status of your RCM system

The status of the servers in your system are indicated in the right columns of the Main dialog box. The following table describes the status symbols.

OSCAR Status Symbols

Symbol	Description
●	KCO, UCO or CCO is online.
✗	KCO, UCO or CCO is offline or is not operating properly.
⛁	Connected switch is online.
✗	Connected switch is offline or is not operating properly.
●	KCO, UCO or CCO cable is being upgraded.
A	KCO, UCO or CCO is being accessed by the indicated user channel.
A	KCO, CCO or UCO is blocked by the indicated user channel. For instance, in Figure 3.1, user B is viewing Forester, but is blocking access to Acton, Barrett and Edie which are connected to the same KCO chain.

Selecting servers

Use the Main dialog box to select servers. When you select a server, the RCM reconfigures the keyboard and mouse to the proper settings for that server.

To select servers:

Double-click the server name, eID or port number.
-or-
If the display order of your server list is by port (**Port** button is depressed), type the port number and press **Enter**.
-or-
If the display order of your server list is by name or eID number (**Name** or **eID** button is depressed), type the first few characters of the name of the server or the eID number to establish it as unique and press **Enter**.

To select the previous server:

Press **Print Screen** and then **Backspace**. This key combination toggles you between the previous and current connections.

To disengage the user from a server:

Press **Print Screen** and then **Alt+Ø**. This leaves the user in a free state, with no server selected. The status flag on your desktop displays **Free**.

Soft switching

Soft switching is the ability to switch servers using a hotkey sequence. You can soft switch to a server by pressing **Print Screen** and then typing the first few characters of its name or number. If you have a delay time set and you press the key sequences before that time has elapsed, OSCAR will not display.

To configure servers for soft switching:

1. Press **Print Screen** to launch OSCAR. The Main dialog box appears.

2. Click **Setup** - **Menu**. The Menu dialog box appears.

3. For Screen Delay Time, type the number of seconds of delay desired before the Main dialog box is displayed after **Print Screen** is pressed.

4. Click **OK**.

To soft switch to a server:

1. To select a server, press **Print Screen**. If the display order of your server list is by port (**Port** button is depressed), type the port number and press **Enter**.
    -or-
    If the display order of your server list is by name or eID number (**Name** or **eID** button is depressed), type the first few characters of the name of the server or the eID number to establish it as unique and press **Enter**.

2. To switch back to the previous server, press **Print Screen** then **Backspace**.

OSCAR navigation basics

This table describes how to navigate OSCAR using the keyboard and mouse.

This Keystroke	Does This
Print Screen	Opens OSCAR. Press **Print Screen** twice to send the **Print Screen** keystroke to the currently selected device.
F1	Opens the Help screen for the current dialog box.
Escape	Closes the current dialog box without saving changes and returns to the previous one. In the Main dialog box, it closes OSCAR and returns to the selected server. In a message box, it closes the pop-up box and returns to the current dialog box.
Alt	Opens dialog boxes, selects or checks options and executes actions when used with underlined or other designated letters.
Alt+X	Closes the current dialog box and returns to the previous one.
Alt+O	Selects the **OK** button, then returns to the previous dialog box.
Enter	Completes a switch in the Main dialog box and exits OSCAR.
Single-click, Enter	In a text box, it selects the text for editing and enables the **Left** and **Right Arrow** keys to move the cursor. Press **Enter** again to quit the edit mode.

OSCAR Navigation Basics (continued)

This Keystroke	Does This
Print Screen, Backspace	Toggles back to previous selection if no other keystrokes have been typed.
Print Screen, Alt+Ø	Immediately disengages user from a server; no server is selected. Status flag displays **Free**. (This only applies to the Ø on the keyboard and not the keypad.)
Print Screen, Pause	Immediately turns on screen saver mode and prevents access to that particular console, if it is password protected.
Up/Down Arrows	Moves the cursor from line to line in lists.
Right/Left Arrows	Moves the cursor between columns. When editing a text box, these keys move the cursor within the column.
Page Up/Page Down	Pages up and down through Name and Port lists.
Home/End	Moves the cursor to the top or bottom of a list.
Backspace	Erases characters in a text box.
Delete	Deletes current selection in the scan list or characters in a text box.
Shift-Del	Deletes from the current selection to the end of the list when editing a scan list.
Numbers	Type from the keyboard or keypad.
Caps Lock	Disabled. Use the **Shift** key to change case.

Configuring OSCAR

You can configure your RCM system from the Setup menu within OSCAR. Select the **Names** button when initially setting up your RCM system to identify servers by unique names. Select the other setup features to manage routine tasks for your servers from the OSCAR menu.

To access the Setup menu:

1.   Press **Print Screen** to launch OSCAR. The Main dialog box appears.

2.   Click **Setup**. The Setup dialog box appears.

Figure 3.2: Setup Dialog Box

Setup Features to Manage Routine Tasks for your Servers

Feature	Purpose
Menu	Change the server listing between numerically by port or eID number and alphabetically by name.
	Change the delay time before OSCAR displays after pressing **Print Screen**.
Flag	Change display, timing, color or location of the status flag.
Broadcast	Set up to simultaneously control multiple servers through keyboard and mouse actions.
Scan	Set up a custom scan pattern for up to 16 servers.
Security	Set passwords to restrict server access.
	Enable the screen saver.
Devices	Identify the appropriate number of ports on an attached cascade switch.
Names	Identify servers by unique names.

Assigning server names

Use the Names dialog box to identify individual servers by name rather than by port number. The Names list is always sorted by port order. You can toggle between displaying the name or the eID number of each CO cable. Names are stored in the CO cable, so even if you move the cable/server to another ARI port, the name and configuration will be recognized by the RCM.

NOTE: If a server is turned off, its respective CO cable will not appear in the Names list.

To access the Names dialog box:

1.   Press **Print Screen**. The Main dialog box will appear.

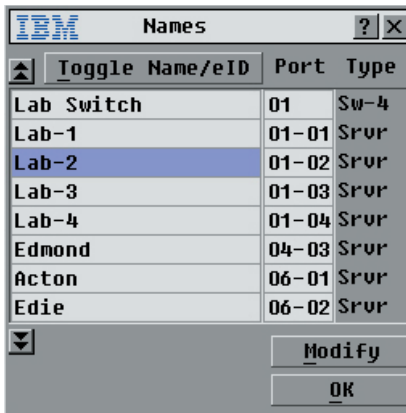2.   Click **Setup** - **Names**. The Names dialog box appears.

Figure 3.3: Names Dialog Box

NOTE: If the server list changes, the mouse cursor will turn into an hourglass as the list is automatically updated. No mouse or keyboard input will be accepted until the list update is complete.

To assign names to servers:

1.   In the Names dialog box, select a server name or port number and click **Modify**. The Name Modify dialog box appears.
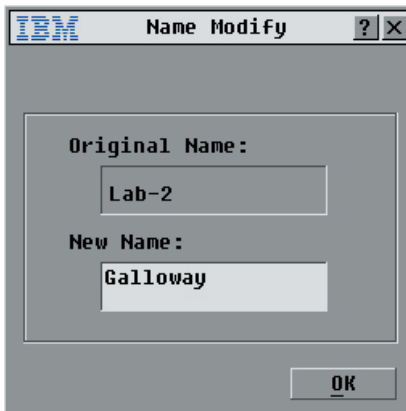
Figure 3.4: Name Modify Dialog Box

2.   Type a name in the New Name box. Names of servers may be up to 15 characters long. Legal characters include: A-Z, a-z, Ø-9, space and hyphen.

3.   Click **OK** to transfer the new name to the Names dialog box. Your selection is not saved until you click **OK** in the Names dialog box.

4.   Repeat steps 1-3 for each server in the system.

5.   Click **OK** in the Names dialog box to save your changes.
      -or-
      Click **X** or press **Escape** to exit the dialog box without saving changes.

Assigning device types

While the RCM automatically discovers cascade switches attached to your unit, you will need to specify the number of ports on the cascade switch through the Devices dialog box. The RCM recognizes KVM switches. You will see an Sw-8 appear in the Type category. When you select that switch from the list, the Modify button appears, allowing you to assign the appropriate number of ports to it.

To access the Devices dialog box:

1.   Press **Print Screen**. The Main dialog box will appear.

2.   Click **Setup** - **Devices**. The Devices dialog box appears.

NOTE: The **Modify** button will only be available if a configurable switch is selected.
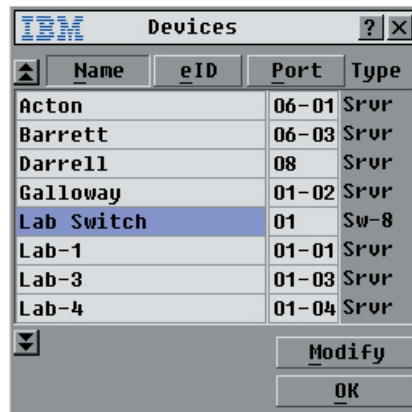
Figure 3.5: Devices Dialog Box

When the RCM discovers a cascade switch, you will notice the port numbering change to accommodate each server under that switch. For example, if the switch is connected to port 1, the switch port would be listed as 01 and each server under it would be numbered sequentially 01-01, 01-02 and so on.

To assign a device type:

1.   In the Devices dialog box, select the desired port number.

2.   Click **Modify**. The Device Modify dialog box appears.

Figure 3.6: Device Modify Dialog Box

3. Choose the number of ports supported by your switch and click **OK**.

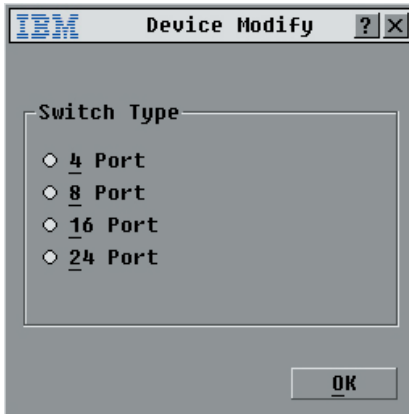4. Repeat steps 1–3 for each port that needs a device type assigned.

5. Click **OK** in the Devices dialog box to save settings.

NOTE: Changes made in the Device Modify dialog box are not saved until you click **OK** in the Devices dialog box.

Changing the display behavior

Use the Menu dialog box to change the display order of servers and set a Screen Delay Time for OSCAR.

To access the Menu dialog box:

1. Press **Print Screen** to launch OSCAR. The Main dialog box appears.

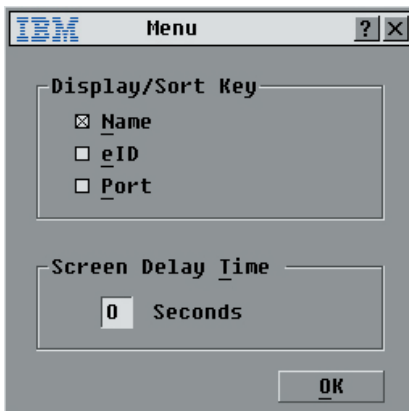2. Click **Setup** - **Menu** in the Main dialog box. The Menu dialog box appears.

Figure 3.7: Menu Dialog Box

To choose the display order of servers in the Main dialog box:

1. Select **Name** to display servers alphabetically by name.
    -or-
    Select **eID** to display servers numerically by eID number.
    -or-
    Select **Port** to display servers numerically by port number.

2. Click **OK**.

To set a Screen Delay Time for OSCAR:

1. Type in the number of seconds (Ø-9) to delay OSCAR display after you press **Print Screen**. Entering **Ø** will instantly launch OSCAR with no delay.

2. Click **OK**.

Setting a Screen Delay Time allows you to complete a soft switch without OSCAR displaying. To perform a soft switch, see *Soft switching* in this chapter.

Controlling the status flag

The status flag displays on your desktop and shows the name or eID number of the selected server or the status of the selected port. Use the Flag dialog box to configure the flag to display by server name or eID number, or to change the flag color, opacity, display time and location on the desktop.

OSCAR Status Flags

Flag	Description
Darrell	Flag type by name
520255-73F344	Flag type by eID number
Free	Flag indicating that the user has been disconnected from all systems
Darrell ·))	Flag indicating that Broadcast mode is enabled

To access the Flag dialog box:

1. Press **Print Screen**. The Main dialog box will appear.

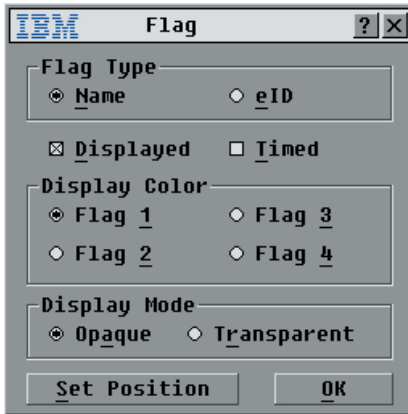2. Click **Setup** - **Flag**. The Flag dialog box appears.

Figure 3.8: Flag Dialog Box

To determine how the status flag is displayed:

1.   Select **Name** or **eID** to determine what information will be displayed.

2.   Select **Displayed** to show the flag all the time or select **Timed** to display the flag for only five seconds after switching.

3.   Select a flag color in Display Color.

4.   In Display mode, select **Opaque** for a solid color flag or select **Transparent** to see the desktop through the flag.

5.   To position the status flag on the desktop:
     a.   Click **Set Position** to gain access to the Position Flag screen.
     b.   Left-click on the title bar and drag to the desired location.
     c.   Right-click to return to the Flag dialog box.
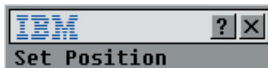
Figure 3.9: Position Flag

NOTE: Changes made to the flag position are not saved until you click **OK** in the Flag dialog box.

6.   Click **OK** to save settings.
     -or-
     Click **X** to exit without saving changes.

Setting console security

OSCAR enables you to set security on your analog port console. You can establish a screen saver mode that engages after your console remains unused for a specified delay time. Once engaged, your console will remain locked until you press any key or move the mouse. You will then need to type in your password to continue.

Use the Security dialog box to lock your console with password protection, set or change your password and enable the screen saver.

NOTE: If a password has been previously set, you will have to enter the password before you can access the Security dialog box.

To access the Security dialog box:

1. Press **Print Screen**. The Main dialog box will appear.

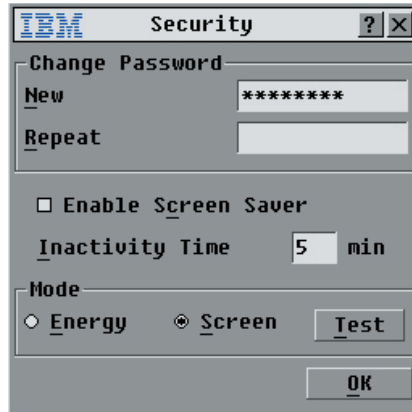2. Click **Setup** - **Security**. The Security dialog box appears.

Figure 3.10: Security Dialog Box

To set or change the password:

1. Single-click and press **Enter** or double-click in the New text box.

2. Type the new password in the New text box and press **Enter**. Passwords may be up to 12 characters long and are case sensitive. Legal characters are: A-Z, a-z, Ø-9, space and hyphen. A password must contain both alpha and numeric characters.

3. In the Repeat box, type the password again and press **Enter**.

4. Click **OK** to just change your password, and then close the dialog box.

To password protect your console:

1. Set your password as described in the previous procedure.

2. Select **Enable Screen Saver**.

3. Type the number of minutes for Inactivity Time (from 1 to 99) to delay activation of password protection and the screen saver feature.

4. For Mode, select **Energy** if your monitor is ENERGY STAR compliant; otherwise select **Screen**.

ATTENTION: Monitor damage can result from the use of Energy mode with monitors not compliant with ENERGY STAR.

5. (Optional) Click **Test** to activate the screen saver test which lasts 10 seconds then returns you to the Security dialog box.

6. Click **OK**.

To log in to your console:

1. Press any key or move the mouse.

2. The Password dialog box appears. Type your password, then click **OK**.

3. The Main dialog box appears if the password was entered properly.

To remove password protection from your console:

1. From the Main dialog box, click **Setup** - **Security**; the Password dialog box appears. Type your password, and then click **OK**.

2. In the Security dialog box, single-click and press **Enter** or double-click in the New box. Leave the box blank. Press **Enter**.

3. Single-click and press **Enter** or double-click in the Repeat box. Leave the box blank. Press **Enter**.

4. Click **OK** to eliminate your password.

To enable the screen saver mode with no password protection:

1. If your console does not require a password to gain access to the Security dialog box, proceed to step 2.
    -or-
    If your console is password protected, see the previous procedure, then go to step 2.

2. Select **Enable Screen Saver**.

3. Type the number of minutes for delay time (from 1–99) to delay activation of the screen saver.

4. Choose **Energy** if your monitor is ENERGY STAR compliant; otherwise select **Screen**.

ATTENTION: Monitor damage can result from the use of Energy mode with monitors not compliant with ENERGY STAR.

5. (Optional) Click **Test** to activate the screen saver test which lasts 10 seconds then returns you to the Security dialog box.

6. Click **OK**.

NOTE: Activation of the screen saver mode disconnects the user from a server; no server is selected. The status flag displays **Free**.

To exit the screen saver mode:
Press any key or move your mouse. The Main dialog box appears.

To turn off the screen saver:
1.   In the Security dialog box, clear **Enable Screen Saver**.

2.   Click **OK**.

To immediately turn on the screen saver:
Press **Print Screen**, then press **Pause**.

Viewing and Disconnecting Users

You can view and disconnect users through the User Status dialog box. The user name (U) will always be displayed; however, you can display either the server name or eID number to which a user is connected. If there is no user currently connected to a channel, the user field will be blank and the server field will display **Free**.

NOTE: The local user can be preempted (disconnected) by a digital user via the Virtual Console software. See the *Preempting the local user* in the *Virtual Console Software Installer and User Guide* for additional information.

To view current user connections:
1.   Press **Print Screen**. The Main dialog box will appear.

2.   Click **Commands** - **User Status**. The User Status dialog box appears.

To disconnect a user:
1.   Press **Print Screen**. The Main dialog box will appear.

2.   Click **Commands** - **User Status**. The User Status dialog box appears.

3.   Click the letter of a user to disconnect. The **Disconnect** dialog box will appear.

Figure 3.11: User Status Dialog Box   **Figure 3.12: Disconnect Dialog Box**

4. Click **OK** to disconnect the user and return to the User Status dialog box.
    -or-
    Click **X** or press **Escape** to exit the dialog box without disconnecting a user.

NOTE: If the User Status list has changed since it was last displayed, the mouse cursor will turn into an hourglass as the list is automatically updated. No mouse or keyboard input will be accepted until the list update is complete.

Running System Diagnostics

You can validate the integrity of your system through the Run Diagnostics command. This command checks the main board functional sub-systems (memory, inter-board communications, switch control and the video channels) for each system controller. When you select the Run Diagnostics command, you will receive a warning indicating that all users (remote and local) will be disconnected. Click **OK** to confirm and begin the test.

The Diagnostic dialog box appears. The top section of the dialog box displays the hardware tests. The bottom portion divides the COs tested into three categories: online, offline or suspect.

Next to each item to be tested, you will see a pass (green circle) or fail (red x) symbol appear to the left of each item as that test finishes. The chart below details each of the tests.

Diagnostic Test Details

Test	Description
Memory Test	Reports on the condition of the main board RAM
Firmware CRCs	Validates the current firmware images stored in the system's FLASH
Comm Interfaces	Verifies that inter-board communication sub-systems are accessible and functional
Switch Controller	The Switch Controller test verifies the switch matrix controller is accessible and functional
Local and Remote Video	Verifies that all the video channel sub-systems are accessible and functional
LAN Connection	The LAN Connection test verifies the LAN connection is accessible and functional.
On-line COs	Indicates the total number of currently connected and powered COs
Offline COs	Indicates the number of CO adapters that have been connected successfully in the past and are apparently powered down
Suspect COs	Indicates the number of COs that have been detected, but are either unavailable for connection or have dropped packets during the ping tests

To run diagnostic tests:

1. If OSCAR is not open, press **Print Screen**. The Main dialog box will appear.

2. Click **Commands** - **Run Diagnostics**. A warning message appears indicating that all users will be disconnected.

3. Click **OK** to begin diagnostics.
    -or-
    Click **X** or press **Escape** to exit the dialog box without running a diagnostic test.

4. All users are disconnected and the diagnostics screen displays.
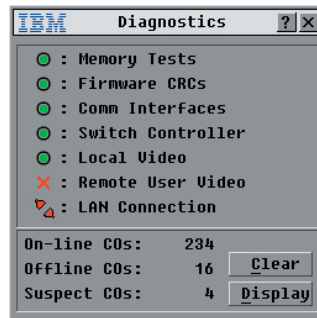
Figure 3.13: Diagnostics Dialog Box

5. As each test is finished, a pass or fail symbol appears. The test is complete when the last test's symbol displays.

6. (Optional) If you have any offline COs, you can click the **Clear** button to remove them from the list.

7. (Optional) If you have any suspect COs, you can click the **Display** button. The Suspect COs dialog box appears.

Figure 3.14: Suspect COs Dialog Box

    a. Make a note of each CO in the list. In Figure 3.14, the first CO (Sw-4) is attached to channel 4 of a cascade switch, the second (???) is non-communicative and the third (Srvr) is attached directly to a server. You may want to troubleshoot each of these COs.

Resetting Your PS/2 Keyboard and Mouse

If your PS/2 keyboard or mouse stops responding, you may be able to re-establish operation of these peripherals by issuing a reset command. The reset command sends a key sequence to the server which causes the mouse and keyboard settings to be sent to the RCM. With communication re-established between the server and the RCM, functionality is restored to the user.

NOTE: This function is for Microsoft Windows-based computers only. Resetting the PS/2 on a computer running any other operating system may require that you restart that computer.

To reset the PS/2 mouse and keyboard values:

1. If OSCAR is not open, press **Print Screen**. The Main dialog box will appear.

2. Click **Commands** - **Reset PS/2**. A message box displays requesting that you confirm the reset. Click **OK**.
    a. A message appears indicating that the mouse and keyboard have been reset.
    b. Click **X** to close the message box.
        -or-
        Click **X** or press **Escape** to exit without sending a reset command to the PS/2 mouse and keyboard.

Displaying Version Information

You can view the RCM, KCO, UCO and CCO firmware versions. For optimum performance, keep your firmware current. For more information, see *Appendix A*.

To display version information:

1. Press **Print Screen**. The Main dialog box will appear.

2. Click **Commands** - **Display Versions**. The Version dialog box appears. The top half of the box lists the subsystem versions in the RCM.


```
IBM           Version           ? X
  Application:     02.00.06
  Boot:            01.00.00
  Hardware:        00.04.28
  Video FPGA:      01.00.26
  Matrix FPGA:     02.00.07
  UART FPGA:       01.00.07
  eID:    620255-001E75-0000

      Digital            CO

   © 2003 Avocent      en-us
```
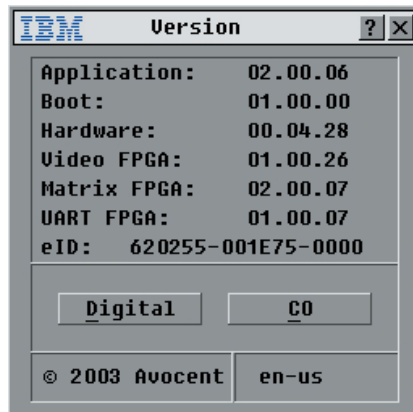
Figure 3.15: Version Dialog Box

3. Click **Digital** to view the Digitizer unit firmware versions. The Digital Version dialog box appears. The top section identifies the Digitizer subsystem versions. The center section identifies the current network settings. Click **X** or press **Escape** to return to the Version dialog box.

Figure 3.16: Digital Version Dialog Box

4. Click **CO** to view individual KCO, UCO and CCO cable version information. The CO Selection dialog box appears.
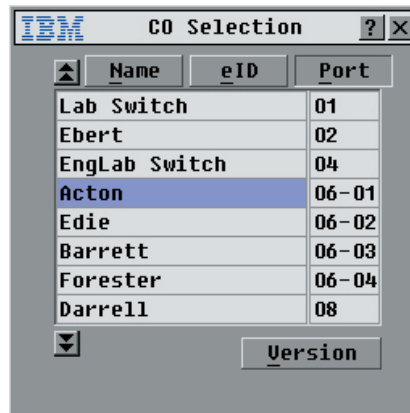

Figure 3.17: CO Selection Dialog Box

5. Select a KCO, UCO or CCO cable to view and click the **Version** button. The CO Version dialog box appears. For more information on loading firmware, see *Appendix A*.
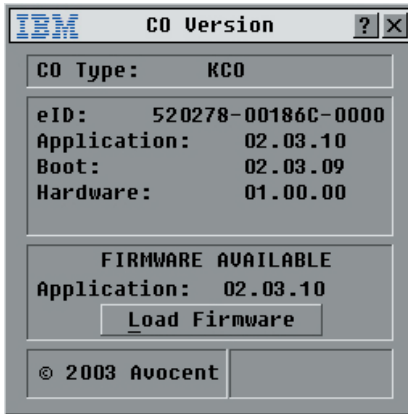
Figure 3.18: CO Version Dialog Box

6.   Click **X** to close the Version dialog box.

Scanning Your System

In scan mode, the RCM automatically scans from port to port (server to server). You can select up to 16 servers from a list of all servers attached to your unit. You can display the list by either the server's name or eID number by pressing the appropriate button.

NOTE: Scanning is only available to the analog user.

To add servers to the scan list:

1.   If OSCAR is not open, press **Print Screen**. The Main dialog box will appear.

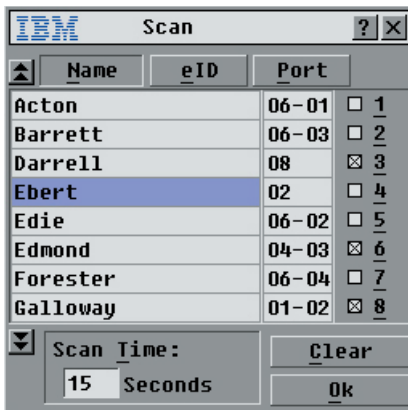2.   Click **Setup** - **Scan**. The Scan dialog box appears.

Figure 3.19: Scan Dialog Box

3.   The dialog box contains a listing of all the servers attached to your unit.

Click the checkbox next to the servers you wish to scan.
-or-
Double-click on a server's name or port.
-or-
Press **Alt** and the number of the server you wish to scan. You can select up to 16 servers.

4. In the Scan Time box, type the number of seconds (from 3 to 99) of desired time before the scan moves to the next server in the sequence.

5. Click **OK**.

To remove a server from the scan list:

1. In the **Scan** dialog box, deselect the checkbox next to a server to be removed.
    -or-
    Double-click on a server's name or port.
    -or-
    Click the **Clear** button to remove all servers from the scan list.

2. Click **OK**.

To start the scan mode:

1. If OSCAR is not open, press **Print Screen.** The Main dialog box will appear.

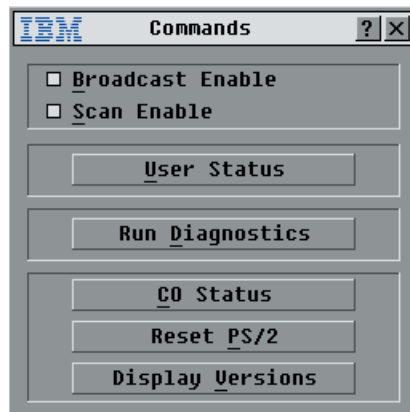2. Click **Commands**. The Commands dialog box appears.

Figure 3.20: Commands Dialog Box

3. Select **Scan Enable** in the Commands dialog box.

4. Click **X** to close the Commands dialog box.

NOTE: Scanning will begin as soon as **Scan Enable** is checked.

To cancel scan mode:

1. Select a server if OSCAR is open.
    -or-
    Move the mouse or press any key on the keyboard if OSCAR is not open. Scanning will stop at the currently selected server.
    -or-
    Press **Print Screen.** The Main dialog box will appear.

2. Click **Commands**. The Commands dialog box appears.

3. Clear **Scan Enable**.

Broadcasting to Servers

The analog user can simultaneously control more than one server in a system to ensure that all selected servers receive identical input. You can choose to broadcast keystrokes and/or mouse movements independently.

To access the Broadcast dialog box:

1. Press **Print Screen**. The Main dialog box will appear.

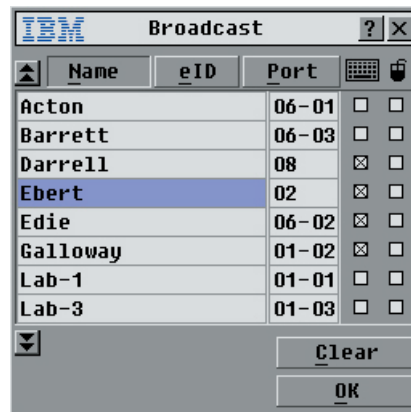2. Click **Setup** - **Broadcast**. The Broadcast dialog box appears.

Figure 3.21: Broadcast Dialog Box

NOTE: Broadcasting Keystrokes - The keyboard state must be identical for all servers receiving a broadcast to interpret keystrokes identically. Specifically, the **Caps Lock** and **Num Lock** modes must be the same on all keyboards. While the RCM attempts to send keystrokes to the selected servers simultaneously, some servers may inhibit and thereby delay the transmission.

NOTE: Broadcasting Mouse Movements - For the mouse to work accurately, all systems must have identical mouse drivers, desktops (such as identically placed icons) and video resolutions. In addition, the mouse must be in exactly the same place on all screens. Because these conditions are extremely difficult to achieve, broadcasting mouse movements to multiple systems may have unpredictable results.


To broadcast to selected servers:

1. From the Broadcast dialog box, select the mouse and keyboard checkboxes for the servers that are to receive the broadcast commands.
    -or-
    Press the **Up** or **Down Arrow** keys to move the cursor to the target server. Then press **Alt+K** to select the keyboard checkbox and/or **Alt+M** to select the mouse checkbox. Repeat for additional servers.

2. Click **OK** to save the settings and return to the Setup dialog box. Click **X** or press **Escape** to return to the Main dialog box.

3. Click **Commands**. The Commands dialog box appears.

4. Click the **Broadcast Enable** checkbox to activate broadcasting.

5. From the user station, type the information and/or perform the mouse movements you want to broadcast.

To turn broadcasting off:

From the Commands dialog box, clear the **Broadcast Enable** checkbox.

Figure 3.22: Commands Dialog Box
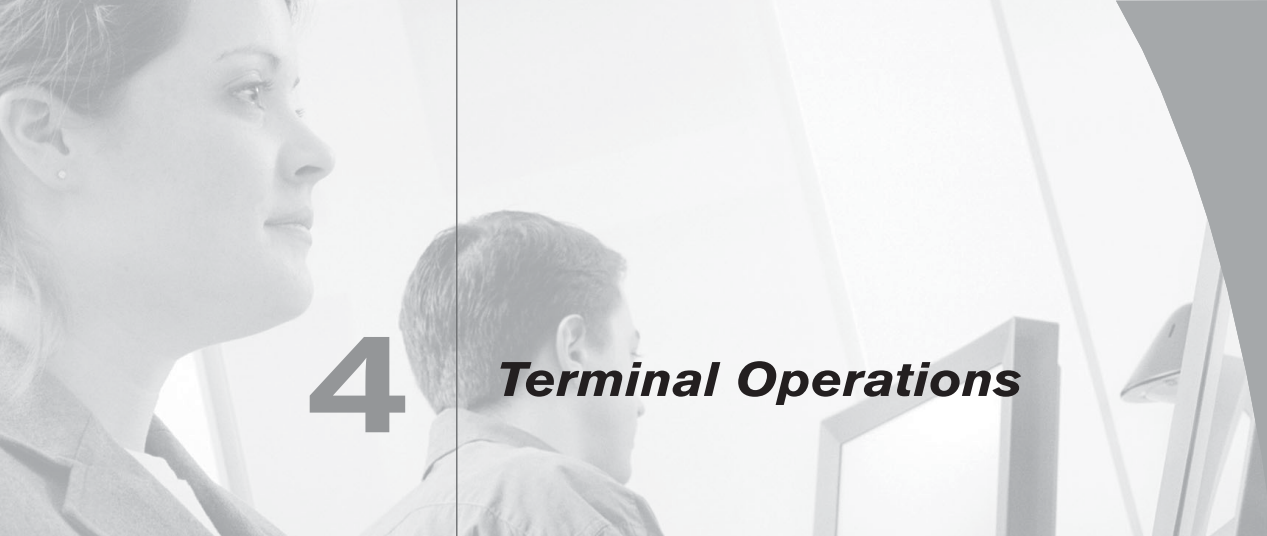
4 Terminal Operations

- ***Contents***

Chapter 4: Terminal Operations

Each individual RCM can be configured at the unit level through the configuration port on the back of the unit. All Terminal commands are accessed through a terminal or PC running terminal emulation software.

Configuring the Terminal Menu

The RCM Terminal Applications menu features five selections: Network Configuration, Firmware Management, Enable Debug Messages, Set/Change Password and Exit.
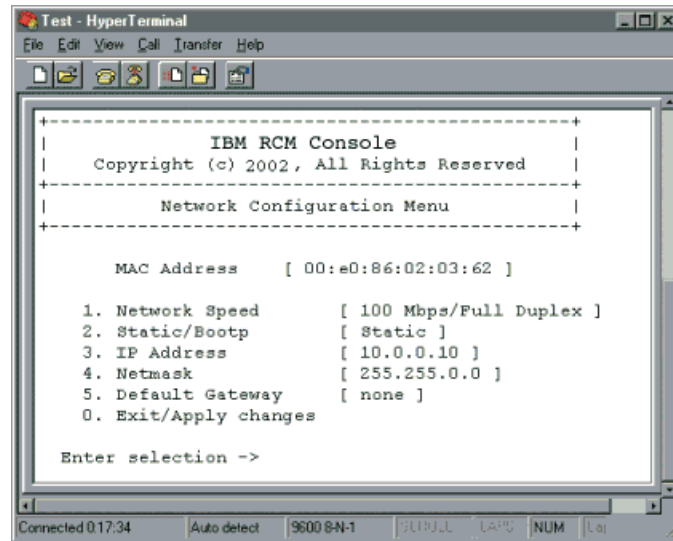

Figure 4.1: Network Configuration Menu

To access the Terminal menu:

1. Connect a terminal or PC running terminal emulation software (such as HyperTerminal) to the configuration port on the back panel of the RCM using a straight-through serial cable. The terminal should be set to 9600 baud, 8 bits, 1 stop bit, no parity and no flow control. The terminal may be connected at any time, even when the unit is powered.

2. Press any key to access the main menu.

Network Configuration

The RCM is configured for network access through this option. When it is selected, you will have access to the addressing that allows the RCM to be positioned in your network. For more information, see *Installing Your RCM* in Chapter 2.

Firmware Management

This menu option contains the FLASH Download command. The FLASH Download selection allows you to keep your RCM firmware current with upgrades available from IBM. For more information see *Appendix A: FLASH Upgrades.*

Enable Debug Messages

This menu option allows you to configure the RCM to display messages regarding the status of the RCM. Once you select the level of detail to receive, the RCM will begin to display information on your terminal screen. When you are finished viewing, press any key to exit this mode.

Set/Change Password

The RCM can be set to a secure mode where the Terminal menu cannot be accessed without first entering a password.

To activate security:

1. Select the **Set/Change Password** menu option. You will be prompted with the option to continue. Enter a **Y**.

2. Type a password for this RCM and press **Enter**. This password must be a minimum of 5 characters and can be up to a maximum of 12 characters (10 are visible). The password must consist of a combination of alpha and numeric characters.

3. You will be prompted to re-type the password. Once you complete this step, security will be active and you will not be able to access RCM terminal operations without the password.

To change the password:

1. Select the **Set/Change Password** menu option.

2. You will be prompted to type the old password and a new one.

3. Re-enter the new password to verify.

ATTENTION: This password places your RCM terminal in a secure mode. This password should be guarded like any network password and care should be taken to avoid forgetting or misplacing it. There are no means for recovering a lost password.

Exit

This menu selection will return you to the ready prompt.

Appendices

- ## Contents

Appendix A: FLASH Upgrades *53*

Appendix B: Technical Specifications *57*

Appendix C: Hardware Maintenance Information . . . *58*

Appendix D: Notices *59*

Appendix E: Electronic Emission Notices *61*

Appendices

Appendix A: FLASH Upgrades

Upgrading the RCM

The RCM FLASH upgrade feature allows you to upgrade your unit with the latest firmware available. To perform this update you will need a TFTP server. If you don't already have a TFTP server, there are several you can download from the internet.

Once you set up your TFTP server, you will need to download the latest FLASH firmware from IBM at http://www.ibm.com/pc/support or copy the FLASH upgrade file (.fl file extension) from the CD. Save the FLASH upgrade file to the appropriate directory on the TFTP server. Once this is complete, the following steps will upload the new FLASH file.

To upload a new FLASH file:

1. Connect a terminal or PC running terminal emulation software (such as HyperTerminal) to the configuration port on the back panel of the RCM. The terminal should be set to 9600 baud, 8 bits, 1 stop bit, no parity and no flow control.

2. Connect the LAN port on the RCM to an Ethernet hub that is also connected to the PC being used as the TFTP server.

3. Launch both the server software and the terminal emulation software.

4. Verify that the RCM is turned on. After approximately 40 seconds, the RCM will send out a message, *IBM RCM Ready__Press any key to continue.* Press any key to access the main menu. The RCM main menu appears.

5. Get the IP address of the TFTP server by extracting it from the OS tools (may be OS-dependent):
   a. Right-click on **Network Neighborhood**.
   b. Select **Properties**.
   c. Select the **Protocols** tab.
   d. Select **TCP/IP protocol**.
   e. Select **Properties** and note the IP address.

6. Assign the IP address in the RCM, if needed:
   a. In the HyperTerminal window, type **1** to select Network Configuration.
   b. Note the RCM's IP address. The first three numbers must be the same as in the server's IP address from step 4 above. The last number must be different. If the RCM's IP address is not correct, change it as follows: Type **3** to select IP address. Then enter the correct address.
   c. Type **Ø** to exit the network configuration menu. If you changed the IP address, wait per the directions on the screen.
   d. Change the RCM's IP address in the TFTP server software to match, if there was a change.

7. From the main menu, type **2** to select Firmware Management. The current version of your firmware displays on the Firmware Management menu.

8. From the Firmware Management menu, type **1** to select FLASH Download.

9. Type the name of the FLASH file and press **Enter**.

10. Confirm the TFTP download by typing **y** or **yes** and pressing **Enter**.

11. The RCM will verify the file you downloaded is valid. Next you will be prompted to confirm the upgrade. Type **y** or **yes** and **Enter**.

12. The RCM will begin the FLASH upgrade process. On-screen indicators will display the upgrade process. When the upload is complete, the RCM will reset and upgrade the internal subsystems.

ATTENTION: Do not cycle power to the RCM during this process. A loss of power might render the RCM inoperable and require the unit be returned to the factory for repair. Be patient; an update can take as long as 10 minutes.

---

13. Once the upgrade is complete, the startup message from step 4 will appear on the terminal screen.

Upgrading the CO firmware

The CO cables can be upgraded individually or simultaneously. When an upgrade is initiated, you will see a progress bar. As long as an upgrade is in progress, you cannot initiate another.

To simultaneously upgrade multiple CO cables:

1. Press **Print Screen.** The Main dialog box will appear.

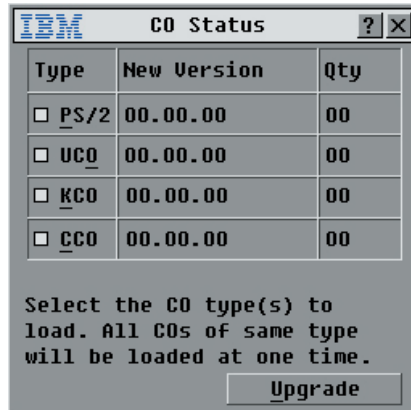2. Click **Commands** - **CO Status**. The CO Status dialog box appears.

Figure A.1: CO Status Dialog Box

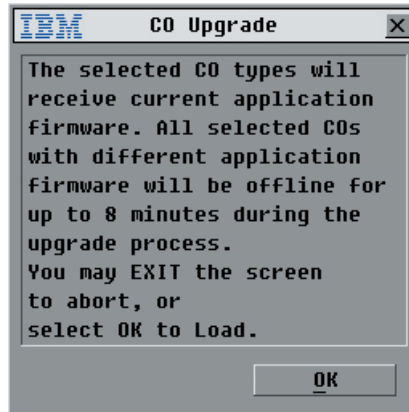3. Click one or more types of cables to upgrade. Click **Upgrade**.

Figure A.2: CO Upgrade Dialog Box

4. The CO Upgrade dialog box appears. Click **OK** to initiate the upgrade and return to the CO Status dialog box.

To upgrade CO firmware individually:

1. Press **Print Screen.** The Main dialog box will appear.

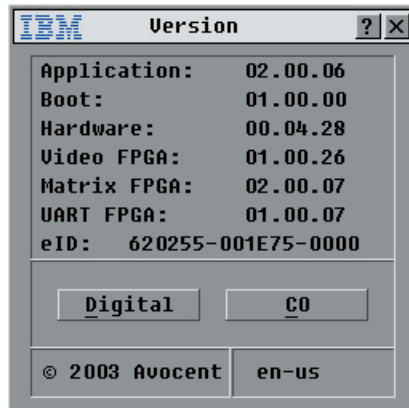2. Click **Commands** - **Display Versions**. The Version dialog box appears.

Figure A.3: Version Dialog Box

3. Click **CO** to view individual cable version information.
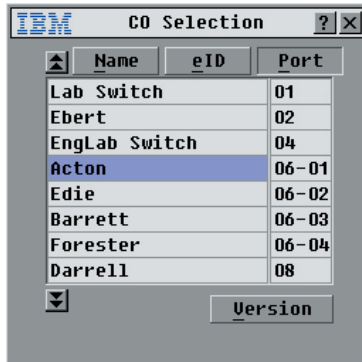
Figure A.4: CO Selection Dialog Box

4.   Select a KCO, UCO or CCO cable to upgrade and click the **Version** button. The CO Version dialog box appears.

Figure A.5: CO Version Dialog Box

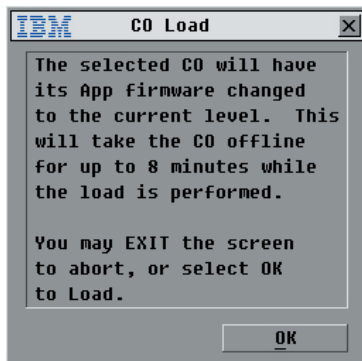5.   Click the **Load Firmware** button. The Load dialog box appears.

Figure A.6: CO Load Dialog Box

6.   Click **OK** to initiate the upgrade and return to the Status dialog box.

Appendix B: Technical Specifications

RCM Product Specifications

Server Ports		
	Number	16
	Types	KCO, CCO, UCO intelligent cables
	Connectors	RJ45
	Sync Types	Separate horizontal and vertical
	Plug and Play	DDC2B
	Video Resolution	Analog Port Maximum 1600 x 1280 @ 75 Hz Digital Port Maximum 1280 x 1024 @ 75 Hz
Configuration Port		
	Number	1
	Type	Serial RS232
	Connector	DB9 Female
Network Connection		
	Number	1
	Type	Ethernet: IEEE 802.3, 10BaseT, Fast Ethernet: IEEE 802.3U, 100BaseT
	Connector	RJ45
Analog Port		
	Number	1
	Type	PS/2 and VGA
	Connectors	PS/2 MiniDIN and 15-pin D
Dimensions		
	Dimensions (HxWxD)	4.45 x 43.18 x 27.94 cm 1U form factor (1.75 x 17.00 x 11.00 in)
	Weight	3.6 kg (8 lb) without cables
	Heat Dissipation	92 BTU/Hr
	Airflow	8 cfm
	Power Consumption	25 W
	AC-input power	40 W maximum
	AC-input voltage rating	100 to 240 VAC Autosensing
	AC-input current rating	1A
	AC-input cable	18 AWG three-wire cable, with a three-lead IEC-320 receptacle on the power supply end and a country or region dependent plug on the power resource end
	AC-frequency	50/60 Hz
	Temperature	10° to 50° Celsius(50° to 122° Fahrenheit) operating -20° to 60° Celsius (-4° to 140° Fahrenheit) nonoperating
	Humidity	20 to 80% noncondensing operating 5 to 95% noncondensing nonoperating
Agency Approvals		
	EN55022 Class A, EN55024, EN61000-3-3, FCC15 Class A, VCCI Class A, IEC950, EN60950, UL 1950 third edition, CSA C22.2 No. 950	

Appendix C: Hardware Maintenance Information

This appendix contains information about IBM Field Replaceable Unit (FRU) availability for the RCM. Troubleshooting and servicing of complex problems should be performed only by trained service personnel.

Field Replaceable Unit part numbers

IBM FRU part numbers are subject to change without notice. The following table contains a listing of the FRU part numbers available at the time this document was published.
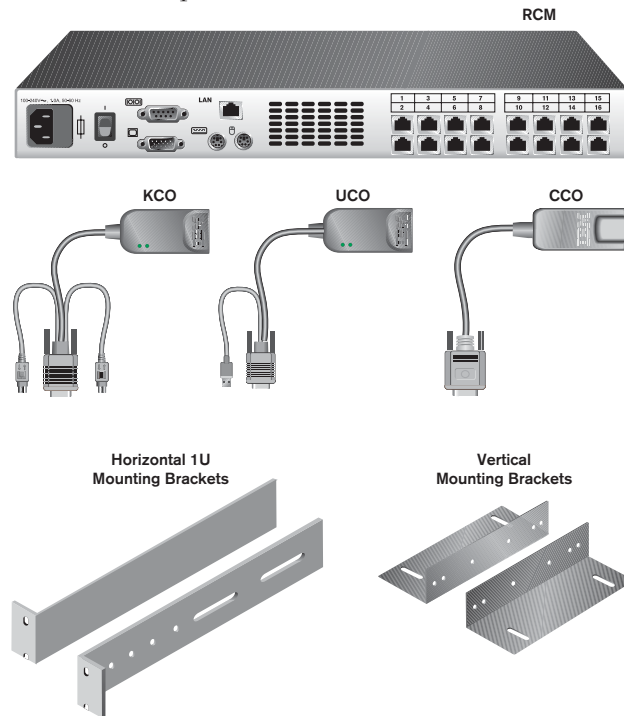

Figure C.1: FRU Parts

FRU Part #	Description
P/N: 32P1653	NetBAY 16 Port Remote Console Manager (RCM) FRU
P/N: 32P1646	C2T Conversion Option (CCO) FRU
P/N: 32P1645	KVM Conversion Option (KCO, short)(250mm) FRU
P/N: 32P1654	KVM Conversion Option (KCO, long)(1.5M) FRU
P/N: 73P5835	USB Conversion Option (UCO) FRU
P/N: 32P1711	Miscellaneous FRU Parts Kit
P/N: 32P1713	Terminator FRU Kit

Appendix D: Notices

This publication was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this publication to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product, and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Edition notice

Trademarks

IBM and NetBAY are trademarks of International Business Machines Corporation in the United States, other countries, or both.

Microsoft, Windows and Windows NT are trademarks of Microsoft Corporation in the United States, other countries, or both.

Linux is a registered trademark of Linus Torvalds.

Other company, product, or service names may be the trademarks or service marks of others.

Important notes

Processor speeds indicate the internal clock speed of the microprocessor; other factors also affect application performance.

CD-ROM drive speeds list the variable read rate. Actual speeds vary and are often less than the maximum possible.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for approximately 1000 bytes, MB stands for approximately 1 000 000 bytes, and GB stands for approximately 1 000 000 000 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity may vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard disk drive bays with the largest currently supported drives available from IBM.

Maximum memory may require replacement of the standard memory with an optional memory module.

IBM makes no representation or warranties regarding non-IBM products and services that are ServerProven®, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. These products are offered and warranted solely by third parties.

IBM makes no representations or warranties with respect to non-IBM products. Support (if any) for the non-IBM products is provided by the third party, not IBM.

Some software may differ from its retail version (if available), and may not include user manuals or all program functionality.

Appendix E: Electronic Emission Notices

Federal Communications Commission (FCC) statement

NOTE: 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Class A statement

ATTENTION: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

United Kingdom telecommunications safety requirement

Notice to customers
This apparatus is approved under approval number NS/G/1234/J/100003 for indirect connection to public telecommunication systems in the United Kingdom.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electro-magnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a nonrecommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

ATTENTION: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Taiwan electrical emission statement

警告使用者:
這是甲類的資訊產品,在
居住的環境中使用時,可
能會造成射頻干擾,在這
種情況下,使用者會被要
求採取某些適當的對策。

Japanese Voluntary Control Council for Interference (VCCI) statement

この装置は、情報処理装置等電波障害自主規制協議会(VCCI)の基準に
基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を
引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求
されることがあります。