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Hitachi Freedom Storage™
Lightning 9900™
Remote Console User's Guide

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Note: The list of error codes that was previously published as part of this document is now being published as a separate document. See *Hitachi Freedom Storage™ Lightning 9900™ Remote Console Error Codes* MK-90DD029.

Preface

This *Hitachi Freedom Storage™ Lightning 9900™ Remote Console User's Guide* provides instructions for installing the 9900 remote console PC and using the RMCMAIN (Remote Console Main) software for the 9900 subsystem. Please read this manual carefully to understand how to manipulate your 9900 storage subsystems using your remote console PC, and maintain a copy that is accessible from your remote console PC for reference purposes.

This user's guide assumes that:

- the user has a background in data processing and understands direct-access storage device (DASD) subsystems and their basic functions,
- the user is familiar with the Hitachi Freedom Storage™ Lightning 9900™ array subsystem, and
- the user is familiar with the Windows 95®, Windows 98®, Windows NT® or Windows 2000® operating systems.

For further information on the Hitachi Freedom 9900 subsystem, please refer to the *Hitachi Freedom Storage™ Lightning 9900™ User and Reference Guide* (MK-90RD008), or contact your Hitachi Data Systems account team. The Hitachi Data Systems worldwide web site (http://www.hds.com) also provides information on the 9900 subsystem and its features and functions.

Note: In this document the term "9900" refers to the entire Hitachi Freedom Storage™ 9900 subsystem family, unless otherwise noted.

Note: The use of the Hitachi Freedom Storage™ Lightning 9900™ remote console, the RMCMAIN software product and any optional functions is governed by the terms of the applicable license and other agreement(s) with Hitachi Data Systems.

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1.1 9900 Remote Console Operations

The 9900 remote console is the personal computer system (PC) that hosts the Remote Console Main software products (RMCMAIN) for the Hitachi Freedom Storage™ Lightning 9900™ disk array subsystem. The remote console PC can be attached to several 9900 subsystems via the TCP/IP local-area network (LAN). There are two types of LANs: the 9900 internal LAN (private LAN) and the user's intranet (public LAN) for using the remote console functions by individual PCs. The remote console PC communicates directly with the service processor (SVP) of each attached subsystem to obtain subsystem configuration and status information and send user-requested commands to the subsystem. The 9900 remote console software runs under the Windows operating system to provide a user-friendly interface for the 9900 remote console functions.

The RMCMAIN software product for the 9900 remote console PC displays the configuration information for the attached 9900 subsystems and enables the user to perform the following types of operations:

- Adding or deleting users, and assigning user access (see section 3.2).
- Adding and deleting controllers (see section 3.3).
- Connecting to the subsystem and launching feature options (see sections 3.4 and 3.5).
- Remote service information messages (R-SIM) operations (see section 3.6).
- Downloading a later version of the RMCMAIN software (see section 3.7).
- Making a backup copy of your system configuration (see section 3.8).

The RMCMAIN software provides three basic levels of user access: administrator access, custom access, and view access. Administrators have modify access to all remote console functions. Certain functions are referred to as “administrator only”, such as the ability to configure the remote console for controller, user, and option functions. The remaining functions are referred to as restricted functions, and non-administrators can be assigned custom (modify) access to one or more of these functions. All other users have view-only access to installed remote console functions. The ability to assign custom user-access privileges allows maximum flexibility and control over the 9900 remote console functions.

This user’s guide does not cover all 9900 remote console PC features or remote console software products. For further information on 9900 features software products, contact your Hitachi Data Systems account team, or visit the Hitachi Data Systems worldwide web site at http://www.hds.com.

1.2 Hitachi Freedom Storage™ Lightning 9900™ Subsystem

The Hitachi Freedom Storage™ Lightning 9900™ subsystem provides high-speed response, continuous data availability, scalable connectivity, expandable capacity, and advanced new capabilities. Host connectivity options include all-mainframe, all-open, and multiplatform configurations. The all-mainframe 9900 subsystem supports serial (compatible with ESCON® protocol) and parallel (metal, bus & tag) channel ports. The all-open 9900 subsystem supports fibre-channel ports. The multiplatform 9900 subsystem is configured with both mainframe and open-system channel ports.

For further information on the 9900 subsystem, refer to the *Hitachi Freedom Storage™ Lightning 9900™ User and Reference Guide* (MK-90RD008), or contact your Hitachi Data Systems account team. The Hitachi Data Systems worldwide web site (http://www.hds.com) also provides information on the 9900 subsystem, including its features and options.

1.3 Important Terms and Concepts

The 9900 remote console user should be familiar with the following terms and concepts:

- **Controller**. The 9900 subsystem has one controller that controls all data access and storage operations. The 9900 controller provides up to sixteen logical control unit (CU) images and supports 3990-3, -6, and -6E controller emulation.
- **Parity group**. A parity group is a set of hard disk drives that have the same capacity and are treated as one group. For example, a parity group of 18-GB disk drives in a RAID-5 configuration consists of four disk drives (3 data and 1 parity). A parity group contains both user data and parity information, and the parity information is used to automatically reconstruct the user data if one of the disk drives in the parity group becomes unavailable.
- **LDEV**. The 9900 subsystem supports a maximum of 4,096 logical devices (LDEVs). An LDEV used by mainframe hosts can be called a device, logical volume image (LVI) or a volume.
- **LU**. An LDEV used by open-system hosts is called a logical unit (LU). Open-system fibre interfaces access LUs that are mapped to one or more LDEVs. The number of possible LUs depends on the size of the LU required by the user.
- **CU**. The 9900 subsystem supports a maximum of 16 logical control unit (CU) images. Each CU image controls up to 256 LDEVs. The CUs are numbered sequentially from 0-F. LDEVs are accessed within the 9900 subsystem by a combination of CU number (0-F) and device number (00-FF), as follows:

Table 1.1 Device Numbers for Each CU

CU Number	Possible Device Numbers	CU Number	Possible Device Numbers
0	0:00 to 0:FF	8	8:00 to 8:FF
1	1:00 to 1:FF	9	9:00 to 9:FF
2	2:00 to 2:FF	A	A:00 to A:FF
3	3:00 to 3:FF	B	B:00 to B:FF
4	4:00 to 4:FF	C	C:00 to C:FF
5	5:00 to 5:FF	D	D:00 to D:FF
6	6:00 to 6:FF	E	E:00 to E:FF
7	7:00 to 7:FF	F	F:00 to F:FF

Chapter 2 Installation Requirements and Procedures

2.1 System Requirements

The 9900 Remote Console Main (RMCMAIN) software runs on the 9900 remote console PC and communicates with the attached 9900 subsystems via the TCP/IP network. The system requirements for the 9900 RMCMAIN software are:

- Hitachi Freedom Storage™ Lightning 9900™ 9900 subsystem(s). The 9900 remote console PC can be attached to a maximum of 16 9900 subsystems. If you have combined subsystem types (9900, 7700E and/or 7700C), the 9900 remote console PC may be attached to a maximum of 8 subsystems. ***Note:*** If you use the remote console PC via the public LAN, you must have the SNMP Support Kit (DKC-F410I-SNMP) installed in the 9900 subsystem.
- 9900 remote console PC(s). You can install more than one remote console PC, but a 9900 subsystem can be actively connected to at most one Remote Console at a time. For instructions on installing a backup remote console PC, see section 2.7.4.
  - Operating system: Windows 95®, Windows 98®, Windows NT® or Windows 2000®.
  - Processor: 200 MHz Pentium® or better
  - Memory (RAM): 32 MB or more
  - Available hard drive space: 20 MB or more
  - Monitor: VGA with 256 colors or better.
    Note: Set the display properties to small fonts.
  - Keyboard and mouse: no special requirements
  - 3.5-inch floppy disk drive
  - CD-ROM drive
  - Ethernet LAN card for 9900-internal LAN (3Com model 3C509B recommended).
- LAN cables and connections:
  - Ethernet transceiver (AUI to BNC; Allied Telisis model AT-MX10 recommended). If the 9900 is already on an internal 9900 LAN, this is not required.
  - Thinnet coaxial cable. For twisted pair connections, contact the Hitachi Data Systems Technical Support Center for assistance.
  - Two Thinnet BNC terminators. If the 9900 is already on an internal 9900 LAN, these are not required.
  - Two Thinnet BNC “T” connectors, female-male-female type. If the 9900 is already on an internal 9900 LAN, only one “T” connector is required.
  - The total length of the LAN cables must not be greater than 185 meters (607 feet).
- RMCMAIN software installation diskettes.
- RMCMAIN (Remote Console) and DKCMAIN (Disk Controller) software license keys for optional features.

2.2 License Keys

Table 2.1 lists the features for the 9900 and their associated option names.

Table 2.1 Remote Console Options

Feature	Option Name	Notes
LUN Manager LU Size Expansion LUN Security	Remote SCSI (LUNM) Remote LUSE Remote LUN Security	LUSE and LUN Security require LUNM.
FlashAccess for S/390® FlashAccess for Open Systems	Remote DCR Remote ODCR	
Virtual LVI Virtual LUN	Remote CVS Remote OCVS	
Dynamic Optimizer	Remote HIHSM	
LDEV Security	Remote LDEV Security	
Hitachi Remote Copy, Synchronous Hitachi Remote Copy, Asynchronous Hitachi Remote Copy-Open Hitachi Remote Copy-Open, Asynchronous Hitachi Extended Remote Copy	Remote HRC Remote HRC Asynchronous Remote HORC Remote HORC Asynchronous Remote HXRC	HRCA requires HRC. HORCA requires HORC.
ShadowImage for S/390® ShadowImage for Open Systems	Remote HMRCF Remote HOMRCF	
Prioritized Port Control	Remote Prioritized Port Control	

Note: Contact your Hitachi Data Systems account team for the latest information on 9900 features and options.

A license key is a textual key that functions as a password, because it is entered into remote console PC and unlocks the protection of a program product. Because each license key is generated with a subsystem serial number and program product ID input, each subsystem requires a unique license key number. License key numbers for each program product and subsystem are provided at the time of purchase.

There are three types of license keys: a temporary key, a permanent key, and an emergency key. A temporary key is for trial use. 75 days after the temporary license key is installed (or when there are 45 days left before the expiration), a warning message is displayed on the Remote Console panel when you either start the remote console PC or connect to a controller with the temporary license key. After 120 days, the temporary license key expires. A SIM is displayed that warns the user of the expiration of the license key, and the license key expiration is also reported to the host.

For HRC, HRCA, HORC, HORCA, HMRCF, HOMRCF, LUNM, LUSE, LUN Security, HMBR, and HXRC the expiration of a temporary license key will have the following effects:

- No new configuration settings may be performed.
- The configuration settings that were made before the temporary license key expired remain in effect and cannot be deleted.
- Non-configuration settings that were made before the temporary license key expired can be deleted.

For CVS, OCVS, DCR, and ODCR the expiration of a temporary license key will have the following effects:

- No new configuration settings may be performed.
- The configuration settings that were made before the temporary license key expired remain in effect and cannot be deleted.

For Prioritized Port Control, the expiration of a temporary license key will have the following effects:

- No monitoring functions may be performed.
- No new configuration settings (e.g. upper limit control, threshold control, or selection of port type) may be performed.
- Configuration settings that were made before the temporary license key expired may be expunged by selecting the **Release** button on the Port Control panel.

An emergency license key is used in situations where the temporary key is set to expire in the near future and the user cannot get the permanent key in time because of special circumstances (e.g. a licensed server has crashed or there are problems with the communication infrastructure). An emergency key may also be used when a user who does not intend to purchase the program product needs to undo a configuration change that was made during the lifetime of the temporary license key. An emergency key is effective for 10 days.

2.3 Hardware Installation

The user installs the 9900 remote console PC hardware and software (including the backup remote console PC, if any). The Hitachi Data Systems representative will install the DKCMAIN software and LAN cabling.

You will need to document the serial numbers (SNs) and IP addresses of each of the 9900 subsystems. The SNs are required for Remote Console operations. The IP addresses are used to test the LAN connections. ***Note:*** If you use the remote console PC via the public LAN, you can specify arbitrary numbers for IP address(es) for a 9900 subsystem (e.g. xxx.xxx.xxx.xxx).

If you use the remote console PC via the private LAN, the following calculation method is applied to calculate the SVP IP address for a 9900 subsystem:

a) The base IP address for the 9900 subsystem is "**126.xxx.yyy.15**".

b) To obtain the values for **xxx** and **yyy**, calculate as follows:

   Provided that SN stands for the serial number of the 9900 subsystem,
   xxx = (SN + 2000) / 256
   yyy = (SN + 2000) mod 256

c) If the calculated IP address conflicts with an existing 7700E subsystem, the 9900 subsystem resets the IP address to a unique one by calculating as follows:

   Provided that SN stands for the serial number of the 9900 subsystem,
   xxx = (SN + 4000) / 256
   yyy = (SN + 4000) mod 256

Note: If a conflict still occurs, investigate the SVP IP addresses of all subsystems and obtain a unique IP address for the desired 9900 subsystem.

Note: It is important to verify that you have a unique IP address for each SVP, to avoid any conflicts. You can also contact your Hitachi Data Systems support center for assistance in assigning IP addresses.

2.4 Windows Network and TCP/IP Configuration

After installing the RMCMAIN software, you must configure the Windows network settings for TCP/IP LAN communications. The following instructions are written for Windows 95®. For Windows 98®, Windows NT® or Windows 2000®, set the TCP/IP parameters according to the procedures for that operating system.

1. Open the Control Panel, and select **Network** to open the Network panel.
2. On the **Configuration** section of the Network panel (see Figure 2.1), verify that the network adapter (e.g. 3Com Etherlink III) is displayed in the list of installed network components. If the network adapter is not installed, install the network adapter as follows:
   a) Select **Add…**, then select **Adapter** from the list of network components, and then select **Add…** to install the network adapter.
   b) Select the appropriate manufacturer (e.g., **3Com**) from the list of manufacturers, select the appropriate adapter from the list of network adapters, and then select **OK**.
3. In that same section, verify that TCP/IP is displayed in the list of installed network components. If not, install TCP/IP as follows:
   a) Select **Add…**, select **Protocol** from the list of network components, and then select **Add…** to add a network protocol.
   b) Select **Microsoft®** from the list of manufacturers, then select **TCP/IP** from the list of network protocols, and then select **OK**.
4. Verify that the network adapter is bound to TCP/IP (see Figure 2.2). If the adapter is not bound, bind the network adapter to TCP/IP as follows:
   a) Select the network adapter, and then select **Properties**.
   b) Select the **Bindings** tab, check the **TCP/IP** box, and then select **OK**.
5. Select **TCP/IP**, select **Properties**, and then configure TCP/IP as follows:
   a) In the **IP Address** section, enter the IP address of the remote console PC. In the **Subnet Mask** section enter the subnet mask of your network.
      Note: If you have a second remote console PC, set its IP address to a different IP address (same subnet mask) to avoid conflict with the primary remote console PC (see Figure 2.3).
   b) Select the **WINS Configuration** tab, and verify that WINS resolution is disabled (see Figure 2.4).
   c) Select the **Gateway** tab, and verify that this section is blank (see Figure 2.5).
   d) Select the **DNS Configuration** tab, and verify that **DNS** is disabled (see Figure 2.6).
6. Select **OK** to close the TCP/IP Properties panel, and then select **OK** to close the Network panel. When the System Settings Change panel appears, select **Yes** to restart the computer.
7. Test the LAN connection to each attached subsystem using the PING DOS command: **PING xxx.xxx.xxx.xxx**, where xxx.xxx.xxx.xxx is the IP address of the 9900 SVP (***Note:*** If you use the private LAN, the IP address should be 126.xxx.xxx.15).

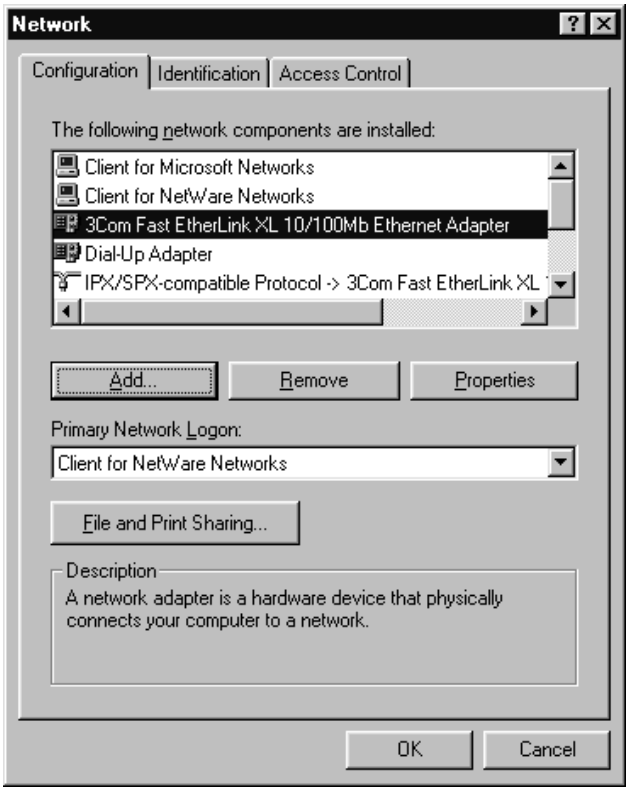

Figure 2.1 Sample Installed Network Adapter

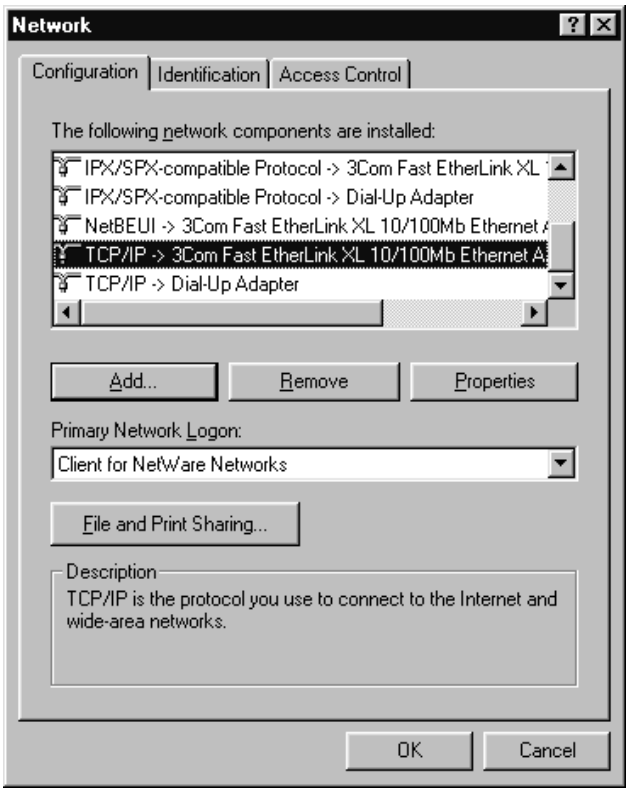

Figure 2.2 Network Adapter Bound to TCP/IP

Figure 2.3 TCP/IP Settings, IP Address Panel

Figure 2.4 TCP/IP Settings, WINS Configuration Panel

Figure 2.5 TCP/IP settings, Gateway Panel

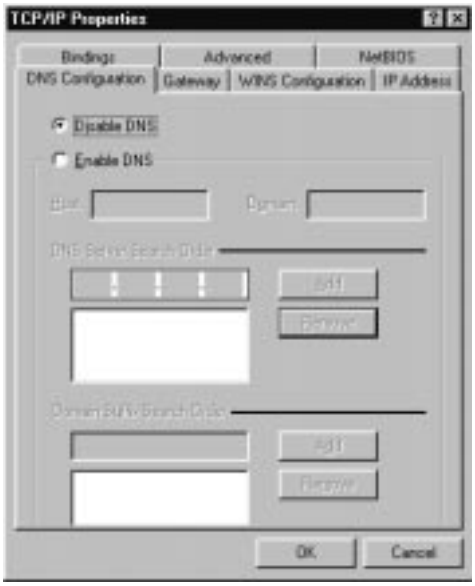

Figure 2.6 TCP/IP Settings DNS Configuration Panel

2.5 Installing the Remote Console Software

Note: If you are using Windows NT, you must be logged in as an administrator in order to install the RMCMAIN software.

If you already have the RMCMAIN software in your remote console PC and want to upgrade the RMCMAIN software, first verify that the version of the software you are installing is higher than that which is currently on the remote console PC. This is important, because a higher version of the RMCMAIN software can also be downloaded from the SVP (see section 3.7).

You can either upgrade the RMCMAIN software without deinstalling the older version, thereby maintaining the old settings (e.g. user information passwords and subsystem information), or you can delete the current version of the software and re-install it, which will initialize all of the settings.

To deinstall the existing RMCMAIN software:

1. Select **Settings**, then **Control Panel**, then **Add/Remove Programs**.
2. Select **Remote Console 4.0**, and then select the **Add/Remove...** button.
3. Before installing the new version of the RMCMAIN software, you must also delete the installation directory (folder) from the hard drive, including all subfolders.

To install the RMCMAIN software on the Remote Console:

1. Insert the installation diskette or CD-ROM.
2. From the **Start** menu, select **Run…** to open the Run panel.
   a) If you are using the floppy diskette, type `a:\setup` (where **a:** is the floppy disk drive), then select **OK**.
   b) If you are using the CD-ROM, type `d:\program\rmc\rmcmain\setup` (where **d:** is the CD-ROM drive), then select **OK**.
3. The Welcome panel (see Figure 2.7) opens. Select **Next >** to continue installing 9900 RMCMAIN software. Select **Cancel** to stop the installation.
4. The Information panel (see Figure 2.8) opens. This panel shows the version of RMCMAIN to be installed and the version of existing RMCMAIN installed on the remote console PC. Select **Next >** to continue installing 9900 RMCMAIN software, or select **< Back** to return to the Welcome panel. If you want to stop installation, select **Cancel**.
5. On the Choose Destination Location panel (see Figure 2.9), click on **Browse**, then select the folder in which you want to install the 9900 RMCMAIN software. *Note:* You can specify up to eight alphanumeric characters for the folder name. Either select **Next >** to continue, or select **< Back** to return to the Information panel. If you want to stop the installation, select **Cancel**.
6. Confirm the settings displayed on the Start Copying Files panel (see Figure 2.10). Select **Next >** to continue, or select **< Back** to return to the Choose Destination Location panel. If you want to stop installation, select **Cancel**.

7. If you are using floppy diskettes, insert diskettes 2 to 4 into the floppy disk drive when the instructions appear on screen. The Progress panel indicates the status of the installation (see Figure 2.11).
8. If an error message appears during the RMCMAIN installation, see Chapter 4 for troubleshooting instructions.
9. The Setup Complete panel appears after the software has successfully loaded (see Figure 2.12). Remove any diskette from the floppy disk drive, or CD-ROM from the CD-ROM drive, select **Yes, I want to restart my computer now**, and then **Finish** to reboot the remote console PC.
10. After the PC reboots, click on **Start**, then **Programs**, and verify that the Remote Console software is installed in the **Start/Programs** menu (e.g., **Remote Console 4.0**). If an error message appears during RMCMAIN installation, see Chapter 4 for troubleshooting instructions.

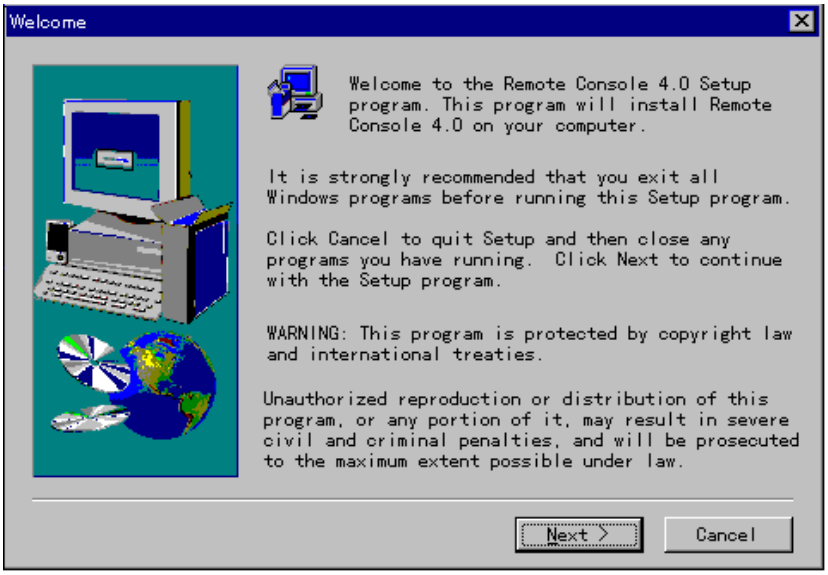

Figure 2.7 Welcome Panel

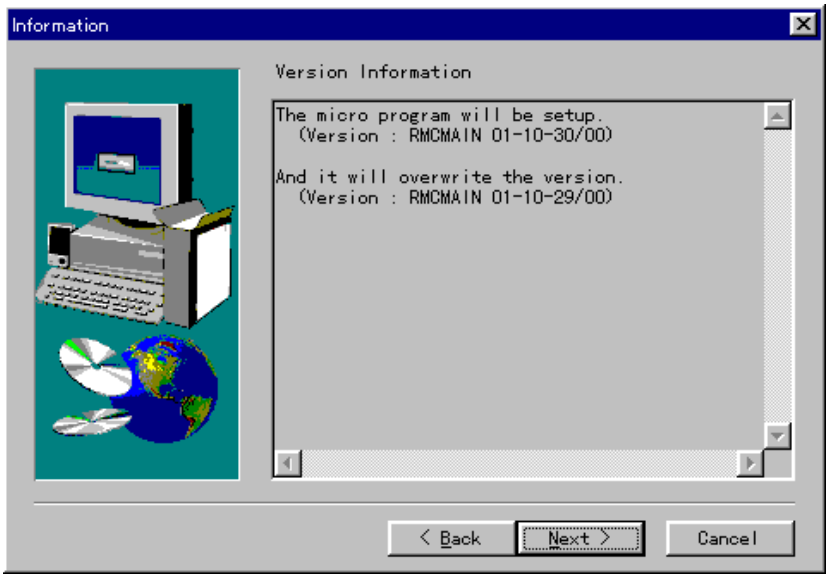

Figure 2.8 Information Panel

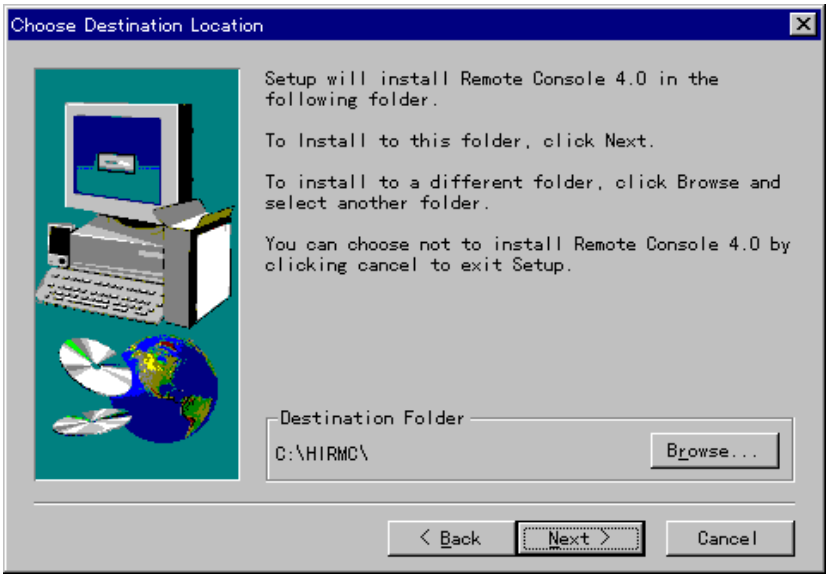

Figure 2.9 Choose Destination Location Panel

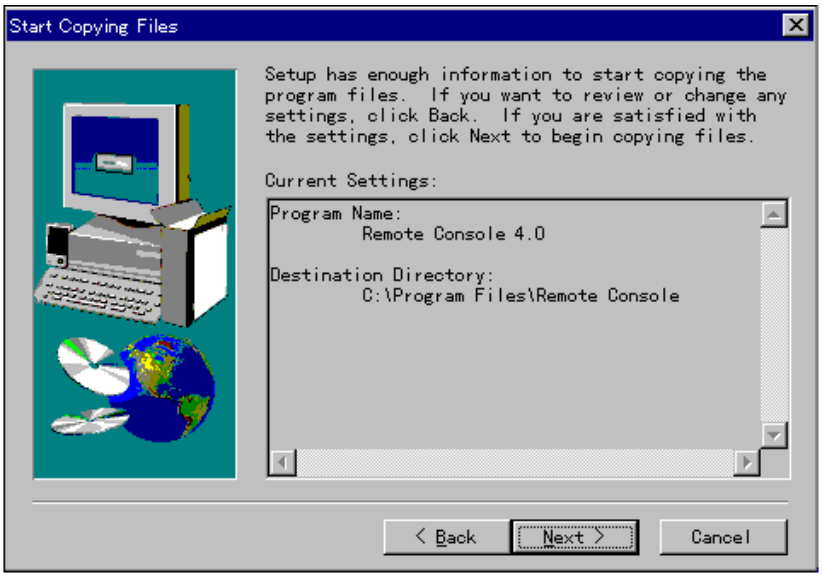

Figure 2.10 Start Copying Files Panel

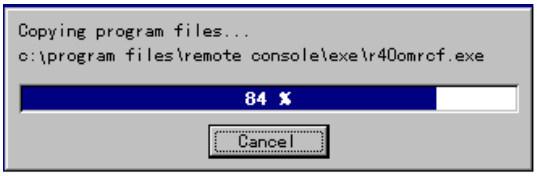

Figure 2.11 Progress Panel

Figure 2.12 Setup Complete Panel

2.6 Starting Up and Logging In

All 9900 Remote Console users are required to log in to the Remote Console with a valid user name and password.

Note: Because the initial user name has administrative-level access, one of the first tasks for the 9900 Remote Console administrator should be to change the password, in order to maintain protection of the administrator-only and restricted functions.

To start up and log in to the 9900 Remote Console (RMCMAIN) software:

1. From the Windows Start menu, select **Programs**, select the **Remote Console** program group, and then select **Remote Console 4.0**.
2. When the Login panel appears (see Figure 2.13), enter your user name and password. All user names and passwords are case sensitive. If you are logging in for the first time, use the initial user name (USER) and password (USER) to log in as administrator.
3. Select **OK** to open the Remote Console Main panel (see Figure 2.14).

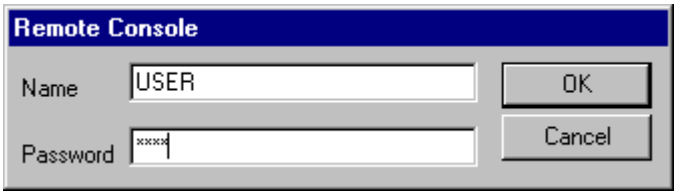

Figure 2.13 Login Panel

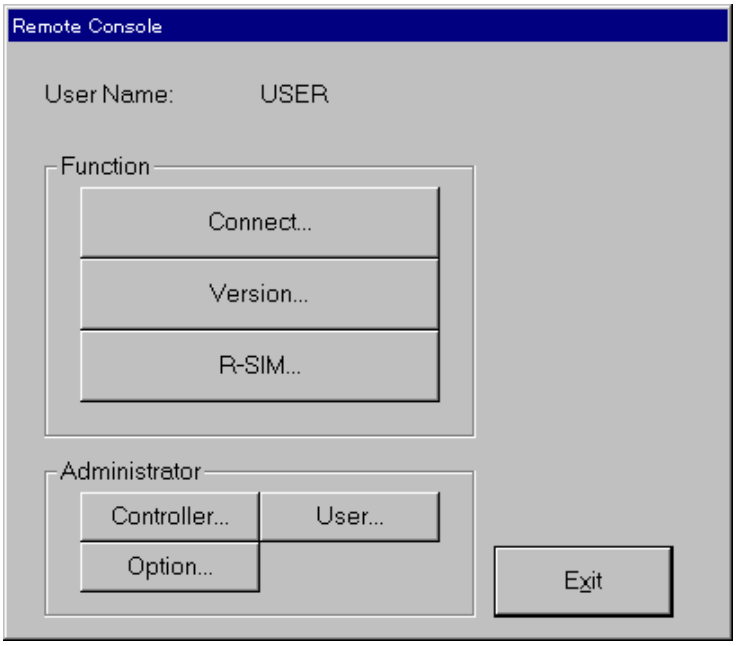

Figure 2.14 Remote Console Main Panel

2.7 Enabling Options on the Remote Console PC and the SVP

The 9900 Remote Console options can only be enabled by remote console PC users with administrator access privileges.

This section describes the following tasks:

- Enabling the LUN Manager option (see section 2.7.1)
- Enabling the HMBR or HXRC options (see section 2.7.2)
- Enabling all other options (see section 2.7.3)
- Deinstalling an option (see section 2.7.4)

Once an option is enabled, modify access to that option is then available to administrators and to users with custom access privileges for that option. Users without either administrator access or custom access privileges for a particular option have view (read-only) access.

The RMCMAIN Option Product panel (see Figure 2.15) displays the RMCMAIN options and their current installation status (**Install** or **Not install**). To access the RMCMAIN Option Product panel, select the **Option…** button on the Remote Console Main panel.

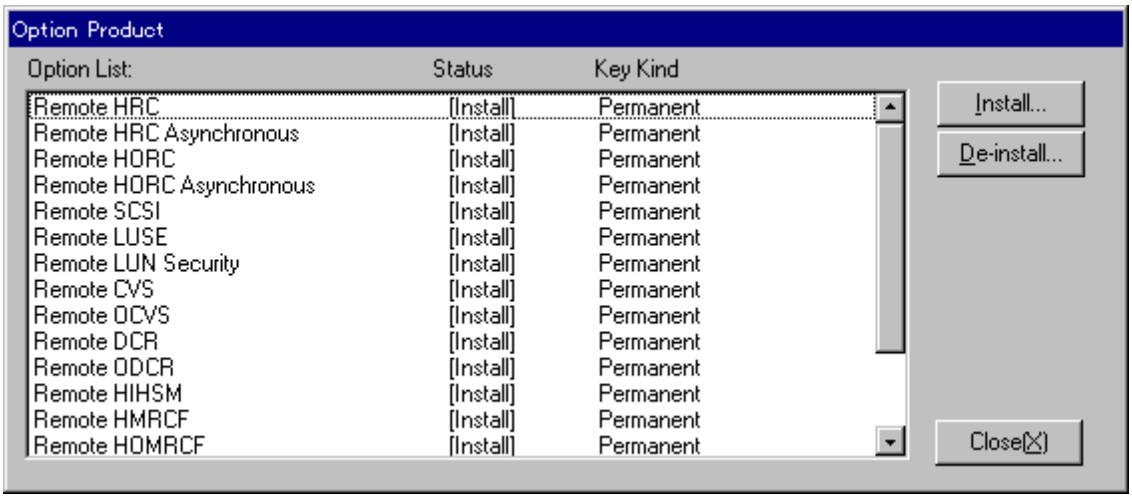

Figure 2.15 RMCMAIN Option Product Panel

The RMCMAIN Option Product panel has the following features:

- The **Option List** displays the available RMCMAIN options.
- The **Status** list shows the current status of each option (**Install** or **Not Install**).
- The **Key Kind** list shows the license type (**Temporary**, **Permanent**, or **Emergency**)
- The **Install…** button opens the Input Key Code panel (see Figure 2.17), which will prompt you for a password to complete the installation process.
- The **De-install…** button allows you to deinstall the selected option (see section 2.7.4).
- The **Close** button closes the Option Product panel.

The DKCMAIN Option Product panel (see Figure 2.16) displays the DKCMAIN options and their current installation status (**Install** or **Not install**). To access the DKCMAIN Option Product panel, select the **Controller…** button on the Remote Console Main panel, select the first subsystem on which you want to enable the option on the Connection Control panel (see Figure 2.19), and then select the **Install…** button.

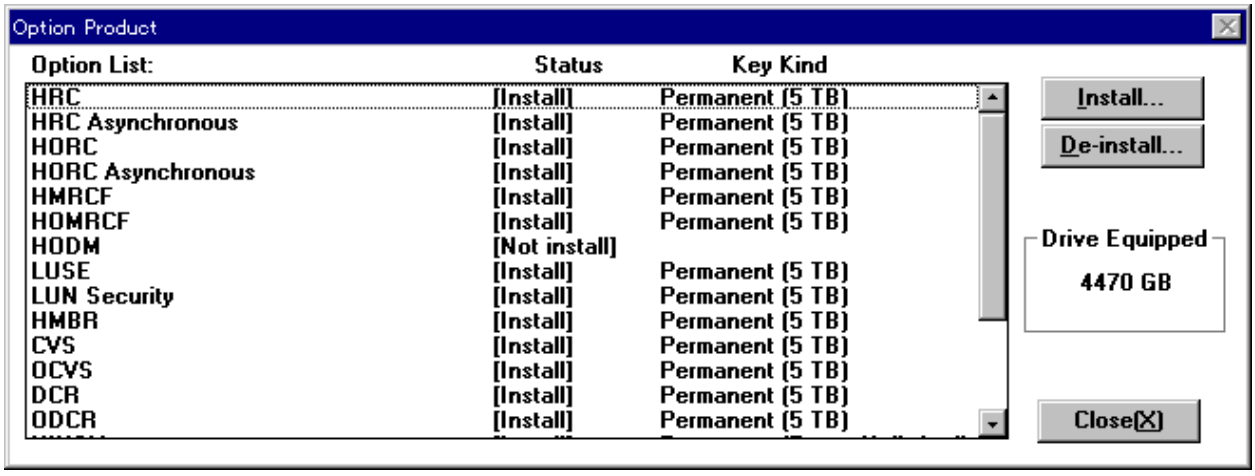

Figure 2.16 DKCMAIN Option Product Panel

The DKCMAIN Option Product panel has the following features:

- The **Option List** displays the available DKCMAIN options.
- The **Status** list shows the current status of each option (**Install** or **Not Install**).
- The **Key Kind** list displays the license type (**Temporary**, **Permanent**, or **Emergency**) and the maximum capacity of the PDEVs (physical devices) that the user is licensed to use. (***Note:*** If **[Free]** is displayed in the **Key Kind** list, this indicates that the capacity can be up to the amount shown in **Drive Equipped** box.)
- The **Capacity** list displays the maximum capacity of the PDEVs (physical devices) that the user is licensed to use. (***Note:*** If **Free** is displayed in the **Capacity** list, this indicates that the capacity can be up to the amount shown in **Drive Equipped** box.)
- The **Install…** button allows you to install the selected option.
- The **De-install…** button deinstalls the selected option (see section 2.7.4).
- The **Drive Equipped** box shows the maximum capacity of the current subsystem. The **Close** button closes the Option Product panel.

2.7.1 Enabling LUN Manager

The LUN Manager must be enabled before you can enable either the LU Size Expansion or LUN Security (Zone Allocation Manager) options. Because LUN Manager comes pre-installed on each 9900 subsystem, you only need to enable it on the remote console PC.

To enable LUN Manager:

1. Log in as an administrator.
2. On the Remote Console Main panel, select **Option…** to open the RMCMAIN Option Product panel (refer to Figure 2.15). This panel shows the current installation status of the RMCMAIN options.
3. To enable LUN Manager, select **Remote SCSI**, and then select the **Install…** button. The Input Key Code panel (see Figure 2.17) opens. Enter the license key (password) in the **Key Code** text box, and then select **OK**.
4. If the password is approved, the Program Product Confirmation panel (see Figure 2.18) opens. This panel shows the program product model name (e.g., **Remote SCSI**), type of key (e.g., **Permanent**), and effective term (e.g., **Free**).
5. Verify that the information displayed on the Program Product Confirmation panel is correct, and then select **Install**.
6. When this option is enabled, the RMCMAIN Option Product panel opens and the displayed status of the LUN Manager option changes from **Not install** to **Install**.
7. Select **Close** to return to the Remote Console Main panel.

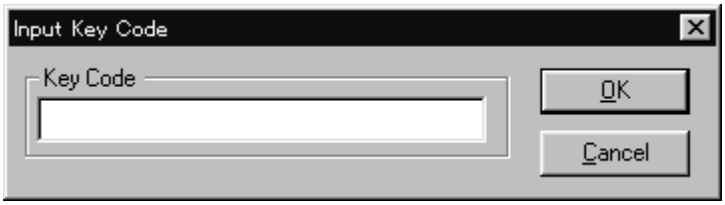

Figure 2.17 Input Key Code Panel

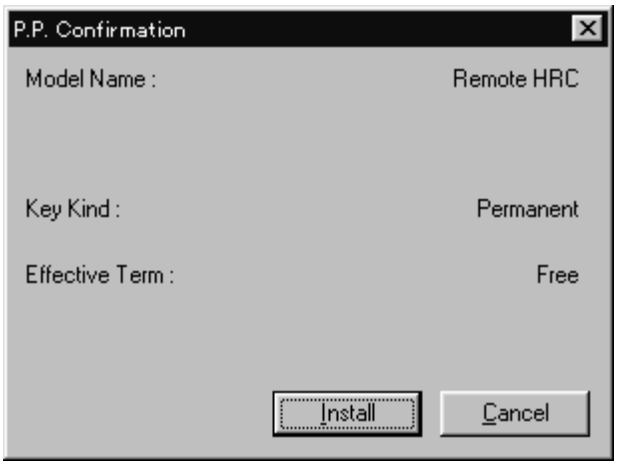

Figure 2.18 Program Product Confirmation Panel

2.7.2 Enabling HMBR or HXRC

HMBR (Hitachi Multiplatform Backup/Restore) and HXRC (Hitachi Extended Remote Copy) are enabled on each subsystem, but not on the remote console PC.

To enable the HMBR or HXRC:

1. Log in as administrator.
2. On the Remote Console Main panel, select **Controller…** to open the Connection Control panel (see Figure 2.19).
3. On the Connection Control panel, select the first subsystem on which you want to enable HMBR, and then select the **Install…** button to open the DKCMAIN Option Product panel (refer to Figure 2.16).
4. Select either **HMBR** or **HXRC** and then select the **Install…** button.
5. The Input Key Code panel (refer to Figure 2.17) opens. Enter the license key (password) in the Key Code text box, and then select **OK**.
6. If the password is approved, the Program Product Confirmation panel (refer to Figure 2.18) opens. This panel shows the program product model name (e.g., **HMBR**), type of key (e.g., **Permanent**), effective term (e.g., **Free**).
7. Verify that the information displayed on the Program Product Confirmation panel is correct, and then select **Install**.
8. When this option is enabled, the DKCMAIN Option Product panel reopens and the displayed status of the selected option changes from **Not install** to **Install**.
9. Select **Close** to exit the DKCMAIN Option Product panel.
10. You are returned to the Connection Control panel. To enable the HMBR option on another subsystem, repeat the preceding steps. If you are finished, select **Close** to return to the Remote Console Main panel.

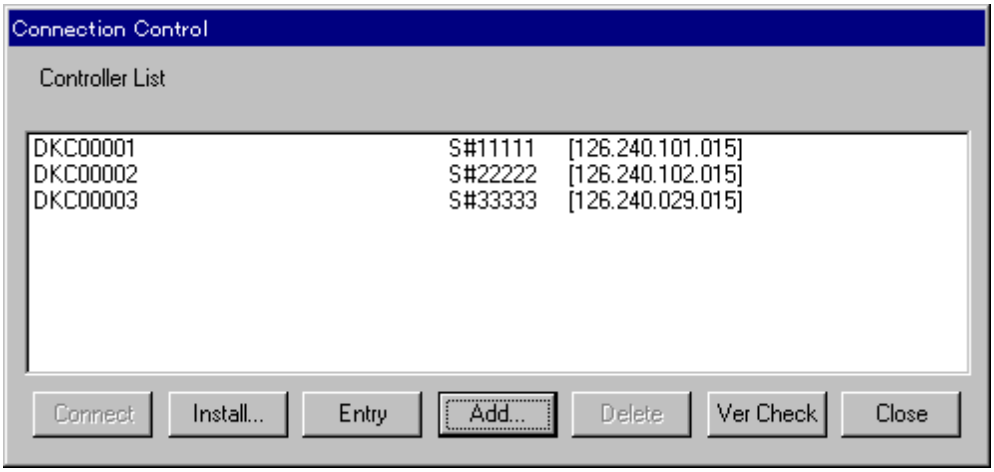

Figure 2.19 Connection Control Panel

2.7.3 Enabling All Other Options

All other options are enabled both on the remote console PC and on each subsystem.

1. Log in as administrator.
2. On the Remote Console Main panel, select **Option…** to open the RMCMAIN Option Product panel (refer to Figure 2.15). This panel shows the current installation status of the RMCMAIN options.
3. To enable an option, select that option and then select the **Install…** button.
4. The Input Key Code panel (see Figure 2.17) opens. Enter the license key (password) in the **Key Code** text box, and then select **OK**.
5. If the password is approved, the Program Product Confirmation panel (see Figure 2.18) opens. This panel shows the program product model name (e.g., **Remote LUSE**), type of key (e.g., **Permanent**), effective term (e.g., **Free**). After confirming the content of the Program Product Confirmation panel, select **Install**.
6. When this option installation is complete, the RMCMAIN Option Product panel reopens and the displayed status of the selected option changes from **Not install** to **Install**.
7. To enable another option, select that option, and then select the **Install…** button. Repeat steps 4 through 5 to complete this part of the option installation.
8. Select **Close** to return to the Remote Console Main panel.
9. On the Remote Console Main panel, select **Controller…** to open the Connection Control panel (refer to Figure 2.19).
10. On the Connection Control panel, select the first subsystem on which you want to enable these options, and then select the **Install…** button to open the DKCMAIN Option Product panel (refer to Figure 2.16).
11. Select the appropriate option, and then select the **Install…** button.
12. The Input Key Code panel (refer to Figure 2.17) opens. Enter the license key (password) in the **Key Code** text box, and then select **OK**.
13. If the password is approved, the Program Product Confirmation panel (refer to Figure 2.18) reopens. This panel shows the program product model name (e.g., **LUSE**), key kind (e.g., **Permanent**), and effective term (e.g., **Free**).
14. To enable another option on this subsystem, repeat steps 9 through 13.
15. To enable options on another 9900 subsystem, repeat steps 10 through 14.
16. When you are finished enabling options on the 9900 subsystems, select **Close** to return to the Remote Console Main panel.

2.7.4 Disabling an Option

To deinstall an RMCMAIN option on the remote console PC:

1. Log in as administrator.
2. On the Remote Console Main panel, select **Option…** to open the RMCMAIN Option Product panel (refer to Figure 2.15).
3. Select the desired option, then select **Deinstall…**.
4. The displayed status of the selected option changes from **Install** to **Not install**, and the option is no longer installed on the remote console PC.
5. To deinstall another option, repeat steps 3 and 4. Select **Close** to return to the Remote Console Main panel.

To deinstall a DKCMAIN option on the SVP:

1. Log in as administrator.
2. On the Remote Console Main panel, select **Controller…** to open the Connection Control panel (see Figure 2.19).
3. On the Connection Control panel, select the subsystem on which you want to disable an option, and then select the **Install…** to open the DKCMAIN Option Product panel (refer to Figure 2.16).
4. Select the desired option, and then select **De-install…**. The displayed status of the selected option changes from **Install** to **Not install**.
5. Select **Close** to exit the DKCMAIN Option Product panel. You are returned to the Connection Control panel.
6. To disable options on another 9900 subsystem, repeat steps 3 through 5. If you are finished, select **Close** to return to the Remote Console Main panel.

2.8 Creating a Backup Remote Console PC

Hitachi Data Systems recommends that you install a second remote console PC as a backup for the primary remote console PC. The backup remote console PC must be a fully configured copy of the primary remote console PC, so that the user can quickly transfer operations to the backup remote console PC without losing the configuration settings of the RMCMAIN software (e.g., users and passwords, registered subsystems, and installed options). The backup remote console PC can also be installed off-site (e.g., at your backup data center) as part of your disaster recovery plan. See section 4.2 for instructions on switching operations to the backup remote console PC.

To prepare a backup remote console PC:

1. Install the backup remote console PC hardware as described in section 2.8.
2. Configure the Windows network and TCP/IP settings as described in section 2.4. If the backup remote console PC is located at the same site as the primary remote console PC, the backup remote console PC can have the same IP address as the primary (126.0.0.33), but ONLY if the primary and backup PCs will not be used at the same time. If you plan to use the primary and backup remote console PCs at the same time, use 126.0.0.33 for the primary remote console PC and 126.0.0.34 for the backup.
3. Install the RMCMAIN software as described in section 2.5.
4. Install the same options on the backup remote console PC as on the primary remote console PC, as described in section 2.7.
5. The following files must be copied onto the backup remote console PC:

- **c:\hirmc\com\user.lst**
- **c:\hirmc\com\dkc.lst**..

Important: If you change any user or subsystem configuration information on the primary remote console PC (e.g., users, passwords, connected subsystems, or installed options), be sure to copy those changes onto the backup remote console PC.

Chapter 3 General 9900 Remote Console Operations

This section covers the following topics:

- Adding users and changing passwords (see section 3.2),
- Adding and deleting controllers (see section 3.3),
- Connecting to the subsystems (see section 3.4),
- Launching the desired feature option (see section 3.5),
- Viewing and sorting the R-SIMs (see section 3.6),
- Viewing and updating the software version (see section 3.7),
- Using the Floppy Disk Copy (FDCOPY) function (see section 3.8).

3.1 Remote Console Main Panel

The Remote Console Main panel (see Figure 3.1) opens automatically after a user logs in. This panel displays the user name of the currently logged-in user and provides access to all general Remote Console functions.

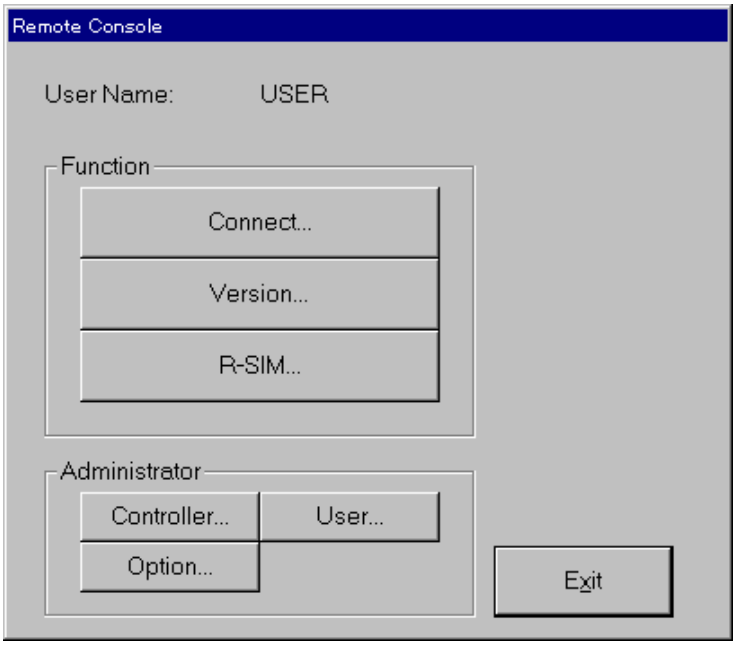

Figure 3.1 Remote Console Main Panel

The **Function** box provides access to general Remote Console functions. These buttons are always enabled, and are accessible by all users.

- The **Connect…** button opens the Connection Control panel (see section 3.4), which allows users to connect to a subsystem.
- The **Version…** button opens the Version panel, which displays the current version of the RMCMAIN software (see section 3.7).
- The **R-SIM…** button opens the R-SIM panel, which allows users to view and sort R-SIMs (see section 3.6). Other R-SIM functions (such as deleting R-SIMs) are restricted to users with administrator or custom access.

The **Administrator** box provides access to administrator-only Remote Console functions.

- The **Controller…** button opens the Connection Control panel (see section 3.3), which allows administrators to add and delete controllers.
- The **User…** button opens the User Define panel (see section 3.2). The User Define panel allows any user to view and change their own password, but all other user define functions are administrator-only.
- The **Option…** button opens the RMCMAIN Option Product panel (refer to Figure 2.15), which allows administrators to install 9900 optional functions such as CVS or HRC.

3.2 Adding Users and Changing Passwords

The 9900 Remote Console user operations include:

- Adding users (see section 3.2.1),
- Deleting users (see section 3.2.2),
- Changing passwords (see section 3.2.3), and
- Assigning access privileges (see section 3.2.4).

The User Define panel (see Figure 3.2) is accessed by selecting the **User…** button on the Remote Console Main panel. All functions on this panel are administrator-only, except that users are permitted to change their own passwords.

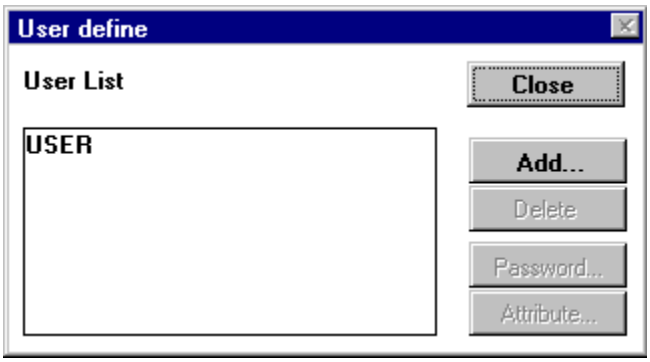

Figure 3.2 User Define Panel

The User Define panel has the following features:

- The **User List** box displays the names and attributes of the 9900 Remote Console users.
- The **Add…** button opens the Add User panel (see section 3.2.1), which allows you to add users.
- The **Delete** button allows you to delete a selected user (see section 3.2.2).
- The **Password…** button opens the Change Password panel (see section 3.2.3), which allows you to change passwords. Any user can view and modify their own password, but other functions are limited to users with administrator access.
- The **Attribute…** button opens the User Attributes panel (see section 3.2.4), which allows you to assign custom or administrator access privileges to individual users.

3.2.1 Adding a New User

The Add User panel (see Figure 3.3) allows an administrator to add a new 9900 Remote Console user and assign or modify a user's access privileges. The Add User panel is accessed from the User Define panel, and is restricted to users with administrator access privileges.

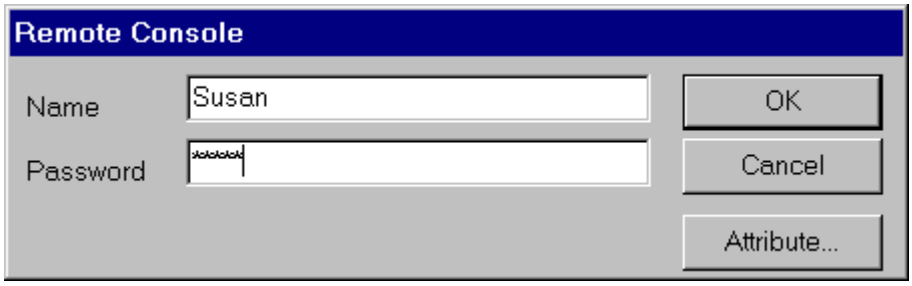

Figure 3.3 Add User Panel

To add a new 9900 Remote Console user:

1. On the Remote Console Main panel, select **User…** to open the User Define panel.
2. On the User Define panel, select **Add…** to open the Add User panel.
3. Enter the new user's name and password on the Add User panel. The user name is displayed, but the password is not. Both are case-sensitive.
4. The default access for newly added users is view only access. An administrator can assign custom or administrator access privileges to this user, either at this point during the user add process or at a later time. See section 3.2.4 for instructions on how to assign custom or administrator access privileges.
5. Select **OK** to add the new user. The Confirm Password panel opens (see Figure 3.4).
6. Enter the new user's password into the Confirm Password panel, and select **OK**.
7. You are returned to the User Define panel, which now displays the new user.

Figure 3.4 Confirm Password Panel

3.2.2 Deleting a User

> *Caution:* If you delete all users, you will not be able to regain access to the RMCMAIN software. If you delete all administrators, you will lose access to administrator functions.

The **Delete** button on the User Define panel allows you to delete 9900 Remote Console users. The delete user function is restricted to users with administrator access privileges.

To delete a 9900 Remote Console user:

1. On the Remote Console Main panel, select **User…** to open the User Define panel.
2. On the User Define panel, select the user to be deleted, and then select **Delete**.
3. When the Delete User Confirmation panel appears, select **OK** to delete the user. The user is deleted from the **User List** box.

3.2.3 Changing Your Password

The Change Password panel (see Figure 3.5) allows you to change passwords. Access the Change Password panel by selecting the **Password…** button from the User Define panel. Any user can view or change their own password, but only administrators can view or change the passwords of other users.

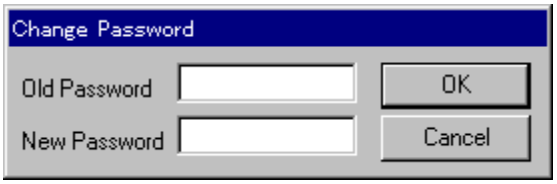

Figure 3.5 Change Password Panel

To change your 9900 Remote Console password:

1. On the Remote Console Main panel, select **User…** to open the User Define panel.
2. Select the user whose password you want to change, and then select **Password…** to open the Change Password panel.
3. Enter the current password in the **Old Password** entry field, and then enter the new password in the **New Password** entry field. The password is case-sensitive and is not displayed.
4. Select **OK**. When the Confirm Password panel appears (refer to Figure 3.4), enter the new password again, and then select **OK**. You are returned to the User Define panel.

Note: If the administrator password is lost or forgotten, you must call the Hitachi Data Systems Technical Support Center in order to regain access to the restricted functions.

3.2.4 Assigning Access Privileges

The User Attributes panel (see Figure 3.6) allows you to assign either administrator, custom, or view only access privileges to 9900 Remote Console users. It is accessed by selecting the **Attribute…** button on either the User Define panel (refer to Figure 3.2) or the Add User panel (refer to Figure 3.3). This function is limited to those with administrator access.

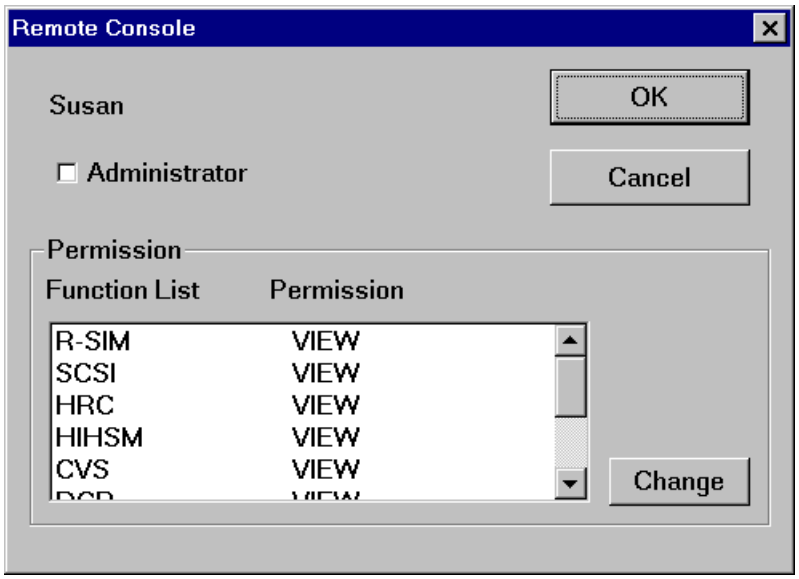

Figure 3.6 User Attributes Panel

The User Attributes panel has the following features:

- The user name selected in the User Define panel is displayed in the upper left.
- The **Administrator** checkbox allows you to assign administrator access to the selected user.
- The **Permission** box displays the installed Remote Console functions and the access privileges of the user for each function, which is either **VIEW** (standard access) or **MODIFY** (custom access).
- The **Change** button changes the permission for the selected function, either from **VIEW** to **MODIFY** or from **MODIFY** to **VIEW**.

Certain functions are limited to administrators only, including option installation and deinstallation, and all controller and user access functions. The functions listed in the **Permission** box are called restricted functions. User access to these functions can be customized, so that a non-administrator can be given modify access to one or more restricted functions. Users without custom access can view but not modify restricted functions.

Note: If the desired function is not listed on this panel, that function has not yet been installed. See Chapter 2 for instructions on installing the 9900 RMCMAIN primary and optional functions.

To assign access privileges to a particular user:

1. Access the User Define Panel either by selecting **User** on the Remote Console Main panel, or by selecting **Attribute…** from the Add User panel.
2. Assign the desired access privileges to the user:
   a) To give administrator access privileges to the user, check the **Administrator** box. Administrators have access to all 9900 Remote Console functions.
   b) To give the user custom (modify) access privileges to one or more of the restricted functions, select the function in the **Function List**, and then select **Change** so that the permission changes from **VIEW** to **MODIFY**. Repeat this step until each function shows the desired permission for this user.
3. When you are finished assigning access privileges to the specified user, select **OK** to close the User Attributes panel.
4. You are returned to either the User Define panel or the Add User panel, depending on how you accessed the User Attributes panel.

3.3 Adding and Deleting Controllers

The 9900 Remote Console controller operations are restricted to administrators only. Controller operations include:

- Adding controllers (see section 3.3.1).
- Deleting controllers (see section 3.3.2).

The Connection Control panel (see Figure 3.7) allows an administrator to add and delete controllers. To open the Connection Control panel, select the **Controller…** button on the Remote Console Main panel.

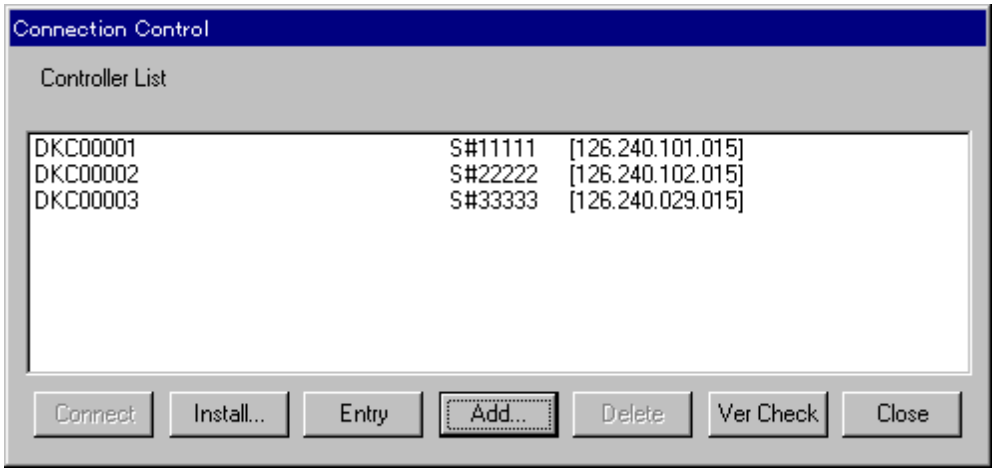

Figure 3.7 Connection Control Panel

The Connection Control Panel has the following features:

- The **Controller List** box displays the controllers that have been added to the remote console PC. Each controller is displayed by name, serial number (S#), and IP address.
- The **Connect** button allows any user to connect to a particular controller. This function is only available when the Connection Control panel is opened using the **Connect…** button on the Remote Console Main panel (see section 3.4). When a user connects to a particular controller, the RMCMAIN software will automatically check to see if a later version of the software is available to be downloaded from the selected subsystem (see section 3.7.2).
- The **Install** button opens the DKCMAIN Option Product panel (refer to Figure 2.16), where you can enable program products on a particular subsystem (refer to section 2.7). This function is available to administrators only.
- The **Entry** button sends the IP address of the Remote Console to the SVP, so that R-SIM messages will be sent to the Remote Console. This function is available to administrators only.

- The **Add…** button opens the Add Machine panel (see section 3.3.1), which allows you to add a controller. This function is available to administrators only.
- The **Delete** button deletes the selected controller. This function is available to administrators only.
- The **Ver Check** button allows you to compare the version of the RMCMAIN software installed on the remote console PC to the version on the SVP, and download a later version to the remote console PC if desired (see section 3.7.2). This function is available to administrators only.
- The **Close** button closes the Connection Control panel and returns you to the Remote Console Main panel.

3.3.1 Adding a Controller

The Add Machine panel (see Figure 3.8) allows you to add a controller to the remote console PC. The Add Machine panel is accessed by selecting the **Add…** button on the Connection Control panel.

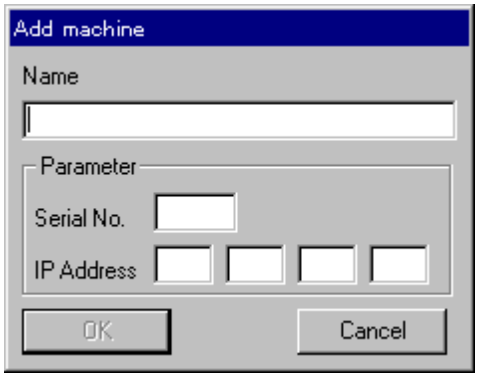

Figure 3.8 Add Machine Panel

The RMCMAIN software stores the name, serial number, and IP address of each subsystem added by the user. The first time the remote console PC connects with a subsystem, the subsystem is registered and starts reporting R-SIMs to the remote console PC.

To add a 9900 controller to the remote console PC:

1. On the Remote Console Main panel, select **Controller…** to open the Connection Control panel.
2. Select **Add…** to open the Add Machine panel.
3. Enter the name, serial number and IP address of the controller.
4. Select **OK**. The controller now appears in the **Controller List** box on the Connection Control panel.
5. Select the newly added controller, and then select the **Entry** button to send the Remote Console's IP address to the newly added 9900 subsystem. This process notifies the 9900 subsystem to begin reporting R-SIMs to the remote console PC.

   Caution: If you are using the proxy server feature and you are connected to the proxy server PC from a remote PC, **DO NOT** use the **Entry** button, or R-SIM messages will be sent to every PC on the LAN.

6. If the entry operation fails, verify that the correct serial number has been entered for the 9900 subsystem, verify that the 9900 is properly powered on, and also check the LAN cable, LAN card, and hub. If the problem persists, contact the Hitachi Data Systems Technical Support Center for assistance.
7. Repeat steps (2) through (5) for each controller that you want to add. When you are finished adding controllers, select **Close** to return to the Remote Console Main panel.

3.3.2 Deleting a Controller

When it is no longer necessary to view information and perform Remote Console operations for a subsystem, you can delete the controller. As long as the LAN connection between the remote console PC and the subsystem remains installed, the controller may be added back at any time.

To delete a controller from the remote console PC:

1. On the Remote Console Main panel, select **Controller…** to open the Connection Control panel (refer to Figure 3.7).
2. Select the controller in the **Controller List** box, and then select **Delete**.
3. When the delete controller confirmation panel appears, select **OK** to delete the controller. The controller is removed from the **Controller List** box.

3.4 Connecting to the Subsystems

The Connection Control panel (refer to Figure 3.7) displays the registered 9900 subsystems and allows you to connect to a 9900 subsystem. To access the connect function, open the Connection Control panel by selecting the **Connect…** button on the Remote Console Main panel. The connect function is available to all users.

Note: A 9900 subsystem can only connect to one remote console PC at a time.

To connect to a 9900 controller:

1. On the Remote Console Main panel, select **Connect…** to open the Connection Control panel (refer to Figure 3.7).
2. Select the desired controller in the **Controller List** box. If the desired controller is not listed, add the controller as described in section 3.3.1.
3. Select the **Connect** button.
4. When the remote console PC connects to the selected subsystem, the SVP of that subsystem is automatically checked for a higher version of Remote Console software. If a higher version is available, the user is given the option to download the higher version (see section 3.7.2). If a higher version is not available or if the user declines a higher version, the Option Select panel (refer to Figure 3.9) opens to provide access to the installed 9900 Remote Console options. For more information on installing a later version of the RMCMAIN software see section 3.7
5. To disconnect from the connected controller, exit the Option Select panel by selecting the **File** menu, then selecting the **Close** option.

3.5 Launching the Desired Option

The Option Select panel (see Figure 3.9) opens automatically when the 9900 Remote Console connects to the selected subsystem, and provides access to the installed 9900 Remote Console features.

Note: In later versions of the Remote Console software this screen may display differently.

Figure 3.9 Option Select Panel

Select the appropriate button to launch a particular option. You may also use the **Execute** menu, which displays the installed options and allows you to select and start an option. (The option buttons and the **Execute** menu commands perform exactly the same functions.)

To exit the Option Select panel, select the **File** menu, then select **Close**. The remote console PC automatically disconnects from the connected controller, and you are returned to the Remote Console Main panel.

3.6 R-SIM Operations

The 9900 remote console R-SIM operations include:

- Viewing the R-SIMs (available to all users; see section 3.6.1),
- Sorting the R-SIMs (available to all users; see section 3.6.2), and

Deleting the R-SIMs (available only to administrators and users with custom R-SIM access; see section 3.6.3).

Note: If you are using a proxy server, see section 2.4 for additional R-SIM information.

The 9900 subsystem generates a service information message (SIM) whenever it detects an error or service requirement. R-SIM stands for remote SIM, indicating that the SIM is reported to the remote console PC in addition to the mainframe host console (SVP). The R-SIM Warning panel (see Figure 3.10) is displayed each time an R-SIM is logged at the remote console PC.

Note: Although the RMCMAIN software does not need to be running in order for R-SIMs to be reported to the remote console PC, the remote console PC MUST be powered on in order to log the R-SIMs. Check the remote console at least once a day, to verify that it is operating properly and to retrieve R-SIM messages.

Note: R-SIMs can only be reported to the remote console PC from controllers that are connected. When a controller is deleted, that subsystem stops reporting its R-SIMs to the remote console PC.

Figure 3.10 R-SIM Warning Panel

There are four severity levels for R-SIMs: service, moderate, serious, and acute. The service- and moderate-level R-SIMs do not require immediate attention and are addressed during routine maintenance. If a serious or acute-level R-SIM occurs, contact the Hitachi Data Systems Technical Support Center. If Hi-Track® is installed on that subsystem, the problem should have been automatically reported to the Hitachi Data Systems Technical Support Center. Follow up with the Support Center to verify that the problem has been reported and resolved. See Chapter 4 for further information on troubleshooting and placing a service call.

3.6.1 R-SIM Panel

The R-SIM panel (see Figure 3.11) displays the R-SIMs logged on the remote console PC and provides access to the R-SIM sort and delete operations. The R-SIM panel is accessed from the remote console Main panel and is available to all users.

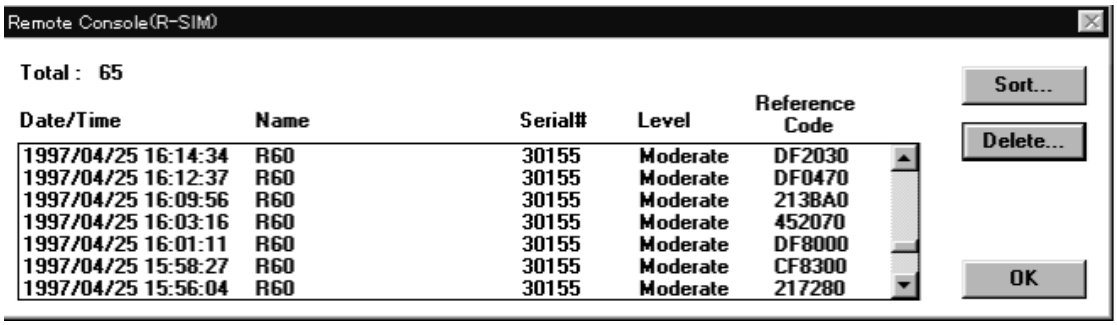

Figure 3.11 R-SIM Panel

The R-SIM panel displays the following information:

- Total number of R-SIMs stored in the R-SIM log file on the remote console PC.
- Date and time that the R-SIM was generated.
- Name and serial number of the 9900 controller that generated the R-SIM.
- Severity level of the R-SIM (service, moderate, serious, or acute).
- Reference code for the R-SIM. For further information on the R-SIM reference codes, refer to the *Hitachi Freedom Storage™ Lightning 9900™ User and Reference Guide* (MK90RD008), or contact the Hitachi Data Systems Technical Support Center (see section 4.3).

The R-SIM panel also has the following features:

- The **Sort…** button opens the Sort R-SIMs panel (see section 3.6.2), which allows you to sort the list of R-SIMs either by date/time or by controller name. All users have access to the sort R-SIM function.
- The **Delete…** button opens the Delete R-SIMs panel (see section 3.6.3), which allows you to delete the R-SIMs stored on the remote console PC. The **Delete…** button is enabled only if the user has either administrator or custom R-SIM access.

3.6.2 Sorting the R-SIMs

All users have access to sort R-SIMs. The Sort R-SIM panel (see Figure 3.12) allows you to sort the R-SIMs either by date/time or by controller name. The date/time sort operation lists the R-SIMs in order of creation date/time, with the most recent R-SIM at the top of the list. The name sort operation groups the R-SIMs by controller and lists the R-SIMs within each group by date/time. The Sort R-SIMs panel is accessed from the R-SIM panel.

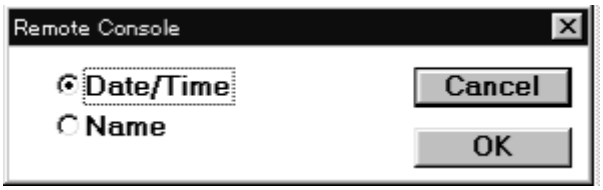

Figure 3.12 Sort R-SIMs Panel

To sort the R-SIMs:

1. On the remote console Main panel, select **R-SIM…** to open the R-SIM panel.
2. On the R-SIM panel, select **Sort…** to open the Sort R-SIMs panel.
3. Select **Date/Time** to sort the R-SIMs by date and time, or select **Name** to sort the R-SIMs by controller name.
4. Select **OK** to perform the selected sort operation. The Sort R-SIMs panel closes, and the R-SIM panel now displays the R-SIMs sorted according to your selection.

3.6.3 Deleting the R-SIMs

The R-SIM panel allows you to delete the R-SIM log file from the remote console PC. To delete the R-SIM log file:

1. On the remote console Main panel, select **R-SIM…** to open the R-SIM panel.
2. On the R-SIM panel, select the **Delete…** button.
3. When the Delete R-SIM confirmation panel appears (see Figure 3.13), select **Yes** to delete the R-SIM log file, or select **No** to cancel your request. The next time an R-SIM is reported by any of the attached subsystems, a new R-SIM log file will be automatically created.

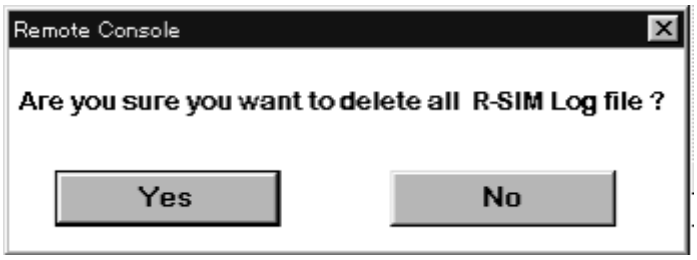

Figure 3.13 Delete R-SIM Confirmation Panel

3.7 Viewing and Updating the Version of the RMCMAIN Software

3.7.1 Using the Version Panel

The Version panel (see Figure 3.14) displays the version of the 9900 remote console RMCMAIN software. The Version panel is accessed from the remote console Main panel and is available to all users.

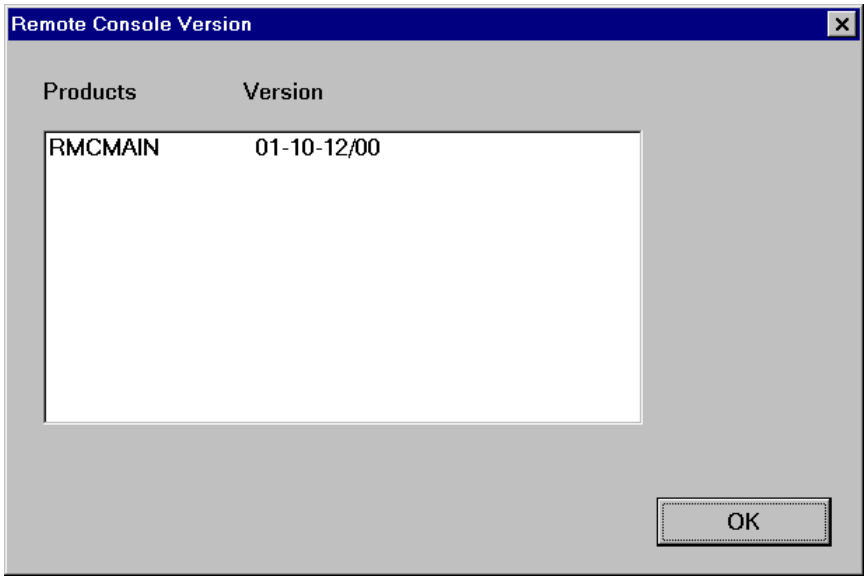

Figure 3.14 Version Panel

3.7.2 Updating the RMCMAIN Software on the remote console PC

To compare the two versions of the software, an administrator can select **Controller…** from the Remote Console Main panel to display the Connection Control panel (refer to Figure 3.7), and then select **Ver Check** to display the Remote Console Down Load panel.

To perform the version check operation using the **Ver Check** button:

1. On the Remote Console Main panel, select **Controller…** to open the Connection Control panel.
2. Select the desired controller in the **Controller List** box. If the desired controller is not listed, add the controller as described in section 3.4.1.
3. Select the **Ver Check** button to determine if a higher version of remote console software is present in the SVP of the selected 9900. If a higher version is present, the Remote Console Down Load panel opens (see Figure 3.15).

To download a later version of the software to the remote console PC:

1. On the Remote Console Down Load panel (see Figure 3.15), select **Down Load**. The Download Confirmation panel (see Figure 3.16) appears.
2. Select **Yes** to continue the download. The File Transfer panel (see Figure 3.17) appears, and displays the progress of the file transfer panel.
3. Once the file transfer is complete, the Welcome panel displays (see Figure 3.18). Select **Next** to complete the setup.
4. After the setup process is finished, the Setup Complete panel displays (see Figure 3.19). Select **Finish** and the remote console PC will reboot.

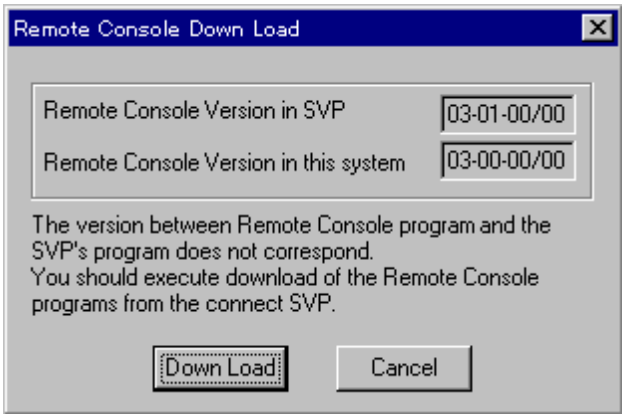

Figure 3.15 Remote Console Down Load Panel

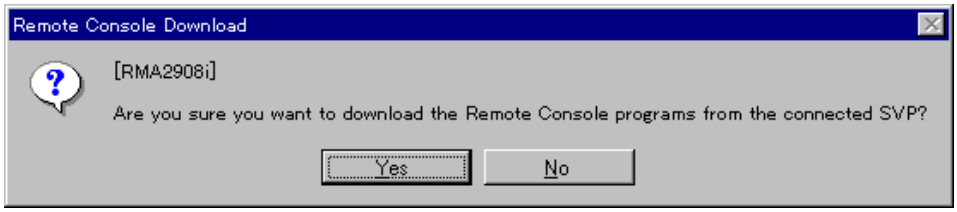

Figure 3.16 Download Confirmation Panel

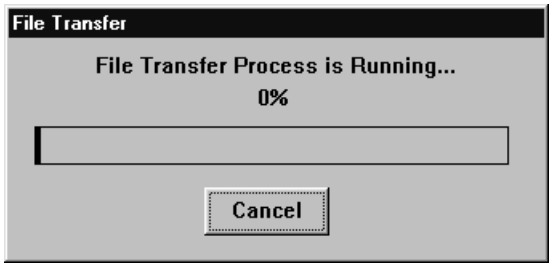

Figure 3.17 File Transfer Panel

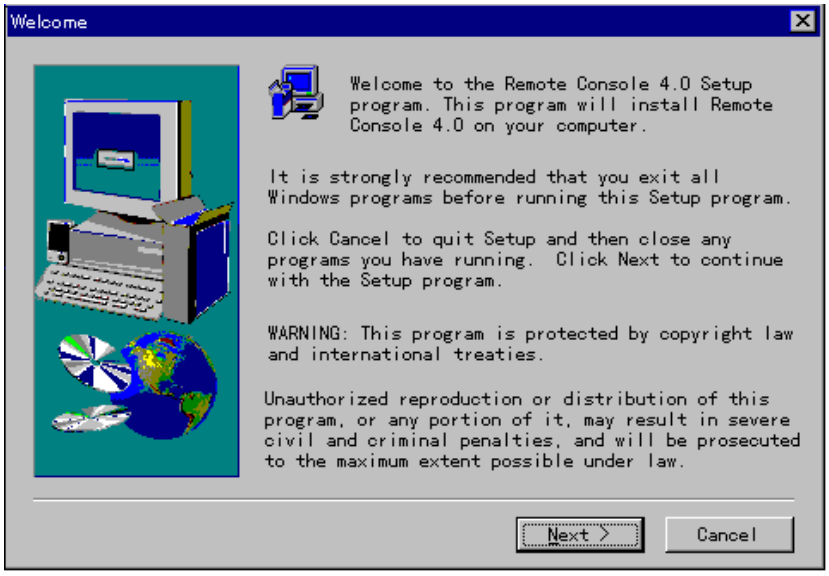

Figure 3.18 Welcome Panel

Figure 3.19 Setup Complete Panel

3.8 FDCOPY Function

The 9900 remote console installation program creates a program group called **Remote Console** in the Windows **Start-Programs** menu, which includes **FDCOPY** and **Remote Console**. The **FDCOPY** selection launches the FDCOPY function, and the **Remote Console** selection launches the RMCMAIN software.

The **FDCOPY** function copies the 9900 remote console configuration information either onto a floppy diskette or onto a hard disk drive. The copied information can be used by Hitachi Data Systems service personnel to diagnose problems related to 9900 remote console operations. The **FDCOPY** function is available to all users, and is used primarily for troubleshooting purposes.

To copy the 9900 remote console configuration information to a floppy diskette:

1. Select **Start**, then **Programs**, then **Remote Console**, and then **FDCOPY**. The **FD COPY** panel (see Figure 3.20) will open.
2. Select **Compress to FDD** to copy the information to a floppy disk. When the Please Insert FD panel displays (see Figure 3.21), select **OK**.
3. You can either use an empty high-density diskette, or you can use a diskette which has previously been used for the FD Copy function. Place the diskette in the floppy disk drive, then select **OK**.
4. If you are using a previously used diskette, the FD Status panel (see Figure 3.22) displays the directories and files. If you want to delete the directories and files from the floppy disk, select **Yes**. If you want to keep the directories and files, select **No**.

   Note: If the floppy disk drive on your remote console PC is not designated as **A:**, select **Compress to HDD** to change the target file location.
5. The **FD Copy** program compresses the files. The status of the compression is displayed in the Progress panel (see Figure 3.23).
6. The **FD Copy** program then copies the compressed files to the floppy disk. The status of the copying is displayed in the Copy to FD panel (see Figure 3.24).
7. If the floppy disk does not have enough space for the files, you will be prompted to insert another floppy disk. As with the first floppy disk, if you are using a previously used diskette, the FD Status panel displays the directories and files. If you want to delete the directories and files from the floppy disk, select **Yes**. If you want to keep the directories and files, select **No**.
8. Once the copying is finished, the FDCOPY Completed panel will display (see Figure 3.25).

To copy the 9900 remote console configuration information to a hard disk drive:

1. Select **Start**, and then **Programs**, and then **Remote Console**, and then **FDCOPY**. The **FD COPY** panel (refer to Figure 3.20) will open.
2. Select **Compress to HDD** to copy the information to a hard drive.
3. The FD Copy program compresses the files. The status of the compression is displayed in the Progress panel (refer to Figure 3.23).
4. Once the copying is finished, the FDCOPY Completed panel will display (see Figure 3.25).

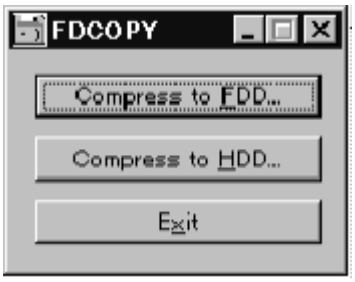

Figure 3.20 FD Copy Panel

Figure 3.21 Please Insert FD Panel

Figure 3.22 FD Status Panel

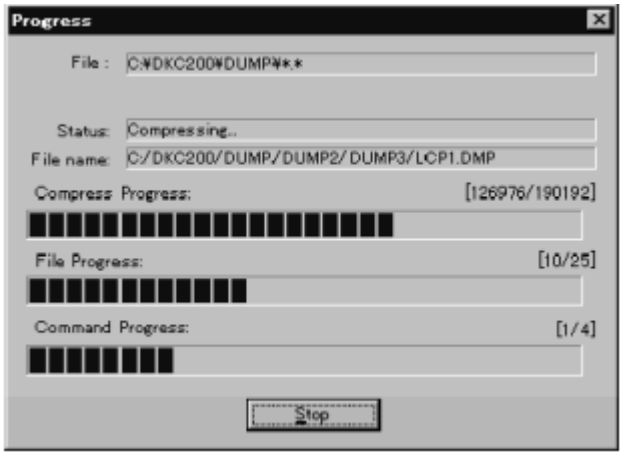

Figure 3.23 Progress Panel

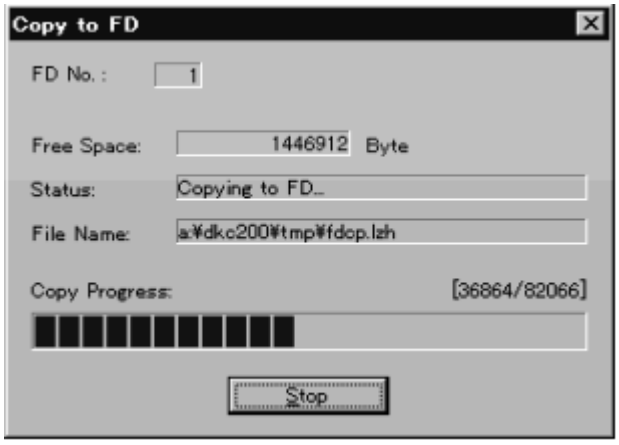

Figure 3.24 Copy to FD Panel

Figure 3.25 FD Copy Completed Panel

Chapter 4 Troubleshooting

4.1 Troubleshooting

For troubleshooting information on the 9900 subsystem, refer to the *Hitachi Freedom Storage™ Lightning 9900™ User and Reference Guide* (MK-90RD008). For a compete list of Remote Console error codes, see *Hitachi Freedom Storage™ Lightning 9900™ Remote Console Error Codes* MK-90RD029.

The user is responsible for the operation and normal maintenance of the remote console PC. Here are some guidelines for troubleshooting the remote console PC:

- **Check the cabling and the LAN.** Verify that both the computer and LAN cabling are firmly attached, and that the LAN is operating properly.
- **Reboot the PC**. Close any programs that are not responding. If necessary, reboot the PC and restart the remote console program. (If possible, first close all open programs before rebooting.) ***WARNING:*** The R-SIMs reported by the 9900 subsystems cannot be logged onto the remote console PC when the PC is powered off. Reconnect to the same subsystem(s) and verify the status of the data.
- **Check for any General Error Conditions.** Table 4.1 describes some general error conditions, along with the recommended resolution for each item. If you are still unable to resolve an error condition, call the Hitachi Data Systems Technical Support Center for assistance (see section 4.3 for contact information).

Table 4.1 General Error Conditions

Error Condition	Recommended Action
Error message displayed during RMCMAIN installation.	If the error message **Setup file error for Windows x.xx (ee = y)** appears, verify that the correct version of Windows is installed. If **ee = 2** is displayed, verify that the installation diskette is not write-protected and is inserted in the floppy disk drive properly. Restart the setup program. If the error message **File I/O Error** appears, verify that the installation diskette is not write-protected and is inserted in the floppy disk drive properly, and restart the setup program. If the error message **Resource Error (Err=xxxx)** or **Internal Error (Err=xxxx)** appears, reboot the remote console PC, and restart the setup program.
RMCMAIN will not add or connect with a subsystem.	Verify that the SN (serial number) is correct. If not, delete the subsystem, and then add the subsystem using the correct SN. If RMCMAIN still cannot connect, check the settings on the Windows network control panel, and use PING to test the LAN connection (see section 2.4). If RMCMAIN still cannot connect, exit RMCMAIN, restart the PC, start RMCMAIN, and try again. If RMCMAIN still cannot connect, reinstall the RMCMAIN software. If the problem persists, please call the Hitachi Data Systems Technical Support Center.
The remote console PC experiences an error.	Exit RMCMAIN, close all other applications, and then restart the PC. If the problem persists, verify that the PC's operating system and LAN hardware and software are properly configured (see Chapter 2), and reinstall the RMCMAIN software. The user is responsible for maintaining the remote console PC.
Any problem with a 9900 subsystem.	Open the R-SIM panel, and sort the R-SIMs by name to view the R-SIMs by subsystem. If there are any serious- or acute-level R-SIMs, call the Hitachi Data Systems Technical Support Center. Also refer to the *Hitachi Freedom Storage™ Lightning 9900™ User and Reference Guide* (MK-90RD008) for troubleshooting information on the 9900.

4.2 Switching to a Backup remote console PC

If you need to switch operations to a backup remote console PC, you can do so without losing the user or subsystem settings of the RMCMAIN software, allowing the fastest reconnect time possible. Refer to section 2.7.4 for instructions on preparing a backup remote console PC. The instructions provided in this section make the following assumptions regarding the backup remote console PC:

- The RMCMAIN software (same version as the primary) has already been loaded,
- The Windows network and TCP/IP settings have been configured,
- If the backup remote console PC is at the same site as the primary remote console PC, and is not being used concurrently, the backup remote console PC must have the same IP address.
- The current user and subsystem data has been copied from the primary remote console PC onto the backup remote console PC. The easiest method for doing this is to copy the data from the primary remote console PC to a floppy disk, and then from the floppy disk to the backup remote console PC. The user and subsystem data is located in two files: The user and subsystem data is located in two files: c:\hirmc\com\user.lst and c:\hirmc\com\dkc.lst.

To switch from the primary remote console PC to the backup remote console PC:

1. Power off both remote console PCs. If the backup is at the same location as the primary, change the LAN cable connection to the backup remote console PC.
2. Power up the backup remote console PC, and verify the network connection (refer to section 2.4).
3. Start the RMCMAIN application, and log in as administrator. (refer to section 2.6).
4. Verify that the connection to all subsystems is established, and that the subsystem status is correct (refer to sections 3.3 and 3.4).
5. Select **Close…** and continue normal operations.

4.3 Calling the Hitachi Data Systems Technical Support Center

If you need to call the Hitachi Data Systems Technical Support Center, be sure to provide as much information about the problem as possible. Include the circumstances surrounding the error or failure, the exact content of any messages displayed on the remote console PC, and the severity levels and reference codes of the R-SIMs on the R-SIM panel. The worldwide Hitachi Data Systems Technical Support Centers are:

- Hitachi Data Systems North America/Latin America
  San Diego, California, USA
  1-800-348-4357
- Hitachi Data Systems Europe
  Contact Hitachi Data Systems Local Support
- Hitachi Data Systems Asia Pacific
  North Ryde, Australia
  011-61-2-9325-3300

Appendix: Glossary, Acronyms, and Abbreviations

Cache extents	Areas used for FlashAccess (also known as Dynamic Cache Residency)
CU	Control unit
Custom access	A feature that allows a non-administrator to be assigned update access to one or more of the restricted Remote Console functions (see section 3.2.4).
CV	Custom-sized volume, also called customized volume
CVS	Custom volume size (on the SVP, this is also called virtual logical volume image or VLVI). This function divides a logical volume into two or more smaller volumes, called custom-sized volumes.
DASD	Direct access storage device
DCR	Dynamic cache residency (also called FlashAccess)
DKCMAIN	9900 Disk controller microcode
ESCON®	Enterprise System Connection
FD	Floppy disk
FD Copy	Floppy disk copy. This function downloads the 9900 Remote Console configuration information onto a floppy diskette or a hard disk drive, and is generally used for troubleshooting purposes (see section 3.8).
FlashAccess	Dynamic cache residency, or DCR.
GB	Gigabyte(s)
HIHSM	Hitachi Internal Hierarchical Storage Manager
HMBR	Hitachi Multiplatform Backup/Restore
HMRCF	Hitachi Multi-RAID Coupling Feature (also called ShadowImage)
HODM	Hitachi Online Data Migration
HOMRCF	Hitachi Open Multi-RAID Coupling Feature (also called ShadowImage)
HORC	Hitachi Remote Copy (open).
HRC	Hitachi Remote Copy – Synchronous. This feature must be installed before you can install either HORC or HRCA.
HRCA	Hitachi Remote Copy - Asynchronous
kB	Kilobyte(s)
LAN	Local-area network
LBA	Logical block address
LDEV	Logical device
LU	Logical unit
LUN	Logical unit number
LUN Manager	A remote console optional feature, also called Remote SCSI. This feature must be installed before you can install either LUSE or LUN Security.
LUSE	Logical Unit Size Expansion
LVI	Logical volume image (also called device emulation)
MB	Megabyte(s)
MIB	Message Information Block

Parity group	A parity group is a set of hard disk drives that have the same capacity and are treated as one group. A parity group contains both user data and parity information, which allows the user data to be accessed in the event that one or more of the drives within the group are not available.
Remote SCSI	A Remote Console optional feature, also called LUN Manager
RMC	remote console PC
RMCMAIN	Remote console software
R-SIM	Remote Service Information Message (generated by a disk controller when it detects an error or service requirement).
SCSI	Small Computer System Interface
ShadowImage	Hitachi Multi-RAID Coupling Feature (HMRCF) and/or Hitachi Open Multi-RAID Coupling Feature (HOMRCF)
SIM	Service information message (generated by a disk controller when it detects an error or service requirement). See section 3.6.
SSID	Storage subsystem ID. The 9900 is configured with one SSID for each 64 devices, and up to four SSIDs for each CU image.
SVP	Service Processor (this is the notebook computer that is inside the 9900).
TCP/IP	Transmission control protocol/internet protocol
TID	Target ID
UCB	Unit control block
VLVI	Virtual logical volume image (also called custom volume size, CVS, or Virtual LUN)
VOLser	Volume serial number (internal to the 9900, and not related to LDEV IDs or LUNs)
WWN	World Wide Name, which is a unique identifier for a particular open-system host, consisting of a 64-bit physical address (the IEEE 48-bit format with 12-bit extension and 4-bit prefix).
WWN Group	A WWN group gives every host in the specified WWN group access to a specified LU or group of LUs. This is part of the LUN Security feature.

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