

Hitachi

AMS2100 to AMS2300

Upgrade Procedures

REV.4

Contents

Chapter 1. Outline	SUP 01-0000
Chapter 2. Components and Tools Required for Upgrade (Hard)	SUP 02-0000
Chapter 3. Upgrade Work	SUP 03-0000
3.1 Prerequisites	SUP 03-0000
3.2 Before Starting Upgrade Work.....	SUP 03-0010
3.3 Notes	SUP 03-0020
3.4 Upgrade Work	SUP 03-0050
3.4.1 Suspend the Work of the Host Computer	SUP 03-0080
3.4.2 Lock the Priced Option	SUP 03-0080
3.4.3 User's Data Backup and Connection Host Setting	SUP 03-0080
3.4.4 Unpacking Control Unit to be Mounted (Hard)	SUP 03-0090
3.4.5 Connection of the Maintenance PC	SUP 03-0110
3.4.6 Changing Mode of Hitachi Storage Navigator Modular 2 and Registering Disk Array Subsystem	SUP 03-0130
3.4.7 Remove the Interface Cables (Hard)	SUP 03-0190
3.4.8 Updating Installation of Firmware for Hitachi AMS2100.....	SUP 03-0200
3.4.9 Collecting Simple Trace (Hard).....	SUP 03-0290
3.4.10 System Power Off.....	SUP 03-0340
3.4.11 Hardware Upgrade Work (Hard)	SUP 03-0350
3.4.12 Subsystem Power On	SUP 03-0500
3.4.13 Updating Installation of Firmware for Hitachi AMS2300.....	SUP 03-0520
3.4.14 Setting Serial Number of Disk Array Subsystem.....	SUP 03-0580
3.4.15 Registration of Hitachi AMS2300	SUP 03-0610
3.4.16 Changing the Registration Information for the Monitoring Failures	SUP 03-0620
3.4.17 Works to be done After the Upgrade is Completed	SUP 03-0620
3.4.18 Resetting of the HOST	SUP 03-0620
3.4.19 iSCSI Name Change of Target	SUP 03-0620
3.4.20 Using the Priced Option	SUP 03-0640
Chapter 4. Trouble Shooting.....	SUP 04-0000
4.1 Error Messages	SUP 04-0000
4.1.1 Flash Detected Messages	SUP 04-0000
4.1.2 Failure Messages	SUP 04-0010
4.1.3 WEB Error Messages	SUP 04-0040
4.1.4 Other Messages.....	SUP 04-0050
4.1.5 Collecting CTL Alarm Trace	SUP 04-0060
4.2 When Abnormal End Empty System Retry Full Install Occurs.....	SUP 04-0110

4.3	When Returning Configuration of the Hitachi AMS2300 to that of the Hitachi AMS2100	SUP 04-0120
4.3.1	Procedure for Removing Guard Check Against Installation of the Firmware for the Hitachi AMS2100.....	SUP 04-0130
4.3.2	Procedure for Removing Downgrade Check	SUP 04-0140
4.3.3	System Power Off.....	SUP 04-0150
Chapter 5. Appendix		SUP 05-0000
5.1	For Setting Changes in Host Computer and Others.....	SUP 05-0000

This page is for editorial purpose only.

Chapter 1. Outline

This procedure manual describes the work procedure for upgrading the array subsystem from Hitachi Adaptable Modular Storage 2100 (hereafter, referred to as Hitachi AMS2100) to Hitachi Adaptable Modular Storage 2300 (hereafter, referred to as Hitachi AMS2300) while the customer data of the Disk Drive used is maintained.

The procedures about the whole system, such as configuration change of the system, and the procedures of addition/subtraction of option parts and the setting of the priced option are not included.

In this procedures, the Basic Array Unit of the Hitachi AMS2100 (Model name: DF-F800-RKS) is described as "RKS". In the same way, the Basic Array Unit of the Hitachi AMS2300 (Model name: DF-F800-RKM) and the Additional Array Unit (Model name: DF-F800-RKAK) are described as "RKM" and "RKAK" respectively.

This page is for editorial purpose only.

Chapter 2. Components and Tools Required for Upgrade (Hard)

Model names of components required for the upgrade are shown below.

Table 2.1 Components to Be Ordered for Upgrade

No.	Detail of upgrade	Model	Unit Per Assy	Components
1	RKS (Single controller) to RKM (Single controller)	—	1	DF-F800-F1KMF2 (Control Unit ^{*1}) (1), Firmware for Hitachi AMS2300 of the latest revision (0830/A-M or later) (CD-R), Firmware for Hitachi AMS2100 which is the same revision (0830/A-S or later) with the one for Hitachi AMS 2300 (CD-R), Upgrade Procedures (1) DF-F800-F1KMS2 (Control Unit ^{*1}) (1), Firmware for Hitachi AMS2300 of the latest revision (0830/A-M or later) (CD-R), Firmware for Hitachi AMS2100 which is the same revision (0830/A-S or later) with the one for Hitachi AMS 2300 (CD-R), Upgrade Procedures (1) DF-F800-F1KMF4 (Control Unit ^{*1}) (1), Firmware for Hitachi AMS2300 of the latest revision (0845/A-M or later) (CD-R), Firmware for Hitachi AMS2100 which is the same revision (0830/A-S or later) with the one for Hitachi AMS 2300 (CD-R), Upgrade Procedures (1) DF-F800-F1KMS4 (Control Unit ^{*1}) (1), Firmware for Hitachi AMS2300 of the latest revision (0845/A-M or later) (CD-R), Firmware for Hitachi AMS2100 which is the same revision (0830/A-S or later) with the one for Hitachi AMS 2300 (CD-R), Upgrade Procedures (1)
2	RKS (Dual controller) to RKM (Dual controller)	—	1	DF-F800-F1KM (Control Unit ^{*1}) (2), Firmware for Hitachi AMS2300 of the latest revision (0830/A-M or later) (CD-R), Firmware for Hitachi AMS2100 which is the same revision (0830/A-S or later) with the one for Hitachi AMS2300 (CD-R), Upgrade Procedures (1)

*1 : Select the model with the same capacity as that of the cache memory installed in the disk array unit that used to be the Hitachi AMS2100/2300.

*2 : It is necessary to arrange the Cache memory additionally depending on the use condition of the priced option. (see "Table 3.3.1 Cache Memory Capacity before and after the upgrade when Cache Residency Manager is used" (SUP 03-0030), and "Table 3.3.2 ShadowImage in-system replication, TrueCopy remote replication, Cache Memory Capacity before and after the upgrade when Copy-on-write SnapShot, Cache Partition Manger or TrueCopy Extended Distance is used" (SUP 03-0030).)

NOTE : Move the configuration parts other than the Control Unit used in the RKS (excluding the Cache memory and I/F) to the RKM after the upgrade.

The following tools are required for the upgrade procedures.

Table 2.2 Tools Required (for Floor Model)

Division	Tool name	Specification	Usage
Tool	Phillips screwdriver	No.1	For Local/Remote Mode Setting Switch (rotary switch)
	Phillips screwdriver	No.2	For general works
	Allen wrench	No.3	For installing the floor standing kits
Tool of other	LAN cross cable	Category 5	For connecting a service PC and the subsystem
	PC for maintenance	Pentium	For maintenance (Pentium (Pentium II (233 MHz or more) is recommended), Memory 40 Mbytes or more (64 Mbytes or more is recommended)
	Wrist strap	—	A strap to prevent the subsystem from static electricity

Table 2.3 Tools Required (for Rackmount Model)

Division	Tool name	Specification	Usage
Tool	Phillips screwdriver	No.1	For Local/Remote Mode Setting Switch (rotary switch)
	Phillips screwdriver	No.2	Installation of skirts and securing the subsystem.
	Allen wrench	No.3	Securing of cable cramps
	Allen wrench	No.4	Securing of rail and connection of power cable.
	Allen wrench	No.6	Opening/closing of doors; removal of stabilizers
	Spanner	No.22	Adjustment of leveling bolts
Tool of other	LAN cross cable	Category 5	For connecting a service PC and the subsystem
	PC for maintenance	Pentium	For maintenance (Pentium (Pentium II (233 MHz or more) is recommended), Memory 40 Mbytes or more (64 Mbytes or more is recommended)
	Wrist strap	—	A strap to prevent the subsystem from static electricity

Chapter 3. Upgrade Work

3.1 Prerequisites

- The upgrade operation is the offline work.
- The Hitachi AMS2100 to be upgraded must be in the state in an error free state or condition prior to performing the upgrade.
- The Hitachi AMS2100 before the upgrade should not be the following statuses.
 - Under LU format
 - Pair status of ShadowImage in-system replication is COPY
 - Pair status of Copy-on-write SnapShot is COPY (Restore)
 - Pair status of TrueCopy remote replication is COPY or PAIR
 - Pair status of TrueCopy Extended Distance is COPY or PAIR
 - Under Modular Volume Migration
 - Under RAID Group expansion
 - Under spin-down with Power Saving
 - Under firmware replacement
- Be sure to execute a deliberate shutdown of the Hitachi AMS2100 before starting the hardware upgrade.
- Stop host computers from accessing the subsystem before starting the upgrade.
- Use the latest version (Ver.3.00 or later) of Hitachi Storage Navigator Modular 2.
- When the priced option was used in the array subsystem before the upgrade, check that you have a record of the priced option setting before the upgrade, and lock the priced option according to the Priced Option User's Guide. You cannot use the license key of the priced option you were using before the upgrade for the upgraded array subsystem.
- When TrueCopy remote replication/TrueCopy Extended Distance was used, stop the operation and resynchronize the pair. Lock the priced option after checking that you have a record of the priced option setting.
If you perform the upgrade work without locking the priced option, the following phenomenon occurs.
 - Both paths of the TrueCopy remote replication/TrueCopy Extended Distance are blocked. The notice of E-mail Alert Function and SNMP Agent Support Function and TRAP occur at the time of the path blockade. Perform the notice and the check to the Failure Monitoring Department in advance.
 - When the pair status of the TrueCopy remote replication/TrueCopy Extended Distance is PAIR or COPY, the pair status changes to PSUE.
- The downgrade from Hitachi AMS2300 to Hitachi AMS2100 is not supported.
- The upgrade from Hitachi Simple Modular Storage 100 to Hitachi AMS2300 is not supported.
- It is required to stop and reboot the host because the setting of the host needs to be changed.
- When Hitachi AMS2100 is made as Boot disk, or rootdg of VxVM is installed in Hitachi AMS2100, the upgrade cannot be performed because the device file name which the host recognizes is changed in the case of upgrading to Hitachi AMS2300.

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3.2 Before Starting Upgrade Work

- (1) Check whether the host interface of Hitachi AMS2100 is Fibre Channel or iSCSI, and prepare the Interface Board for Hitachi AMS2300 of the same type as Hitachi AMS2100 by the day of the upgrade work.
- (2) Confirm the customer whether to use the priced option, which was used in the Hitachi AMS2100, in the Hitachi AMS2300 also. If it is used, prepare the license key of the Hitachi AMS2300 by the day of the upgrade work. The license key of the priced-option is issued to the subsystem, so that if the priced option used in the Hitachi AMS2100 is also used in the Hitachi AMS2300, it is required to purchase the license key as the Hitachi AMS2300.
- (3) When any of ShadowImage in-system replication, TrueCopy remote replication, Cache Residency Manager, Copy-on-write SnapShot, TrueCopy Extended Distance and Cache Partition Manager is used in the Hitachi AMS2100 and it is also continued to be used in the Hitachi AMS2300, the Cache Unit may have to be added depending on the setting or the configuration of the Hitachi AMS2100.

Refer to "3.3 Notes" (SUP 03-0020) for the details.

When the addition is required, prepare the necessary Cache Unit by the day of the upgrade work.

- (4) As for the upgrade work, settings of the subsystem must be changed through operation of a maintenance PC connected via a LAN. Besides, the firmware must be installed from a CD-ROM. Make the following preparations before starting upgrade work.
 - Prepare a PC in which Hitachi Storage Navigator Modular 2 of the latest revision is installed. The PC must fit the LAN environment and have a CD-ROM drive.
 - LAN cross cable
 - The CD-ROM for installation of the Hitachi AMS2300 firmware of the latest revision (0832/E-M or later).
 - Firmware for Hitachi AMS2100 which is the same revision (0832/E-S or later) with the one for Hitachi AMS2300.
- (5) Back up the user data by the day of the upgrade work to prepare for emergency. Be sure to perform this work.
If you fail to operate the upgrade work, you may lose the user data on the array subsystem.
Back up the user data on the array subsystem by the operation on the host computer side.
- (6) Check that Hitachi AMS2100 to be upgraded is connected as an external storage of Hitachi Universal Storage Platform V (USP V)/Hitachi Universal Storage Platform (USP VM). If it is connected as an external storage as a result of the check, perform the upgrade following the procedure for the maintenance manual of Hitachi USPV/USP VM (refer to [EXTERNAL STORAGE MAINTENANCE SECTION "2. Maintenance for External Storage"](#)).

3.3 Notes

- When executing updating installation of the firmware, be sure to select [Update]. Never execute the [Initial Setup] because all data will be lost.
- When executing updating installation of the firmware, use the firmware whose revision is 0832/E-x or later.
After this, do not install any firmware other than the revision prepared for the upgrade.
When a failure occurs during the upgrade and you try to recover it, if the firmware of two or more revisions is installed, you may not recover the array subsystem from the failure.
When using DIMM (4 Gbyte), the revision must be 0845/A or more.
- Since configurations of the Hitachi AMS2100 and the Hitachi AMS2300 are different from each other, works such as an installation of the Control Unit for the Hitachi AMS2300 in the RKM, shifts of the Cache Memory installed in the RKM of the Hitachi AMS2100.
- When upgrading the array subsystem, do not upgrade two or more array subsystems at the same time not to make mistakes by the replacement work, etc.
- Do not change the port to connect the Fibre Channel interface cable and iSCSI interface cable before and after the upgrade.
- If the serial number of the array subsystem is changed by the upgrade work, WWN (iSCSI Name in case of iSCSI connection) changes at the same time. Therefore, you may need to change the settings of the host computer, peripherals and application software in some cases. For the setting change, refer to "5.1 For Setting Changes in Host Computer and Others" (SUP 05-0000).
- When Hitachi AMS2100 to be upgraded is the system configuration of the iSCSI interface, the Target iSCSI Name of Hitachi AMS2300 takes over the value before the upgrade. However, if the default Target iSCSI Name was used in the array subsystem before the upgrade, you need to change the Target iSCSI Name of Hitachi AMS2300 to a unique value in the network.
If you use Hitachi AMS2300 without changing the Target iSCSI Name and configure the array subsystem before the upgrade by the system of the iSCSI interface again after using Hitachi AMS2300, the iSCSI Name of both array subsystems is duplicated in the network and it affects the iSCSI protocol.
- The IP address of the LAN port for the user control or maintenance of the Control Unit succeeds the value before the upgrade. Reset it as occasion demands.
- The license key of the priced-option is issued to the subsystem. When the customer used the priced-option, which was used in the Hitachi AMS2100, even after upgrading to the Hitachi AMS2300, it is required to purchase the license key of the priced-option of the Hitachi AMS2300.
- When using the SNMP Agent Support Function, which is an optional feature, is used, the SNMP environment information file may have to be reviewed.

Deleted: • When executing a updating installation of the microprogram, be sure to select [Update]. Never execute the [Initial Setup] because all data will be lost.¶

- When using the Cache Residency Manager, which is an optional feature, there may be a case where the use is not allowed depending on a capacity of the cache memory. Refer to the following [Table 3.3.1](#) and, if the capacity of the cache memory is found to be insufficient, make addition to the cache memory or use the LU as a non-Cache Residency Manager. However, when the Cache Residency Manager is enabled after the upgrade in the case where the LU is used as a non-Cache Residency Manager, the subsystem will be placed in a state in which a warning is kept issued.

It is necessary to add the Cache memory to be installed at the upgrade work when it is used together with ShadowImage in-system replication, TrueCopy remote replication, Copy-on-write SnapShot, Cache Partition Manager, or TrueCopy Extended Distance so that refer to [Table 3.3.2](#).

Table 3.3.1 Cache Memory Capacity before and After the Upgrade when Cache Residency Manager is Used

Capacity of Turbo LU	Capacity of cache memory installed in Hitachi AMS2100 before upgrade (G bytes/controller)	Capacity of cache memory required for Hitachi AMS2300 after upgrade (G bytes/controller)	Remark
1 to 100,800	1 G	1 G or more	-
	2 G	2 G or more	
100,801 to 181,440	1 G	2 G or more	It is necessary to add the Cache memory.
	2 G	2 G or more	
181,441 to 1,048,320	2 G	2 G or more	-
1,048,321 to 1,128,960	2 G	4 G or more	It is necessary to add the Cache memory.
1,128,961 to 3,144,960	4 G	8 G	It is necessary to add the Cache memory.

- When ShadowImage in-system replication, TrueCopy remote replication, Copy-on-write SnapShot, Cache Partition Manager, or TrueCopy Extended Distance of the priced options are used continuously after the upgrade, it is necessary to add the Cache memory to be installed as shown below.

Table 3.3.2 ShadowImage in-system replication, TrueCopy remote replication, Cache Memory Capacity before and After the Upgrade when Copy-on-write SnapShot, Cache Partition Manager or TrueCopy Extended Distance is Used

Condition of upgrade	Capacity of cache memory installed in Hitachi AMS2100 before upgrade (G bytes/controller)	Capacity of cache memory required for Hitachi AMS2300 after upgrade (G bytes/controller)	Remark
When ShadowImage in-system replication, TrueCopy remote replication is used continuously after the upgrade	1 G	2 G or more	It is necessary to add the Cache memory.
When ShadowImage in-system replication, TrueCopy remote replication, Copy-on-write SnapShot or TrueCopy Extended Distance is used continuously after the upgrade	2 G	4 G or more	It is necessary to add the Cache memory.
	4 G	4 G or more	-
When Cache Partition Manager is used continuously after the upgrade	1 G	2 G or more	-
	2 G	4 G or more	It is necessary to add the Cache memory.
	4 G	8 G	

- It is required to change the setting of the host computer, the peripherals, the application software and the like in some cases because if the serial number of the array subsystem is changed in the upgrade work, WWN (iSCSI Name in case of iSCSI connection) is also changed at the same time.
- When Hitachi AMS2100 to be upgraded is an external storage of Hitachi Universal Storage Platform V (USP V)/Hitachi Universal Storage Platform (USP VM), the serial number of the subsystem and WWN of the Fibre Channel I/F of upgraded Hitachi AMS2300 are changed, so that Hitachi USP V/USP VM cannot recognize the LU of Hitachi AMS2300. Therefore, when upgrading Hitachi AMS2100, which is an external storage of Hitachi USP V/USP VM, perform the upgrade work following the procedure for the Hitachi USP V/ USP VM maintenance manual (refer to [EXTERNAL STORAGE MAINTENANCE SECTION "2. Maintenance for External Storage"](#)) before upgrading.
- When upgrading the Hitachi AMS2100 in the system configuration of Fibre Channel interface to the Hitachi AMS2300, if you use port 0C, 0D, 1C and 1D of the Fibre Channel interface of the Hitachi AMS2300 after the system upgrade, execute the settings of the port option, LU mapping and host group, etc. as needed referring to the "[Hitachi AMS2100/2300 User's Guide](#)" or "[DF800 Disk Array Subsystem Maintenance Manual](#)" after completing the upgrade of the system.

3.4 Upgrade Work



Touching heat sinks or ICs may cause injury. Be sure to handle with care.



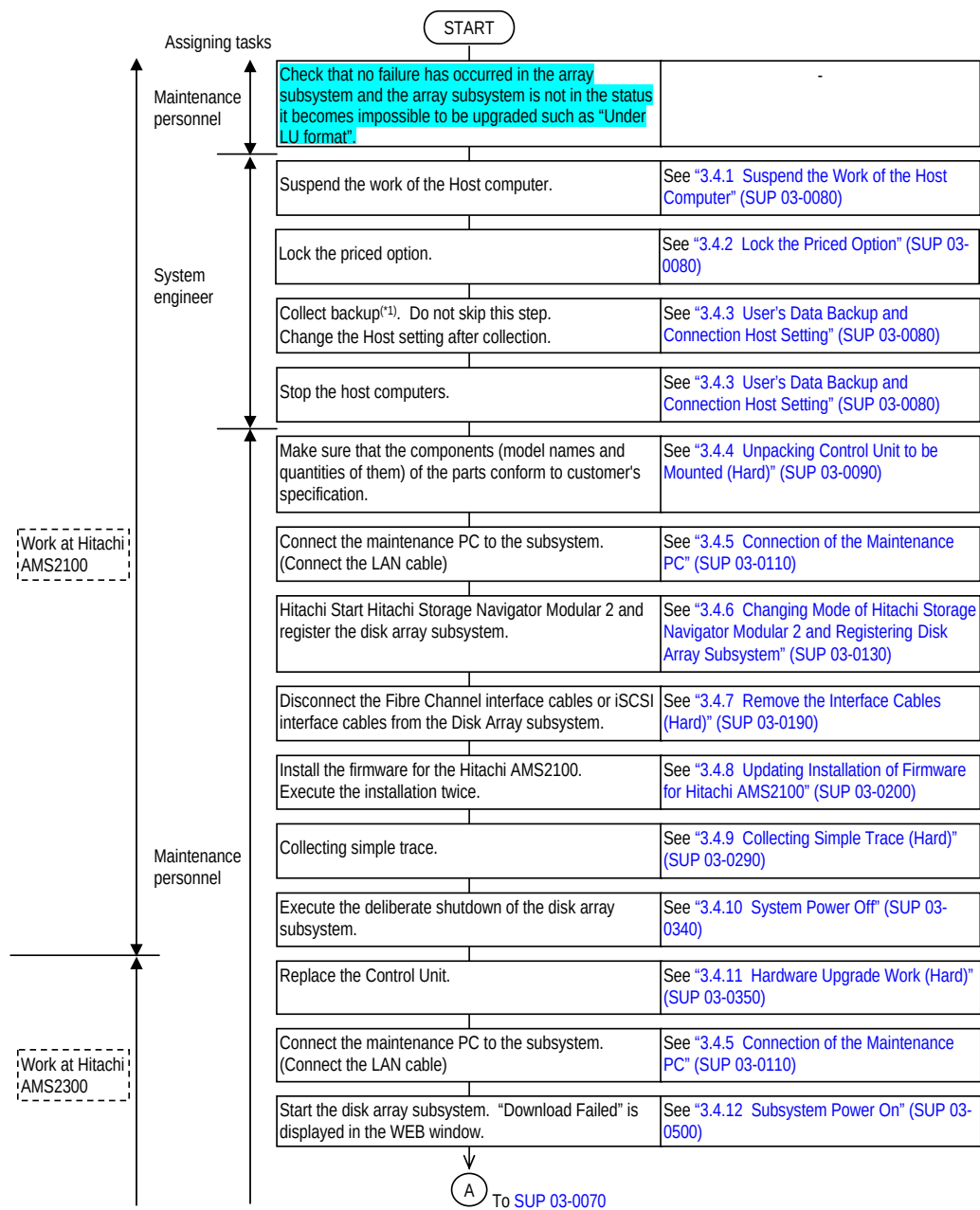
- To prevent part failures caused by static electrical charge built up on your own body, be sure to wear a wrist strap connected to the chassis before starting and do not take it off until you finish.
- Be sure to wear a wrist strap connected to the chassis whenever you unpack parts. Otherwise, the static electrical charge on your body may damage the parts.

NOTE : Make the upgrade with the power turned off irrespective of whether the system (host computer) is powered on or off.

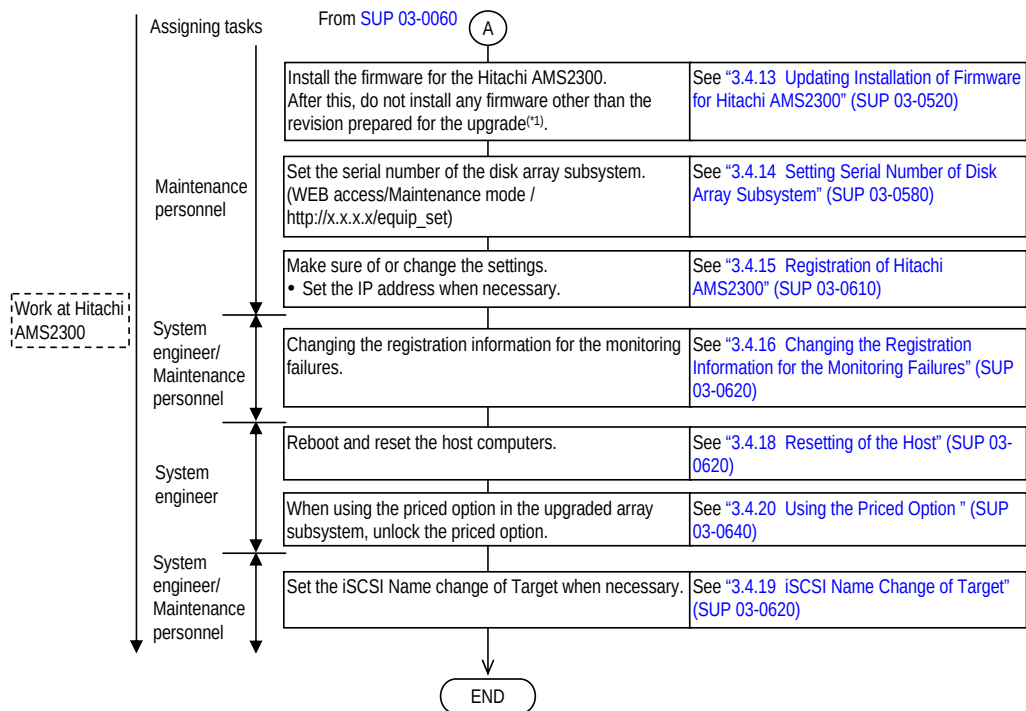
Offline : The power of the array subsystem is OFF.

Online : The power of the array subsystem is ON.

The procedure for upgrading the Hitachi AMS2100 to the Hitachi AMS2300 is shown below.
Execute the procedure after making sure of the work to be done in each step.



*1 : Maintenance personnel should check if customer has executed user data backups. Without the backups, the upgrade cannot be executed.



*1 : When a failure occurs during the upgrade and you try to recover it, if the firmware of two or more revisions is installed, you may not recover the array subsystem from the failure.

3.4.1 Suspend the Work of the Host Computer

Suspend the work of the Host computer.

3.4.2 Lock the Priced Option

When the priced option was used in the array subsystem before the upgrade, check that you have a record of the priced option setting before the upgrade, and lock the priced option according to the Priced Option User's Guide. You cannot use the license key of the priced option you were using before the upgrade for the upgraded array subsystem.

When TrueCopy remote replication/TrueCopy Extended Distance was used, stop the operation and resynchronize the pair. Lock the priced option after checking that you have a record of the priced option setting.

If you perform the upgrade work without locking the priced option, the following phenomenon occurs.

- Both paths of the TrueCopy remote replication/TrueCopy Extended Distance are blocked. The notice of E-mail Alert Function and SNMP Agent Support Function and TRAP occur at the time of the path blockade. Perform the notice and the check to the Failure Monitoring Department in advance.
- When the pair status of the TrueCopy remote replication/TrueCopy Extended Distance is PAIR or COPY, the pair status changes to PSUE.

3.4.3 User's Data Backup and Connection Host Setting

There is the possibility of loss of user data if the upgrade procedures fail. To prepare for an emergency, all the Disk Drive data mounted on Hitachi AMS2100 should be backed up.

NOTE : Maintenance personnel must check if customers have executed users' data backups.

After the backup is completed, execute the Host setting change.

For notes to set each Host, refer to ["5.1 For Setting Changes in Host Computer and Others" \(SUP 05-0000\)](#).

Please stop the host computers.

3.4.4 Unpacking Control Unit to be Mounted (Hard)

Unpack the Control Unit to be mounted to compose the configuration of the Hitachi AMS2300.
The procedure is shown below.

(1) Unpacking the Control Unit.

NOTE : • Unpack it indoor.

Especially, do not unpack it in such places with the outdoor dust, the direct sunlight, and the infiltration of rain water.

- Work on the unpacking in the place where a rapid difference of temperature does not occur.

It may have dew condensation when it is unpacked in the place where a difference of temperature is extreme.

Figure 3.4.1 shows the Control Unit within the outer package.

- Remove the outer package and packing materials.
- Take the Control Unit out of the polyethylene bag.
- Remove tapes, etc. applied to the Control Unit.
- Check the exterior of the Control Unit visually for distortion or damage owing to the transport.

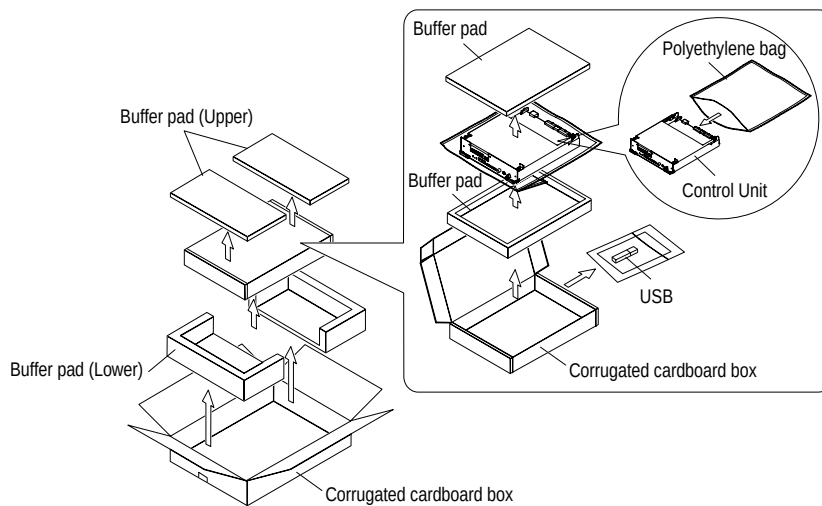


Figure 3.4.1 Packed Subsystem

- (2) Check the contents of the package
 - (a) Check if the contents of the package (their model names, product serial numbers, and quantities) agree with those in the packing list shipped.
 - (b) The key for the front bezel supplied with the subsystem must be kept by service personnel in order to prevent users from maintaining the subsystem. (The key for Front Bezel is used to mount and dismount Front Bezel.)

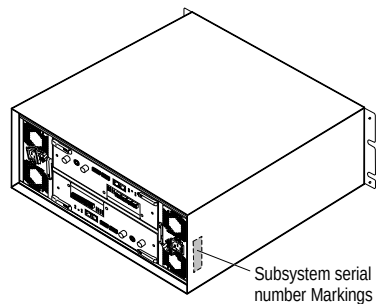


Figure 3.4.2 Locations of Subsystem Serial Number Markings

3.4.5 Connection of the Maintenance PC

Connect the maintenance PC to the disk array subsystem.

The procedure is shown below.

(1) Checking the LAN environment setting

(a) Make sure that the Hitachi Storage Navigator Modular 2 has been installed. (Make sure that the activation file startsm.bat exists.)

(b) Check the LAN environment setting for the PC

- Make sure that the following settings have been made, or change the settings to the following.

For the maintenance PC, set the IP address to 10.0.0.xxx as shown in No. 1.

If the maintenance PC cannot establish a connection, set the value to 192.168.0.xxx as shown in No.2 to 5.

If not connected yet, refer to [DF800 Disk Array Subsystem Maintenance Manual Troubleshooting "3.4 Procedure for specifying maintenance port IP address" \(TRBL 03-0100\)](#).

No.	Subsystem (LAN maintenance port)		Maintenance PC	
	IP Address	Subnet Mask	IP Address	Subnet Mask
1	CTL 0: 10.0.0.16 CTL 1: 10.0.0.17 (At the time of shipment)	255.255.255.0 (At the time of shipment)	10.0.0.2 to 0.0.0.9	255.255.255.0
2	CTL 0: 192.168.0.16 CTL 1: 192.168.0.17	255.255.255.0	192.168.0.2 to 192.168.0.9	255.255.255.0
3	CTL0 : 192.168.233.16 CTL1 : 192.168.233.17	255.255.255.0	192.168.233.2 to 192.168.233.9	255.255.255.0
4	CTL0 : 172.23.211.16 CTL1 : 172.23.211.17	255.255.255.0	172.23.211.2 to 172.23.211.9	255.255.255.0
5	CTL0 : 10.197.181.16 CTL1 : 10.197.181.17	255.255.255.0	10.197.181.2 to 10.197.181.9	255.255.255.0

- Manual change of the network parameter of the Maintenance port

When the User management port is set as the same network address as the Maintenance port, the communication cannot be made normally. Prepare five patterns of the network parameter fixed values to be used in the Maintenance port, and change the network parameter fixed values to be used in the Maintenance port manually by the network parameter of the User management port.

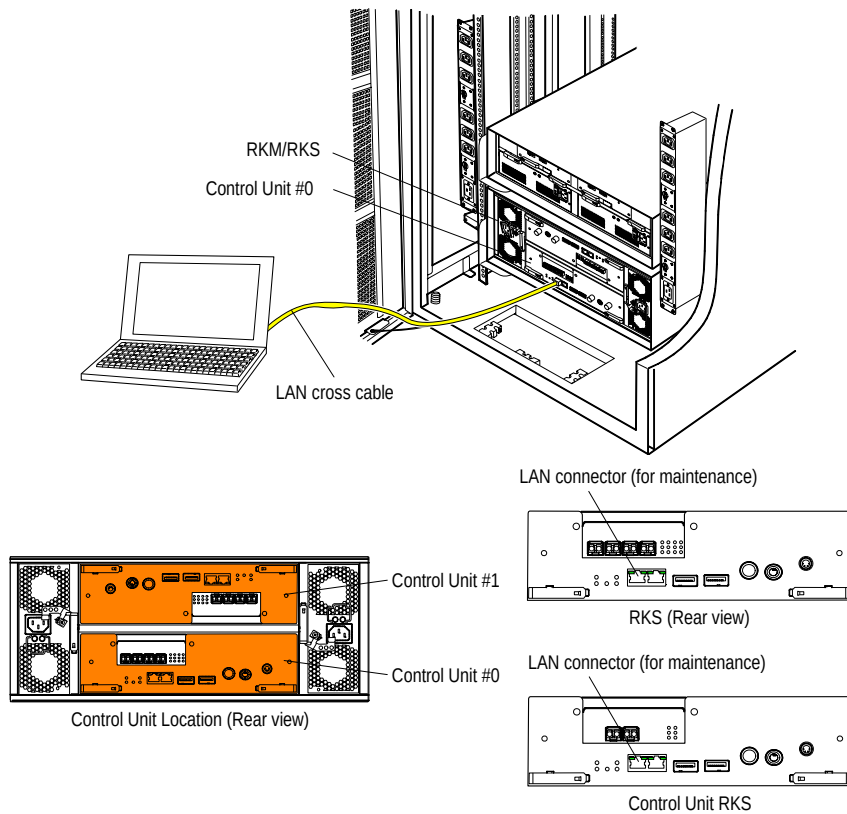
NOTE : However, when the network address of the LAN device, which is connected via the Gateway in the extension of the User management port, is the same as that of the Maintenance port, the communication cannot be made normally because of the conflict between them.

The network address set to the maintenance port cannot be used for the LAN device to be connected to the User management port via the Gateway.

Therefore, use a network address other than that set for the maintenance port.

(2) Connecting the LAN cross cable

Remove the LAN Cover of the Control Unit #0 in the RKS and connect the PC and the subsystem with the LAN cross cable.



*1 : The rackmount model (system configuration of the Fibre Channel interface) is shown as an example.

Figure 3.4.3 Connecting the LAN Cross Cable

3.4.6 Changing mode of Hitachi Storage Navigator Modular 2 and Registering Disk Array Subsystem

Register the disk array subsystem using Hitachi Storage Navigator Modular 2.
The procedure is shown below.

(1) Activating the Hitachi Storage Navigator Modular 2

- (a) When performing it from the host, check if Hitachi Storage Navigator Modular 2 server is started from "Service" of "Management Tool". If not started, make it "Start".
- (b) When performing it from the client, start the browser, and specify an address as follows.
ex. : http://#####:23015/StorageNavigatorModular/Login

↑
IP address of PC that installs Hitachi Storage Navigator Modular 2 is input.

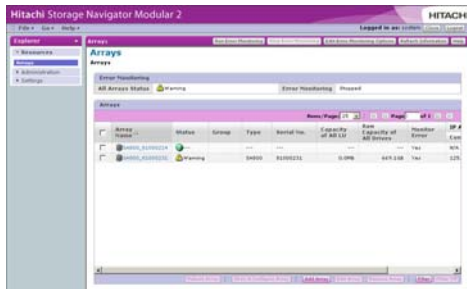
NOTE : When the display of the menu, etc. on the window is broken, select the color palette from the property of the window, and make it other than True Color and 65536 or less.

- (c) When the user is registered in Hitachi Storage navigator Modular 2, enter the registered contents in the user ID and the password, and click the login button.

NOTE : When Hitachi Storage Navigator Modular 2 was newly installed, enter the temporarily registered user ID "system" and password "manager".



- (d) The Hitachi Storage Navigator Modular 2 is activated in the Normal Mode and the main window is displayed^(†1).



You can execute the display of the Hitachi Storage Navigator Modular 2 Operation Mode and state of the failure monitoring and the following functions in the main window.

For the operation of each function, refer to the page explaining each function.

- Registration of the disk array subsystem (registration, deletion, change, and properties display)
- Execution of the failure monitoring and setting of the failure monitoring option
- Change of the Operation Mode
- Display of the version

†1 : The mode change cannot be done at the time of the initial activation of the Hitachi Storage Navigator Modular 2.
A registration of a password validates the mode change.

(2) Changing the Maintenance Mode

Hitachi Storage Navigator Modular 2 has three Active Modes, that is, the Normal Mode, Management Mode, and Maintenance Mode. In the Normal Mode, the program displays the configuration and statuses of the disk array. In the Management or Maintenance Mode, it can set the configuration of the disk array in addition to the function in the Normal Mode.

(a) Changing the Normal Mode to the Maintenance Mode

Change the Operation Mode from the Normal Mode to the Maintenance Mode.

(i) Check that the "mode" file exists in the following directory.

If it exists, go to Procedure (iv).

\\HiCommand\\StorageNavigatorModular\\conf

(ii) If there is no mode file, create a mode file (without extension) and write the following letters in one line. However, do not insert line feeds.

StorageNavigatorModular

Figure 3.4.3.1 Mode File

(iii) Store the created mode file in the following place.

\\HiCommand\\StorageNavigatorModular\\conf

(iv) Put a checkmark in the array subsystem to operate on the main window, and press the [Ctrl] key, [Shift] key and the [E] key at the same time.^(†1)

It is displayed as "Maintenance Mode" in [Operation Mode] of the upper part of the main window, and Hitachi Storage Navigator Modular 2 is operated in the Maintenance Mode.

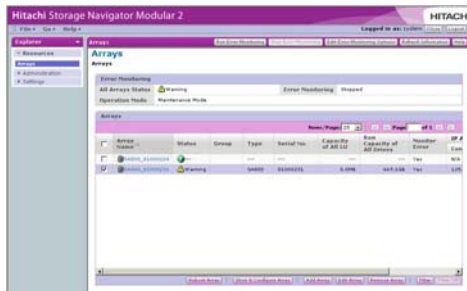


†1 : When the array subsystem to operate is not registered, click the blank area (other than buttons and characters) in the "Arrays" window, and press the [Ctrl] key, [Shift] key and [E] key at the same time.

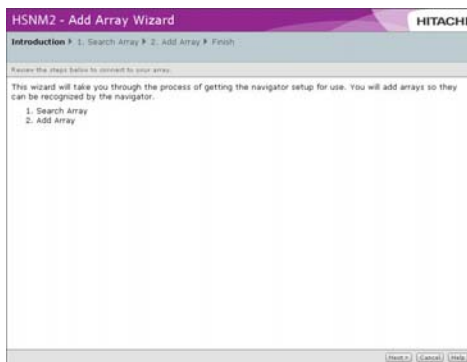
(3) Registering the disk array subsystem

Register the disk array subsystem to be operated in order to operate it from the Hitachi Storage Navigator Modular 2. A registration of a non-existent disk array subsystem cannot be done.

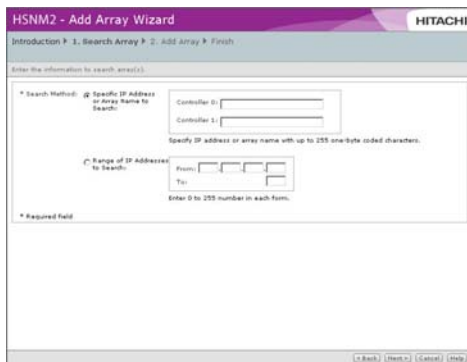
- (a) Click the [Add Array] button in the “Subsystems” window of the main window.



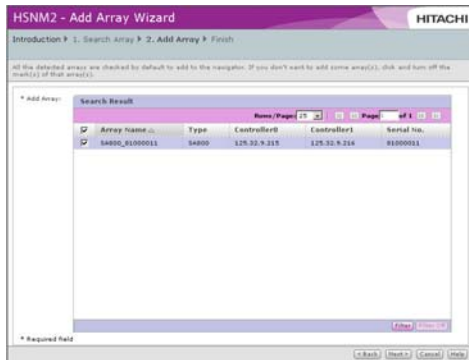
- (b) “HSNM2_Add Array Wizard” window is displayed.



- (c) The array subsystem register is searched. Specify a search method and a range to search by a host name or an IP address.



- (d) The search result is displayed. Specify the array subsystem to register, and click the [Next] button.



HSNM2 - Add Array Wizard

Introduction > 1. Search Array > 2. Add Array > Finish

All the displayed array are checked by default to add to the navigator. If you don't want to add some array(s), click and turn off the check(s) of that array(s).

* Add Array:

Search Result

Rows: Page 1 of 1

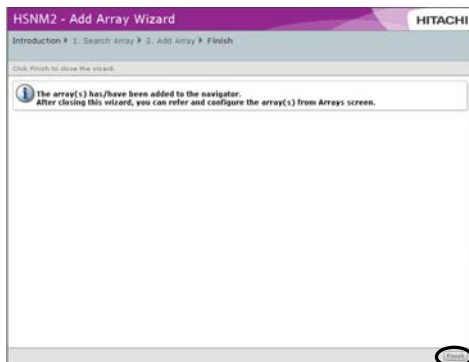
Array Name	Type	Controller0	Controller1	Serial No.
SA000_010000011	SA000	125.32.9.215	125.32.9.214	010000011

* Required field

[Back] [Next] [Cancel] [Help]

- NOTE :
- The disk array subsystem with the dual system can also be used with a single Controller only.
 - Enter the IP address only in the Control Unit to which the LAN cable is connected. If the IP address is entered in a Control Unit to which the LAN cable is not connected, an error is caused.

- (e) When a message informing of a completion of the registration is displayed, click the [Finish] button.



HSNM2 - Add Array Wizard

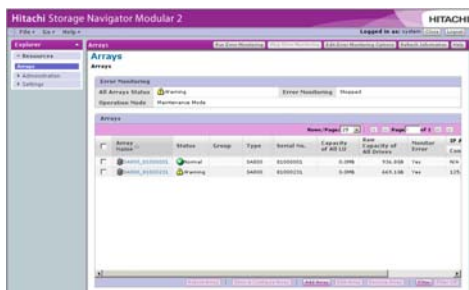
Introduction > 1. Search Array > 2. Add Array > Finish

Click Finish to close the wizard.

The array(s) has/have been added to the navigator.
After closing this wizard, you can refer and configure the array(s) from Arrays screen.

[Finish]

(f) The updated main window is displayed.



There are two types of icon of the disk array subsystem as shown below: an icon for the dual system and that for the single system.

- Icon for the dual system : 
- Icon for the single system : 

3.4.7 Remove the Interface Cables (Hard)

To execute the subsequent operation, Fibre Channel Interface cables and iSCSI cables should be disconnected. If connected, the other connected devices may be affected whenever the Disk Array subsystem reboots.

Disconnect all the Fibre Channel interface cables and iSCSI cables connected to the Disk Array subsystem (on the side of connecting to the Control Unit only).

NOTE : When the cable cannot be removed easily, do not pull it by force.

Pull out the parts a little, and then perform the cable removal again.

- (1) Disconnect the Fibre Channel interface cable and iSCSI interface cable connected to the Control Unit (RKS).

When removing the Fibre Channel interface cables, pull out the Fibre Channel interface cables completely from the host connectors. If the Fibre Channel interface cables are inserted half in the host connectors, the Control Unit continues to detect the Fibre Channel failures, and the I/O processing of the Control Unit may be deteriorated.

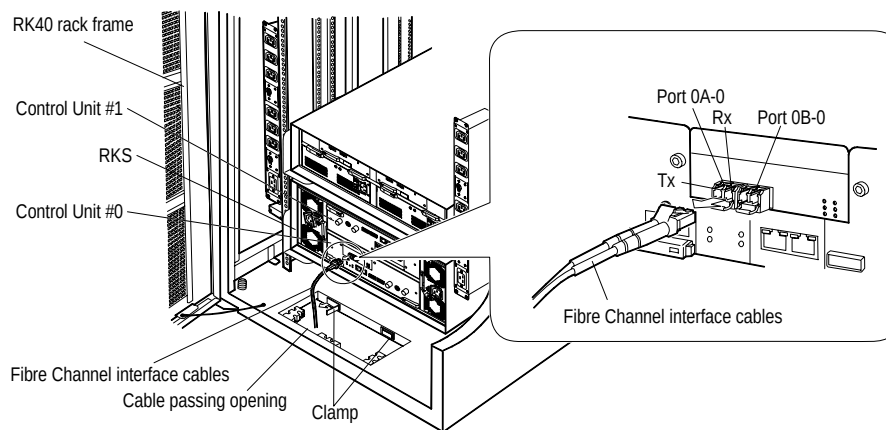


Figure 3.4.4 Disconnecting Interface Cable (RKS)

3.4.8 Updating Installation of Firmware for Hitachi AMS2100

Install the firmware for the Hitachi AMS2100 (same revision with the one for Hitachi AMS2300) using the Hitachi Storage Navigator Modular 2.

Check if the firmware revision is 0832/E-S or later.

The updating installation must be executed twice in order to completely change information of the microprograms of two generations.

The procedure is shown below.

(1) Preparation for update installation of firmware

(a) Set up the maintenance PC before starting the update installation.

The setting up is completed when the installer stored in the CD-ROM of the firmware is executed.

Outline of the setting up is shown below.

- Installation of the JRE 1.6.0
- Setting of the security policy file
- Copying of the firmware from the CD-ROM for the firmware installation to the maintenance PC

(b) Prerequisites for setting up of a maintenance PC

Prerequisites concerning the user ID of Windows® are as follows.

- The user ID of Windows® at the time when the firmware is installed in the maintenance PC must be identical with that at the time when a maintenance work is done.

A prerequisite of a drive for booting the OS of the maintenance PC

- The drive for booting the OS must be the C drive.

(2) Hierarchy of firmware Storage Directories

The hierarchical structure of firmware storage directories is shown below.

The structure of directories of the CD-ROM for installing the firmware is the same as that shown below.

When the CD-ROM installer is executed, the unified version directory is stored under the directory, "C:\diskarray-microprogram\microprogram."

When installing the firmware, specify the unified version directory.

First stratum	Second stratum	Third stratum	Fourth stratum
Unified version directory (0832E)	DF800M	disk 01 - disk X	Firmware file
		fmins	
	DF800S	disk 01 - disk X	
		fmins	
	ENC	online	update
			overwrite
		offline	update
			overwrite

NOTE : Do not change a name of the unified version directory or directory in a stratum under the unified version directory. The firmware becomes unable to be installed if the directory name is changed.

- (a) Java error codes displayed at the time of update installation and actions for coping with them.

When the PC does not satisfy the prerequisite shown in Item (2)(b), a Java error occurs. Details of the Java errors and actions for coping with them are shown below.

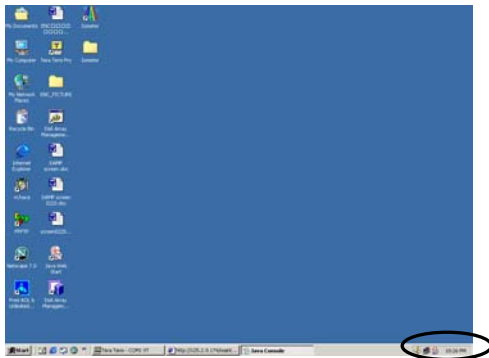
Table 3.4.1 Java Error Codes

Message code	Message text	Time when the error occurs/ Cause estimated	Action for coping with the error
1216	Access to the property information was rejected. Confirm the setup of the security policy.	Time when the error occurs - The error occurs immediately after the [Select] key is pressed when the firmware is selected. Cause estimated - A drive for booting the OS is not the c drive. - The user name of Windows at the time when the firmware was installed in the Maintenance PC is not identical with that at the time when the firmware is updated, or two-byte characters (full size characters or Japanese characters) are used to define the user name	① Check if the drive for booting the OS is the c drive. (Refer to the (i) of (2) in Subsection 3.4.8.) In the case of the dual boot, boot Windows using the c drive and perform the installation again. ② Check if the user name of Windows at the time when the firmware is installed in the Maintenance PC is identical with that at the time when the firmware is updated and if two-byte characters (such as full size characters and Japanese characters) are not used. If an illegal specification has been made, perform the logon over again using an appropriate user name and perform the installation again after connecting the browser.
1219	An error occurred during the communication with the subsystem. Confirm the subsystem status and the LAN environment.	Time when the error occurs - The error occurs when the resource for the LAN cannot be ensured. Cause estimated - The error occurs because the resource (memory) of the Maintenance PC is insufficient.	① Reboot the subsystem and the Maintenance PC and quit unnecessary application programs. Make sure that the subsystem is in the Ready status, place the subsystem in the Maintenance mode, and perform the installation again. ② If the error recurs in spite of the operations above, replace the Maintenance PC and perform the installation over again from the beginning. Use a Maintenance PC whose memory capacity is as large as possible.

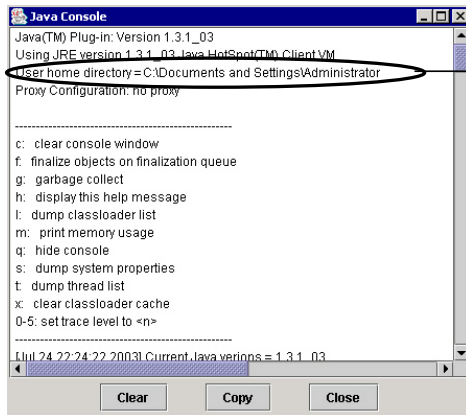
(i) Method for checking the drive for booting the OS

A method for checking the boot drive when the Java message (message code: 1216) is issued is shown below.

- ① Double click the [Java icon] on the task tray at the bottom right in the Service PC window.



- ② Since the JavaConsole window opens, make sure that the [User Home Directory] is the c drive (=C: *****...).



If "C:***** ..." is displayed here, the boot drive is the c drive.

(b) Procedure for setting up the Maintenance PC

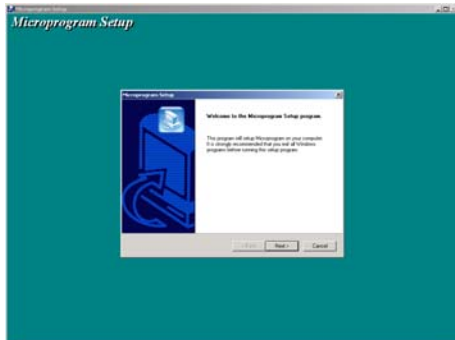
- (i) When the version other than JRE 1.6.0 is installed in the service PC, the firmware replacement may not be performed normally.

When the version other than JRE 1.6.0 is installed, be sure to uninstall the JRE and then install JRE 1.6.0.

Open [Setting] – [Control Panel] from the start menu of Windows, and delete the JRE by “Addition and Deletion of Applications” to uninstall the JRE.

- (ii) Double click the “Program\DF800JSetup10.exe” of the CD-ROM for firmware installation.
(iii) The initial window of the setting up appears.

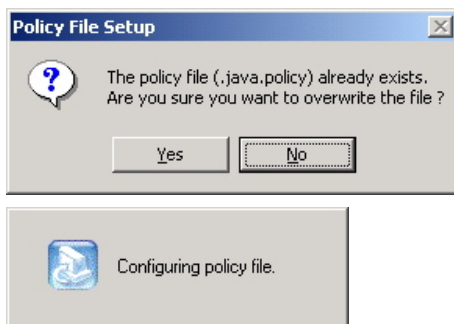
When the [Next] button is pressed, the JRE 1.6.0 installer is activated in the case where the JRE 1.6.0 is not installed yet.



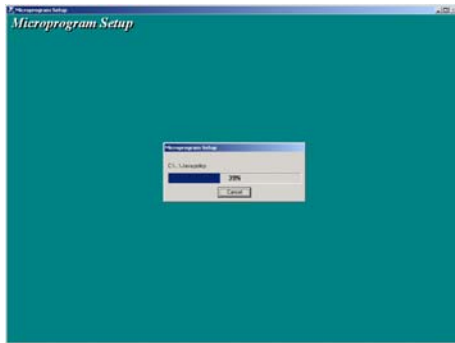
- (iv) Set the security policy file.

When the security policy file (.java.policy) exists in the home directory of the current user, a window for asking confirmation of starting the setting is displayed.

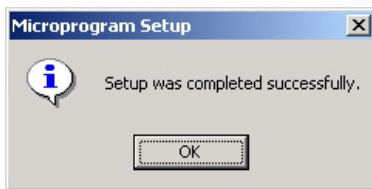
Click the [Yes] button.



- (v) Copy the firmware directly under “C:\diskarray-microprogram\microprogram” of the service PC manually from the CD-ROM for the firmware installation.
The firmware is directly under “AMS2x00_xx\program\microprogram” of the CD-ROM for the firmware installation.



- (vi) The setting up is completed. Press the [OK] button.



- NOTE :
- Note that the settings of the security policy file is changed when the maintenance PC is set up.
 - Be careful that you may be unable to install it if you move the firmware to any directory other than the manually copied directly “C:\diskarray-microprogram\microprogram”.
 - Do not change a name of the unified version directory^(†1) or directory in a stratum under the unified version directory. The ENC/SENC firmware becomes unable to be installed if the directory name is changed.

†1 : For the unified version directory, refer to “3.4.8 (2) Hierarchy of Firmware Storage Directories” (SUP 03-0200).

(3) Install the firmware for the Hitachi AMS2100.

(3-1) Procedure for firmware download

(a) Matters to be made sure of before starting update installation.

Make sure of the following before starting the update installation.

- Make sure that the main switch of the subsystem is turned on. If it is turned off, turn it on to start the subsystem. (Refer to ["3.4.12 Subsystem Power On" \(SUP 03-0500\)](#).)
- Check that the READY LED (green) on the Front Bezel of the Basic Chassis lights up. When the READY LED (green) on the front of the Basic Chassis is blinking at high speed, do not perform the update operation for the maximum of 30 minutes until it lights up because the automatic download of the ENC firmware is being executed. When the WARNING LED (orange) on the front of the Basic Chassis is blinking at high speed, do not perform the update operation for the maximum of 40 minutes until the READY LED (green) on the front of the Basic Chassis lights up because the automatic download of the ENC firmware or the update of the flash program is being executed.

Also, check that the WARNING LED (orange) on the Front Bezel does not light up.

- Also, check that the WARNING LED (yellow) on the Front Bezel does not light up or blink at low-speed. When it lights up or blinks at low-speed, connect it to WEB, and perform the maintenance according to the information message on WEB. After the recovery is made, install the firmware in order to update it.
- Check that the system copy is not in execution by the information message (I14000 System copy started (Unit-x, HDU-y)) on WEB.

When the system copy is in execution, install it after completing the system copy.

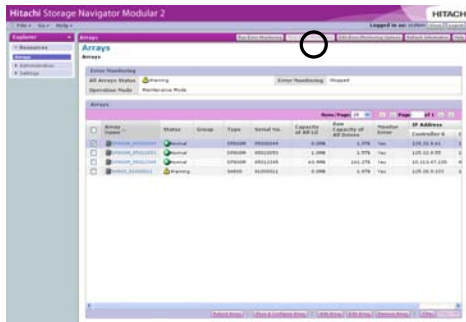
(b) Connect the LAN cross cable to the subsystem LAN connector for maintenance and connect the subsystem to the WEB. (Refer to ["3.4.5 \(2\) Connecting the LAN cross cable" \(SUP 03-0120\)](#).)

(c) Start Hitachi Storage Navigator Modular 2, put a checkmark to the array subsystem to set, press the [Ctrl] key, [Shift] key and [E] key at the same time, and change the operation mode to "Maintenance Mode". (Refer to ["3.4.6 Changing Mode of Hitachi Storage Navigator Modular 2 and Registering Disk Array Subsystem" \(SUP 03-0130\)](#).)

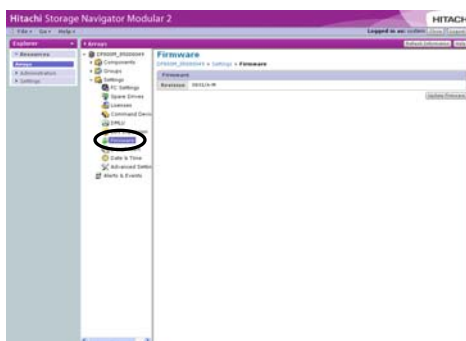
Check that "Maintenance Mode" is displayed in [Operation Mode] on the top of the main window.

(d) Click the array subsystem name, and open the unit window.

NOTE : When the main window is not displayed even if you select the array subsystem, check that the LAN port number is not changed. Use the changed LAN Port Number, and execute it again.



(e) Select [Settings] - [Firmware] on the unit window. Click the [Update Firmware] button.



(f) Put a checkmark to the [Transfer and update Microprogram] of the [Basic] tab, enter [Update file], set the necessary items of the [Advanced] tab, and click the [OK] button.

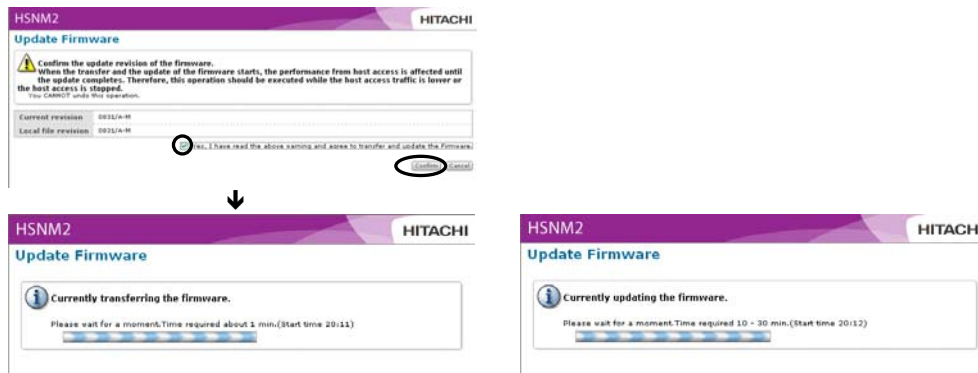
Basic tab



Advanced tab



- (g) The confirmation window of the firmware to update is displayed. Check it, and then click the [Confirm] button.



NOTE : When a LAN failure, etc. occurred and the processing of the Hitachi Storage Navigator Modular 2 terminated abnormally, execute the download of the firmware again from the beginning.

When using Windows®:

c:/diskarray-microprogram/microprogram/micro/0832E

When using Solaris™ or Red Hat Linux®:

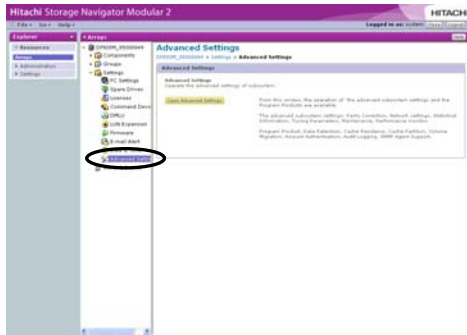
diskarray-microprogram/microprogram/micro/0832E

Unified version directory in the hard disk in which the firmware is copied.

- (h) Since a message is displayed when the reading in of the firmware is completed, click the [Close] button.



- (i) Select [Advanced Settings] - [Firmware] on the unit window.



- (j) Check that the revision of the firmware replaced to [Revision] is displayed.
 (k) Because the firmware is managed by two generations, return to the [procedure \(e\) \(SUP 03-0260\)](#) reference place, and perform the update installation of the firmware again.

NOTE : When TrueCopy remote replication/TrueCopy Extended Distance was used, stop the operation and resynchronize the pair. Lock the priced option after checking that you have a record of the priced option setting.
 If you perform the upgrade work without locking the priced option, the following phenomenon occurs.

- Both paths of the TrueCopy remote replication/TrueCopy Extended Distance are blocked. The notice of E-mail Alert Function and SNMP Agent Support Function and TRAP occur at the time of the path blockade. Perform the notice and the check to the Failure Monitoring Department in advance.
- When the pair status of the TrueCopy remote replication/TrueCopy Extended Distance is PAIR or COPY, the pair status changes to PSUE.

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- (l) When the revision check is completed, the firmware replacement of the array subsystem ends.

NOTE : When the firmware was replaced online after performing the processing to change the system configuration (LU formation, format, LU owner right change, etc.), the "I14000 System copy started" message may be displayed two or more times in Information Message on WEB, but it is not a problem.

3.4.9 Collecting Simple Trace (Hard)

Collect the simple trace and keep it so that in case of failure. It can be investigated. Collect the simple trace using the WEB.

The procedure is shown below.

(1) Before collecting the simple trace

(a) Items to be prepared

Collection is performed using the normal mode of WEB or Maintenance mode.

For connecting to the WEB, a PC terminal with Browser installed is necessary.

For collecting the simple trace, a Disk Drive with a space of 1 G bytes at least is necessary.

(b) Connect the Device LAN Port for maintenance and the PC terminal with a LAN-cross-cable.

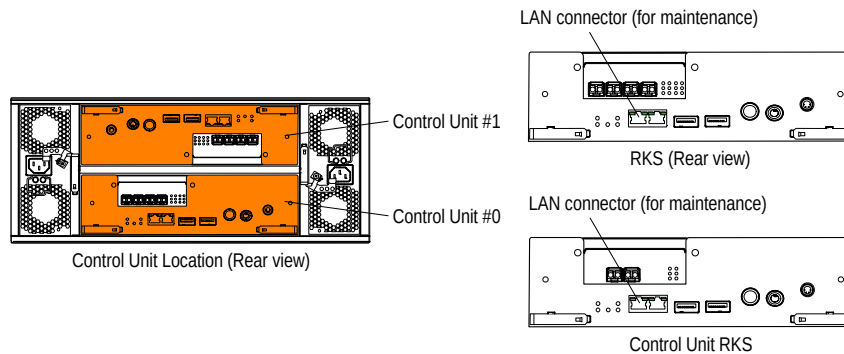


Figure 3.4.5 LAN Connector Position

(c) With Simple Trace Collection, the information of both controllers can be collected from one controller. Therefore, this function does not need to be performed from both Controllers. (As a file name during the collection, "simpl_trc0.dat" is provided for the collection from Control Unit #0, and "simpl_trc1.dat" for the collection from Control Unit #1".)

(d) Check that the READY LED (green) on the front of the Basic Chassis is not blinking at high speed.

When the READY LED (green) on the front of the Basic Chassis is blinking at high speed, wait for the maximum of 30 minutes until the READY LED (green) lights up because the automatic download of the ENC firmware is being executed.

(e) Check that the WARNING LED (orange) on the front of the Basic Chassis is not blinking at high speed.

When the WARNING LED (orange) on the front of the Basic Chassis is blinking at high speed, the upgrade of the flash program or automatic download of the ENC firmware at the time of the power supply injection in the single controller configuration is executing. Wait until the WARNING LED (orange) on the front of the Basic Chassis goes out and the READY LED (green) lights up (within 60 seconds usually).

- (f) Clear the cache of the browser following the procedure shown below so that the old data, which was collected at the preceding time, should not be saved.
- In the case of Internet Explorer, select the [Tools] - [Internet Options] - [General] - [Temporary Internet files] - [Delete Files] in this order.
 - In the case of Netscape, select the [Edit] - [Preferences] - [Cache] - [Clear Cache] in this order.

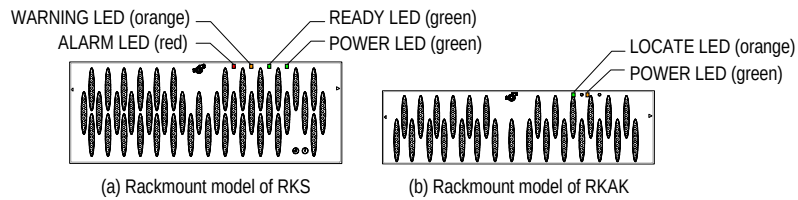


Figure 3.4.6 Indication Locations and Names of LED (Front Bezel)

(2) Procedure for a Simple Trace collection

- (a) Enter the IP address of the LAN connector for maintenance, to which the maintenance PC is connected, from the browser. When the WEB has already been connected, update the page by pressing the Update button. (For the procedure for connecting the WEB, refer to [DF800 Disk Array Subsystem Maintenance Manual Troubleshooting "Chapter 3. Before Starting WEB Connection" \(TRBL 03-0000\)](#).)



- (b) When Windows XP Service Pack2, Windows 2003 Service Pack1 or Windows Vista is used in the OS of the maintenance PC, collect the simple trace after changing the setting of the following Internet Explorer.

- Select [Tools] - [Internet Options] from the Internet Explorer menu.
- Select the [Privacy] tab, check [Blocked pop-up] of [Pop-up block], and click the [Set] button.
- Set [Filter level] to [Medium] in the [Setting pop-up block] window and click the [Close] button.
- Select [OK] button in the [Internet Options] window.

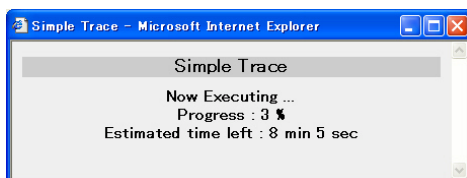
- (c) Collect the simple trace according to the WEB and the following procedure. Click "Simple Trace" in the menu frame.



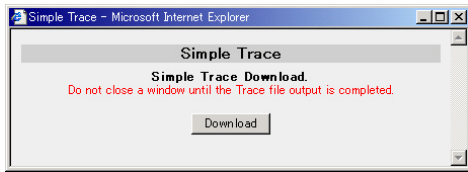
- (d) When the "Simple Trace" is clicked, the following window is displayed.



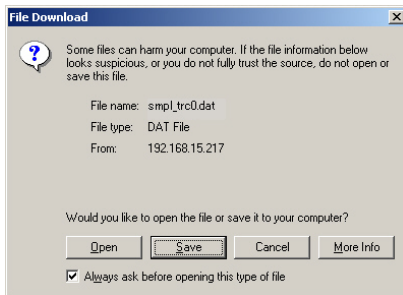
- (e) When the [OK] button is clicked, the following window is displayed.



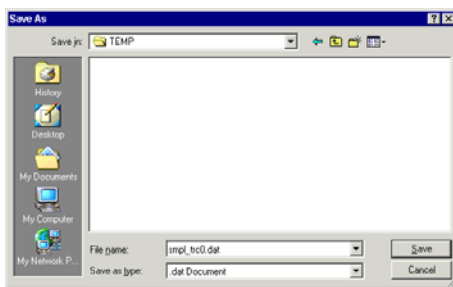
- (f) The following window is displayed. Click the [Download] button.



- (g) Please click [Save], if it is continued. Please click [Cancel], if it is stopped.

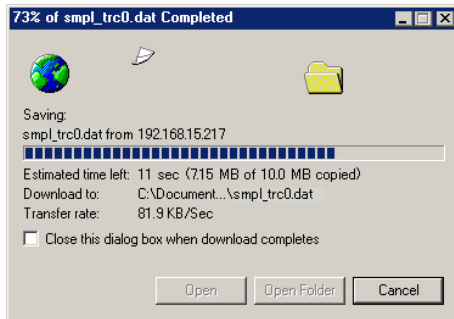


- (h) If the following window is displayed. Please click [Save] after file name is setting, if it is continued.^(†1) Please click [Cancel], if it is stopped.

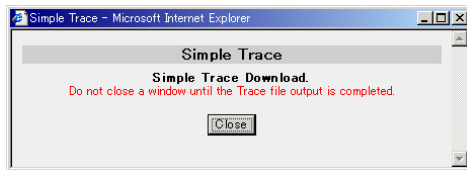


^{†1} : There may be a case where the default file name is given as "ctla_trc0.dat..dat" depending on the setting of the PC. In this case, reset the file name to "ctla_trc0.dat" or any other name.

- (i) The following window is displayed during execution download.



- (j) When the downloading completes, the progress indicating message window is closed.
(k) Click the [Close] button.



In this procedure Simple trace is collected by WEB Normal mode. Similarly, Simple trace can be collected by WEB Maintenance mode through Menu Frame.

For entering Maintenance mode, refer to the [DF800 Disk Array Subsystem Maintenance Manual WEB "3.1 Transferring to the Maintenance Mode" \(WEB 03-0000\)](#).

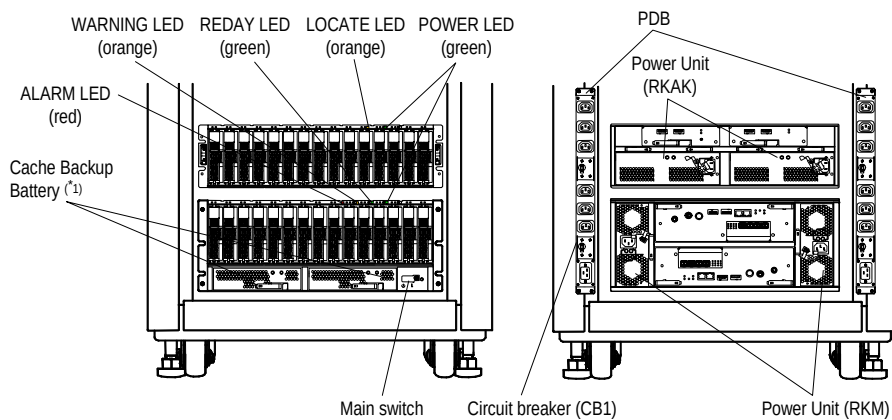
3.4.10 System Power Off

Execute the deliberate shutdown of the disk array subsystem (Hitachi AMS2100).
The procedure is shown below.

NOTE : Do not perform the planned shutdown (power-off) while the READY LED (green) on the front of the Basic Chassis is blinking at high speed (for the maximum of 20 minutes).

- (1) Turn off the main switch.
- (2) Make sure that the POWER LED (green) on the front of the subsystem is off. ^(†1)
- (3) Remove all the power cables inserted into the Power Unit of the chassis.
- (4) All turn off the circuit breaker of the PDB.

NOTE : The sequential shutdown may be failed if the Disk Drive is in the blocked status. Maintain the blocked Disk Drive before executing the sequential shutdown.



*1 : Only one Cache Backup Battery is installed in the RKM/RKS in standard, and it is installed left side of the subsystem.

Figure 3.4.7 Locations of Switches for Power On (Rackmount Model)

†1 : The POWER LED (green) of the RKAK does not go out when the main switch is turned off in the Maintenance mode, however, this is not a problem.

NOTE : When TrueCopy remote replication/TrueCopy Extended Distance was used, stop the operation and resynchronize the pair. Lock the priced option after checking that you have a record of the priced option setting.
If you perform the upgrade work without locking the priced option, the following phenomenon occurs.

- Both paths of the TrueCopy remote replication/TrueCopy Extended Distance are blocked. The notice of E-mail Alert Function and SNMP Agent Support Function and TRAP occur at the time of the path blockade. Perform the notice and the check to the Failure Monitoring Department in advance.
- When the pair status of the TrueCopy remote replication/TrueCopy Extended Distance is PAIR or COPY, the pair status changes to PSUE.

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This page is for editorial purpose only.

3.4.11 Hardware Upgrade Work (Hard)

Replace the parts of the array subsystem to those for upgrading to the Hitachi AMS2300 configuration.

After replacing to the parts for the Hitachi AMS2300, request the customer to store the parts used at the Hitachi AMS2100 carefully.

The procedure is shown below.

Take notice of the following when performing a maintenance work for the subsystem. Read and understand them well before performing the maintenance.

(1) Note on hardware upgrade works

(a) Perform the powering on/off operation correctly.

It is feared that user data is lost if the powering on/off operation is not done following the procedure correctly.

Since the power supply to the array is duplicated, when turning on/off the power, remove the power cables from two Power Units per chassis.



Hazard exists that can cause an electric shock.

Start the work after making sure that the breaker in the power distribution box has been turned off.

(b) Notes when Unpacking, Installing or Removing the Parts

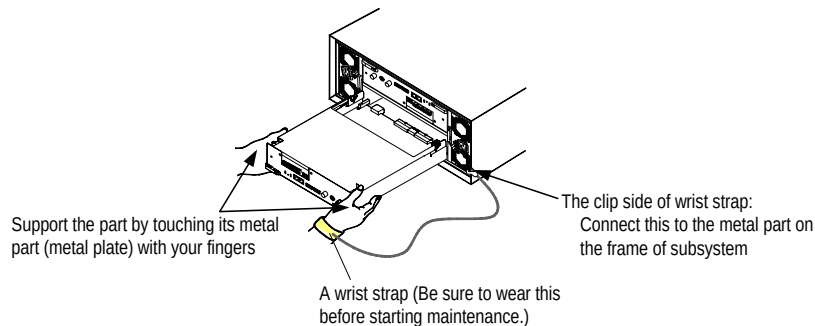
For installing or removing the parts, do not apply any shock as the precise parts are installed.

CAUTION

- To prevent part failures caused by static electrical charge built up on your own body, be sure to wear a wrist strap connected to the chassis before starting (before removing bezel) and do not take it off until you finish.
- Be sure to wear a wrist strap connected to the chassis whenever you unpack parts from a case. Otherwise, the static electrical charge on your body may damage the parts.
- When you install the Control Unit or a cache memory in the Control Unit, do the installation holding it by its sheet steel part with your hand(s) wearing the ESD grounding wrist band. The electrostatic charge can be discharged through your touch to the sheet steel part.

Be sure to wear a wrist strap connected to the chassis frame before starting the work and do not take it off until it is finished.

For installing the Control Unit, Cache Memory, support it as touching the metal part at the side with the fingers of the hand that wears a wrist strap.



(c) Notes on cable routing

(i) Handling of cables placed on the installation floor

- Protect the cables, which cannot be accommodated by the subsystem and thus laid on the floor or cross a passage, with the cable protection duct.
- For cables that relay between the subsystems, lay them on the floor and do not leave them from the floor.

(ii) Handling of under floor cables when the subsystem is installed on the free access floor.

- Give extra lengths to cables routed under the floor and do not make them float in the air.

(iii) Routing method

- Give a room for routing as earthquake and the like are considered.
- Give a room for routing not to disturb the part replacement for maintenance.
- Make the AC cables apart from each other and when they should be adjacent, do not make them in parallel but make them cross at right angle.
- When using a cable protection duct, be careful not to damage or cut cables by catching them.

(iv) Hold the connector to insert or pull out a cable. If the cable part is pulled, it may cause a failure.

(v) For connecting the Fibre Channel interface cable, the FC (ENC) cable, or iSCSI interface cable, bend it with a long radius (not less than 30mm) and do not give the load to the cable and the connector.

(d) Note on completing the work

Close all the external covers when the work is completed. (The cover is to maintain the performance of the subsystem (radio wave noise suppression and others), so that be sure to keep all the external covers closed to operate the subsystem normally.)

(2) How to Open/Close the Rear Door of RK40 Rack Frame



Open or close the door carefully following the procedure.
Otherwise, you may hurt you fingers by pinching them.

(a) Procedure for opening rear door

- (i) Insert the key to the keyhole on the rear door, and turn the key to the left to open lock (①).
- (ii) Push the lower part of the lever, and push down the upper part of the lever toward (②, ③).
- (iii) Turn the lever to the left, and pull the lever toward, and then open the rear door (④, ⑤).

(b) Procedure for closing rear door

- (i) Close the rear door, and push and turn the lever to the right (⑥, ⑦).
- (ii) Raise the lever, and push the upper part of the lever (⑧).
- (iii) Insert the key to the keyhole on the rear door, and turn the key to the right to lock (⑨).

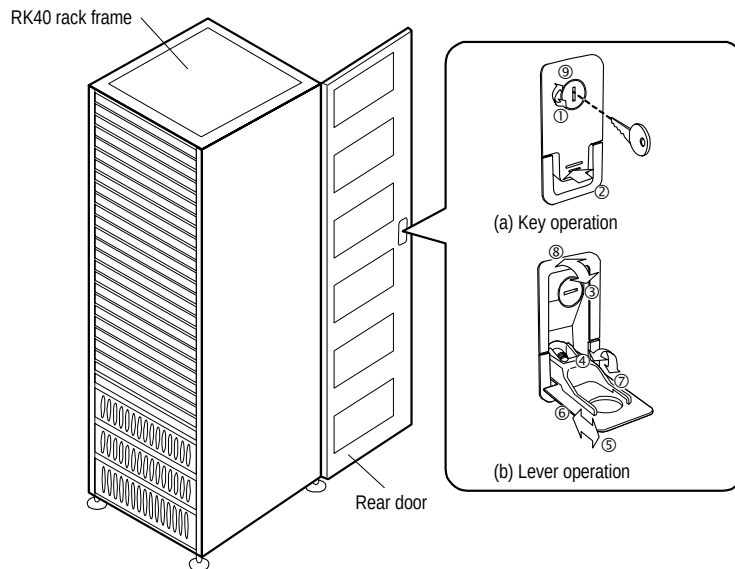
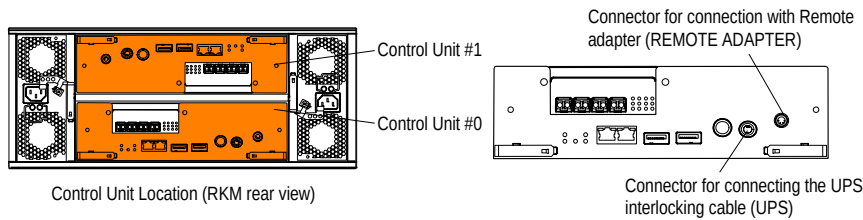


Figure 3.4.8 Procedure for Opening/Closing Rear Door

- (3) When the Remote Adaptor is connected, remove the remote adaptor cable on the side connected to the Control Unit.
When the UPS is connected, remove the UPS cable on the side connected to the Control Unit.



Make sure that there is no scratch or flaw on a power cable. It can cause an electric shock or even a fire.

NOTE : When the cable cannot be removed easily, do not pull it by force.
Pull out the parts a little, and then perform the cable removal again.

- (4) Remove only the sides connected to the Power Unit (RKS) of all the power cables connected to the RKS (you do not need to remove the power cables connected to the RKAK).
(5) Remove the RKS sides of all the ENC cables connected to the RKS.

NOTE : When the cable cannot be removed easily, do not pull it by force.
Pull out the parts a little, and then perform the cable removal again.

- (a) Remove all the repeat binders fixing the ENC cables to the stoppers.
(b) Remove the RKS side of the ENC cable connected between the RKS and RKAK.

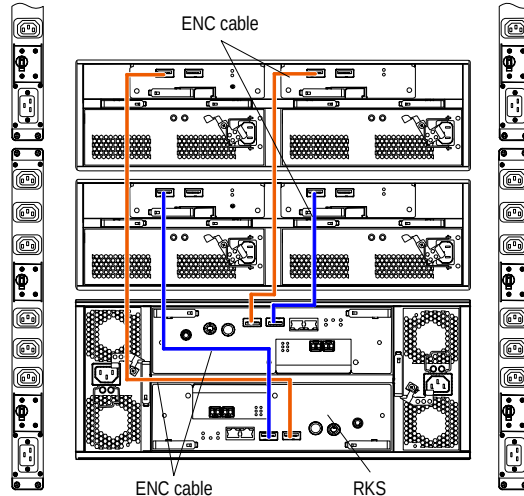


Figure 3.4.9 Disconnecting Power Cables

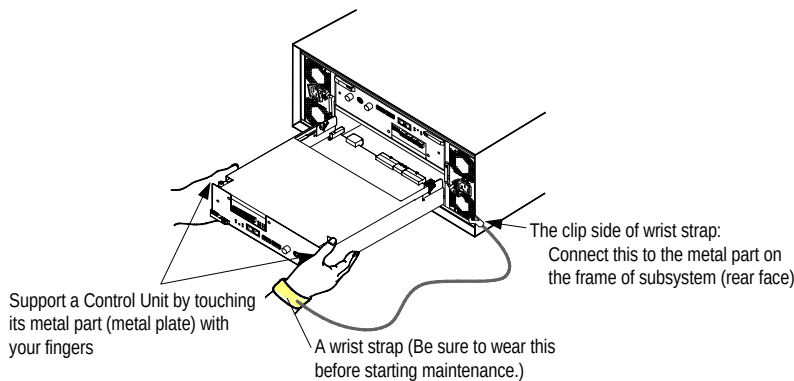
(6) Remove the Control Unit installed in the RKS.

CAUTION

- Be sure to wear a wrist strap connected to the chassis whenever you unpack parts from a case. Otherwise, the static electrical charge on your body may damage the parts.
- When you install is Control Unit, support its metal part with your hand that has the wrist strap. You can discharge static electricity by touching the metal plate.

When replacing the Additional Chassis, a failure may be caused by the electric shock since the Control Unit is precision instrument. Before starting the operation, make sure to wear a wrist strap to protect Control Unit against the electric shock.

NOTE : Before unpacking and replacing maintenance components, be sure to wear a wrist strap and connect to ground the grounding clip in the opposite end of the wrist strap to the chassis frame (metal part).
When you insert a Control Unit into the subsystem, support the Control Unit as touching its metal part with fingers of your hand that wears a wrist strap.



- (a) Open the right and left levers toward you at the same time while pressing the right and left buttons (blue) which fix the levers of the Control Unit.
- When the levers are completely opened, the Control Unit comes out forward.
- (b) Remove the Control Unit by pulling it out toward you.

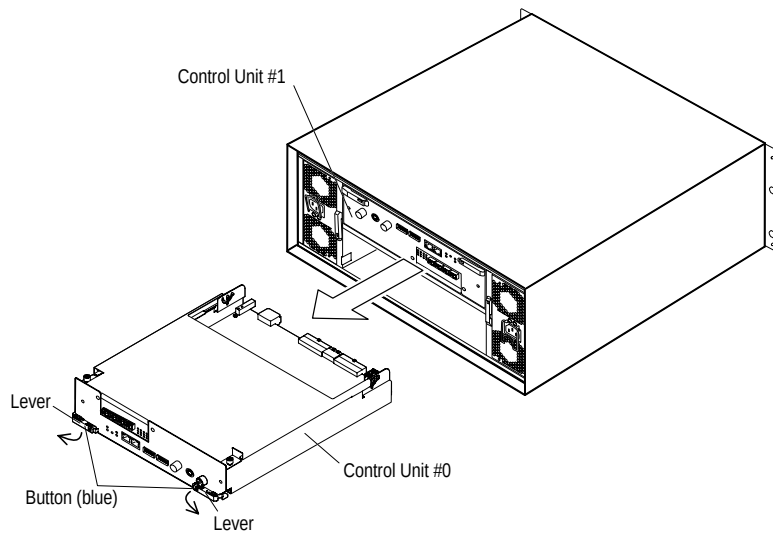


Figure 3.4.10 Remove the Control Unit

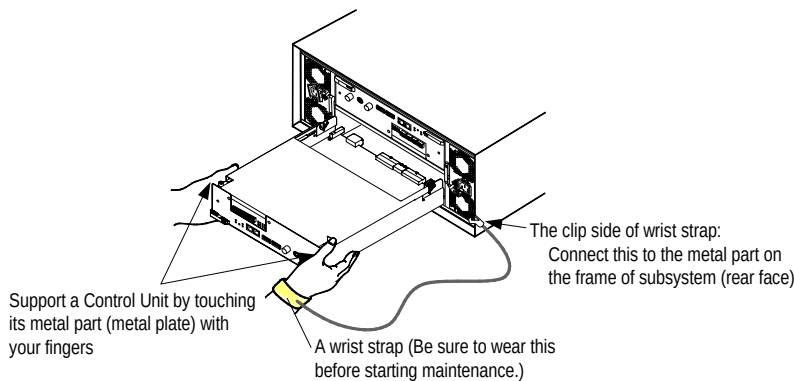
(7) Install the Control Unit, which were removed from the RKS, in the RKM.

CAUTION

- Be sure to wear a wrist strap connected to the chassis whenever you unpack parts from a case. Otherwise, the static electrical charge on your body may damage the parts.
- When you install is Control Unit, support its metal part with your hand that has the wrist strap. You can discharge static electricity by touching the metal plate.

When replacing the Additional Chassis, a failure may be caused by the electric shock since the Control Unit is precision instrument. Before starting the operation, make sure to wear a wrist strap to protect Control Unit against the electric shock.

NOTE : Before unpacking and replacing maintenance components, be sure to wear a wrist strap and connect to ground the grounding clip in the opposite end of the wrist strap to the chassis frame (metal part).
When you insert a Control Unit into the subsystem, support the Control Unit as touching its metal part with fingers of your hand that wears a wrist strap.



- (a) Insert it in the set position in the status where the right and left levers on the Control Unit are opened, and close the levers completely until you hear the buttons (blue), which fix the levers, click.

If the Control Unit is caught by something when it is inserted, do not push it in forcibly.

Retry the insertion from the beginning. If forced, pins might be broken.

NOTE : The installation direction is different in the Control Unit # 0 and # 1. Install the Control Unit #0 with the cover up and #1 with the cover down.

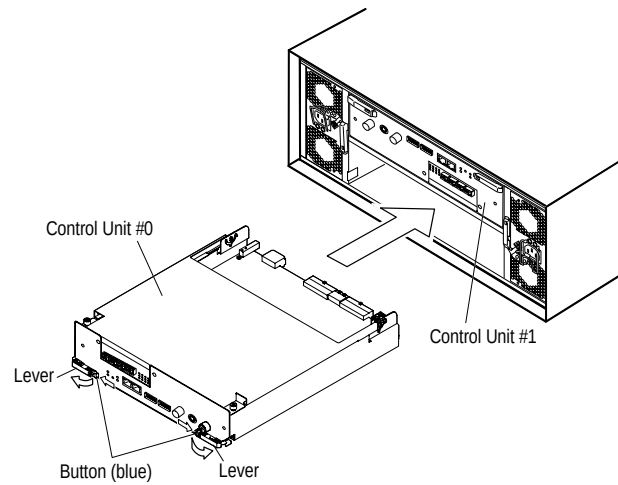


Figure 3.4.11 Installing Control Unit

This page is for editorial purpose only.

(8) Connecting Cables

CAUTION

Take full care to connect cables correctly.

Because operation of the subsystem is affected by the cable routing, follow the “3.4.11 (1) (c) Notes on cable routing” (SUP 03-0370).

NOTE : Power supply system of the RKM/RKAK is duplicated.

It is recommended to connect each system to outlet of one of the two power sources independent of each other.

The cable routing for the subsystem which is mounted on the rack frame is shown in [Figure 3.4.12](#).

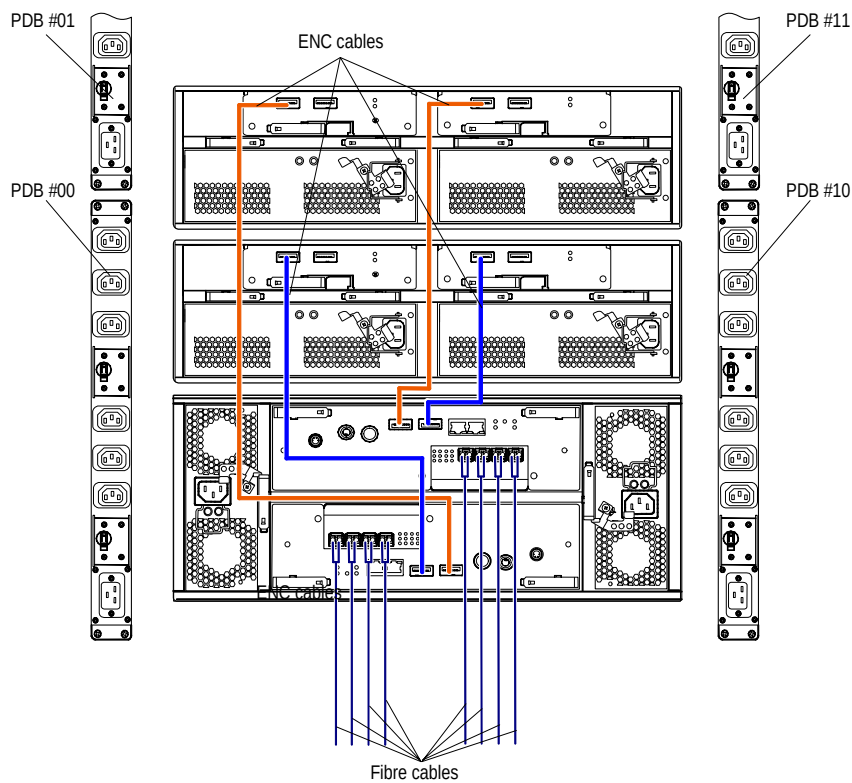


Figure 3.4.12 Connecting Cables (RKM+RKAK)

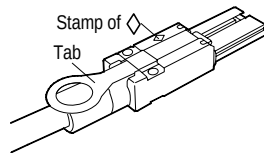
(a) Connecting ENC cables

- When connecting the RKM and RKAK

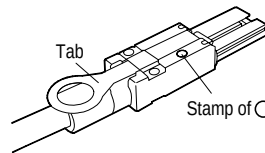
In the case of the RKAK with both of the Control Unit of RKM/ RKAK, it is required to connect the Control Unit (RKM) and the ENC Unit with the ENC cables.

NOTE : • When bending the ENC cable to connect it, give it a bend with a long radius (not less than 30 mm) so as not to apply the cable and the connector excessive stresses.

- The upper and lower Control Units, the ENC Units, and the ENC cables connect two systems of PATH#0 and #1 sides respectively.



(a) Connectable to the ENC connector of the Basic Chassis or the OUT side of the ENC connector of the Additional Chassis



(b) Connectable to the IN side of the ENC connector of the Additional Chassis

Execute the following referring to [Figure 3.4.13](#).

- (i) Remove the rubber cap on the Control Unit.
- (ii) Connect the ENC cable to the Control Unit.
 - ① Connect PATH #0 of Control Unit #0 and ENC Unit #0 (IN side) with the ENC cable.
 - ② Connect PATH #0 of Control Unit #0 and ENC Unit #1 (IN side) with the ENC cable.
- (iii) After connecting the ENC cable, roll up the excess part of the cable in a circle, tighten it lightly with the repeat binder.

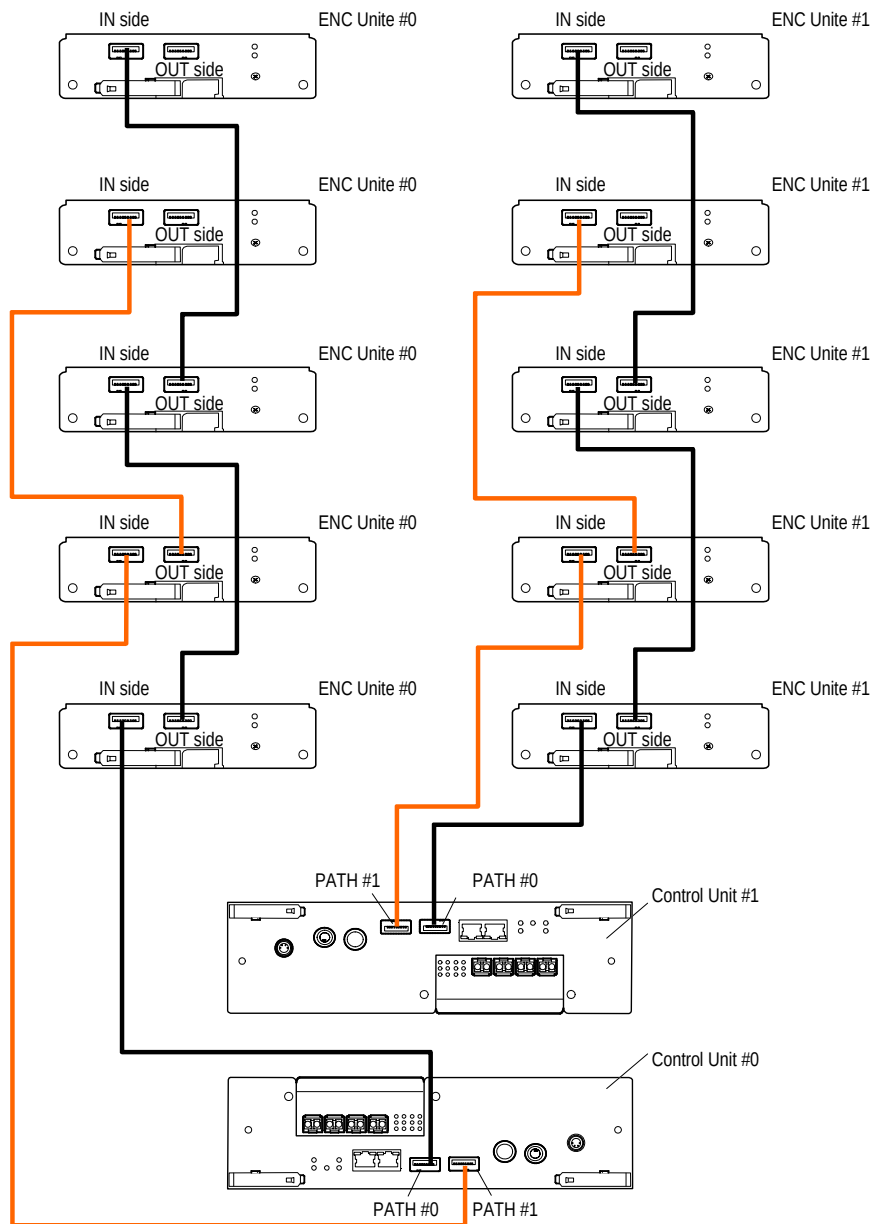


Figure 3.4.13 Connecting ENC Cables (RKM+RKAK)

(b) Connecting interface cables

- (i) Connect the interface cables after making sure of the ports to be connected the label.

NOTE : When bending the interface cable to connect it, give it a bend with a long radius (not less than 30 mm) so as not to apply the cable and the connector excessive stresses.

- (ii) Pull all the interface cables into the rack frame passing them through an opening for cables on the bottom plate of the rack frame.

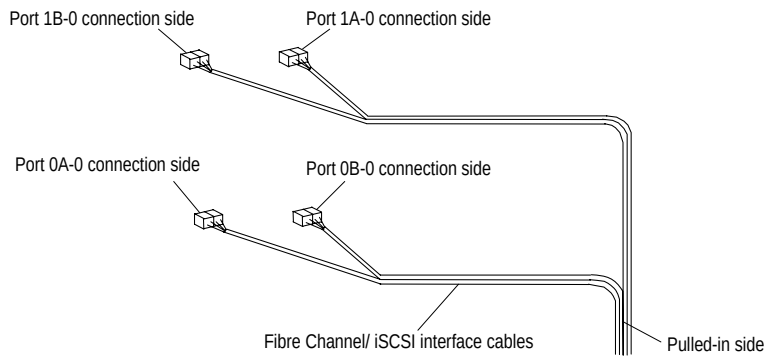


Figure 3.4.14 Binding Interface Cables

- (iii) Fasten the Fibre Channel interface cables to the rack frame at the cable passing opening on the bottom plate giving them excessive lengths so that they will not be pulled. When connecting the Fibre Channel interface cables, insert the Fibre Channel interface cables until they are fixed to the host connectors. If the Fibre Channel interface cables are inserted half in the host connectors, the Control Unit continues to detect the Fibre Channel failures, and the I/O processing of the Control Unit may be deteriorated.

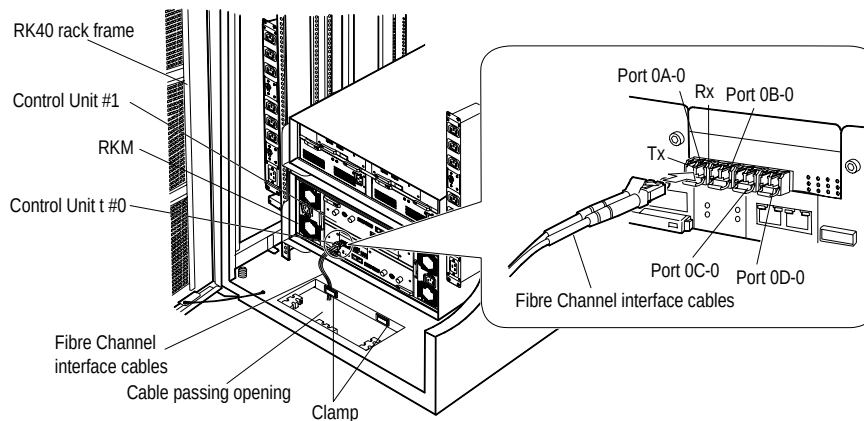


Figure 3.4.15 Routing Interface Cables

(9) Connecting the Remote adapter/UPS

- (a) When connecting the Remote adapter/UPS to the RKM, connect the Connector in the Control Unit.

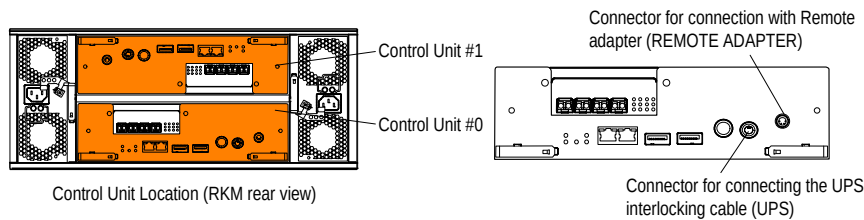


Figure 3.4.16 Physical Location of Connector on Subsystems for Remote Adapter/UPS Connection

(b) Setting the Rotary switch.

Set the mode of power control. Either Local mode or Remote mode is set by the Rotary switch. Local/Remote mode settings and corresponding operation modes are shown below.

Rotary switch	Operation mode name	Operation mode
0	LOCAL	Local mode (Before shipment. When the remote adaptor is not used.)
1	—	—
2	REMOTE	Remote mode by means of the HOST AC (using a remote adaptor)
3	—	—
4	UPS Interlock mode 1	Interlock mode 1 with an UPS exclusive for the subsystem To set the mode, connect AC #0 and AC #1 to the UPS and an external and an external AC power supply or the PDB of the RK40 rack frame respectively.
5	UPS Interlock mode 2	Interlocking mode 2 with an UPS exclusive for the subsystem To set the mode connect AC #0 and AC #1 to the one UPS. (*1)
6	UPS Interlock mode 3	Interlocking mode 3 with an UPS exclusive for the subsystem To set the mode, connect each of AC #0 and AC #1 to the different UPSs. (*2)
7	—	—
8	—	—
9	—	—

Do not make this setting when the UPS is not connected.

*1 : The duplication of the power supply system becomes unable to be done.

*2 : This cannot be used in the case of the single controller configuration.

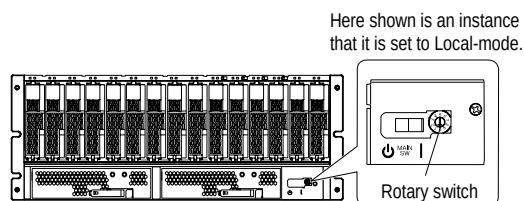


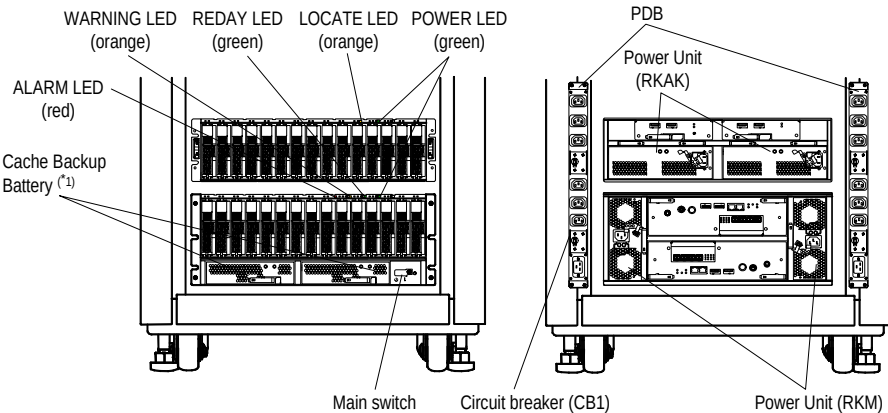
Figure 3.4.17 Location of Rotary Switch for Setting Power Control Mode

(10) Connect the maintenance PC to the disk array subsystem.

Connect the maintenance PC to the RKM referring to Step ["3.4.5 \(2\) Connecting the LAN cross cable"](#) (SUP 03-0120).

3.4.12 Subsystem Power On

- (1) Make sure that the circuit breaker is turned off.
- (2) Make sure that the main switch is turned off.
- (3) Connect the power cables to the basic chassis and additional chassis^(†1).
- (4) Turn on the circuit breaker of the PDB.
- (5) Turn on the main switch.
- (6) Make sure that the ALARM LED (red) on the Front Bezel of the RKM comes on.
- (7) Check if the ALM LEDs (red) on the both Control Units light on.



*1 : Only one Cache Backup Battery is installed in the RKM/RKS in standard, and it is installed left side of the subsystem.

Figure 3.4.18 Locations of Switches for Power On (Rackmount Model)

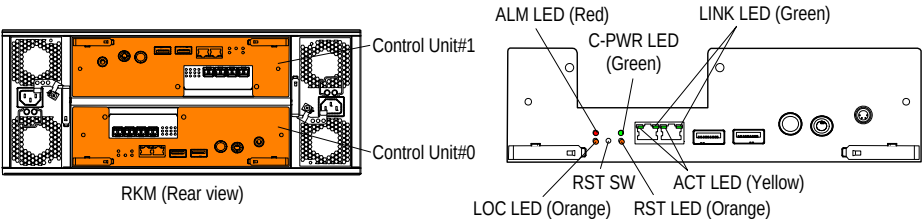
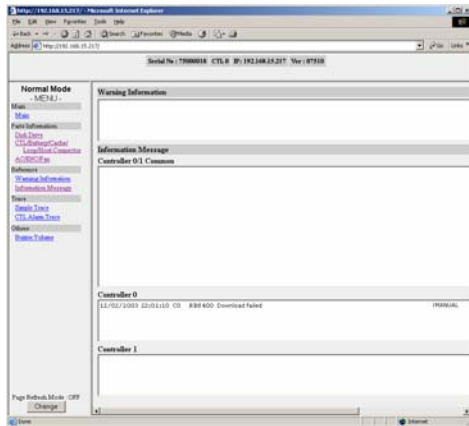


Table 3.4.19 LED Indication on Control Unit

†1 : When Disk Drives are not installed on the additional Disk Drive, do not connect the power cables (RKAK).

- (8) Connect the WEB. ("3.4.5 (2) Connecting the LAN cross cable" (SUP 03-0120))
- (9) Select the [Information Message].
- (10) Check that [RB8400 Download failed] message is displayed in [Information Message], and move on to the next operation.



NOTE : When the checked contents in the operation (6), (7) , (10) are not shown as above, the operation so far may have errors. Refer to "Chapter 4. Trouble Shooting" (SUP 04-0000) to solve the problem.

3.4.13 Updating Installation of Firmware for Hitachi AMS2300

Install the firmware for the Hitachi AMS2300 (latest revision) using the WEB.

Check if the firmware revision is 0832/E-M or later.

The procedure is shown below.

After this, do not install any firmware other than those tried to execute the update installation and installed in the array subsystem before the upgrade even when you fail the update installation of the firmware or fail to start Hitachi AMS2300^(†1).

(1) The point to be checked before installation

Make sure of the following before starting installation

- Make sure that the main switch of the subsystem is turned on. If it is turned off, turn it on to start the subsystem. (refer to ["3.4.12 Subsystem Power On" \(SUP 03-0500\)](#).)

(2) Procedure for installation

- (a) Press the RST SW of the Control Unit #0. (While pressing RST SW, the RST LED (orange) is on.) Use a tool with a thin tip (a precise screwdriver, etc.) because the hole of RST SW is small (3 mm in diameter).
- (b) Wait for a while (about ten seconds) and check that the ALM LED (red) of the Control Unit lights up. Within ten seconds after the ALM LED (red) lights up, press the RST SW of the other Control Unit.

After this, when the ALM LED (red) of the Control Unit #0 does not go out in spite of the above operation, power off the subsystem and then power on the subsystem without pulling out or insert the Control Unit. After that, return to step (1) and execute the procedure over again.

NOTE : Because the Control Unit is shutdown status for the Maintenance Mode, the command from the host is impossible execution.

When CALM LED on Control Unit #0 turns off and READY LED on Front Bezel turns off, it transfers to Maintenance mode.

When ALM LED (red) on Control Unit#0 turns off and READY LED (green) on Front Bezel turns off, it transfers to Maintenance mode.

†1 : When a failure occurs during the upgrade and you try to recover it, if the firmware of two or more revisions is installed, you may not recover the array subsystem from the failure.

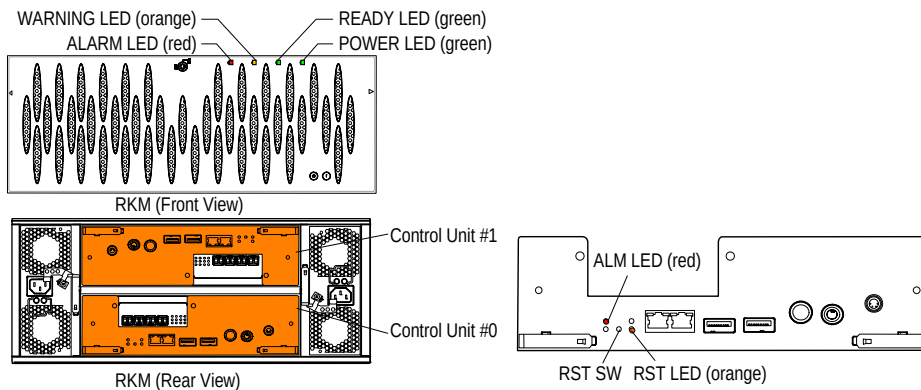


Figure 3.4.20 Indication Position

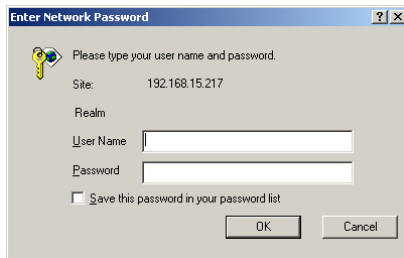
- NOTE :
- Set the TCP/IP to “Disable DNS” because the connection takes a long time when the TCP/IP of the network is set to the condition in which the DNS is used. For the setting procedure, refer to the instruction manual of the PC to be used.
 - Make sure that the browser is set to the condition in which the proxy server is not used because the connection cannot be done if the proxy server is set to be used. To make sure the setting, refer to the instruction manual of the browser to be used.

- (c) Connect the LAN cross cable to the subsystem LAN connector for maintenance and connect the subsystem to the Web.
- (d) Please input the IP Address of the Control Unit where it was connected with the network to the browser. Please input the page by the update button of the browser if it has already been connected with WEB.

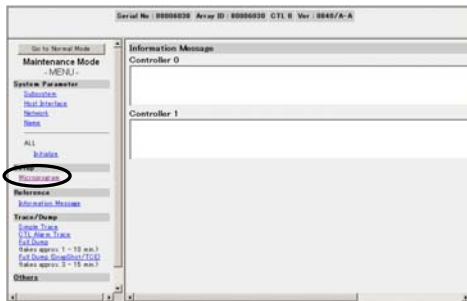


- NOTE : The contents that were set up with “System Parameter” and the Microprogram that was installed with “Setup” come into effect after the rebooting of the Control Unit.

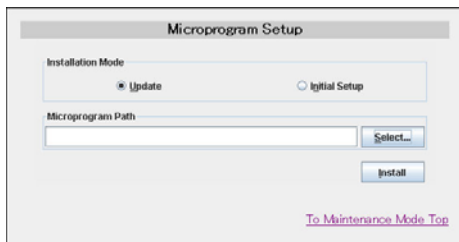
A [User Name] and a [Password] may be requested at the time of Web connection or Web operation. In that case, input “maintenance” for the [User Name] and “hosyu9500” for the [Password].



(e) Click “Microprogram”.



(f) When the “Microprogram” is clicked, the following window is displayed.



(g) Select the Update installation in the “Install Mode”.

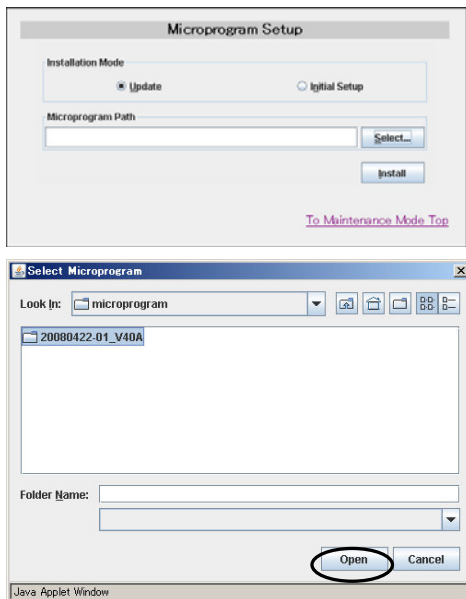
NOTE : When executing updating installation of the firmware, be sure to select [Update]. Never execute the [Initial Setup] because all data will be lost.

In the Firmware Path field, specify the Unified version directory^(‡1) in which the firmware to be installed is stored.

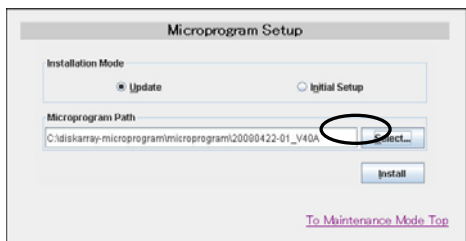
When the “Select” button is clicked, the “Select Microprogram” window is displayed. Select the Unified version directory in which the firmware is stored and click the “Open” button.

NOTE : If the window is not displayed, the JRE 1.6.0 may have not been installed or the installation of it may have failed.

Perform the installation of the JRE 1.6.0 (See to the “3.4.8 (2) (a) (i) Method for checking the drive for booting the OS” (SUP 03-0220).) again.

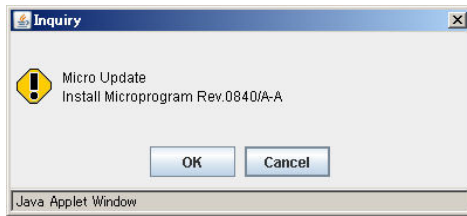


(h) Press the [Install] button.



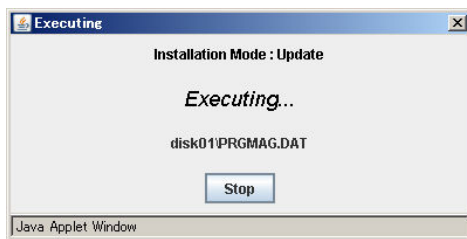
‡1 : For the unified version directory, refer to “3.4.8 (2) Hierarchy of firmware Storage Directories” (SUP 03-0200).

- (i) A dialog box for confirming whether to execute the installation is displayed. Press the [OK] button when you want to install or [Cancel] when you want to abort.



- (j) When the installation is started, the following dialog box showing that the installation is in progress is displayed. The installation type and a name of a file being processed is displayed in the dialog box. When you abort the installation, press the [Stop] button.

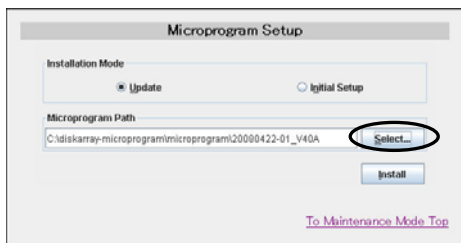
NOTE : When a LAN failure, etc. occurred and the processing of WEB terminated abnormally before the window in the procedure (k) was displayed, execute the new installation procedure again from the beginning.



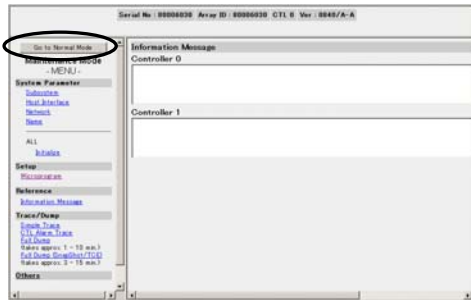
- (k) When the installation is completed, the completion window is displayed. Click the [OK] button.



- (l) Go to the "Maintenance Mode" window by clicking "To Maintenance Mode Top" in the Microprogram Setup" window.



- (m) Change the mode from Maintenance to Normal by clicking the [Go to Normal Mode] button.

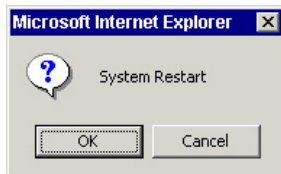


- (n) When the [Go to Normal Mode] button is clicked, the following window is displayed.

NOTE : When a LAN failure, etc. occurred and the processing of WEB terminated abnormally before the display of the following window disappears, click [View] - [Refresh] of the menu bar or the [Refresh] button of the tool bar, and then update the page of WEB. After that, click the [Go to Normal Mode] button when the main window is displayed.



- (o) Click the [OK] button.



- (p) The subsystem becomes ready in about four minutes.

Make sure that the READY LED of the front bezel is on.

If the READY LED does not come on, the installation may have failed. Perform the installation over again.

And, make sure that the WARN LED of the front bezel is on or flashing to report that the message code "W3C00x Serial number error [WWN] (CTL-x)" is displayed in the WEB information message, because the serial number for the Hitachi AMS2300 is not set for the Hitachi AMS2300 disk array subsystem.

- NOTE :
- When [Abnormal End Empty System Retry Full Install] is displayed, refer to the recovery procedure, ["4.2 When Abnormal End Empty System Retry Full Install occurs" \(SUP 04-0110\)](#).
 - After the updating installation is executed, the configuration of the disk array subsystem becomes unable to be returned to that of the Hitachi AMS2100 at the time when the subsystem enters the Ready status.

This page is for editorial purpose only.

3.4.14 Setting serial number of disk array subsystem

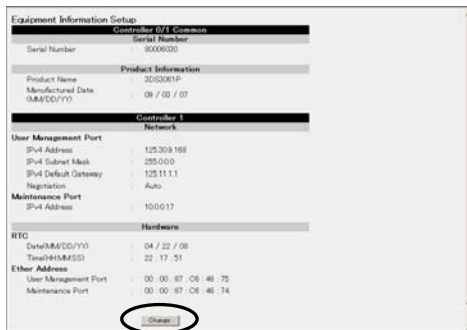
Change the serial number of the disk array subsystem through the hidden WEB window using the serial number setting up function.

The procedure is shown below.

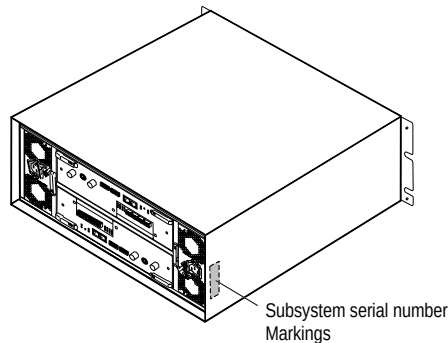
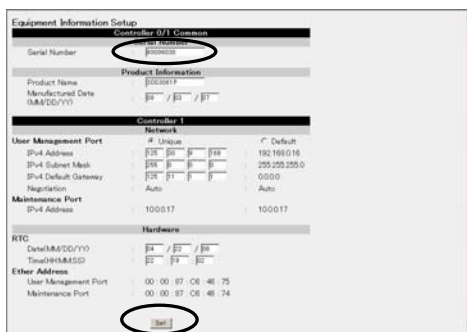
- (1) Set the operation mode in the Maintenance Mode. ([“3.4.6 Changing Mode of Hitachi Storage Navigator Modular 2 and Registering Disk Array Subsystem” \(SUP 03-0130\)](#))
- (2) Enter “http://(IP address of the disk array subsystem)/equip_set” in the [Address].
A [User Name] and a [Password] may be requested at the time of WEB connection or WEB operation. In that case, input “maintenance” for the [User Name] and “hosyu9500” for the [Password].



- (3) Displayed the [Equipment Information Setup].
Click the [Change] button.



- (4) Enter a serial number in the [Serial Number] box and click the [Set] button.
The serial number is an eight figure number indicated in the section for the serial number in Figure.



- (5) After making sure that the change to be made is correct, click the [Save] button.

Equipment Information Setup

Controller 0/1 Common

Serial Number: 0000000

Product Information

Product Name: 3050061P

Manufacture Date: 09 / 02 / 07

Controller 1

Network

User Management Port

IPv4 Address: 125.20.9.168

IPv4 Subnet Mask: 255.0.0.0

IPv4 Default Gateway: 125.11.1.1

Negotiation: Auto

Maintenance Port

IPv4 Address: 100.0.17

Hardware

RTC

Date(MM/DD/YYYY): 04 / 22 / 08

Time(HH/MM/SS): 22 : 19 : 02

Ether Address

User Management Port: 00 : 00 : 87 : C6 : 46 : 75

Maintenance Port: 00 : 00 : 87 : C6 : 46 : 74

Save Cancel

The subsystem serial number is changed.

- (6) Enter "http://(IP address of the disk array subsystem)/" in the [Address].
- (7) Change the mode from Maintenance to Normal by clicking the [Go to Normal Mode] button.

http://192.168.15.217/ - Microsoft Internet Explorer

Address: http://192.168.15.217/

Serial No.: 70000018 CTS: 0 IP: 192.168.15.217 Ver: 07180A.M

Go to Normal Mode

Maintenance Mode

System Parameter

Subsystem

Bus/Subsystem

Network

Basic

ALL

Toolbox

Setup

Management

Subsystem

Information Message

Controller 0

Controller 1

Go to Normal Mode

When the [Go to Normal Mode] button is clicked, the following window is displayed.

Reboot

Executing ...

- (8) Click the [OK] button.

Microsoft Internet Explorer

Set System Parameter

OK Cancel

(9) The subsystem becomes ready in about 4 to 15 minutes.

Make sure that the RDY LED of the RKM is on.

(10) Quit the WEB.

3.4.15 Registration of Hitachi AMS2300

Register the Hitachi AMS2300 that does the up-grade to Hitachi Storage Navigator Modular 2.
The procedure is shown below.

- (1) Connect the maintenance PC to the disk array subsystem and start Hitachi Storage Navigator Modular 2. (Refer to [“3.4.5 \(2\) Connecting the LAN cross cable” \(SUP 03-0120\)](#))
- (2) Set the operation mode of Hitachi Storage Navigator Modular 2 as Maintenance mode. (Refer to [“3.4.6 Changing Mode of Hitachi Storage Navigator Modular 2 and Registering Disk Array Subsystem” \(SUP 03-0130\)](#))
- (3) An array is registered. (Refer to [“3.4.6 Changing Mode of Hitachi Storage Navigator Modular 2 and Registering Disk Array Subsystem” \(SUP 03-0130\)](#))

3.4.16 Changing the Registration Information for the Monitoring Failures

Change the device model name of E-mail Alert Function and SNMP Agent Support Function from the RKS to the RKM.

3.4.17 Works to be done After the Upgrade is Completed

When all the upgrade works are completed, do the works such as removal of the maintenance PC.

The procedure is shown below.

- (1) Disconnect the maintenance PC from the disk array subsystem referring to the instruction given in Step ["3.4.5 \(2\) Connecting the LAN cross cable" \(SUP 03-0120\)](#).



Open or close the door carefully following the procedure.
Otherwise, you may hurt you fingers by pinching them.

- (2) Close the rear door referring to the instruction given in Step ["3.4.11 \(2\) How to Open/Close the Rear Door of RK40 Rack Frame" \(SUP 03-0380\)](#).

Make sure that the rear door is latched and cannot be opened.

3.4.18 Resetting of the Host

Reboot the connecting Host and execute the setting.

For notes, refer to ["5.1 For Setting Changes in Host Computer and Others" \(SUP 05-0000\)](#).

3.4.19 iSCSI Name Change of Target

The procedure to upgrade the Hitachi AMS2100, which is the system configuration of the iSCSI interface, to the Hitachi AMS2300 is shown.

For targets, only the "000:T000" is supported.

Up to 255 targets can be set when the LUN Manager, which is an extra cost optional feature, is used.

In that case, change all the Target iSCSI Names.

- (1) Select the [Groups] - [iSCSI Targets] on the unit window.

- (2) Click the port through for which you want to change the target information.
Click the [Edit Target] button.

- (3) In the “Target” dialog, enter the “iSCSI Name”.

- ① [iSCSI Name] : Enter the name of the iSCSI Name with 223 or less alphanumeric character. A period (.), hyphen (-), and colon (:) can be used.

- (4) Click the [OK] button.
(5) The confirmation message is displayed. Select the [OK] button.

3.4.20 Using the Priced Option

When you acquire the license key of the Hitachi AMS2300 priced option, request the customer/SE to complete the upgrade work and use it after unlocking the priced option according to the Priced Option User's Guide. The serial number of the array subsystem is changed by upgrading the array subsystem. Therefore, be careful of the serial number to input in the remote array ID of the remote path setting.

Request the customer/SE to use the license key of the priced option only for the upgraded array subsystem when unlocking the priced option of the upgraded array subsystem.

You cannot use the license key of the previously used priced option for the upgraded array subsystem.

This page is for editorial purpose only.

Chapter 4. Trouble Shooting

4.1 Error Messages

4.1.1 Flash Detected Messages

Message code	Message text	Description	Collect the error	Recovery methods	Reference page
RB0G00	Initial setup of microprogram failed	Although "Install Guard" displayed in "http://ipaddress/instlgrd" is set to [Disable], it tried to execute [Initial setup] of the firmware.	Simple Trace	① Change "Install Mode" on the Microprogram Setup window to [Update] and perform the update installation of the firmware.	"3.4.13 Updating Installation of Firmware for Hitachi AMS2300" (SUP 03-0520)
RBE900	Upgrade failed (the installed microprogram is incorrect)	The upgrade from the lower model to the upper model failed.		① Perform the update installation of the firmware for the upper model which is the same revision as the firmware installed in the lower model.	"3.4.13 Updating Installation of Firmware for Hitachi AMS2300" (SUP 03-0520)
RBEA00	Downgrade failed (the installed microprogram is incorrect)	The installation of the firmware for the lower model to the chassis of the upper model failed.		① Since the revision of the firmware of the lower model to install needs to be the same as that of the revision of the firmware already installed in the subsystem, install the firmware of the same revision as the firmware revision displayed on the WEB window of the maintenance mode. In that case, specify the lower model for the model of the subsystem.	"3.4.13 Updating Installation of Firmware for Hitachi AMS2300" (SUP 03-0520)

4.1.2 Failure Messages

Message code	Message text	Description	Collect the error	Recovery methods	Reference page
HH13B0	System change failed [PIN]	The upgrade cannot be made because a pinned segment exists in the state in which the system change has not been made normally.	CTL Alarm Trace	① Return the Disk Drive to the subsystem of the lower grade model and reboot the subsystem.	"3.4.12 Subsystem Power On" (SUP 03-0500)
				② Make the upgrade again after eliminating the pinned segment.	—
HH13B1	System change failed [PSOFF]	The upgrade cannot be made because the system change has not been made normally.	CTL Alarm Trace	① Return the Disk Drive to the subsystem of the lower grade model and reboot the subsystem.	"3.4.12 Subsystem Power On" (SUP 03-0500)
				② Make the upgrade again after performing the deliberate shutdown.	"3.4.10 System Power Off" (SUP 03-0340)
HH2B00	Upgrade failed [PSOFF]	The upgrade from the lower grade model to the higher grade model cannot be made because the deliberate shutdown has not been performed.	Simple Trace	① 1. Do the upgrading installation of the firmware for the lower grade model after disabling the installation guard.	"3.4.13 Updating Installation of Firmware for Hitachi AMS2300" (SUP 03-0520)
				2. Power off the subsystem after the updating installation is completed.	"3.4.10 System Power Off" (SUP 03-0340)
				3. Return the hardware configuration to that of the lower grade model.	—
				4. Perform the deliberate shutdown of the subsystem after booting it while it is the lower grade model.	"3.4.12 Subsystem Power On" (SUP 03-0500)
				5. Execute the procedure for the upgrade from the lower grade model to the higher grade model.	—

Message code	Message text	Description	Collect the error	Recovery methods	Reference page
HH2C00	Upgrade failed [Single]	The upgrade from the lower grade model to the upper grade model could not be made because the "System Startup Attribute" was set as the "Single Mode".	Simple Trace	① 1. Do the upgrading installation of the firmware for the lower grade model after disabling the installation guard. 2. Power off the subsystem after the updating installation is completed. 3. Return the hardware configuration to that of the lower grade model. 4. Change the mode to the Maintenance mode after booting the subsystem while it is the lower grade model. 5. Execute the "Go to Normal Mode" after setting the "System Setup Attribute" as the "Dual Active Mode". 6. Boot the subsystem. 7. Execute the procedure for the upgrade from the lower grade model to the higher grade model.	"3.4.13 Updating Installation of Firmware for Hitachi AMS2300" (SUP 03-0520) "3.4.10 System Power Off" (SUP 03-0340) — "3.4.13 Updating Installation of Firmware for Hitachi AMS2300" (SUP 03-0520) — "3.4.12 Subsystem Power On" (SUP 03-0500) —
HH2D00	Upgrade failed [Microprogram revision]	The upgrade from the lower grade model to the higher grade model cannot be made because the versions of their firmware are different from each other.	Simple Trace	① Install the firmware of the higher grade model, whose system revision is the same as that of the firmware of the lower model, in the Disk Drive.	"3.4.13 Updating Installation of Firmware for Hitachi AMS2300" (SUP 03-0520)
HH2F00	Downgrade failed [Subsystem can not take over the user data]	The subsystem start-up of the lower model failed because it tried to downgrade from the upper model to the lower model.	Simple Trace	① Execute the initial setup to the subsystem that is the hardware configuration of the lower model, and start up the subsystem when operating the subsystem as a lower model. ② If you operate the subsystem as an upper model, upgrade the hardware configuration of the subsystem to the upper model. ③ Connect the power cables to all Power Units of the subsystem.	"3.4.12 Subsystem Power On" (SUP 03-0500) — —
To be continued to the next page.					

Message code	Message text	Description	Collect the error	Recovery methods	Reference page
				④ Start the subsystem of the upper model.	"3.4.12 Subsystem Power On" (SUP 03-0500)
HH8F00	Not enough Cache memory to use copy function	The subsystem did not start because the capacity of the Cache memory to use Copy-on-write SnapShot or TrueCopy Extended Distance was insufficient due to the upgrade of the model.	Simple Trace	① 1. Turn off the main switch. 2. Add the Cache memory in the capacity that the upgrade of the model is possible. 3. Turn on the power of the subsystem.	"3.4.10 System Power Off" (SUP 03-0340) DF800 Disk Array Subsystem Maintenance Manual for Addition/Subtraction/Relocation "1.4.4 Adding a Cache Unit" (ADD 01-0390) "3.4.12 Subsystem Power On" (SUP 03-0500)
HZ0S00	Not enough Cache memory to use Cache Partition Manager	The Cache capacity to use Cache Partition Manager was insufficient due to the upgrade of the model.	Simple Trace	① Add the Cache memory in the capacity to be able to upgrade the model.	DF800 Disk Array Subsystem Maintenance Manual for Addition/Subtraction/Relocation "1.4.4 Adding a Cache Unit" (ADD 01-0390)

4.1.3 WEB Error Messages

Message code	Message text	Description	Recovery methods	Reference page
-	Abnormal End Down Grade Check NG	Although the version down of the firmware was attempted, the update installation terminated abnormally because Down Grade Check was not Disable.	① Change the setting of the downgrade check to Disable. ② updating installation of the firmware again.	"4.3.2 Procedure for Removing Downgrade Check" (SUP 04-0140) "3.4.13 Updating Installation of Firmware for Hitachi AMS2300" (SUP 03-0520)
-	Abnormal End Empty System Retry Full Install	The updating installation cannot be done because the old firmware does not exist in the system Disk Drive.	① When it is evident that the old firmware does not exist in the system Disk Drive, install the firmware newly. ② Execute the updating installation again after making sure that the system copy has been completed through the Information Message of the Web. • "I14000 System copy started" is not displayed. • "I14000 System copy started" and "I14100 System copy completed" are displayed consecutively. When the system copy is being made, turn off the main switch and then turn it on again later than 20 seconds. In the following case, the system copy is being made. • While "I14000 System copy started" or "I14100 System copy completed" is not displayed successively. Execute the updating installation again after making sure that the READY LED (green) comes on and then the system copy is completed.	"3.4.13 Updating Installation of Firmware for Hitachi AMS2300" (SUP 03-0520)
1204	A specified file doesn't exist. Confirm elements of designation.	The specified file does not exist.	① Make sure that the path to the directory of the firmware to be installed is specified correctly.	—

4.1.4 Other Messages

When a message other than the above is displayed, be sure to check the configuration first. Check whether the Disk Drive locations are correct, whether the settings of the unit ID and device ID are correct, whether the cable connections are correct, and so on following the procedure.

When one of the following messages is displayed, there may be a mistake in the Disk Drive location, the connecting of ENC cable, or some other matter. Check if the configuration is correct.

Example)

- RA7900 System HDU spin up failed:
Spin-up of the system drive failed.
- HH7700 Backend down [Cable error] (Unit-x, ENC-y):
Connection errors of the ENC cables were detected when the subsystem started.

When a problem is found in the configuration related to the upgrade, correct the configuration.

When no problem is found in the configuration and the operation, take some recovery action referring to the [DF800 Disk Array Subsystem Maintenance Manual](#).

4.1.5 Collecting CTL Alarm Trace

Through the CTL Alarm Trace collection, detailed information (the CTL Alarm Trace) on the immediately previous Controller blockage stored in the Controller is collected.

NOTE : When the Control Unit to be connected to WEB is blocked, the WEB connection may not be performed for two to three minutes usually (for the maximum of 60 minutes) from the time when the Control Unit was blocked because the CTL alarm trace is being created.

Since the above-mentioned CTL Alarm Trace information is taken over from the blocked Control Unit to the replaced Control Unit, it can be collected after the Control Unit is recovered from the failure. If the Control Unit is blocked while collecting the CTL ALARM TRACE may not be collected normally. Therefore, in this case, collect the CTL ALARM TRACE again.

The method of collecting the CTL ALARM TRACE is shown below.

(1) Before collecting the CTL ALARM TRACE

(a) Items to be prepared

The CTL Alarm Trace is collected in the normal mode or the maintenance mode of the WEB.

For connecting to the WEB, a PC terminal with Browser installed is necessary.

For collecting the CTL Alarm Trace, a Disk Drive with a space of 100 M bytes at least is necessary.

(b) Connect the Device LAN Port for maintenance and the PC terminal with a LAN cross cable.

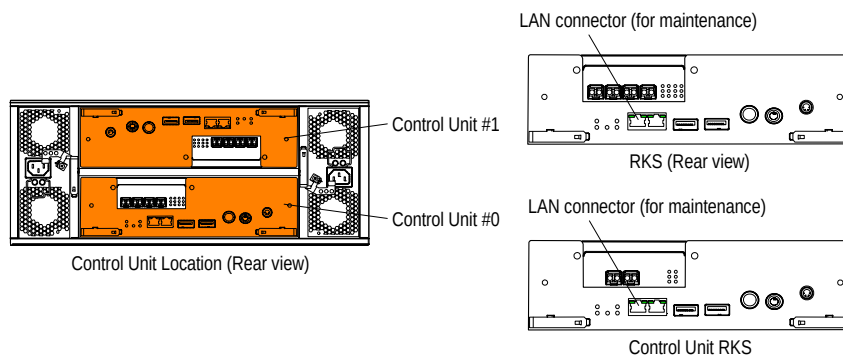


Figure 4.1.1 LAN Connector Position

(c) Collect the CTL Alarm Trace information from each Control Unit.

Save the files collected from different controllers into different directories or put different names to them so that you will see from which controller they were collected.

- (d) Make sure that the WARNING LED (orange) on the Front Bezel of RKM/RKS is not blinking fast. If it is, wait for a while (up to 80 seconds), and it stops blinking fast. (If this LED is blinking slow (at the interval of 1 second), there are no problems.)

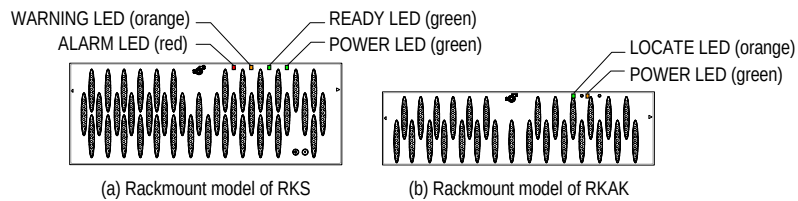


Figure 4.1.2 Indication Locations and Names of LED (Front Bezel)

- (e) Clear the cache of the browser following the procedure shown below so that the old data, which was collected at the preceding time, should not be saved.
- In the case of Internet Explorer, select the [Tools] - [Internet Options] - [General] - [Temporary Internet files] - [Delete Files] in this order.
 - In the case of Netscape, select the [Edit] - [Preferences] - [Cache] - [Clear Cache] in this order.

(2) Procedure for collecting a CTL Alarm Trace

- (a) Enter the IP address of the LAN connector for maintenance, to which the maintenance PC is connected, from the browser. When the Web has already been connected, update the page by pressing the Update button. (For the procedure for connecting the WEB, refer to [DF800 Disk Array Subsystem Maintenance Manual Troubleshooting "Chapter 3. Before Starting WEB Connection" \(TRBL 03-0000\)](#).)



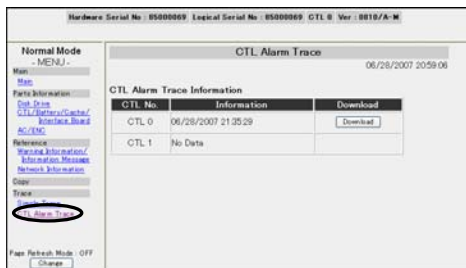
- (b) When Windows XP Service Pack2, Windows 2003 Service Pack1 or Windows Vista is used in the OS of the maintenance PC, collect the CTL Alarm Trace after changing the setting of the following Internet Explorer.

- Select [Tools] - [Internet Options] from the Internet Explorer menu.
- Select the [Privacy] tab, check [Blocked pop-up] of [Pop-up block], and click the [Set] button.
- Set [Filter level] to [Medium] in the [Setting pop-up block] window and click the [Close] button.
- Select [OK] button in the [Internet Options] window.

- (c) Collect the memory dump according to the WEB and the following procedure.

Click "CTL Alarm Trace" in the menu frame.

The CTL Alarm Trace Information window is displayed when the CTL alarm trace information is present.



The following is displayed as contents of the information.

“Not Ready” Indicates the situation where the trace area is not established in the device.

“No Data” CTL Alarm Trace information does not exist or while information is being created.

“MM/DD/20YY hh:mm:ss” CTL Alarm Trace information exists.

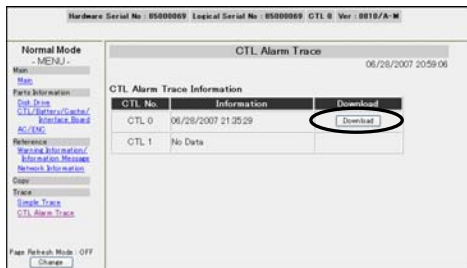
NOTE : When “Not Ready” or “No Data” is displayed on the description of

“Information”, or when the date of the information is different from that of the collection of this time, the CTL alarm trace may not be collected normally.

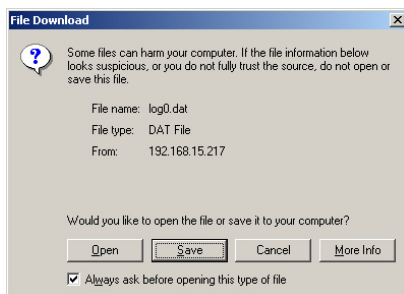
Connect the Maintenance PC to the LAN port of the blocked Control Unit, and collect the simple trace.

If simple trace cannot be obtained through detached Controller, connect the Maintenance PC to the Controller at the opposite side, and collect the simple trace.

- (d) To download the CTL Alarm trace information, press the “Download” button on the Control Unit side to be collected in “CTL Alarm Trace information”.^(†1)



- (e) The following window is displayed. Please click [Save], if it is continued. Please click [Cancel], if it is stopped.

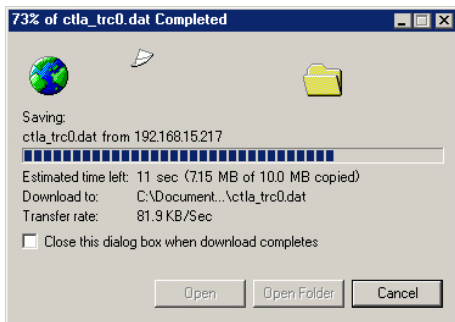


^{†1} : An error message may be displayed. If it is displayed, click [OK], and collect the CTL Alarm Trace again after waiting for a while.

- (f) If the following window is displayed. Please click [Save] after file name is setting, if it is continued.^(†1) Please click [Cancel], if it is stopped.



- (g) The following window is displayed during execution download.



- (h) When the downloading completes, the progress indicating message window is closed.

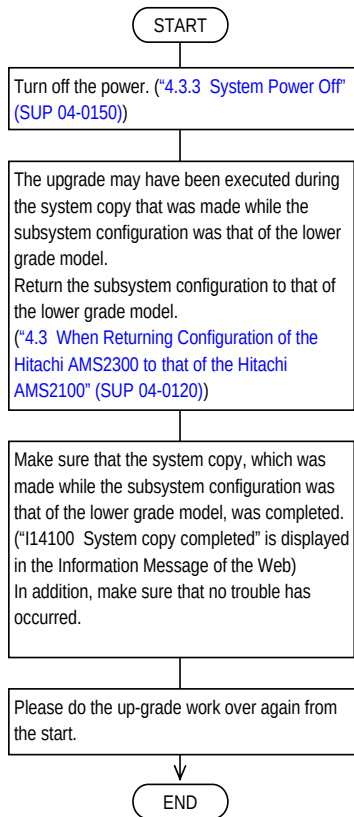
In this procedure is collected by WEB Normal mode. Similarly, CTL Alarm Trace can be collected by WEB Maintenance mode through Menu Frame.

^{†1} : There may be a case where the default file name is given as "ctla_trc0.dat.dat" depending on the setting of the PC. In this case, reset the file name to "ctla_trc0.dat" or any other name.

4.2 When Abnormal End Empty System Retry Full Install Occurs

The procedure for troubleshooting and actions to be taken when the Abnormal End Empty System Retry Full Install occurs are shown below.

Make a recovery from the failure following the procedure for troubleshooting.



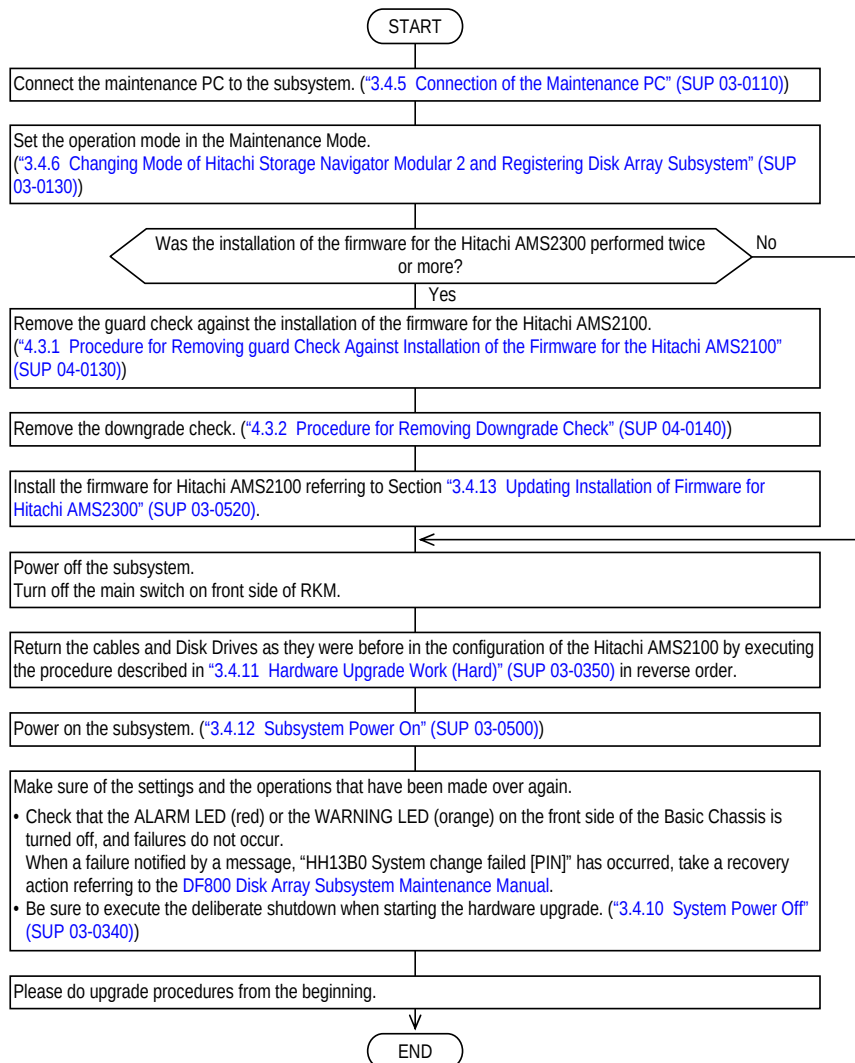
4.3 When Returning Configuration of the Hitachi AMS2300 to that of the Hitachi AMS2100

The procedure to be used in case the upgrade fails is explained below. In the procedure, the upgrade is made again after the configuration of the disk array subsystem is returned to that of the Hitachi AMS2100 once.

Do not install any firmware other than those tried to execute the update installation and installed in the array subsystem when you fail the update installation of the firmware or fail to start Hitachi AMS2300.

When a failure occurs during the upgrade and you try to recover it, if the firmware of two or more revisions is installed, you may not recover the array subsystem from the failure.

NOTE : The configuration of the disk array subsystem cannot be returned to that of the Hitachi AMS2100 after the updating installation of the firmware for the Hitachi AMS2300 is executed according to the procedure described in ["3.4.13 Updating Installation of Firmware for Hitachi AMS2300" \(SUP 03-0520\)](#) and the subsystem enters the READY status.



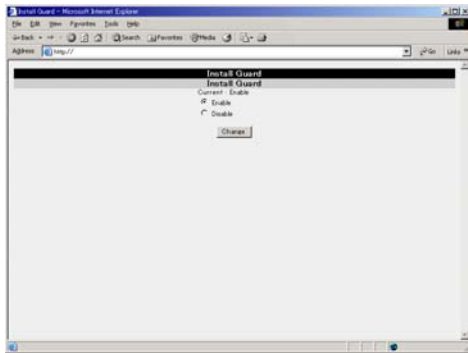
NOTE : Be sure to review all the settings and operations that have been made before making the upgrade again.

This page is for editorial purpose only.

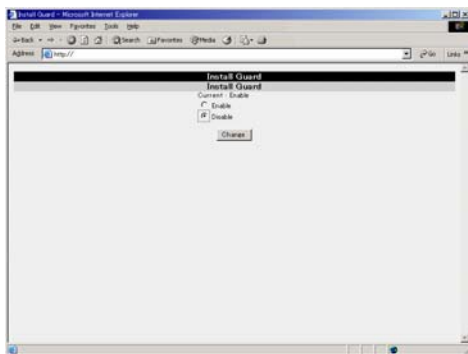
4.3.1 Procedure for Removing Guard Check Against Installation of the Firmware for the Hitachi AMS2100

The procedure for removing the firmware installation guard check is shown below.

- (1) Enter "http://(IP address of the disk array subsystem)/instlgrd" in the [Address].
A [User Name] and a [Password] may be requested at the time of WEB connection or WEB operation. In that case, input "maintenance" for the [User Name] and "hosyu9500" for the [Password].



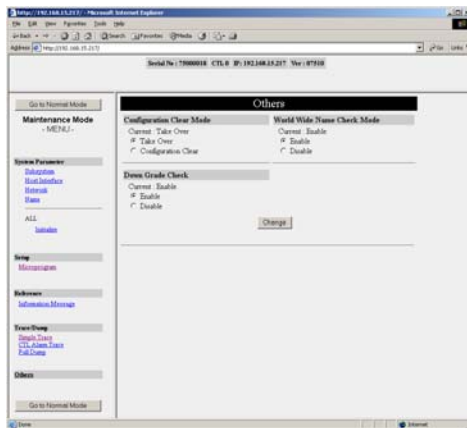
- (2) Select the [Disable] radio button of the [Install Guard] in the "Install Guard" window and click the [Change] button.



4.3.2 Procedure for Removing Downgrade Check

The procedure for removing the downgrade check is shown below.

- (1) Set the operation mode in the Maintenance Mode. ([“3.4.6 Changing Mode of Hitachi Storage Navigator Modular 2 and Registering Disk Array Subsystem” \(SUP 03-0130\)](#))
- (2) Connect the LAN cross cable to the subsystem LAN connector for maintenance and connect the subsystem to the WEB. ([“3.4.5 Connection of the Maintenance PC” \(SUP 03-0110\)](#))
A [User Name] and a [Password] may be requested at the time of WEB connection or WEB operation. In that case, input “maintenance” for the [User Name] and “hosyu9500” for the [Password].
- (3) Click [Others] in the menu tree.
- (4) Select the [Disable] radio button of the [Down Grade Check].
Click the [Change] button.



4.3.3 System Power Off

Because a message, "Download Failed" is displayed and the disk array subsystem is in the Alarm status, the RKAK cannot be powered off although the main switch on the front side of the RKM is turned off. The power of the RKAK must be turned off by the other means.

- (1) Turn off the main switch.
- (2) Make sure that the PWR LED (green) on the Front Bezel is off.
- (3) Remove all the power cables connected to the RKM and RKAK.
- (4) All turn off the circuit breaker of the PDB.

Chapter 5. Appendix

5.1 For Setting Changes in Host Computer and Others

When upgraded from Hitachi AMS2100 to Hitachi AMS2300, the Disk Array subsystem shows the following changes.

No.	Name of Items	Hitachi AMS2100	Hitachi AMS2300	Existence of Limits
1	Subsystem Product Serial Number	830xxxxx	850xxxxx	The following contents may be changed depending on the subsystem product serial number changes. As occasion demands, the changing operation for upper host device information or various application setting may be needed. • World Wide Name • Product Serial Number of Inquiry
2	World Wide Name	-	-	By registering the subsystem product serial number to Hitachi AMS2300 in the Subsystem Maintenance Mode and rebooting the subsystem, WWN on Front End Fibre Channel is changed to the different value from Hitachi AMS2100 after Hitachi AMS2300 Ready, Front End Fibre Channel can be used, and the LU recognition from the upper Host enables.
3	Target iSCSI Name	-	-	When the Hitachi AMS2100 to be upgraded is the system configuration of the iSCSI interface, the Target iSCSI Name of the Hitachi AMS2300 succeeds the value before the upgrade. However, when the default iSCSI Name of the Target was used in the array subsystem before the upgrade, it is required to change the Target iSCSI Name of the Hitachi AMS2300 to a unique value in the network. If the Hitachi AMS2100 is used without changing the Target iSCSI Name and when the array subsystem before the upgrade is configured with the system of the iSCSI interface again after using the Hitachi AMS2300, the iSCSI Name of both array subsystems is duplicated in the network, and trouble is caused to the iSCSI protocol.
4	Inquiry	830xxxxx	850xxxxx	Product Serial Number After upgrading from Hitachi AMS2100 to Hitachi AMS2300, Hitachi AMS2300 responds to 850xxxxx.

(1) When the array subsystem is the system configuration of the iSCSI interface

Select the Target iSCSI Name which was set to the array subsystem again after the upgrade and log in.

Before login, set the CHAP authentication information, bidirectional authentication information and digest to the new Target iSCSI Name same as before the upgrade.

If you changed the Target iSCSI Name and the IP address of the iSCSI interface at the upgrade, the host computer may repeat logging in the Target iSCSI Name before the change. In this time, log out from the Target before the change.

- (2) When the Disk Array subsystem is the system configuration of the Fibre Channel interface
The device file name changes due to World Wide Name change. Following the change, OS reconstruction is needed.
The setting review is also needed in the application software using the device file name.

If you use the WWN binding in the Driver setting file, it is necessary to change the setting. And the Host needs rebooting after the setting change.

When Fabric Switch is used and WWN executes zoning, it is necessary to execute the zoning setting review since WWN is changed.

The upgrading operation from Hitachi AMS2100 to Hitachi AMS2300 is new device addition image for OS. However, as different from the ordinary new device addition, the user's data is maintained when installed. Therefore, great care is needed for setting the Host computer and peripherals.

For each platform, the points of which special care is needed are shown below.

- When HP-UX is used.

It is necessary to export the Volume Group before upgrading and import the Volume Group after upgrading.

When MC/service guard is used, it is necessary to suspend the MC/service guard before upgrading and reboot the MC/service guard after upgrading.

- When AIX + HDLM is used.

It is necessary to export the Volume Group before upgrading and note the disk property such as queue depth for the physical disk and the HDLM device. It is also necessary to import the Volume Group after remaking the HDLM device when the upgrade is completed.

Deleted: que

Examples of the HDLM device file remake

- | | |
|--|------------|
| 1. deletion of the HDLM device file | # rmdev |
| 2. reset of the device configuration information | # chdev |
| 3. remake of the HDLM device file | # dlmcfmgr |

- When Solaris + VxVM is used.

It is necessary to boot the Host with option “r” after upgrading and boot VxVM.

- NOTE :
- When HBA: Sun genuine, rebooting is necessary since the driver setting is changed at the time of the device recognition.
 - When SunCluster is used, it is necessary to exclude the wide area device from the definition (excluding “quorum device” in the wide area device from the definition). The correspondence between the disk ID instance number in the wide area device and the disk device (cXtYdZ) is also changed due to the LU serial number change after upgrading. Therefore, check the correspondence between the disk ID instance number and the local and remote path. If the correspondence is illegal, it is necessary to redefine. Then, redefine the wide area device as SunCluster (redefine quorum device from the optional wide area device).

- When IRIX is used.

It is necessary to execute the device recognition and mapping file making again after upgrading and reboot the Host.

- When Windows®-related system is used.

Rebooting is necessary after upgrading.

- When Linux + VxVM is used.

It is necessary to deport the Disk Group before upgrading and import the Disk Group after upgrading.

- When Tru64 is used.

For UFS: It is necessary to mount with the new device.

For AdvFS: It is necessary to link again with the new device as the registered device.

- | | | |
|------------------------------------|------------------------------------|----------------------|
| 1. device recognition check | # scu show edt | |
| 2. device file check | # hwmgr -view devices | |
| 3. transfer to domain directory | # cd /etc/fdmns/[domain name] | |
| 4. domain directory contents check | # ls | |
| 5. allocation to domain directory | # ln -fs /dev/disk/dskzzzc dskxxxc | |
| | | Registered device |
| | | New device file name |

For LSM, the data must be restored at the time of the LSM configuration since the disk group cannot be imported.

This page is for editorial purpose only.

Revision Control

Legend for revision codes : AD : Addition CH : Change CR : Correction DL : Deletion

REV.	Date	DRW	CHKD	APPD	Sheet No.	Description	Code
0	Mar.28.2008	N.Higashijima /A.Hirasawa	N.Higashijima /A.Hirasawa	Y.Uchiyama /T.Ninomiya	All	Issued	-
1	Jun.12.2008	N.Higashijima /A.Hirasawa	N.Higashijima /A.Hirasawa	Y.Uchiyama /T.Ninomiya	SUP 0010	3.4.2 and 3.4.20 were added.	AD
					SUP 02-0000	*1 was added at Table 2.1.	AD
					SUP 03-0000	"When the priced...array subsystem.", "When TrueCopy remote...status changes to PSUE." were added.	AD
					SUP 03-0010	"TrueCopy Extended Distance" was added at (3).	AD
					SUP 03-0020	"After this, do not...subsystem from the failure." was added.	AD
					SUP 03-0030	"TrueCopy Extended Distance", "It is required to...at the same time" were added.	AD
					SUP 03-0040	"When Power Saving of...the spin-down again." was deleted.	DL
					SUP 03-0060	3.4.2 was added at flowchart.	AD
					SUP 03-0070	3.4.20 was added at flowchart.	AD
					SUP 03-0080	3.4.2 was added.	AD
					SUP 03-0080, SUP 03-0090, SUP 03-0110, SUP 03-0130, SUP 03-0190, SUP 03-0200, SUP 03-0210, SUP 03-0250, SUP 03-0290, SUP 03-0340, SUP 03-0350, SUP 03-0450, SUP 03-0490, SUP 03-0520, SUP 03-0550, SUP 03-0580, SUP 03-0610, SUP 03-0620	Changed section number.	Ch
					SUP 03-0230	Changed "Program\micro upload\micro setup\Setup. exe" to "Program\DF800JSetup10.exe" at (iii).	CH
					SUP 03-0240	NOTE and ‡1 were added.	AD
					SUP 03-0270	Changed "0830A" to "0832E" at NOTE.	CH
					SUP 03-0280	(K) was added.	AD
					SUP 03-0340	(3) and ‡1 were added.	AD
					SUP 03-0341, SUP 03-0342	These pages were newly added.	AD
					SUP 03-0420	Table 3.4.2 was added.	AD
					SUP 03-0421, SUP 03-0422	These pages were newly added.	AD
					SUP 03-0500	(3) and ‡1 were added.	AD
					SUP 03-0510	Changed item number.	CH
					SUP 03-0520	"After this, do not...start Hitachi AMS2300." and ‡1 were added.	AD
					SUP 03-0530	Figure 3.4.20 was added.	AD
					SUP 03-0540	"A [User Name] and a...for the [Password]." was added.	AD
					SUP 03-0550	(g) and NOTE were added.	AD
					SUP 03-0560	(i) was added.	AD

Legend for revision codes : AD : Addition CH : Change CR : Correction DL : Deletion

REV.	Date	DRW	CHKD	APPD	Sheet No.	Description	Code
					SUP 03-0570	(m) was added.	AD
					SUP 03-0571, SUP 03-0572	These pages were newly added.	AD
					SUP 03-0630	(2) was added.	AD
					SUP 03-0640, SUP 03-0650	These pages were newly added.	AD
					SUP 04-0000, SUP 04-0010, SUP 04-0020, SUP 04-0030, SUP 04-0040, SUP 04-0120, SUP 04-0140	Changed section number.	Ch
					SUP 04-0120	"Do not install...subsystem form the failure." was added.	AD
					SUP 04-0121, SUP 04-0122	These pages were newly added.	AD
					SUP 04-0150	(3) was added.	AD
2	Jun.20.2008	N.Higashijima /A.Hirasawa	N.Higashijima /A.Hirasawa	Y.Uchiyama /T.Ninomiya	SUP 0010	The character of 3.4.2 and 3.4.20 were corrected to a capital letter.	CR
					SUP 03-0000, SUP 03-0080, SUP 03-0280, SUP 03-0341, SUP 03-0620	Description of E-mail alert Function was added.	AD
					SUP 03-0060, SUP 03-0070	The character of 3.4.2 and 3.4.20 were corrected to a capital letter.	CR
					SUP 03-0250	Reference page of (a) was corrected. (03-0490 → 03-0490)	CR
					SUP 03-0400	Description of (6) was changed.	CH
					SUP 03-0410	(c) to (e) were deleted.	DL
						Figure was changed.	CH
					SUP 03-0420	Description and Table 3.4.2 was deleted.	DL
						Description was moved from SUP 03-0422.	AD
					SUP 03-0421	Table 3.4.3 was deleted, and deleted page.	DL
					SUP 03-0422	Description was moved to SUP 03- 0420, and deleted page.	DL
					SUP 03-0430	(b) to (f) were deleted.	DL
						Figure 3.4.11 was moved from SUM 03-0430.	AD
					SUP 03-0440	Figure 3.4.11 was moved to SUM 03-0430.	DL
					SUP 03-0550	Reference page of #1 was corrected. (03-0220 → 03-0200)	CR
					SUP 03-0610	The character of 3.4.6 was corrected to a capital letter.	CR
					SUP 03-0640	The character of a title was corrected to a capital letter.	CR
					SUP 04-0020	"Recovery methods" of HH2F00 was changed.	CH
					SUP 04-0030	"Recovery methods ④" of HH2F00 was added.	AD
					SUP 04-0040	Reference page of 4.3.2 was corrected. (04-0100 → 04-0140)	CR
3	Jul.31.2008	N.Higashijima /A.Hirasawa	N.Higashijima /A.Hirasawa	Y.Uchiyama /T.Ninomiya	SUP 02-0000	Description of "DF-F800-F1KMF2/ F1KMS2/ F1KMF4/F1KMS4" was added to No.1 of the Table 2.1.	AD
						Title of Table 3.3.2 in *2 of Table 2.1 was changed.	CH
						Text and Table 2.2 was moved to SUP 02-0010.	DL

REV.	Date	DRW	CHKD	APPD	Sheet No.	Description	Code
					SUP 02-0010	Text and Table 2.2 was moved from SUP 02-0000.	AD
					SUP 03-0010	Description of "ShadowImage in-system replication, TrueCopy remote replication" was added to (3).	AD
					SUP 03-0020	Description of "When using DIMM..." in "• When executing updating..." was added.	AD
					SUP 03-0030	"1,128,961 to 3,144,960" was added in Table 3.3.1.	AD
						Description of "ShadowImage in-system replication, TrueCopy remote replication" was added in Table 3.3.2.	AD
						"• It is required to change..." was moved to SUP 03-0040.	DL
					SUP 03-0040	"• It is required to change..." was moved from SUP 03-0040.	AD
					SUP 03-0070	"(SUP 03-06100)" of 3.4.15 was corrected to "(SUP 03-0610)".	CR
					SUP 03-0110	"Storage Navigator Modular" of (a) was corrected to "Hitachi Storage Navigator Modular 2".	CR
					SUP 03-0150	Descriptions of (i) to (iii) were added.	AD
					SUP 03-0250	Reference number and page of (b) was corrected.	CR
					SUP 03-0280	Reference page was added to the "procedure (e)" of (k).	AD
					SUP 04-0121	Position of flow chart was changed.	CH
					SUP 05-0000	Title position of 5.1 was corrected.	CR
4	Oct.16.2008	N.Higashijima	N.Higashijima	Y.Uchiyama	SUP 03-0000	"The Hitachi AMS2100 before..." was added in 3.1.	AD
					SUP 03-0060	First procedure was changed to "Check that ... LU format".	CH