

FISHER-ROSEMOUNT

RS3™

**Software
Loading and
Upgrade
Procedure,
Including
Batch**

Performance Series 1, Release 1.1

**October 1996
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RS3™

Software Loading and Upgrade Procedure, Including Batch

About This Manual

The document provides information designed to accompany Performance Series Release 1.1 RS3™ software. It includes procedures for upgrading console and ControlFile software, including ABC Batch, and for upgrading to the CPIV ControlFile. Please read the Performance Series Release 1.1 Software Release Notes before loading the software.

Changes for This Release

Several changes have been made to this manual. Follow the steps carefully.

Hardware Requirements

This manual assumes all hardware requirements for P1R1.1 have been met. Please read the Performance Series Release 1.1 Software Release Notes to understand these requirements.

Revision Level for This Manual

For This Software Version:	Refer to This Document:		
	Title	Date	Part Number
P1R1.1	Software Loading and Upgrade Procedure, Including Batch	October 1996	10P56870201
P1R1.0	Software Loading and Upgrade Procedure, Including Batch	May 1996	1984-2818-0210
18R2.4	Software Loading and Upgrade Procedure, Including Batch	October 1995	1984-2818-18x8
18R2.3	Software Loading and Upgrade Procedure, Including Batch	June 1995	1984-2818-18x7
18R2.2	Software Loading and Upgrade Procedure, Including Batch	April 1995	1984-2818-18x6
18R2.1	Software Loading and Upgrade Procedure, Including Batch	January 1995	1984-2818-18x5
18R2	Software Loading and Upgrade Procedure, Including Batch	August 1994	1984-2818-02x4
18R1	Software Loading and Upgrade Procedure, Including Batch	June 1994	1984-2818-0203
18R1	Software Loading and Upgrade Procedure, Including Batch	October 1993	1984-2818-0202
18 Beta	Software Loading and Upgrade Procedure, Including Batch	June 1993	1984-2818-0201

References to Other Manuals

References to other RS3 user manuals list the manual, chapter, and sometimes the section as shown below.

Sample Entries:

For ..., see CC: 3.

Manual Title Chapter

For ..., see CC: 1-1.

Manual Title Chapter-Section

Abbreviations of Manual Titles

AL = Alarm Messages
BA = ABC Batch
CB = ControlBlock Configuration
CC = Console Configuration
DT = Disk and Tape Functions
IO = I/O Block Configuration
OP = Operator's Guide
OV = System Overview and Glossary
PW = PeerWay Interfaces
RB = Rosemount Basic Language
RI = RNI Release Notes and Installation Guide
RP = RNI Programmer's Reference Manual
SP = Site Preparation and Installation
SV = Service

Reference Documents

Prerequisite Documents

You should be familiar with the information in the following documents before using this manual:

<i>System Overview Manual and Glossary</i>	1984-2640-21x0
<i>Software Release Notes, Performance Series 1</i>	10P56870101

Related Documents

You may find the following documents helpful when using this manual:

<i>ABC Batch Operator's Guide</i>	1984-2655-21x0
<i>ABC Batch Quick Reference Guide</i>	1984-2818-1103
<i>ABC Batch Software Manual</i>	1984-2654-21x0
<i>Alarm Messages Manual</i>	1984-2657-19x1
<i>Configuration Quick Reference Guide</i>	1984-2812-0808
<i>Console Configuration Manual</i>	1984-2643-21x0
<i>ControlBlock Configuration Manual</i>	1984-2646-21x0
<i>Disk and Tape Functions Manual</i>	1984-2644-21x0
<i>I/O Block Configuration Manual</i>	1984-2645-21x0
<i>Operator's Guide</i>	1984-2647-19x1
<i>PeerWay Interfaces Manual</i>	1984-2650-21x0
<i>RNI Programmer's Reference Manual</i>	1984-3356-02x1
<i>RNI Release Notes and Installation Guide</i>	1984-3357-02x1
<i>Rosemount Basic Language Manual</i>	1984-2653-21x0
<i>Service Manual, Volume 1</i>	1984-2648-21x0
<i>Service Manual, Volume 2</i>	1984-2648-31x0
<i>Service Quick Reference Guide</i>	1984-2816-0904
<i>Site Preparation and Installation Manual</i>	1984-2642-21x0
<i>Software Discrepancies for Performance Series 1</i>	10P56870301
<i>User Manual Master Index</i>	1984-2641-21x0

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Section 1: Requirements and Preparation

For Performance Series Release 1 software and hardware requirements, see the *RS3 Performance Series Release 1 Software Release Notes*.

For detailed instructions on how to perform disk and tape activities required to load new software, see the *RS3™ Disk and Tape Functions Manual*.

- All alarm and event lists will be erased when the console is rebooted. To retain the contents of these lists, print them out using the following commands. You select these commands in the command line at the top of the screen using [LAST OPTION].
NOTE: You must have 132-column wide paper in the printers that print the alarm and event lists.
 - Pr Process Active Alarms (Prints both active and cleared)
 - Pr Hardware Alarm List (Prints both active and cleared)
 - Pr Disk Event List
 - Pr System Status Active (Prints both active and cleared)
 - Pr Event List:#
 - Pr Batch Alarm List (Prints both active and cleared)
- If one or more consoles are being updated from process character graphics to vector graphics, please read Section 5 of this document, “Upgrading from Character Graphics to Vector Graphics,” before loading console software.
- If you are updating a batch process from Version 14 or 15 to Performance Series Release 1, see Section 6, “Upgrading ABC Batch Files to Performance Series Release 1 Software.”
- Print out the Alarm List Configuration and Event List Configuration, so that you can enter them manually later in the procedure.
- If you have RTD FICs and are upgrading, you must download the new RTD FIC image **after** upgrading your consoles and ControlFiles.
- RBLCI is not supported past Version 15. RBLCII is supported with the CP4.
NOTE: You must first wipe bubble memory before you can use the RBLC controller as any other type of controller.
 - To wipe bubble memory, type:**
 WB controller [ENTER]
- In Performance Series Release 1, the CP2 does not support Batch. Batch is designed to run on the CP4.

Date Performed _____ By _____ Witnessed _____ Approved _____

Section 2: Loading Consoles

The procedure in this section describes how to upgrade a single CRT Multitube Command Console (MTCC) from Version 11, 12, 14, 15, 16, 17 or 18 to Performance Series Release 1 software. Repeat the procedure for all MTCCs.

Summary

The entire procedure to upgrade an MTCC consists of a series of smaller procedures, labelled A through W. By performing A through W, you accomplish these tasks:

1. Back up console files. (Be aware that this may take several hours, depending on the number and size of your files.)
2. Reconfigure the disk (if needed).
3. Load the new program(s).
4. Restore backed up files.
5. Convert graphics and reports.
6. Boot the console with the new software.

It is a good idea to read through A through W before you upgrade the console to familiarize yourself with the procedures.

Date Performed _____ By _____ Witnessed _____ Approved _____

Procedure

CAUTION:

If you have a password system, log in now as system manager, AND DO NOT LOG OUT until you have finished loading the console.

A. Preparing consoles for the software update:

- _____ 1. Disable trending (**DT** *node number* [ENTER]).
- _____ 2. Disable reports (**DR** [ENTER]). Print out all report configurations.
- _____ 3. Disable alarm logging (**DLA** *node number* [ENTER]).
- _____ 4. Disable Batch system (**DBAS** *node number* [ENTER]).
- _____ 5. Call up the Alarm List Configuration screen (**ALC** [ENTER]). Make sure that the Disk Event "Size" field is 50 or greater.
- _____ 6. Call up the Command Console Configuration screen (**CCC** [ENTER]). Make screen prints of pages 1 and 2.
- _____ 7. **If you are upgrading from the Version 15.03 release**, save the "Loop Callup Keys" to its own console configuration file using the Save Console Configuration procedure from the *Disk and Tape Functions Manual*. Then perform steps 8 and 9.

or

If you are upgrading from Version 11, 12, 14, 15.06 or later (including 16, 17, and 18), skip to step 9.

- _____ 8. Save only the "Trend Group Configuration" to its own console configuration file.
- _____ 9. Save "all" to its own console configuration file. Call up the Console Configuration Directory screen to make sure that the file you just saved is listed.

Date Performed _____ By _____ Witnessed _____ Approved _____

B. Backing up files onto tape:

Back up all files that are stored in the console onto a tape.

- _____ 1. Insert a tape into the tape drive and slide the tape drive button to lock the tape in place.
- _____ 2. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 3. Cursor to the name or location of the tape to be loaded, and press [ENTER].
- _____ 4. The Disk Activity screen shows the Tape Load operation in the "Operation" field. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. The load operation takes a few minutes.
- _____ 5. When the Tape Load operation is complete, call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 6. Cursor to the disk drive to be backed up and press [ENTER]. The Disk Activity screen appears.
- _____ 7. Cursor to the "Operation" field and press [NEXT OPTION] to access the Create Boot Tape operation. Press [ENTER].
- _____ 8. Cursor to the "New Volume Name" field. Type the name of the tape and press [ENTER].
- _____ 9. Cursor to the "Descriptor" field. Type a descriptor for the tape, and press [ENTER].
- _____ 10. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. The operation may take some time, maybe even hours, depending on how many files are on the disk.
- _____ 11. Call up the Disk Event List (**DEL** [ENTER]) and verify that the operation was successful. The entry reads, "Disk File Backup Completed, X Sector(s)".

Date Performed _____ By _____ Witnessed _____ Approved _____

C. Verifying tape operation:

In this section you will perform a Tape Unload operation and then a Tape Load operation. Fisher-Rosemount recommends that, before you continue with the software load procedure, you perform this operation after the boot tape is created in order to verify that the tape loads properly and that the files on the tape are okay.

- _____ 1. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 2. Cursor to the tape drive and press [ENTER]. The Disk Activity screen appears.
- _____ 3. Cursor to the "Operation" field and press [NEXT OPTION] to access the Tape Unload operation. Press [ENTER].
- _____ 4. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. The operation will take a few minutes.
- _____ 5. When the tape is unloaded, call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 6. Cursor to the tape drive and press [ENTER]. The Disk Activity screen appears.
- _____ 7. Cursor to the "Operation" field and press [NEXT OPTION] to access the Tape Load operation. Press [ENTER].
- _____ 8. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. The operation will take a few minutes.
- _____ 9. Call up the Disk Event List (**DEL** [ENTER]) and check to make sure that the tape loaded properly.
- _____ 10. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 11. Cursor to the tape drive and press [SELECT]. Verify that all of the files have been backed up onto the tape.
- _____ 12. Unload the tape by repeating steps 1 through 4 of this procedure.

Date Performed _____ By _____ Witnessed _____ Approved _____

D. Loading the Performance Series Release 1 Base System Software tape:

The Performance Series Release 1 Base System Software tape can now be loaded.

- _____ 1. Remove the backup tape and insert the Performance Series Release 1 Base System Software tape into the Command Console tape drive. Engage the tape in the drive.
- _____ 2. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 3. Cursor to the tape drive and press [ENTER]. The Disk Activity screen appears.
- _____ 4. Cursor to the "Operation" field and press [NEXT OPTION] to access the Tape Load operation. Press [ENTER].
- _____ 5. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. The operation will take a few minutes.
- _____ 6. Call up the Disk Event List (**DEL** [ENTER]) and check to make sure that there are no errors.
- _____ 7. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 8. Cursor to the tape drive and press [SELECT]. You should see a list of the files that were loaded from tape.

Date Performed _____ By _____ Witnessed _____ Approved _____

E. Reconfiguring the disk:

NOTE: This procedure is optional, but if ABC Batch is being added to the system *or* if the Console Program Folder is not large enough, the disk *must be* reconfigured. You must also reconfigure if new folder types have been added and you will be using them.

CAUTION: This procedure will destroy any data currently on the disk. Before you perform this procedure, make sure you have made a backup tape.

- _____ 1. Disable trending (**DT** *node number* [ENTER]), disable reports (**DR** [ENTER]), disable logging alarms (**DLA** *node number* [ENTER]), and Disable Batch system (**DBAS** *node number* [ENTER]).
- _____ 2. Call up the Disk Folder Configuration screen (**DC** : *node number* [ENTER]).

For an example of a Disk Folder Configuration screen, see Figure 2.1. It shows the recommended disk file configuration sizes for the standard disk. For a description of the fields on a Disk Folder Configuration screen, see Table 2.1.

- _____ 3. **If Batch is used**, cursor to the “ABC Data”, “ABC Log”, and “ASCII Files” fields and change the size of the folders as needed. Ensure that the free space in the ABC Data file is at least twice the size of the largest recipe. Ensure that the size of the Console Program and Plant Program folders is at least 4096 KB. See Figure 2.1 for a typical Disk Folder Configuration screen. Press [ENTER] after each change.
- _____ 4. **If the Console Program folder or any other folders are not large enough**, change the size of the folders as needed. See Figure 2.1 for a typical Disk Folder Configuration screen. Press [ENTER] after each change.

The folders flashing red will be initialized when the disk is configured, and all data in them will be deleted. The “Size in K Bytes” fields of other folders may have to be reduced in order to increase the size of the ABC Batch folders or the Console Program folder.

DISK FOLDER CONFIGURATION						03-APR-94	10:54:44
Disk Name	Console16	at Node 16	Drive 1	Capacity in K Bytes	102780		
Percent Disk Used	99 %			Unused space in K Bytes	9920		
Folder Type	Max Num of Files	Size in K Bytes	Folder Type	Max Num of Files	Size in K Bytes		
Console Program	1	⇒4096	Reports	⇒100	⇒6144		
Plant Prog	⇒50	⇒8192	Log Files	⇒200	⇒5120		
Peerway I/F Prog	⇒20	⇒2048	Trend Data	⇒100	⇒25600		
Console Config	⇒200	⇒2048	ABC Data	⇒500	⇒10240		
Peerway I/F Config	⇒20	⇒1024	ABC Log	⇒200	⇒4096		
Plant Config	⇒100	⇒4096	ASCII Files	⇒20	⇒1024		
RBL Files	⇒100	⇒4096					
Batch Tasks	⇒100	⇒2048					
Process Symbols	⇒200	⇒2048					
Process Graphics	⇒200	⇒7168					
Report Config	⇒100	⇒3072					

NOTE: If Standard Batch / ABC Batch are not being used, then the size in K Bytes of the ABC Data, ABC Log and ASCII files can be set to zero.

Figure 2.1. Typical Disk Folder Configuration Screen (105Mb)

DISK FOLDER CONFIGURATION						03-APR-94	10:54:44
Disk Name	Console16	at Node 16	Drive 2	Capacity in K Bytes	264438		
Percent Disk Used	99 %			Unused space in K Bytes	24326		
Folder Type	Max Num of Files	Size in K Bytes	Folder Type	Max Num of Files	Size in K Bytes		
Console Program	1	⇒4096	Reports	⇒200	⇒10240		
Plant Prog	⇒200	⇒8192	Log Files	⇒200	⇒38912		
Peerway I/F Prog	⇒20	⇒3072	Trend Data	⇒200	⇒15360		
Console Config	⇒100	⇒4096	ABC Data	⇒500	⇒40960		
Peerway I/F Config	⇒100	⇒4096	ABC Log	⇒200	⇒10240		
Plant Config	⇒200	⇒6144	ASCII Files	⇒200	⇒10240		
RBL Files	⇒200	⇒54272					
Batch Tasks	⇒200	⇒17408					
Process Symbols	⇒200	⇒4096					
Process Graphics	⇒200	⇒8192					
Report Config	⇒150	⇒4096					

NOTE: If Standard Batch / ABC Batch are not being used, then the size in K Bytes of the ABC Data, ABC Log and ASCII files can be set to zero.

Figure 2.2. Typical Disk Folder Configuration Screen (270Mb)

Date Performed _____ By _____ Witnessed _____ Approved _____

Table 2.1. Disk Folder Configuration Screen Fields

Field	Description
Folder Type	Type of files stored in folder.
Max. Num of Files	The maximum number of files you want to be able to configure for the folder. The highest value allowed is 1000.
Size in K Bytes	The size reserved on the disk for the folder.

- _____ 5. When the disk is ready to be configured, cursor to the “Hit Enter to Configure” field and press [ENTER].

A warning message appears informing you that all data in the flashing folders will be lost. To continue with the configuration change, press [ENTER] again. When the configuration is complete, the new disk folder configuration appears with folders in the normal color.

NOTE: If this node is being configured as part of a redundant pair, the minimum ABC Data Folder values are 1 File and 1 K Byte. Enter this information on the Disk Folder Configuration Screen.

F. Deleting the Console Program Folder (if present):

- _____ 1. Call up the Disk Directory screen (**DD: node number : drive number** [ENTER]) of the disk that you want to upgrade.
- _____ 2. Cursor to the Console Program folder and press [ENTER].
- _____ 3. Cursor to the "Operation" field and press [NEXT OPTION] to access the "Folder Delete" operation. Press [ENTER].
- _____ 4. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. This deletes the Console Program folder.
- _____ 5. Press [EXCH] to call up the Disk Event List in order to verify that the Console Program folder has been deleted.

G. Deleting the Plant Program Folder (if present):

- _____ 1. Call up the Disk Directory screen (**DD: node number : drive number** [ENTER]) of the disk that you want to upgrade.
- _____ 2. Cursor to the Plant Program folder and press [ENTER].
- _____ 3. Cursor to the "Operation" field and press [NEXT OPTION] to access the "Folder Delete" operation. Press [ENTER].
- _____ 4. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. This will delete the Plant Program folder.
- _____ 5. Press [EXCH] to call up the Disk Event List in order to verify that the Plant Program folder has been deleted.

H. Deleting the PeerWay I/F Program Folder (if present):

- _____ 1. Call up the Disk Directory screen (**DD: node number : drive number** [ENTER]) of the disk that you want to upgrade.
- _____ 2. Cursor to the PeerWay I/F Program folder and press [ENTER].
- _____ 3. Cursor to the "Operation" field and press [NEXT OPTION] to access the "Folder Delete" operation. Press [ENTER].
- _____ 4. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. This will delete the PeerWay I/F Program folder.
- _____ 5. Press [EXCH] to call up the Disk Event List in order to verify that the PeerWay I/F Program folder has been deleted.

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I. **Restoring the Performance Series Release 1 files from the Performance Series Release 1 Base System Tape:**

- _____ 1. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 2. Cursor to the tape drive containing the Performance Series Release 1 Base System Software tape and press [ENTER].
- _____ 3. Cursor to the "Operation" field on the Disk Activity screen and press [NEXT OPTION] to access the "Restore Tape Files to Disk" operation. Press [ENTER]. Note that the "Folder Type " field displays "All".
- _____ 4. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. The tape reads and writes all files and the console may appear to be idle. Restoring takes approximately 20 minutes. You can monitor this activity on the Disk Directory Peerway screen, the Disk Activity screen, or the Disk Event List.
- _____ 5. Call up the Disk Event List (**DEL** [ENTER]). An entry is made in the Disk Event List when each file restore operation is complete. Verify that each restore operation is complete.

NOTE: If the console program did not restore correctly, do not cycle power. Instead, try repeating steps 3, 4, and 5. Also, try checking the Disk Folder Configuration screen (see Figure 2.1) again.

- _____ 6. Return to the Disk Directory Peerway screen. Cursor to the tape drive containing the Performance Series Release 1 Base System Software tape and press [ENTER].
- _____ 7. Cursor to the "Operation" field and press [NEXT OPTION] to access the Tape Unload operation. Press [ENTER].
- _____ 8. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. The unload operation takes a few minutes. When the unload operation is complete, remove the tape.

J. Restoring backup files (only if you reconfigured the disk):

In this procedure you will restore all necessary folders **except**:

- Console Program folder
- Plant Program folder
- PeerWay Interface Program folder

- _____ 1. Insert the backup tape (created while preparing the consoles for the upgrade) into the tape drive.
- _____ 2. Call up the Disk Directory Peerway screen (**DDP** [ENTER]). Cursor to the tape drive and press [ENTER]. The Disk Activity screen appears for the tape drive.
- _____ 3. Cursor to the "Operation" field and press [NEXT OPTION] to access the "Tape Load" operation. Press [ENTER].
- _____ 4. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. The load operation takes a few minutes.
- _____ 5. Cursor to the "Operation" field and press [NEXT OPTION] to access the "Restore Tape Files to Disk" operation.
- _____ 6. Restore the desired folders to the disk. To select the desired folder, cursor to the "Folder Type" and press [NEXT OPTION].
- _____ 7. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. The restore operation will take a few minutes.
- _____ 8. Call up the Disk Event List and verify that all restore operations are complete. Repeat steps 5 through 7 of this procedure to restore each "Folder type" except the three listed above. Do not go on to step 9 until the folders are restored correctly.
- _____ 9. Cursor to the "Operation" field and press [NEXT OPTION] to access the Tape Unload operation. Press [ENTER].
- _____ 10. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. The unload operation takes a few minutes. When the operation is complete, remove the tape.

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K. Cycling power:

- _____ 1. Shut down the disk (**DS:** *node number* [ENTER]).
- _____ 2. Wait approximately 15 seconds. If you have the alarm summary line enabled, wait until “Napping” appears on the bottom line of the screen.
- _____ 3. Toggle the main breaker in the power cabinet off.
- _____ 4. Wait approximately 10 seconds.
- _____ 5. Toggle the main breaker on. The node performs a diagnostic check and loads the console software.

If the console is not running at this point, a boot operation might be necessary to get the console running. See Appendix A, “Booting Consoles” for more information.

L. Loading and restoring the ABC Batch tape:

- _____ 1. Insert the Performance Series Release 1 ABC Batch Software tape into the tape drive and engage the drive.
- _____ 2. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 3. Cursor to the tape drive and press [ENTER]. The Disk Activity screen appears.
- _____ 4. Cursor to the “Operation” field and press [NEXT OPTION] to access the “Tape Load” operation. Press [ENTER].
- _____ 5. Cursor to the “Press <ENTER> to begin” field and press [ENTER]. The operation will take a few minutes.
- _____ 6. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 7. Cursor to the tape and press [ENTER]. The Disk Activity screen appears.
- _____ 8. Cursor to the “Operation” field and press [NEXT OPTION] to access the “Restore Tape Files to Disk” operation. Press [ENTER].
- _____ 9. Cursor to the “Press <ENTER> to begin” field and press [ENTER]. The restore operation typically takes about 2 to 3 minutes.
- _____ 10. Call up the Disk Event List and verify that all restore operations are complete.

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- _____ 11. Call up the Disk Directory Peerway screen (**DDP** [ENTER]), cursor to the tape drive, and press [ENTER]. The Disk Activity screen appears.
- _____ 12. Cursor to the “Operation” field and press [NEXT OPTION] to access the Tape Unload operation. Press [ENTER].
- _____ 13. Cursor to the “Press <ENTER> to begin” field and press [ENTER]. The operation takes a few minutes. When it is complete, remove the tape.

M. Restoring console configuration (if upgrading from Version 15.03):

Restore the proper console configuration from the Console Configuration folder by following the steps below.

- _____ 1. Call up the Disk Directory Peerway screen (**DDP** [ENTER]). Cursor to the console disk drive and press [SELECT].
- _____ 2. Cursor to the Console Config folder. Press [SELECT].
- _____ 3. Cursor to the file containing the Loop Callup Button configuration (file created in procedure A, step 7) and press [ENTER].
- _____ 4. The Disk Activity screen appears. Cursor to the “Operation” field. Press [NEXT OPTION] to access the “Disk Load Console” command. Press [ENTER].
- _____ 5. Cursor to “Config Types” and press [NEXT OPTION] to “Loop Callup Keys”. Cursor to the “Press <ENTER> to begin” field. Press [ENTER].
- _____ 6. Return to the Console Config Directory screen.
- _____ 7. Cursor to the file containing the Trend Group configuration (file created in procedure A, step 8) and press [ENTER].
- _____ 8. Cursor to the operation field and [NEXT OPTION] to “Disk Load Console”. Press [ENTER].
- _____ 9. Cursor to “Config Types” and press [NEXT OPTION] to “Trend Group Configuration”. Cursor to the “Press <ENTER> to begin” field. Press [ENTER].
- _____ 10. Manually reenter the Alarm List Configuration and the Event List Configuration that you printed out according to the instructions in Section 1, “Requirements and Preparation.” See the *Console Configuration Manual* for more information.

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N. Loading the graphic character set into the user console configuration:

If the console is being updated from character graphics to vector (pixel) graphics, color 16 in the “Foreground” field of the Color Configuration screen is used for background only. For more information on vector graphics, see the *Console Configuration Manual*.

If vector (pixel) graphics is being loaded into the console for the first time, perform steps here. If vector graphics is not being loaded for the first time, skip ahead to procedure O, “Saving the modified configuration”.

- _____ 1. Call up the Disk Directory Peerway screen (**DDP** [ENTER]). Cursor to the disk drive and press [SELECT].
- _____ 2. Cursor to the Console Config folder. Press [SELECT].
- _____ 3. Cursor to the \$\$DEF-MTC file and press [ENTER]. The Disk Activity screen appears.
- _____ 4. Cursor to the “Operation” field. Use [NEXT OPTION] to access the Disk Load Console command. Press [ENTER].
- _____ 5. Cursor to the “Config Types” field. Use [NEXT OPTION] to access the Graphics Character Set. Press [ENTER].
- _____ 6. Cursor to the “Press <ENTER> to begin” field and press [ENTER].

O. Saving the modified configuration (if you performed procedure M or N):

- _____ 1. Call up the Disk Directory Peerway screen (**DDP** [ENTER]). Cursor to the console disk drive and press [SELECT].
- _____ 2. Cursor to the Console Config folder. Press [SELECT].
- _____ 3. Cursor to the user-defined console configuration file and press [ENTER].
- _____ 4. The Disk Activity screen appears. Cursor to the “Operation” field. Use [NEXT OPTION] to access the “Disk Console Save” command. Press [ENTER].
- _____ 5. Cursor to the “Press <ENTER> to begin” field and press [ENTER].

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P. Converting Process Graphics:

- _____ 1. Call up the Disk Directory screen (**DD: node number : drive number** [ENTER]). Cursor to the Process Graphics folder and press [SELECT]. The Process Graphics Directory appears. If no Process Graphics folder exists on the console, go to “Converting process graphic symbols” (procedure R).
- _____ 2. Cursor to a Process Graphic file and press [SELECT]. A blank screen appears with the banner “Out-of-date Configuration” at the top.
- _____ 3. Press [EXCH]. The Process Graphic Generation screen appears for the graphic. The Process Graphic is now converted to Performance Series Release 1.
- _____ 4. Repeat steps 2 and 3 for all Process Graphics.

Q. Converting to 16-character tags in Process Graphics (if you are converting from Version 16 or earlier):

Tag objects in previously configured process graphics do not automatically change size to the longer length. If you rename previously configured tags so they become longer than eight characters, you must change each previously configured process graphic file on a file-by-file basis to ensure that the new, longer tags do not accidentally obscure information on the process graphic.

- _____ 1. Call up the Console Configuration screen (**CCC** [ENTER]). Display page 2 ([PAGE AHEAD]), and cursor to the “Change Tag Size” field.
- _____ 2. Press [ENTER] to enable the tag size change. “N” changes to “Y”. “Old” and “New” fields appear. A warning message appears. (After the upgrade and for normal configuration and operation, change the “Change Tag Size” field back to “N”.)
- _____ 3. Change the default values in the “Old” and “New” fields. If the value you enter in the “Old” field does not match the length of the old tag object, the tag will not change length.
- _____ 4. Follow **either** steps 5–8 **or** steps 9–10 for each process graphic.

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To preview tag objects, and then write a process graphic to disk:

- _____ 5. Call up the Graphics Viewing screen (**PG:**, *filename* [ENTER]).
- _____ 6. Visually inspect the Tag objects to ensure the longer size does not obscure any material. If the Tag objects are too long, specify a different “New” tag length on the Console Configuration screen, or edit the process graphic.
- _____ 7. When the Tag objects appear as you want them, press [EXCH]. The Process Graphic Generation screen for the graphic appears. The Tag objects that matched the “Old” tag size are now converted.
- _____ 8. When you leave the screen, the process graphic is written to disk.

To write a process graphic to disk without previewing tag objects:

- _____ 9. Type **PGG** , *filename* [ENTER]. The Process Graphic Generation display for that process graphic appears. The Tag objects that matched the “Old” tag size are now converted.
- _____ 10. When you leave the screen, the process graphic is written to disk.

R. Converting Process Graphic symbols (if you are converting from Version 16 or earlier):

- _____ 1. Call up the Disk Directory screen (**DD:** *node number* : *drive number* [ENTER]). Cursor to the Process Symbols folder and press [SELECT]. The Proc Symbols Directory appears. If no Process Symbols folder exists on the console, go to “Converting other consoles”.
- _____ 2. Cursor to a Process Symbols file and press [ENTER]. A blank screen appears with the banner “Illegal Configuration” at the top.
- _____ 3. Press [EXCH]. The Process Graphic Symbols screen appears for the symbol. The Process Graphic symbol is now converted to Performance Series Release 1.
- _____ 4. Repeat steps 2 and 3 for all Process Graphic symbols.

S. Converting the remaining process graphics files:

- _____ 1. Repeat “Converting Process Graphics” (procedure P), “Converting to 16-character tags in Process Graphics” (procedure Q), and “Converting Process Graphic Symbols” (procedure R) for all process graphics.

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T. Converting Reports:

The procedure varies depending on the version of software you are upgrading from. Follow the appropriate procedure below.

- _____ 1. Reports configured with **Version 14 or earlier** software, **Version 15 68000** software, or **Version 15.06 68020 or later** software are upgraded as follows:
 - a. Call up the Configuration screen for reports (**RG** *node number, filename* [ENTER]).
 - b. Write the report configuration to disk ([CTRL] **W**).
- _____ 2. Reports configured with a **68020 console Version 15.02 or earlier Version 15** release are upgraded as follows:
 - a. Call up the Configuration screen for reports (**RG** *node number, filename* [ENTER]).
 - b. Reconfigure the List objects.
 - (1) Select each List object and look at the configuration. What you see may not be what you originally configured. Table 2.2 shows possible changes.
 - (2) Write down the desired configuration.
 - (3) Delete the List object.
 - (4) Create a new List object with the desired configuration.
 - (5) Write the report configuration to disk ([CTRL] **W**).

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Table 2.2. List Object Configuration Changes

V14 68000/68020 V15 68000	V15 68020
Hardware	Hardware
Process	Critical, Advisory, Process
Batch	Batch
System	System
Disk Event	Suppressed
Event List 1	Plant Area
Event List 2	Disk Event
Event List 3	Event List 1
Event List 4	Event List 2
Event List 5	Event List 3
Event List 6	Event List 4
Event List 7	Event List 5
Event List 8	Event List 6
Event List 9	Event List 7
Event List 10	Event List 8
Oper Change	Event List 9
	Event List 10
	Oper Change Log

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U. Converting to 16-character tags in Report Configuration files (if you are converting from Version 16 or earlier):

Prior to Version 17, all tag objects in Report Configuration files had a size of eight characters; the report tag object size could not be configured. In Version 17 and later, report tag object size is a configurable option.

Tag objects in previously configured report configurations do not automatically change size to the longer length. If you rename previously configured tags so they become longer than eight characters, you must change each previously configured report configuration file on a file-by-file basis to ensure that the new, longer tags do not accidentally obscure information on the report.

- _____ 1. Call up the Console Configuration screen (**CCC** [ENTER]). Display page 2 ([PAGE AHEAD]), and cursor to the "Change Tag Size" field.
- _____ 2. Press [ENTER] to enable the tag size change. "N" changes to "Y". "Old" and "New" fields appear. A warning message appears. (After the upgrade and for normal configuration and operation, change this field back to "N".)
- _____ 3. Change the default value in the "New" field. Leave 8 as the default in the "Old" field.

For each report configuration file:

- _____ 4. Type **RG:** , *filename* [ENTER]. The Report Configuration screen appears. The tag objects are now converted.

(Optional) If you decide that you do not like the tag size changes after you access the report configuration file, press [Ctrl] **R** to read the original report back from disk and leave the screen. The report will be unchanged.
- _____ 5. When you leave the screen, the report configuration file is written to disk.

V. Completing console upgrade

- _____ 1. Make backup tapes now that the console software has been upgraded.
- _____ 2. Enable trending (**ET** *node number* [ENTER]).
- _____ 3. Enable reports (**ER** [ENTER]).
- _____ 4. Enable alarm logging (**ELA** [ENTER]).
- _____ 5. Enable batch system (**EBAS** *node number* [ENTER]).

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Upgrading Additional Consoles

To upgrade additional consoles, follow procedures A through V for each additional console.

Possible shortcut:

If you do not need to restore all the files from the Performance Series Release 1 Base System tape to the additional console, you can replace procedure I with procedure W below. Procedure W is faster than I but is *only recommended when you do not need to restore all the files* from the Base System tape.

W. Restoring the Performance Series Release 1 console program from another console:

- _____ 1. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 2. If it has not already been deleted, delete the ECCBOOT file on the console that is being restored.
- _____ 3. Cursor to the console that has Performance Series Release 1 loaded, and press [SELECT].
- _____ 4. Cursor to the Console Program folder name, and press [SELECT].
- _____ 5. Cursor to the ECCBOOT file, and press [ENTER].
- _____ 6. Cursor to the "Operation" field on the Disk Activity screen and press [NEXT OPTION] to access the "Disk Copy Boot Program" operation. Press [ENTER].
- _____ 7. Cursor to the "Destination Disk" field on the Disk Activity screen. Type the disk name (or node number:drive number) to which the boot program is to be copied. Press [ENTER].
- _____ 8. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. The console reads and writes the ECCBOOT file on its hard disk and writes it to the destination disk. The console may appear to be idle.
- _____ 9. When the operation is complete, call up the Disk Event List (**DEL** [ENTER]). When the file restore operation is complete, an entry is made in the Disk Event List. Verify that the restore operation is complete.

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Section 3: Loading CPIV and CPIV+ ControlFiles

This section covers loading CPIV and CPIV+ ControlFiles. A CPIV+ works with the MPCII or a mixture of the MPCII and MLC processors. The CPIV works only with MPCII processors.

First load the new software to the Nonvolatile Memory card. You can then boot each Coordinator Processor (CP) card and Controller Processor card with the new software. Do this one ControlFile at a time.

CAUTION

If you are upgrading from V18R2.1 or later, this caution does not apply to you. If you are upgrading from any release before V18R2.1, this caution does apply to you.

Because batch and controller images now require more memory, the CP upgrade procedures have been changed to accommodate the new requirements. You must now perform one of the following options when upgrading:

- **Load the CP image. Reboot the CP using the new software. Load the CP image again. The first download increases the allocated space in the nonvolatile memory for batch and controller configuration. The second download relocates the CP and Controller images.**

or

- **Perform a Disk Boot CP operation (also referred to as a PeerWay boot) and then load the CP image.**

CAUTION

Do not upgrade ControlFiles until all consoles have been upgraded.

CAUTION

Batch Task configurations (on the Batch Run screens) might be wiped when batch software is upgraded from an earlier version to Performance Series Release 1. Save the batch task configurations before you upgrade to Performance Series Release 1 and restore them after the upgrade.

For instructions on saving a batch task configuration, see DT: 2-4. For instructions on restoring batch task configurations, see DT: 2-7.

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NOTES:

- It is not necessary to update the Controller Configuration when loading Version 9, 11, 12, 14, 15, 16, 17 or 18 ControlFile software. Therefore, do not execute either a Kill Controller or Wipe Bubble operation, either of which will destroy the Controller Configuration. The Controller Configuration should be retained in the nonvolatile memory so it can be automatically reloaded when the Controller Processors boot with the new software.
- If upgrading from a CPII, an MPCI, and a CPMAX image to a CPIV with an MPCI, the configuration may be lost. For more information on this upgrade, see “Upgrading a CPII CPMAX to CPIV” later in this section.
- If you upgrade the RBL Controller from Version 16 or Version 17 Release 1, the RBL Controller configuration must be reloaded manually. In order to help you reconfigure the RBL Controller, you should make a printout of the CB Continuous Faceplate and Continuous Links screen before you upgrade.

To reconfigure the RBL Controller:

1. Kill the RBL controller: **KC** *RBL Controller Address* [ENTER]

or

Wipe the ControlFile: **WB** *ControlFile Address* [ENTER]

2. Reconfigure the CB Continuous Faceplate for the RBL Controller.

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Preparation:

- _____ 1. As a precaution, save the configurations of all ControlFiles on the PeerWay to a disk using the Disk Controller Save operation. (For details on the Disk Controller Save operation, see the *Disk and Tape Functions Manual*). This can be done with the console running Performance Series Release 1 software.

NOTE: You may wish to compare the current controller configurations to plant configuration files already on disk by using the Controller Block Verify operation (see the *Disk and Tape Functions Manual*).

- _____ 2. Determine the node number of all ControlFiles into which the software is to be loaded. The Plant Status screen will indicate which ControlFiles are owned by the console. To call up the Plant Status screen, enter **PS** at the command line. For examples of the Plant Status screens, see Figure 3.1 and Figure 3.2.

NOTE: The console from which the program is to be loaded must have write authority configured on the Plant Status screen for the ControlFile nodes.

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UP: 3-4

To see all nodes on one PeerWay, cursor to the "Node Type Displayed" field and press [NEXT OPTION]. "LOCAL PEERWAY" shows a complete list of all nodes, whether they exist or not.

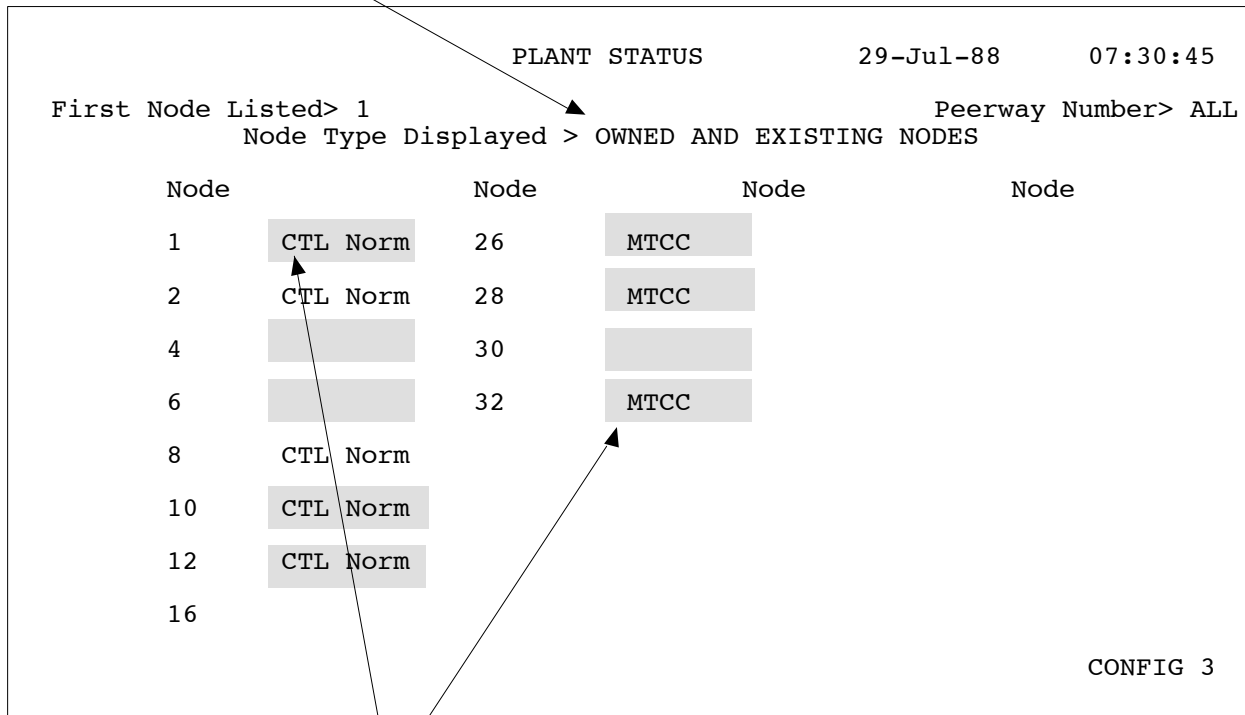
Node	Node	Node	Node			
1	CTL Norm	9	17	25		
2	CTL Norm	10	CTL Norm	18	26	MTCC
3		11	19	27		
4		12	CTL Norm	20	28	MTCC
5		13	21	29		
6		14	22	30		
7		15	23	31		
8	CTL Norm	16		24	32	MTCC

CONFIG 2

An owned node is backlighted. Cursor to the field and press [ENTER] to toggle between the owned and not-owned states.

Figure 3.1. Plant Status Screen Showing Complete List of Nodes

To see all nodes on all PeerWays, cursor to the "Node Type Displayed" field and press [NEXT OPTION].
 "Owned and Existing Nodes" shows a complete list of all nodes existing on the plant highway.



An owned node is backlighted. Cursor to the field and press [ENTER] to toggle between the owned and not-owned state.

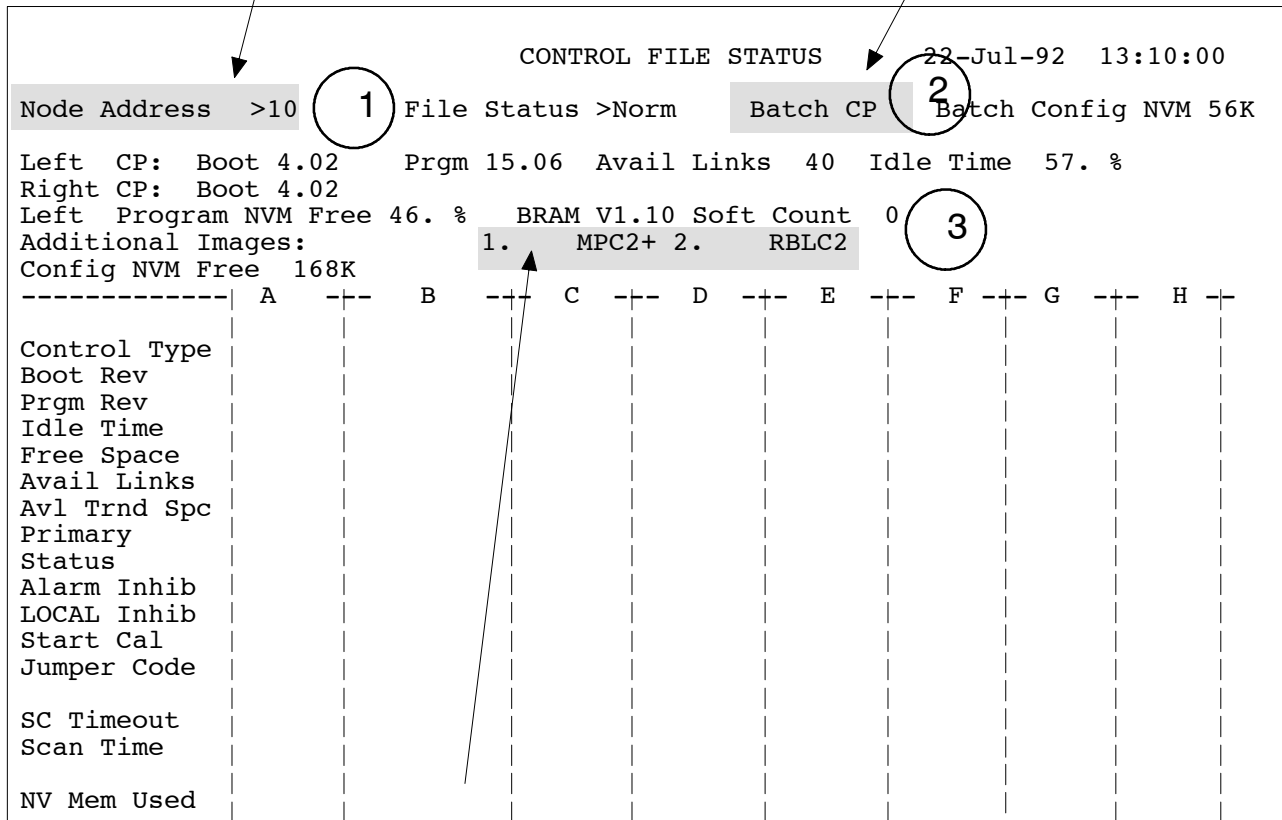
Figure 3.2. Plant Status Screen Showing Only Existing Nodes

Determining the images you need:

- _____ 1. Call up a Control File Status screen (**CFS**) for each node in the system.
 The Control File Status screen displays the program name and any additional image names in the order in which they must be loaded. Figure 3.3 shows a configured Control File Status screen with field descriptions.
- _____ 2. As a precaution, make a screen print of a Control File Status screen for each node. This information will be helpful when verifying that the software has been loaded correctly.
- _____ 3. Record the program name and image names. Table 3.1 gives a sample form for recording the program name and the names of additional images.

Enter the node number in this field. If all nodes are owned, cursor to this field and press the [PAGE AHEAD] key to see the screen for each node.

Field 2 contains the program name. This is the first program that must be loaded.



Field 3 contains the names of any additional images. After the program in Field 2 is loaded, these images should be loaded in the order in which they are numbered.

Figure 3.3. Control File Status Screen

Date Performed _____ By _____ Witnessed _____ Approved _____

Table 3.1. Sample Form for Recording Program Names and Additional Images

Node	Program Name	Additional Images
		1. 2. 3. 4.
		1. 2. 3. 4.
		1. 2. 3. 4.
		1. 2. 3. 4.
		1. 2. 3. 4.
		1. 2. 3. 4.
		1. 2. 3. 4.

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The images for the MPCII are shown in Table 3.2. For information on loading images, see the *Disk and Tape Functions Manual*. See the *Service Manual* for information on setting the image jumpers.

Table 3.2. Controller Processor Images

Image	Included in Plant Program File	MPC2+ Image Functionality (Subimage or Controller Type)	Required Controller	I/O Supported	I/O Blocks Supported
MPC2+	\$MPC2+_P1	MPC+	MPCII	Analog Card Cage with analog FICs Analog Card Cage with smart FICs Analog Card Cage with RTD/TC FICs Analog Card Cage with pulse FICs Contact Card Cage with contact FICs Discrete Interface Modules	AIB, AOB, CIB, COB, PIOB, RIOB, SIB, VIB, TIB, DIB, DOB
		PLC+	MPCII	Communications FlexTerm with comm cards	PLCB
		MUX+	MPCII	Multiplexer Flexterm	MIB
RBLC2	\$RBLC2_P1	None	MPCII	Communications FlexTerm with comm cards	None

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PeerWay Booting the CP:

You PeerWay boot the CP with the Disk Boot CP operation provided you have one of the following situations:

- If you are upgrading from a CPII to a CPIV, follow the PeerWay Boot procedure shown below. For information on how to remove and replace CPs, see the *Service Manual*.
- If you choose the PeerWay boot option when upgrading images on the CPIV and are upgrading from any release before V18R2.1 follow the PeerWay Boot procedure shown below. If you are upgrading from V18R2.1 or later, you do not need to do this step. Go to “Loading the CP Image” on page 3-11. If you are upgrading from any release before V18R2.1, you need to PeerWay boot the CP or use the other option discussed on page 3-1. Refer to the first CAUTION on page 3-1 for an explanation of your options when upgrading.

NOTE: Reboot the CP from memory immediately after disk loading CP program to NV memory. Otherwise, the CP might return to its preboot state.

With the CPIV or CPIV+ installed, perform the following steps:

- _____ 1. Make sure that the nonvolatile memory is disabled. If it is not, disable it at this point.
- _____ 2. Disable the redundant CP. Then disable the primary CP.
- _____ 3. Enable the primary CP.

NOTE: If the CP cannot access a valid CP program in the nonvolatile memory, the top four LEDs on the CP flash on and off at about a one-second rate.

- _____ 4. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 5. Cursor to the disk that contains the ControlFile programs and press [SELECT].
- _____ 6. Cursor to the Plant Program folder and press [SELECT].
- _____ 7. Cursor to the desired CP program file (\$CP4xxx) and press [ENTER].
- _____ 8. Cursor to the operation field and press [NEXT OPTION] until “Disk Boot CP” appears and press [ENTER]. Enter the correct node or node range.

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- _____ 9. Clear any alarms.
- _____ 10. Cursor to “Press <ENTER> to Begin” and press [ENTER].
The alarm messages “NV Mem X Program Images Bad” and “NV Mem X Opt. Controller Image Bad” may appear.
Acknowledge the alarms.
- _____ 11. When the disk operation is done, enable the Nonvolatile Memory board.
- _____ 12. Call up the Disk Event List (**DEL** [ENTER]) to make sure the Disk Boot CP operation worked properly.

Date Performed _____ By _____ Witnessed _____ Approved _____

Loading the CP Image:

NOTE: A script file can be used to download the \$\$CPxxxx file and any additional images. Check to be sure that the script downloads files only to the desired ControlFiles. For more information, see the *Disk and Tape Functions Manual*.

- _____ 1. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 2. Cursor to the disk that contains the ControlFile programs and press [SELECT].
- _____ 3. Cursor to the Plant Program folder and press [SELECT].
- _____ 4. Cursor to the desired CP program file (\$CPxxxx) and press [ENTER].
- _____ 5. Cursor to the operation field and press [NEXT OPTION] until “Disk Load Program or Script” appears and press [ENTER]. Enter the correct node range.
- _____ 6. Clear any alarms.
- _____ 7. Cursor to “Press <ENTER> to Begin” and press [ENTER].
The alarm messages “NV Mem X Program Images Bad” and “NV Mem X Opt. Controller Image Bad” may appear. Acknowledge the alarms.
- _____ 8. Call up the Disk Event List (**DEL** [ENTER]) and verify that the ControlFile program has successfully loaded.

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Loading additional images:

NOTE: Do not attempt to start up an MPC1 using an MPC2 or RBL2 image. This will cause the CP to “hang” and the PeerWay to have problems.

In this part of the procedure you will load any additional images in the ControlFile in the correct order according to the sequence in which the controller cards are jumpered. You will call up the Disk Event List (**DEL** [ENTER]) after each image is loaded to verify that the images have been successfully loaded.

- _____ 1. Call up the Disk Directory PeerWay screen (**DDP** [ENTER]).
- _____ 2. Cursor to the disk that contains the ControlFile programs and press [SELECT].
- _____ 3. Cursor to the Plant Program file and press [SELECT].
- _____ 4. Cursor to the first additional image (see Table 3.1). Press [ENTER].
- _____ 5. Cursor to the Operation field and press [NEXT OPTION] until “Disk Load Program or Script” appears and press [ENTER]. Enter the correct node range.
- _____ 6. Cursor to “Press <ENTER> to Begin” and press [ENTER].
- _____ 7. Call up the Disk Event List (**DEL** [ENTER]) and verify that the Controller Processor programs have successfully loaded.
- _____ 8. Repeat steps 1 to 7 for each additional image.

Date Performed _____ By _____ Witnessed _____ Approved _____

Upgrading a CII CPMAX to CII:

If you are upgrading from a CII CPMAX image with an MPCII and/or old standard controller image (MLC, SS, or CC) to a CII with MPCII's and/or old standard controller images, the plant program may no longer fit in the old standard controllers and the configuration may be lost. This is because the CPMAX allows the MPCII to store approximately 20% of the configuration in the CII. However, the CII forces all of the configuration that was formerly stored in the CII back into the controllers. Also, it is necessary to change any controller running MPCII images into an MPCII controller.

In order to use the old standard controllers with the CII, the controllers must have at least 20% free space, because the CPMAX allowed up to 20% of the controller configuration to be stored in the CII. If there is less than 20% free space available, you must do one of the following:

- Move some of the configuration in the controller to another controller to create extra space.
- Remove the tags, descriptors, and notes from the configuration.
- Do not upgrade from CII CPMAX.

NOTE:

- For standard I/O (MLC, SS), the controllers cannot be replaced with MPCII controllers, because either the I/O or A/D is done on the Controller. However, it is unusual to have an MLC with less than 20% free space.
- For standard I/O (CC) you can only use an MPCII if jumpered as an MPCII for the CC image,
- The MUX and PLC are the cards that most commonly do not have enough space. You can replace the cards with an MPCII and jumper the MPCII for MUX, respectively.
- After you replace MPCII controllers with MPCII controllers, do a wipe bubble operation on all the controllers on the node and then restore the controller configuration from disk.
- CII and MPCII are not supported in P1.

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Booting the CP program and Controller images:

- _____ 1. If a redundant coordinator processor card is present, switch the redundant CPIV or CPIV+ to the Disable position.

NOTE: If you chose the PeerWay Boot option, the redundant CPIV or CPIV+ is already disabled.

- _____ 2. Switch the primary CPIV or CPIV+ to the Disable position.
- _____ 3. If redundant controller processor cards are present, switch all of the redundant Controller Processor cards to the disable position.
- _____ 4. Switch all of the primary Controller Processor cards to the disable position.
- _____ 5. Enable the primary CP. Enable the redundant CP. This will cause the CPIV or CPIV+s to boot with the new program images.
- _____ 6. Enable the primary controller processor cards. Enable the redundant controller processor cards. This will cause the Controller Processors to boot with the new program images.
- _____ 7. Call up the Control File Status screen. This screen should now indicate the new version software for the CP cards and all Controller Processor cards.

NOTES:

- To go from a RBLCI to a RBLCII you must be using an MPCII, and you must kill the controller. For the procedure used to kill the controller, see DT: Chapter 2, Section 8. Then download the blocks saved from the RBLCI and start them.
- Perform steps 8 through 11 only if you are going from Version 9 to Performance Series Release 1; otherwise go to *Loading FIC Software*.

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- 8. Call up the Control Block Directory screen (**CBD: Controller Processor address [ENTER]**) for each Controller Processor in the ControlFile. Check all ControlBlocks in each Controller Processor for Plant Unit entries that are nonzero (see Figure 3.4). Write down the ControlBlock tag or address and the nonzero Plant Unit number. At this point, the console cannot control or make changes to ControlBlocks with nonzero Plant Unit entries.

Write down the ControlBlock tag or address and Plant Unit number of any block with a nonzero Plant Unit number.

BLOCK DIRECTORY:=1A						23-Jul-87	11:47:12		
<u>Block</u>	<u>Tag</u>	<u>Type</u>	<u>Mode</u>	<u>Alarm</u>	<u>Steps in Manual</u>	<u>Plant Unit</u>	<u>Stat</u>	<u>Dyn</u>	<u>Total</u>
=1A-1	TEMP-1	PID	MANUAL			0	21	24	45
=1A-2	TEMP-2	PID	AUTO			0	21	24	45
=1A-3	MOTOR-1	DMC	LOCAL			63	21	24	45
=1A-4	MOTOR-2	DMC	LOCAL			0	21	24	45

Figure 3.4. ControlBlock Directory Screen

Date Performed _____ By _____ Witnessed _____ Approved _____

- _____ 9. Call up the Plant Unit Configuration screen. Confirm that the “Set Range” field is set at 1,255.
- _____ 10. Call up the Discrete Faceplate screen for each ControlBlock that was recorded. Cursor to the “Plant Unit” field and change the entry to 0 (Figure 3.5). An entry of zero indicates that there are no Plant Unit restrictions on this block.
- _____ 11. Repeat steps 9 and 10 for all ControlFiles recorded in step 8.

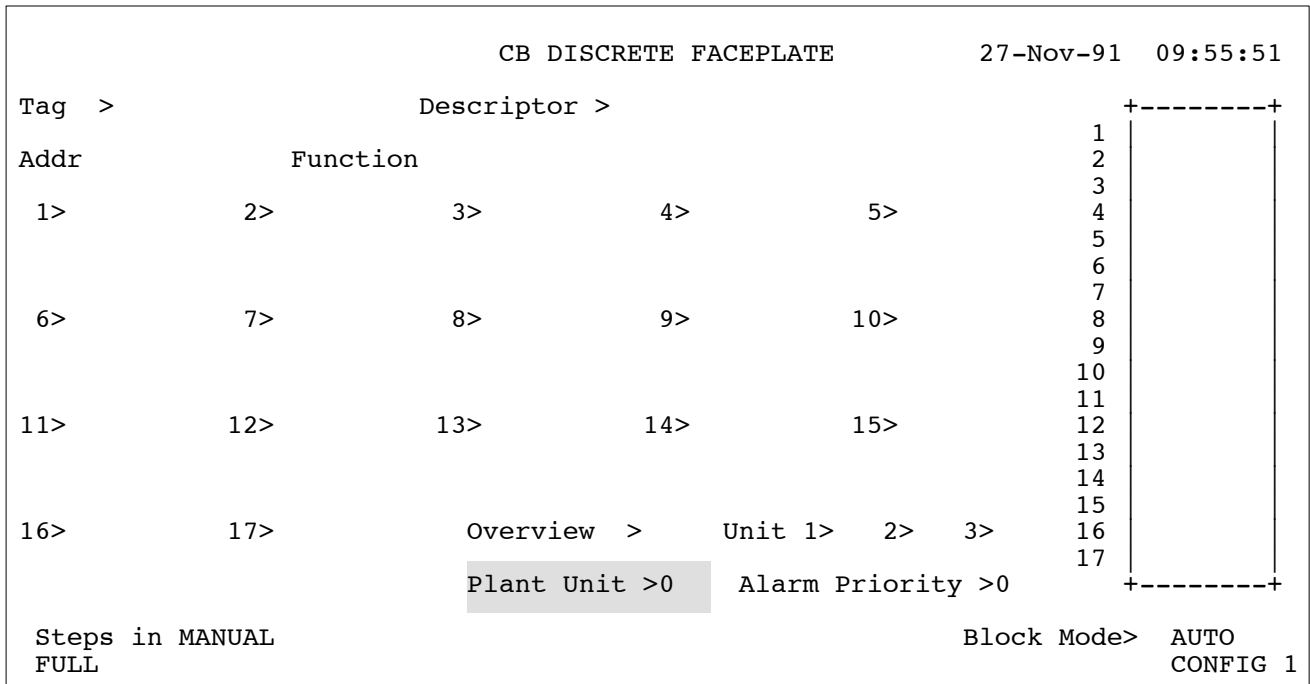


Figure 3.5. Discrete Faceplate Screen

NOTE: If you are upgrading from V18R2.1 or later, you do not need to do this step. Go to Loading FIC Software on page 3-17. If you are upgrading from any release before V18R2.1, you need to follow the steps below **if** you didn't already follow the PeerWay Booting the CP instructions on page 3-9. Refer to the first CAUTION on page 3-1 for an explanation of your options when upgrading.

Repeat the steps on pages 3-11 through 3-16 to download the images a second time.

- Loading CP images
- Loading additional images
- Booting the program image

You must download the ControlFile a second time or the software will not load correctly. The first download increases the allocated space in the nonvolatile memory for batch and controller configuration. The second download relocates the CP and Controller images.

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Loading FIC Software:

Some installations may need to update the software in FIC cards. All users should follow the FIC loading procedures.

- _____ 1. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 2. Cursor to the disk that contains the ControlFile programs and press [SELECT].
- _____ 3. Cursor to the Plant Program folder and press [SELECT].
- _____ 4. Cursor to the FIC program file (\$FIC4_x). Press [ENTER].
- _____ 5. Cursor to the operation field and press [NEXT OPTION] until "Disk Load Program or Script" appears and press [ENTER]. Enter the correct node range.
- _____ 6. Cursor to "FIC Addr Range" and enter the correct range.
- _____ 7. Cursor to "Press <ENTER> to Begin" and press [ENTER].
- _____ 8. Download the file to all FICs. Even though the disk activity attempts to download the file to all FICs in the address range, the file is actually downloaded only to the FICs that can use it. For more information, see the *Disk and Tape Functions Manual*.

NOTE: If an MPCII is connected to two or more analog card cages, each with Smart I/O cards that are communicating with smart transmitters, then the following steps must be performed to download the file to the FICs.

- a. Pull the Comm Connect Card to those card cages not being downloaded and download the file to the other card cage. Replace the Comm Connect Cards.
- b. Repeat step a for the other card cages.

NOTE: There is a possibility that the download will not work for all of the FICs on the first try. Look at the Disk Event List and the FIC Status Screen to see if the download worked. If it did not, follow steps 8 a and 8 b.

- _____ 9. Call up the FIC Status screen (**FS Controller Processor address** [ENTER]). Verify that the correct FIC software version has been downloaded.

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Section 4: Loading CPlI ControlFiles

This section covers how to load CPlI CPMAX ControlFiles only. P1.x release supports CPMAX for CPlI's only. If you have the CPlV ControlFile, see Section 3.

The CPlI ControlFile image is not a P1 image; however, Version 18 CPlI ControlFiles can coexist on the same PeerWay as P1 ControlFiles and consoles. The CPlI ControlFiles' V18 programs are found on the P1 Base System tape.

New software will first be loaded to the Coordinator Processor Card and the Nonvolatile Memory card. Each Coordinator Processor card and Controller Processor card can then be booted with the new software. This should be done one ControlFile at a time.

CAUTION

Do not update ControlFiles until all consoles have been updated.

PROCEDURE:

NOTE: It is not necessary to update the Controller Configuration when loading Version 9, 11, 12, 14, 15, 16, 17 or 18 ControlFile software. Therefore, **do not** execute either a Kill Controller or Wipe Bubble operation, either of which will destroy the Controller Configuration. The Controller Configuration should be retained in the nonvolatile memory so it can be automatically reloaded when the Controller Processors boot with the new software.

NOTE: Do not attempt to download an MPCII image to a ControlFile with a CPlI. The CP will crash.

Preparation:

- _____ 1. As a precaution, save the configurations of all ControlFiles on the PeerWay to a disk using the Disk Controller Save operation (see the *Disk and Tape Functions Manual*). This can be done with the console running Version 18 software.

NOTE: You may wish to compare the current controller configurations to plant configuration files already on disk by using the Controller Block Verify operation (see the *Disk and Tape Functions Manual*).

- _____ 2. Determine the node number of all ControlFiles into which the software is to be loaded. The Plant Status screen will indicate which ControlFiles are owned by the console. The Plant Status screen is accessed by pressing **PS**. For examples of the Plant Status screens, see Figure 4.1 and Figure 4.2.

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NOTE: The console from which the program is to be loaded must have write authority for the ControlFile node.

Loading Program Images:

1. To speed the load operation, switch all Controller Processors in the ControlFile to the Disable position. The Coordinator Processor should remain in the Enable position.

NOTE: Each analog output and each contact output will assume its fail-safe state when its Controller Processor is switched off. The fail-safe state is determined by the failure option jumper on the field interface card. Analog outputs have two fail-safe options: to hold the last output value or to set the output current value to zero. Contact outputs have two fail-safe options: to hold the last output value or to set the output current value to an off state. For more information on analog and contact outputs, see the *I/O Block Configuration Manual*.

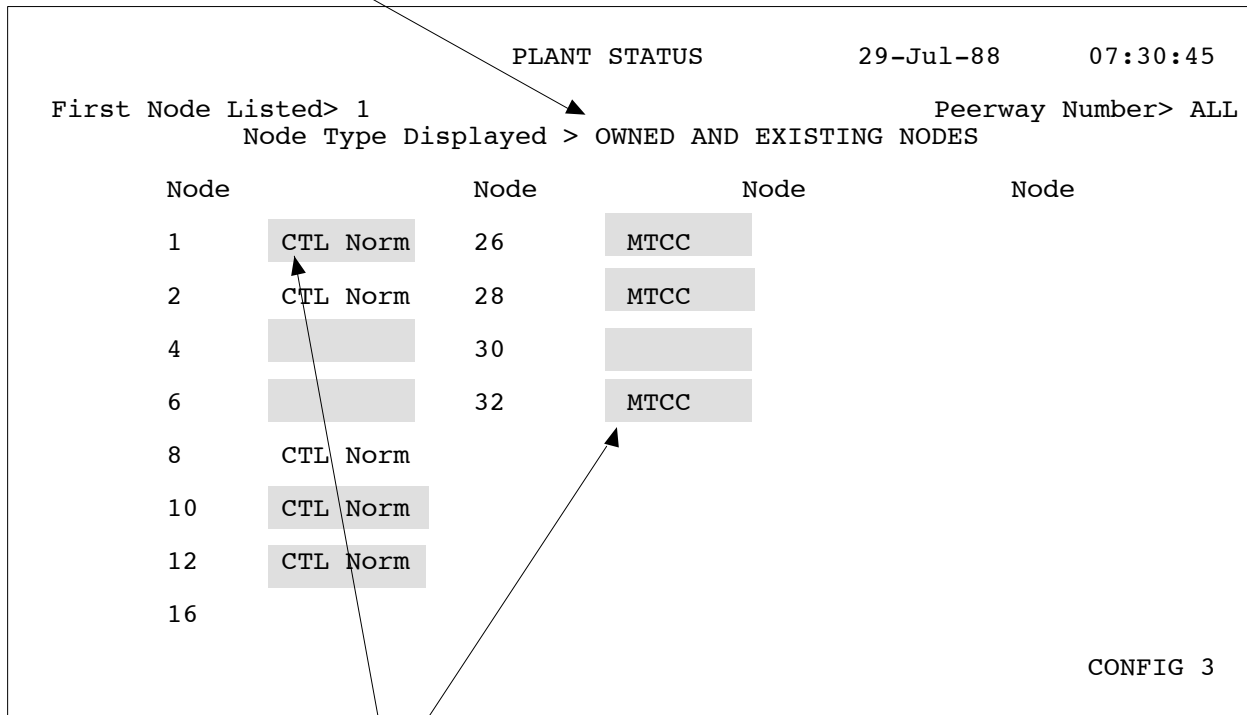
To see all nodes on one PeerWay, cursor to the "Node Type Displayed" field and press [NEXT OPTION]. "LOCAL PEERWAY" shows a complete list of all nodes, whether they exist or not.

Node	Node	Node	Node
1	CTL Norm	9	17
2	CTL Norm	10	18
3		11	19
4		12	20
5		13	21
6		14	22
7		15	23
8	CTL Norm	16	24
			25
			26
			27
			28
			29
			30
			31
			32

An owned node is backlighted. Cursor to the field and press [ENTER] to toggle between the owned and not-owned states.

Figure 4.1. Plant Status Screen Showing Complete List of Nodes

To see all nodes on all PeerWays, cursor to the "Node Type Displayed" field and press [NEXT OPTION].
 "Owned and Existing Nodes" shows a complete list of all nodes that exist on the plant highway.



An owned node is backlighted. Cursor to the field and press [ENTER] to toggle between the owned and not-owned state.

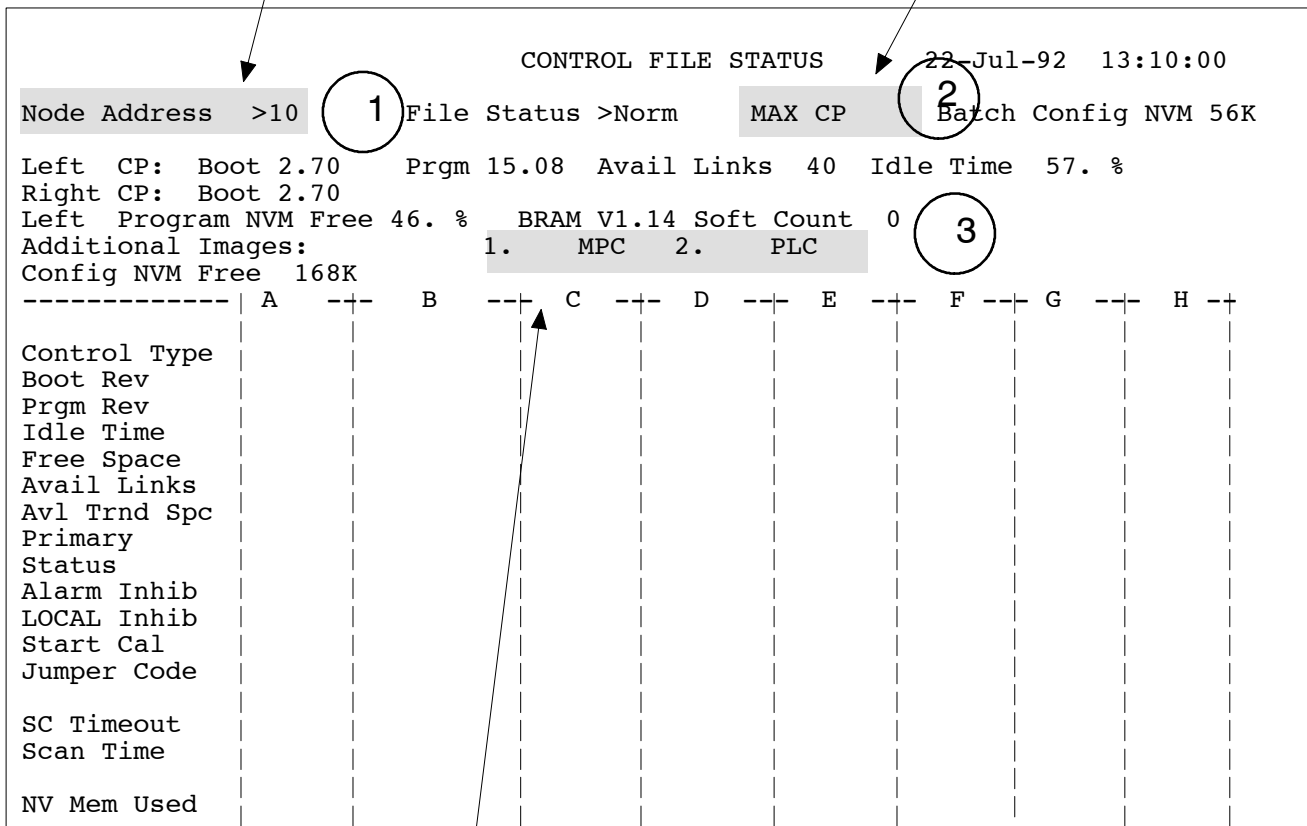
Figure 4.2. Plant Status Screen Showing Only Existing Nodes

Determining what images you need:

- _____ 1. Call up a Control File Status screen (**CFS**) for each node in the system.
 The Control File Status screen displays the program name and any additional image names in the order in which they must be loaded. Figure 4.3 shows a configured Control File Status screen with field descriptions.
- _____ 2. As a precaution, make a screen print of a Control File Status screen for each node. This information will be helpful when you are verifying that the software has been loaded correctly.
- _____ 3. Record the program name and image names. Table 4.1 gives a sample form for recording the program name and the names of additional images.

Enter the node number in this field. If all nodes are owned, cursor to this field and press the [PAGE AHEAD] key to see the screen for each node.

Field 2 contains the program name. This is the first program that must be loaded.



Field 3 contains the names of any additional images. After the program in Field 2 is loaded, these images are loaded in the order in which they are numbered.

Figure 4.3. Control File Status Screen

Date Performed _____ By _____ Witnessed _____ Approved _____

Table 4.1. Sample Form for Recording Program Names and Additional Images

Node	Program Name	Additional Images
		1. 2. 3. 4.
		1. 2. 3. 4.
		1. 2. 3. 4.
		1. 2. 3. 4.
		1. 2. 3. 4.
		1. 2. 3. 4.
		1. 2. 3. 4.

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_____ 4. Match the program and additional image names with the corresponding disk file names using Table 4.2 below. For an example of the Control File Status screen, see Figure 4.3.

Table 4.2. Controller Processor Images

Image	Included in Plant Program File	Required Controller	I/O Supported	I/O Blocks Supported
MPCA	\$\$MPCA18	MPCI	Analog Card Cage with analog FICs Contact Card Cage with contact FICs	AIB, AOB, CIB, COB, RIOB
MPCAS	\$\$MPCAS18	MPCI	Analog Card Cage with analog FICs Contact Card Cage with contact FICs Analog Card Cage with smart FICs	AIB, AOB, CIB, COB, RIOB, SIB, VIB
MPCAP	\$\$MPCAP18	MPCI	Analog Card Cage with analog FICs Contact Card Cage with contact FICs Analog Card Cage with pulse FICs	AIB, AOB, CIB, COB, PIOB, RIOB
MPCAT	\$\$MPCAT18	MPCI	Analog Card Cage with analog FICs Contact Card Cage with contact FICs Analog Card Cage with RTD/TC FICs	AIB, AOB, CIB, COB, RIOB, TIB
PLCM	\$\$PLCM18	MPCI OR PLC	Communication FlexTerm with comm cards	PLCB
SMART	\$\$SMART18	Multi-Loop Controller Processor	Multi-Loop FlexTerm with standard I/O Smart FICs	AIB, AOB, SIB
MPTUN	\$\$MPTUN18	MPCI with autotuning	Analog Card Cage with analog FICs	AIB, AOB, RIOB
MLC	\$\$CPMAX18	Multi-Loop Controller Processor	Multi-Loop FlexTerm with analog FICs	AIB, AOB
CC	\$\$CPMAX18	Contact or Multipurpose Controller Processor	Contact FlexTerm with contact FICs	CIB, COB
SSC	\$\$CPMAX18	Single-Strategy or Multi-Loop Controller Processor	Single-Strategy FlexTerm with analog and contact FICs	AIB, AOB, CIB, COB
MUX	\$\$CPMAX18	Multiplexer or Multipurpose Controller Processor	Multiplexer FlexTerm	MIB

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Loading the CP image:

- _____ 1. Call up the Disk Directory Peerway screen (**DDP** [ENTER]).
- _____ 2. Cursor to the disk that contains the ControlFile programs and press [SELECT].
- _____ 3. Cursor to the Plant Program folder and press [SELECT].
- _____ 4. Cursor to the \$\$CPMAX18 coordinator processor program and press [ENTER].
- _____ 5. Cursor to the operation field and press [NEXT OPTION] until “Disk Load Program or Script” appears and press [ENTER]. Enter the correct node range.
- _____ 6. Clear any alarms.
- _____ 7. Cursor to “Press <ENTER> to Begin” and press [ENTER].
The alarm messages “NV Mem X Opt. Controller Image Bad” and “NV Mem X Program Image Bad” may appear. Acknowledge the alarms. It will take approximately seven minutes for the program to load.
- _____ 8. Call up the Disk Event List (**DEL** [ENTER]) and verify that the Coordinator Processor programs have successfully loaded.

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Loading additional images:

In this part of the procedure you will load additional images in the ControlFile in the correct order. Call up the Disk Event List (**DEL**) after each image is loaded to verify that the images have been successfully loaded.

- _____ 1. Call up the Disk Directory PeerWay screen (**DDP** [ENTER]).
- _____ 2. Cursor to the disk that contains the ControlFile programs and press [SELECT].
- _____ 3. Cursor to the Plant Program folder and press [SELECT].
- _____ 4. Cursor to the first additional image (see Table 4.1). Press [ENTER].
- _____ 5. Cursor to the Operation field and press [NEXT OPTION] until “Disk Load Program or Script” appears and press [ENTER].
- _____ 6. Enter the correct node range.
- _____ 7. Cursor to “Press <ENTER> to Begin” and press [ENTER].
- _____ 8. Call up the Disk Event List (**DEL** [ENTER]) and verify that the Controller Processor programs have successfully loaded.
- _____ 9. Repeat steps 1 to 8 for each image.

NOTE: A script file can be used to download the \$\$CPxxxx file and any additional images. Check to be sure that the script downloads files only to the desired ControlFiles. See the *Disk and Tape Functions Manual*.

Booting the CP program and Controller images:

- _____ 1. Switch all Controller Processors to the Disable position and wait for their red LEDs to light.
- _____ 2. Switch the Nonvolatile Memory to the Disable position and wait for their red LEDs to light.
- _____ 3. If a redundant Coordinator Processor is present, switch the redundant CP to the Disable position, then switch the primary CP to the Disable position.
- _____ 4. Check the software jumpers on the Coordinator Processor Card. Coordinator Processor Card model 1984-1594-000x has adjustable jumpers HD8 and HD16 that configure the card for the program that is to be used. For the Coordinator Processor Card jumper positions, see Table 4.3. For the location of the jumpers on the Coordinator Processor Card, see the *Service Manual*.

Table 4.3. CPIO Jumper Positions

Software	HD8	HD16
\$\$CPxx Version 9	1 - 2	1 - 2
\$\$CPxx Version 11, 12, 14, 15, 16, 17, 18	2 - 3	1 - 2
\$\$CPMAXxx	2 - 3	1 - 2

NOTE: The P1 release only supports CPMAX for CPIO's; therefore, the CPIO must be jumpered for the CPMAXxx program.

- _____ 5. Switch the Nonvolatile Memory card to the Enable position.
- _____ 6. Switch the primary coordinator processor to the Enable position. Switch the redundant coordinator processor to the Enable position. This will cause the coordinator processors to boot with the new program image.
- _____ 7. Switch all of the primary Controller Processor cards to the Enable position. Switch all of the redundant Controller Processor cards to the Enable position.
- _____ 8. Call up the ControlFile Status screen (**CFS ControlFile #**). After all Coordinator Processors and Controller Processors have rebooted, this screen indicates the new version software for the Coordinator Processor Cards and all Controller Processor cards. Additional images that are correctly loaded are displayed in green.

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NOTE: Do steps 9 through 12 only if you are going from Version 9 to 18; otherwise go to the next headline *Loading FIC Software*.

9. Call up the Control Block Directory screen (**CBD:**) for each Controller Processor in the ControlFile. Check all ControlBlocks in each Controller Processor for Plant Unit entries that are nonzero (see Figure 4.4). Write down the ControlBlock tag or address and the nonzero Plant Unit number. At this point, the console cannot control or make changes to ControlBlocks with nonzero Plant Unit entries.

Write down the ControlBlock tag or address and Plant Unit number of any block with a nonzero Plant Unit number.

BLOCK DIRECTORY:=1A						23-Jul-87	11:47:12			
Block	Tag	Type	Mode	Alarm	Steps in Manual	Plant Unit	Stat	Dyn	Total	
=1A-1	TEMP-1	PID	MANUAL			0	21	24	45	
=1A-2	TEMP-2	PID	AUTO			0	21	24	45	
=1A-3	MOTOR-1	DMC	LOCAL			63	21	24	45	
=1A-4	MOTOR-2	DMC	LOCAL			0	21	24	45	

Figure 4.4. ControlBlock Directory Screen

- _____ 10. Call up the Plant Unit Configuration screen. Confirm that the “Set Range” field is set at 1,255.
- _____ 11. Call up the Discrete Faceplate screen for each ControlBlock that was recorded. Cursor to the “Plant Unit” field and change the entry to 0 (see Figure 4.5). An entry of zero indicates that there are no Plant Unit restrictions on this block.
- _____ 12. Repeat steps 10 to 11 for all ControlFiles recorded in step 9.

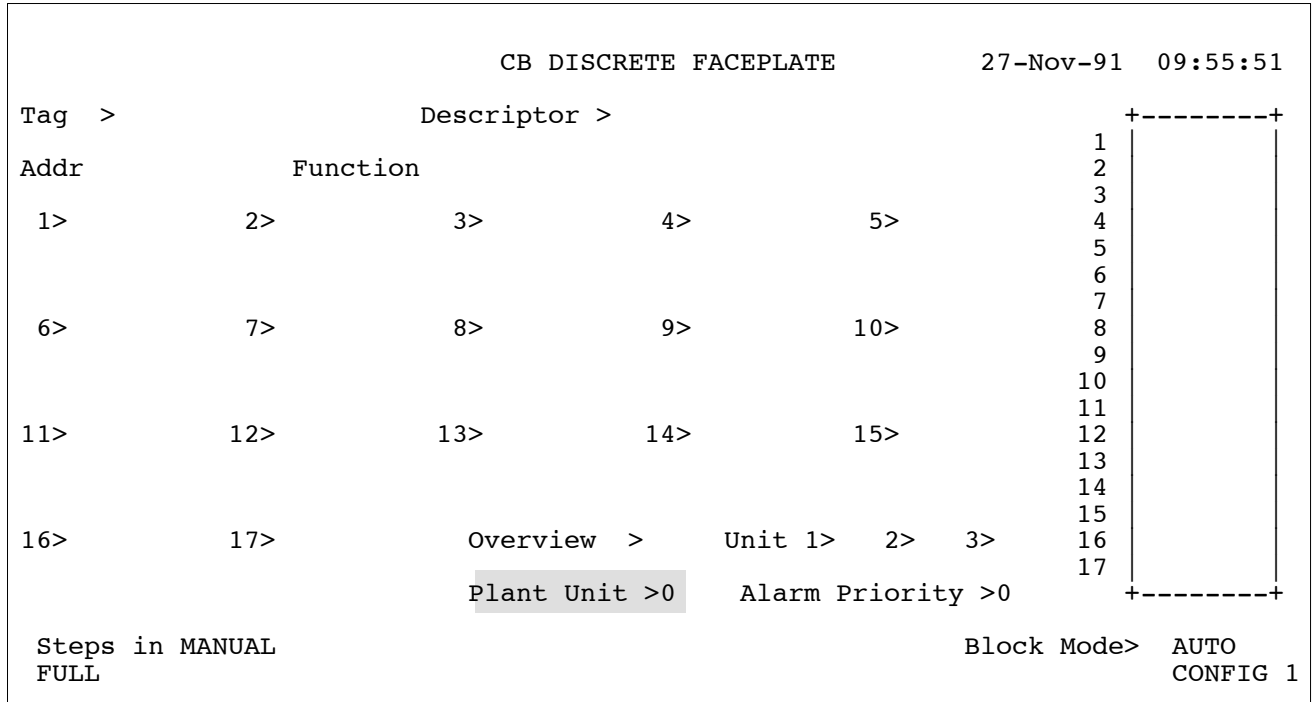


Figure 4.5. Discrete Faceplate Screen

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Loading FIC Software:

Some installations may need to update the battery RAM software in FIC cards. All users should follow the FIC loading procedures.

- _____ 1. Call up the Disk Directory PeerWay screen (**DDP** [ENTER]).
- _____ 2. Cursor to the disk that contains the ControlFile programs and press [SELECT].
- _____ 3. Cursor to the Plant Program folder and press [SELECT].
- _____ 4. Cursor to the FIC program file (\$\$FIC4_x). Press [ENTER]. The Disk Activity screen appears.
- _____ 5. Cursor to the Operation field and press [NEXT OPTION] until "Disk Load Program or Script" appears and press [ENTER].
- _____ 6. Cursor to "FIC Addr Range" and enter the correct range.
- _____ 7. Cursor to "Press <ENTER> to Begin" and press [ENTER].
- _____ 8. Download the file to all FICs. Even though the disk activity attempts to download the file to all FICs, the file is actually downloaded only to the FICs that can use it. For more information, see the *Disk and Tape Functions Manual*.

NOTE: If a MultiPurpose Controller Processor is connected to two or more analog card cages, each with Smart I/O cards that are communicating with smart transmitters, then the following steps must be performed to download the file to the FICs.

- a. Pull the Comm Connect Card to those card cages not being downloaded and download the file to the other card cage. Replace the Comm Connect Cards.
- b. Repeat step a for the other card cages.

NOTE: There is a possibility that the download will not work for all of the FICs on the first try. Look at the Disk Event List or the FIC Status Screen to see if the download worked. If it did not, follow steps 8 a and b.

- _____ 9. Call up the FIC Status screen (**FS Controller Processor address** [ENTER]). Verify that the correct FIC software version has been downloaded.

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Section 5: Updating From Character to Vector Graphics

There are two types of Process Graphics software: character graphics and vector graphics. Character graphics can be used to configure Process Graphics displays character by character. Vector graphics can be used to configure displays without being restricted to one-character pieces. Vector graphics software requires pixel graphics console hardware.

This section describes how to update console Process Graphics from character graphics to vector graphics.

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Before Loading Console Software That Supports Vector Graphics

Consider the following items before loading console software that supports vector graphics:

- You will be converting Process Graphics and symbols from character graphics to vector graphics. You may want to keep a backup copy of the Process Graphics and Process Symbols folders, in case you do not want the conversion.
- The information on the Color Configuration palette screen will not be retained when you are updating to vector graphics. Perform the following functions to save this information.
 - a. Press **CCP** to access the Color Configuration Palette screen.
 - b. Print out all color configuration screens. This includes eleven Color Configuration screens (**CCU** using the [PAGE AHEAD] key to go to each screen) and one Master Color screen (**CCP**).
- User-generated characters will be changed when updating to vector graphics. Character graphics uses an 8 x 8 pixel character. Vector graphics uses an 8 x 16 pixel character. Therefore, when the console is updated to vector graphics, the user-generated characters are changed from an 8 x 8 pixel size to an 8 x 16 pixel size.

This affects any process graphics components that contain user-generated characters, including symbols.

You should keep a hard copy of the user-generated characters that will be reconfigured. You may want to use vector graphics to create a desired object rather than reconfigure a user-generated character.

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RS3: Software Loading and Upgrade Procedure, Including BatchUpdating From Character to Vector Graphics

After Loading Console Software That Supports Vector Graphics

Consider the following items after loading console software that supports vector graphics.

1. The Master Color and Color Configuration screens must be reconfigured. Press **CCP** and then [PAGE AHEAD] to access these screens. Enter the desired colors.

NOTE: Color 16 in the “Foreground” field is always used as a background color. If color 16 was previously configured as an alternate color, you must change all Process Symbols and Process Graphics screens that used color 16.

2. After the Process Graphics folder and Process Symbols folder have been loaded to the console from the backup tape, all Process Graphics files and Process Symbol files remain in character graphics until they are converted to vector graphics.

Table 5.1 describes two ways to convert a graphics file from character graphics to vector graphics. For both Process Graphics and Process Symbol files, a file is converted when the file generation screen is called up at a console. Files can be converted at any vector graphics console that can access them.

NOTE

Once a graphic or symbol file is converted to vector graphics, it cannot be converted back to character graphics.

NOTE

If an installation has a mixture of character graphics consoles and vector graphics consoles, take extreme care to prevent character graphics files from being inadvertently converted to vector graphics files.

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3. Once a graphic file has been converted to vector graphics, the following items have occurred.
 - All FILLN, FILLS, FILLE, and FILLW character graphics objects have been converted to BOX objects with the appropriate option.
 - All GRAPHIC character graphics objects have been converted to GRAPHIC vector graphics objects. GRAPHIC vector graphics objects cannot have their shape changed, but can have other fields changed.
 - All user-generated characters have been altered. You should determine whether to reconfigure user-generated characters or to create the desired effects with vector graphics objects. For more information on using vector graphics, see the *Console Configuration Manual*.

Table 5.1. Converting a Character Graphics File to a Vector Graphics File

Action	Console Response	Description
Method 1		
Press PG , and type the graphic name.	Process graphic viewing screen appears with the error message "Illegal Configuration".	
Press [EXCH].	Process graphic generation screen appears.	When the generation screen is first accessed, the graphic file is converted to vector graphics.
Method 2		
Press PGG , and type the graphic name.	Process graphic generation screen appears.	When the generation screen is first accessed, the graphic file is converted to vector graphics.

Section 6: Upgrading ABC Batch to Performance Series Release 1 Software

You must upgrade earlier version batch software so it can be used with Performance Series Release 1 ABC Batch software. Please read this entire section before upgrading to Performance Series Release 1 ABC Batch software.

Performance Series Release 1 ABC Batch software includes two types of batch software configuration options.

- | | |
|-------------------------|--|
| Batch Run Screen | Batch software originally developed for Version 15 and earlier software versions. The Batch Run screen can specify up to three scripts for use with one batch task. |
| Batch Recipe | A batch software enhancement to the RS3™ Batch system introduced in Version 16. Recipes use a modular database to link batch scripts to graphic recipe configurations. |

WARNING

Do not change table and recipe configurations during the upgrade procedure. Recipes that have not been upgraded will not recognize the configuration changes.

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Upgrading ABC Batch in Brief

Upgrade involves the following procedures. For detailed information on these procedures, turn to the appropriate procedure descriptions in this section, in other sections in this manual, or in other manuals indicated. For example, BA: 4-4 refers to the ABC Batch Manual, Chapter 4, Section 4.

General procedures:

1. Review tips for updating Batch Software (see page 6-5).
2. Kill or wipe any Batch Recipes or tasks that are running on the node you are upgrading (see BA: 4-4).
3. If you need additional disk space, configure batch folders on the Disk Folder Configuration screen (**DC:**). Performance Series Release 1 includes an ABC Log folder and ASCII Files folder. (See “Configuring ABC Batch Folders” in this section and “Configuring the Disk” in Section 2.)
4. Configure data volumes and operator permissions on the Batch Configuration screen (BAC:) (see BA: 2-2).
5. If you do not currently use but want to use redundant volumes, define redundant volume pairs on the Batch Configuration screen (see page 6-13).
6. Upgrade the Batch Operations Table (see page 6-11), the Batch Materials Table (see page 6-12), and the Batch Units Table (see page 6-12).
7. If you want to reuse Master Recipes, upgrade the Master Recipe parameters and batch configuration (see page 6-21).
8. Upgrade your Control Recipes using the recipe procedure described in Updating Control Recipes (see page 6-23).

Version 15 to Performance Series Release 1:

1. Upgrade all scripts (see page 6-7).
2. Upgrade Batch Run screens (see page 6-9).

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Version 16 and 17 Release 1 to Performance Series Release 1:

The Parameters file and the ABC Log folder were introduced in V17R2, which changed the file architecture of ABC Batch. Two upgrades are required from V16 and V17R1 to Performance Series Release 1. You must first upgrade V16 and V17R1 to V17R2 and then upgrade V17R2 to Performance Series Release 1.

- Upgrade the Batch Operations Table to create the parameters file (see page 6-11).

Version 17 Release 2 and Performance Series Release 1:

Redundant databases on separate volumes were introduced in V18R1 to provide protection for batch data. Identical batch files are maintained on primary and backup volumes. If you intend to use redundancy, batch files on both volumes must be the same size. (For more information on these steps, see pages 6-13 to 6-19.)

1. Back up the primary and backup disk volumes to tape.
2. If necessary, configure disk folder size on the primary and backup disk volumes.
3. If you do not perform step 2, delete all ABC Batch folders on the backup volume.
4. Configure the primary and backup volumes on the Batch Configuration screen.
5. Reboot the backup volume node.
6. Verify redundancy on the primary and backup volumes.

Version 18 Release 1 to Performance Series Release 1:

1. Review General Procedures for updating ABC Batch.
2. Parse all *putmaterial* instructions in the scripts you are upgrading (see page 6-7).
3. If you do not currently use but want to use redundant volumes, define redundant volume pairs on the Batch Configuration screen (see page 6-13).

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Version 17R1 and 16 RBL Controller Software to Performance Series Release 1:

If you use RBL Controller (RBLC) software, you cannot reload RBL Controller images from the Plant Configuration Folder. You must configure new RBLC blocks and reenter all values on the RBL Continuous Faceplate and Links screen after you load new Controller Processor software.

WARNING

Make printouts of all RBL Continuous Faceplates and Links screens before you load new RBLC images. RBLC configurations are lost when the RBL Controller Processor is upgraded. Use the printout as a record of each block configuration in order to reenter configuration values.

Version 18R2 and Earlier Versions to Performance Series Release 1:

NOTE: If you are upgrading from V18R2.1 or later to V18R2.3, you do not need to perform this procedure.

WARNING

Batch Task configurations (on the Batch Run screens) are wiped when batch software is upgraded from V18R2 to V18R2.1 or later. Save the batch task configurations before you upgrade to Performance Series Release 1 and restore them after the upgrade.

For instructions on saving a batch task configuration, see DT: 2-4. For instructions on restoring batch task configurations, see DT: 2-7.

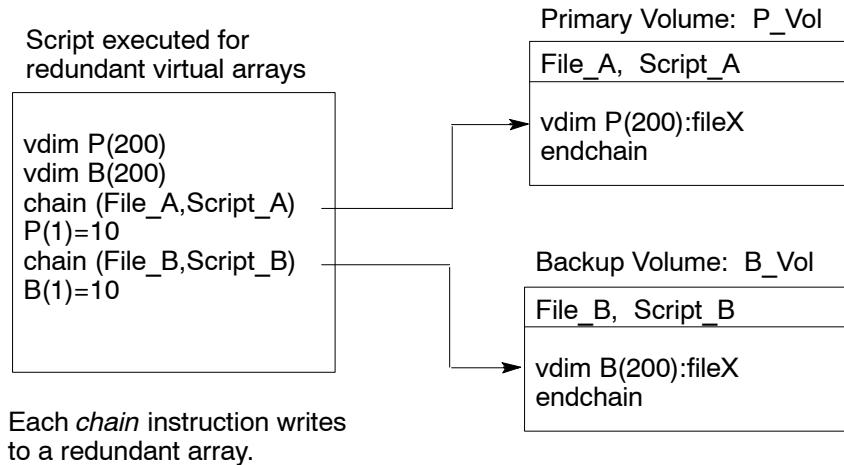
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Tips for Updating Batch Software

- Before upgrading earlier version ABC Batch tables, you should make a backup copy of each table. If the upgrade operation aborts before it has finished, tables are corrupted.
- Version 17 and Performance Series Release 1 software can reside on the same PeerWay on different nodes. If you are using both software versions on the same PeerWay, make sure that each node uses only Operations Tables that are compatible with the software version on that node.
Except when using links between controllers in different ControlFiles, do not access nodes running different versions of software than the node you are on.
- Perform software upgrades on the node on which the software is stored. Upgrades between nodes on the PeerWay are significantly slower than upgrades on the affected node.
- In Performance Series Release 1, *private vstringdim* instructions are illegal. Before you upgrade, change any *private vstringdim* instructions to shared *vstringdim* instructions.

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- Scripts can no longer use *chain* and *endchain* instructions to write to virtual array files on a backup volume, as shown in the following illustration.



If you use this configuration, replace the chain functionality with new redundant virtual array instructions (*rvdim* and *rvstringdim*). For more information on redundant virtual array instructions, see the *ABC Batch Manual*, Appendix D.

Updating Scripts

Performance Series Release 1 batch software requires that batch scripts be at Level 11.5 script software to run with the new Performance Series Release 1 CP software. For each script, the RBL File Contents screen contains a field called “Level” that shows the software level of the script. The Control File Status screen contains a field called “Prgm” that shows the CP version number.

When updating scripts, note the following:

- The *chain*, *endchain*, and *bumpid* instructions are not allowed in library and start scripts.
- New *halt* and *end* instructions automatically replace the *hold* and *stop* instructions from Version 15 and earlier CP software. When you upgrade previous level scripts with [CTRL] [W], the *hold* instruction becomes a *halt* instruction, and the *stop* instruction becomes an *end* instruction.
- If you are upgrading from earlier Version 18 software and you have scripts that use the *putmaterial* instruction, you must parse all *putmaterial* instructions. Otherwise, the *putmaterial* instructions might write incorrect values to the Batch Materials Table.

To convert all scripts automatically in an RBL file to Level 11.5:

1. Either back up RBL Files to tape or to another console before converting scripts to Level 11.5. Script lines may be deleted or altered in the conversion process. Although the probability of script corruption is low, backing up scripts protects the original scripts.

NOTE: By backing up scripts to another console, you can compare original and converted scripts on line.
2. Press [SELECT] on the first script in the RBL File Contents screen to call up the script on the Batch Script screen.
3. Press [ENTER] on the “Update” field to convert scripts in the RBL File to Level 11.5. The conversion routine starts with the first script in the RBL File and converts the remaining files one after another.

On the Batch Script screen, you will see each script appear on the screen as it is converted. After the script file is upgraded to Level 11.5, you can verify the script conversion to Level 11.5 on the RBL File Contents screen. If a script does not convert to Level 11.5, the console beeps and the script remains at the original level.

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4. If the upgrade fails because of a syntax error or an invalid instruction, the invalid script line is backlit in red. Correct the error, press [CTRL] [W], and restart the upgrade with that script.

NOTES:

- If a script fails to convert to Level 11.5, the most likely cause of the failure is a line or lines of script that will not parse in Level 11.5.
- Conversion of scripts that reside on the console disk is faster than on a remote console on the PeerWay.

To parse *putmaterial* instructions (if upgrading from earlier Version 18 software):

1. To search for *putmaterial* instructions in the script, type a search command at the command line:

/putmaterial [ENTER]

2. Position the cursor on the *putmaterial* instruction and press [CTRL] [P] to parse the instruction.
3. After you have parsed all *putmaterial* instructions in the script, press [CTRL] [W] to save the script.

Updating Batch Run Screens to Performance Series Release 1

Two changes have been made to the Batch Run screen:

- The Batch Run screen is no longer compatible with the Version 15 and earlier Batch Run screens.
- The “Backup Vol” field on the Batch Run screen has been changed to a display only field. This field is configured on the Batch Configuration screen. See “Defining Redundant Primary and Backup Volumes” later in this section.

Updating Batch Run Screens (Version 15 and Earlier Only)

In order to use Version 15 and earlier batch task configurations in Performance Series Release 1, you must upgrade them. Before updating the configuration, you must first upgrade scripts for these configurations.

The Batch Task Disk Activity screen contains an operation called “Disk Update Batch Config” that upgrades batch tasks.

CAUTION

Upgrading CP software images will wipe all batch task configurations. You must first save the batch tasks and then restore the batch tasks from an upgraded Batch Task file or reenter them manually. For instructions on saving batch tasks, see DT: 2-4. For instructions on restoring batch tasks, see DT: 2-7.

To upgrade task configurations:

1. From the Disk Directory screen, call up the Batch Task folder directory. Move the cursor to the folder and press [SELECT].
2. Move the cursor to the desired task file and press [ENTER]. The Disk Activity screen appears.
3. Move the cursor to the “Operation” field. Press [NEXT OPTION] until the following operation appears above the field:
 Disk Update Batch Config
4. Press [ENTER]. The operation appears in the field.
5. Cursor to the “Destination File” field and enter the name of the destination file for the upgraded task configuration.

NOTE: Do not enter the name of the source file in the “Destination File” field. You cannot use the same name for the source file and destination file.

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6. Move the cursor to the following field in the lower-right corner of the screen:
⇒Press <ENTER> to Begin
7. Press [ENTER] to begin the upgrade operation. The operation is complete when the operation field name reappears.

Updating Backup Volumes on the Batch Run Screen (All Versions)

When you upgrade Batch Run screens to Performance Series Release 1, any values in the "Backup Vol" field are cleared. You can no longer enter backup volumes directly on the Batch Run screen.

To reconfigure backup volumes, you must first configure primary and backup volumes as a redundant pair on the Batch Configuration screen (**BAC:**). When you enter a primary volume on the Batch Run screen, the backup volume appears automatically in the "Backup Vol" field. The "Backup Vol" field specifies the backup volume on which scripts are saved.

Prior to entering volume names ensure that the ABC Data Folder is configured with at least the minimum values of 1 File and 1 K Byte (refer to procedure on page 2-6).

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Updating the Batch Operations Table (V16 and V17 R1 Only)

The Parameters file and the ABC Log folder were introduced in V17R2, which changed the file architecture of ABC Batch. Two upgrades are required from V16 and V17R1 to Performance Series Release 1. **You must first upgrade V16 and V17R1 to V17R2 and then upgrade V17R2 to Performance Series Release 1.**

Updating the Batch Operations Table accomplishes two things:

- **Creates a parameters file in the ABC Data folder.** The parameters file was added to accommodate up to 1,000 parameters per operation. The console saves disk space by storing all parameters in a single parameters file in the ABC Data folder.

The Batch Operations Table can have only one parameters file at a time. If you want to change parameter files, you must delete the current parameters file.

- **Establishes table compatibility between versions.** Operations Tables for Version 17 Release 1 and earlier ABC Batch software versions are not compatible with the Operations Table for Performance Series Release 1 and must be upgraded. If an earlier version table has not been upgraded, it displays the yellow banner: “File with old revision needs to be updated.”

NOTE:

- You must name a parameters file before you can upgrade the Batch Operations Table.
- The parameters file is not created in the ABC Data folder until you upgrade the Batch Operations Table.
- The parameters file cannot have the same name as the Batch Operations Table.

CAUTION

If you delete the parameters file, all parameters are lost.

To upgrade the Operations Table:

1. Enter the name of the parameters file in the “Parameters File” field on the Operations Table.
2. Press [SELECT] on the “UPDATE FILE” field.

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Updating Batch Units, Operations and Materials Tables (V17R2 and V18R1)

You can use the following procedure to upgrade the Batch Units Table, Batch Operations Table, and Batch Materials Table. It also upgrades checksums for table entries that use the validation actions “Warn” or “Halt”. The checksum verifies that the script assigned to the entry matches the script in the RBL script file. If the checksums for the script and entry do not match, the recipe will fail validation.

- To upgrade the Batch Operations Table, Batch Units Table, and Batch Materials Table:**
 1. Call up a table in the ABC Data folder.
 2. Press [SELECT] on the “Create” or “Overwrite ASCII” field. An ASCII file copy of the table is saved in the ASCII Files folder.
 3. Press [SELECT] on the “Overwrite Table” field. The ASCII file copy of the table overwrites the current table and upgrades checksums for all entries.

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Defining Redundant Primary and Backup Volumes

The use of redundant volumes provides backup protection for ABC Batch files. Both the primary and backup volume contain current data, and are automatically upgraded for edit changes to scripts, tables, and recipes. This ensures that data is current and identical in both copies. If one volume is lost, the batch can continue to access data on the remaining volume.

When you define redundant volume pairs, the ABC Batch files on the primary volume are backed up to the backup volume in the pair.

NOTE:

- Carefully consider which nodes you want to use as primary and backup volumes. Reconfiguring redundant pairs can be complex. Therefore, it is preferable to configure the right pairs the first time.
- When one of the two redundant volumes is unavailable, batch recipes continue to execute, but performance is reduced. Script access and download to the Coordinator Processor will take longer.

Backing Up the Primary and Backup Volumes to Tape

When you define redundant volumes, files are removed and new files are added to the backup volume. On the primary volume, you may need more disk space to compensate for larger folder sizes. Before you define redundant volumes or configure disk folders, you must back up files to a tape in order to save them. For instructions on backing up a disk to tape, see DT: 2-5.

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Configuring Disk Folders on the Primary and Backup Volumes

If you are using redundant databases, you must configure ABC Batch folders on the backup volume so that they are the same size as folders on the primary volume. If you want to change the size of folders, configure folders on the primary volume before you configure folders on the backup volume.

ABC batch folders are configured on the Disk Folder Configuration screen (**DC:**). Since disk folder configuration clears existing folders from the disk, you must back up console folders to tape and reload them after you configure disk folders. For specific instructions on configuring the disk, see “E. Reconfiguring the disk” in Section 2.

Table 6.1 lists the required batch folders, their purpose, whether you can back up the folders to a redundant database, and the maximum number of files per folder. Redundant backup is configured on the Batch Configuration screen (**BAC:**).

NOTE: If the ABC Log folder is full, you must increase the folder size or delete the folder and contents. For guidelines on configuring folder size, see the procedure for Reconfiguring the Disk in Section 2 of this manual.

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Table 6.1. ABC Batch Folders

Folder	Description	Redundant Backup	Maximum Number of Files
ABC Data folder	Stores batch data files: Parameters Table, Batch Units Table, Batch Operations Table, Batch Materials Table, Batch Master Recipe, Batch Control Recipe.	Yes	1,000
RBL Files folder	Stores RBL scripts used to run batch recipes. Script types include UNIT, FORM, PROC, LIB, START, and EDIT.	Yes	1,000
ABC Log folder	Stores Batch Working Recipe and Batch Finished Recipe files. A Batch Working Recipe file is created each time you run a Batch Working Recipe.	Yes	1,000
Batch Task folder	Contains files of batch task configurations created on the Batch Run screen. You can use these files to restore task configurations after an upgrade or batch wipe.	No	1,000
ASCII Files folder	Stores ASCII file representations of Batch data files and scripts, as well as error files that record errors incurred during ASCII file conversion. ASCII file copies of Batch files are used to transfer Batch data in ASCII format between the RS3 and a remote personal computer or workstation or to backup recipes when changing parameter values.	No	1,000
SRU Data	Stores rvstringdim, rvdim, vstringdim, vdim.	*	1,000

* **SRU Data:** rvstringdim and rvdim files are backed up to redundant disk.
vstringdim and vdim files are only written to primary node.

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Deleting ABC Batch Folders on the Backup Volume

Deleting folders from the Disk Activity screen is necessary only if you do not configure ABC Batch folders on the Disk Folder Configuration screen (**DC:**). The procedure of configuring folders on the Disk Folder Configuration screen clears existing folders from the disk. Either way, you must clear existing ABC Batch folders from the backup volume before you can copy files from the primary to the backup volume. For information on deleting files, see *Disk and Tape Functions*, Chapter 2, Section 8.

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Configuring Primary and Backup Disk Volumes

Configuring primary and backup volumes consists of two activities:

- Configuring volumes on the Batch Configuration screen.
- Saving the Batch Configuration screen.

Configuring Volumes on the Batch Configuration Screen

On the primary volume node, reconfigure primary and backup volumes on the Batch Configuration screen. The Batch Configuration screen must be reconfigured because:

- Some configurations allowed in earlier ABC Batch versions are now illegal. Batch Configuration screens on different consoles can no longer use the same primary or backup volume.
- During upgrade to Performance Series Release 1 ABC Batch, all backup volumes for the configuration data are cleared from the Batch Configuration screen (**BAC:**). The disk volume for the console becomes the default primary volume for the recipe database. You must reenter primary and backup volumes (or just the backup if you are using the console as the primary volume for the recipe database) on the Batch Configuration screen to create redundant volume pairs for Performance Series Release 1 databases.
- The Batch Configuration screen has changed. Performance Series Release 1 ABC Batch divides data among several volumes:

Define Volume Pairs	Enables or disables redundant pairs of primary and backup volumes for the data types recipe data, recipe support data, and batch unit data.
---------------------	---

Each time you enter primary and backup volumes in the “Define Volume Pairs” field, you define a redundant volume pair. You can enable as many volume pairs as you need. However, no two volume pairs can have the same volume. To disable redundant pairs, reverse one of the entries for the redundant pair in the “Recipe Data” field.

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Recipe Data	The primary and backup volumes for storing recipes. If you do not use optional recipe support data, batch plant unit data, or report data volumes, then these data are saved in the recipe data volumes.
Recipe Support Data	Primary and backup volumes on which tables, scripts, and virtual arrays are saved. By saving tables and scripts on a different volume than recipes, you can increase available disk space for large recipes.
Batch Plant Unit Data	The primary and backup volumes on which batch plant units are configured. Batch plant units define which recipes can reference which plant units. A single volume or redundant pair of volumes for batch plant units can serve all Working Recipes running on the PeerWay.

Use of the recipe support data, batch plant unit data, and report data volumes is optional. To select these data volumes, enter a primary volume for a redundant pair. If there is a backup volume, it automatically appears in the "Backup Vol" field. If you do not specify volumes for recipe support data and batch plant unit data, these data are saved and referenced in the recipe data volumes.

In Performance Series Release 1, you can define as many volume pairs as you want. However:

- No volume in a volume pair can be a primary volume for one console and a backup volume for another console.
- No two redundant volume pairs can have the same primary or backup volume.

For more information on configuring the Batch Configuration screen, see *ABC Batch*, Chapter 2, Section 1.

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Backup of Primary Volume to Backup Volume

When you define redundant volume pairs, the ABC Batch files on the primary volume are backed up to the backup volume. During backup, a sequence of messages appear on the screen that begin with:

Wait to Complete

Do not proceed with any batch activities until this message has cleared. Otherwise, batch files on the backup volume may be corrupted during backup.

Saving the Batch Configuration Database

Before you create recipes with the batch configuration, you should save the Batch Configuration screen in order to record tag mask settings, operator permissions, and system values. If you do not save the batch configuration and the console crashes, you will lose any changes you make to the Batch Configuration screen.

To save the Batch Configuration Database:

1. Call up the Disk Directory screen for the console node you want to use for the ABC Database.
2. Cursor to the Console Configuration folder and press [SELECT]. The Console Conf Directory screen appears.
3. Cursor to the appropriate console configuration file and press [ENTER]. The Disk Activity screen appears.

NOTE: If you do not know the name of the configuration file, call up the Console Configuration screen. The file name is listed on the bottom left side of the screen.

4. Check the "Operation" field on the Disk Activity screen. If necessary, press the [NEXT OPTION] key repeatedly until the following message appears above the "Operation" field:

Disk Console Save

Press [ENTER]. The "Disk Console Save" message appears in the "Operation" field.

NOTE: Before you continue, the value of the "Config Types" field must be "ALL" for this operation.

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5. Cursor to the "Press <ENTER> to Begin" field, and press [ENTER]. While the operation is in progress this field reads:

Disk Operation in Progress

The operation is complete when the "Press <ENTER> to Begin" field reappears.

6. Verify that the Disk Console Save operation was successfully completed. Call up the Disk Event List screen by typing:

DEL [ENTER]

The Disk Event List screen appears and the entry reads:

Disk Console Save Successful

Updating the Master Recipe for Parameters and Batch Configuration

- Unless parameters are upgraded, the *run_recipe* or *begin_recipe* instructions will not start recipes.
- Before you can use the new configuration changes made on the Batch Configuration screen, you must upgrade all Master Recipes for the new batch configuration.

To upgrade Master Recipe:

1. Press [SELECT] on the “Create” or “Overwrite ASCII” field to create an ASCII file.

NOTE: If step 1 fails, repeat the step. A failure message will appear in a yellow banner at the top of the screen.

2. Press [SELECT] on the “Overwrite from ASCII” field to overwrite the Master Recipe from the ASCII file. Parameters are upgraded and parameter values are retained.
3. Save the Master Recipe.

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To upgrade a recipe for parameters:

1. Press [SELECT] on a Master Recipe in the ABC Data folder.

If you are updating from Version 16 or Version 17 Release 1 and the recipe has parameters that have not been upgraded, the following message appears:

Updating Parameter

2. Cursor to the "Print" field on the menu bar to call up the Print menu.
3. Press [SELECT] on the "Create" or "Overwrite ASCII" field to create an ASCII file.

NOTE: If step 3 fails, repeat the step. A failure message will appear in a yellow banner at the top of the screen.

4. Press [SELECT] on the "Overwrite from ASCII" field to overwrite the Master Recipe from the ASCII file. Parameters are upgraded and parameter values are retained.

NOTE: If step 4 fails, call up the ASCII error file on the Batch Script screen to view the cause of the error. Correct the cause of the error and repeat step 4. A failure message appears in a yellow banner at the top of the screen. See the procedure "Viewing ASCII Files on the Batch Script Screen" (see page 6-28).

5. Save the Master Recipe.

To upgrade Master Recipes for the Batch Configuration:

1. While the Master Recipe is open, call up the Recipe Information window.
2. Press [SELECT] on the "Update Batch Config" field to upgrade the Control Recipe for the new batch configuration.
3. Press [SELECT] on the "Reset Icon Mod Levels" field to reset icon modification levels for changes to tables and scripts.
4. Before saving the Master Recipe:
 - a. Check the configuration on the window to make sure that the Master Recipe is upgraded for the new configuration.
 - b. If parameters must be upgraded, perform the above procedure before saving the Master Recipe.

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Updating Control Recipes

In Performance Series Release 1, you can upgrade Control Recipes for all features, including the Formula Table, directly from the Control Recipe. Before upgrading Control Recipes, read the points in the following note.

NOTE:

- Upgrade the Control Recipes before you change the Batch Configuration Screen. The Control Recipe and Batch Configuration Screen must match. Otherwise, The Control Recipe will be corrupted when upgraded.
- You can upgrade Control Recipes only on the nodes on which they are configured. These nodes are specified on the Batch Configuration Screen.
- If you are upgrading from Version 17 and you want to use formulas, you must create new Control Recipes from Master Recipes.
- Because in the upgrade procedure Control Recipes are saved to ASCII files, it is possible to fill up the ASCII Files folder. The console displays a warning message if there is not enough space left in the folder. To obtain more space, you can either delete or remove to a tape ASCII files for those Control Recipes that have been upgraded. Do not attempt to reconfigure the folder size to obtain more space, because reconfiguring the folder will delete all files in the folder.

To upgrade a Control Recipe Configuration:

1. Press [SELECT] on a Control Recipe in the ABC Data folder. An error window appears.
2. Press [SELECT] on the "Create" or "Overwrite" ASCII field to save the Control Recipe as an ASCII file.
3. Press [SELECT] on the "Overwrite From ASCII" field. The upgraded Control Recipe appears on the screen.
4. Cursor to the "Save" window to call up the Save window.
5. Press [SELECT] on the "Overwrite" field to save the Control Recipe. If you do not save the Control Recipe, it will be corrupted.

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After you complete the control recipe configuration as described in the previous procedure, you can change the Batch Configuration Screen. However, you must then perform the following procedure to upgrade the changes into the Control Recipe.

To upgrade a Control Recipe for changes to the Batch Configuration screen:

1. Call up a Control Recipe.
2. Cursor to the "Info" field on the menu bar to open the Information menu.
3. Cursor to the "Config" field to open the Configuration window.
4. Press [SELECT] on the "Update Batch Config" field to upgrade the Control Recipe for the new batch configuration and close the window.
5. Cursor to the "Save" window to call up the Save window.
6. Press [SELECT] on the "Overwrite" field to save the Control Recipe.

If you add or make changes to parameters on the Batch Operations Table before you upgrade Control Recipes, parameters need to be upgraded. Perform the following procedure.

To upgrade a Control Recipe for parameters:

1. Perform the above procedure. When you save the Control Recipe, set the "Check Params" field to "no".
2. Cursor to the "Print" field on the menu bar to call up the Print window. If the "Create" or "Overwrite from ASCII" field is not displayed, exit the Control Recipe and call it up again.
3. Press [SELECT] on the "Create" or "Overwrite ASCII" field to create an ASCII file.

NOTE: If step 3 fails, repeat the step. A failure message will appear in a yellow banner at the top of the screen.

4. Press [SELECT] on the "Overwrite from ASCII" field to overwrite the Control Recipe from the ASCII file. Parameters are upgraded.

NOTE: If step 4 fails, call up the ASCII error file on the Batch Script screen to view the cause of the error. Correct the cause of the error and repeat step 4. A failure message appears in a yellow banner at the top of the screen. See the procedure "Viewing ASCII Files on the Batch Script Screen".

5. Open the "Save" Window.
6. Set the "Check Params" field to "yes" and press [SELECT] on the "Overwrite" field.

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To create a new Control Recipe from a Master Recipe:

1. Call up the Master Recipe as a Control Recipe, Type:

BACR (*Master Recipe name*) [ENTER]

or

Press [EXCHANGE] on the Master Recipe screen.

2. Save the Control Recipe. You must assign a new file name to the Control Recipe.

A Control Recipe must be validated with each unit set that will be used with the recipe. If unit sets are used, but the control recipe has not been validated with the unit set, the *run_recipe* or *begin_recipe* command will return a value stating that the control recipe has not been validated.

To validate a Control Recipe for a batch unit set:

1. Call up the Control Recipe.
2. Cursor to the "Save" window.
3. Enter a number for the batch unit set in the "Unit Set Index" field.
4. Cursor to the "Validate" field and press [SELECT]. The recipe will then be validated for that unit set index of the batch unit set.
5. Repeat steps 3 and 4 until the Control Recipe has been validated with all the unit sets that will be used with the recipe.
6. Close the Save window.
7. Cursor to the "Info" window.
8. Cursor to the "Recipe" field to display the recipe information. You can then verify the valid unit sets which are displayed in the "Valid Unit Sets:" field.

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Rebooting the Backup Volume Node

You must reboot the backup volume node or temporarily disconnect redundant volumes in order to upgrade redundant volumes.

- To reboot the backup volume node:**
 1. Open the console electronic cabinet.
 2. Turn off the main breaker switch in the electronic cabinet and then turn on the main breaker.

- To disconnect redundant volumes temporarily:**
 1. Call up the PeerWay Node screen.
PN [ENTER]
 2. Enter "AB" in the "Disconnect" field at the bottom right of the screen. The redundant volumes will stay disconnected until you leave the PeerWay Node screen.

Verifying Redundancy on the Primary and Backup Volumes

The verification procedure checks files on redundant primary and backup volumes in order to ensure that all ABC Batch files are identical. If files do not match, the primary volume backs up files to the backup volume. The verification procedure occurs automatically when you disable and enable redundancy for a volume pair.

- To verify redundant files:**
 1. Call up the Batch Configuration screen for the primary volume in the redundant pair. Type:
BAC: [ENTER]
 2. Enter the node number or volume name of either the primary volume or backup volume in the "Define Volume Pairs" field. The redundant volume pair appears in the "Define Volume Pairs" field.
 3. Enter the node number or volume name of the primary volume in the "Backup Vol:" field in order to disable redundancy.
 4. Enter the node number or volume name of the original backup volume in the "Backup Vol:" field in order to enable redundancy again. Enabling redundancy starts the redundancy verification check of the two volumes.

A display field to the right of the "Max Batch ID Length" field displays files as they are checked.

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5. After the redundancy verification check is completed, call up the Disk Event List:

DEL [ENTER]

The Disk Event List shows whether each file passed or failed redundancy verification. If a file failed, you will have to copy the file manually from the backup disk to another disk on another console and compare it with the file on the primary disk.

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Viewing ASCII Error Files on the Batch Script Screen

If errors occur during a recipe overwrite from an ASCII file, you can view the cause of the error in the ASCII Error files on the Batch Script Screen. The RS3 can only display ASCII Error files. You cannot save, edit, or print ASCII error files displayed on the Batch Script screen. Also, you can view ASCII files only on the same console node as the Batch Script screen.

NOTE: The ASCII error file can contain only one error message at a time. If more than one error condition exists, you will have to perform the overwrite from ASCII operation again for each error condition until you have corrected all error conditions.

To view an ASCII error file:

1. Call up the Batch Script screen on the same node as the ASCII Files folder. Type:

BAS: [ENTER]

A Batch Script screen appears.

2. Enter the name of the ASCII error file in the "Script" field.
3. Move the cursor to the script area and enter two blank lines. Make sure the cursor is positioned in the blank script area (before <END-OF-SCRIPT>), and press [CTRL] [M] twice. The ASCII file format appears on the screen.

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Section 7: Loading PeerWay Devices

The procedure below describes how to upgrade PeerWay devices. The procedure for each device is the same.

NOTE: Before you perform this procedure for any PeerWay device, you must first follow the steps for loading a console in Section 2.

PROCEDURE:

Preparation:

- _____ 1. As a precaution, call up the configuration screen for the PeerWay interface device to be upgraded.

Device	Screen	Command
SCI	SCI Configuration	CS <i>node number</i> [ENTER]
HIA	Configure HIA	CH <i>node number</i> [ENTER]

- _____ 2. Make a screen print of the configuration screen. This information will be helpful when you are verifying that the software was loaded correctly.

Saving your configuration:

- _____ 1. As a precaution, call up the Disk Directory PeerWay screen (**DDP** [ENTER]).
- _____ 2. Cursor to the disk volume name or location that contains the PeerWay Interface configuration, and press [SELECT].
- _____ 3. Cursor to the PeerWay Interface configuration folder, and press [SELECT].
- _____ 4. Cursor to any file, and press [ENTER].
- _____ 5. Cursor to the "Operation" field and press [NEXT OPTION] to access the Disk Peerway I/F Configuration Save operation. Press [ENTER].
- _____ 6. Cursor to the source file. Type an appropriate name and press [ENTER].
- _____ 7. Cursor to the "At Node" field. Type the node number of the PeerWay device to be saved and press [ENTER].
- _____ 8. Cursor to the "Press <ENTER> to Begin" field, and press [ENTER].

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- _____ 9. Press [EXCH] to call up the Disk Event List to verify that the PeerWay interface program was saved.

Loading the program to the device:

- _____ 1. Call up the Disk Directory PeerWay screen (**DDP** [ENTER]).
- _____ 2. Cursor to the disk volume name or location that contains the PeerWay Interface program, and press [SELECT].
- _____ 3. Cursor to the PeerWay Interface program folder, and press [SELECT].
- _____ 4. Cursor to the appropriate file name for the device, and press [ENTER].

Device	Filename
SCI	\$\$SCIPROG
HIA	\$\$HIAPROG

- _____ 5. Cursor to the “Operation” field and press [NEXT OPTION] to access the Disk Load Peerway I/F Program operation. Press [ENTER].
- _____ 6. Cursor to the “At Node” field. Type the node number of the PeerWay device to be loaded and press [ENTER].
- _____ 7. Cursor to the “Press <ENTER> to Begin” field, and press [ENTER].
- _____ 8. Press [EXCH] to call up the Disk Event List to verify that the Disk Load PeerWay program was successful.

Cycling power:

- _____ 1. Toggle the PeerWay interface device card cage power switch to off.
- _____ 2. Wait approximately 10 seconds.
- _____ 3. Toggle the card cage power switch to on. The node performs a diagnostic check.

Verifying that software was loaded correctly:

- _____ 1. Call up the configuration screen for the PeerWay interface device you upgraded.

Section 8: Loading Software to New or Cleared ControlFile

This procedure describes how to load software to a new ControlFile that does not have software (CP programs and images) loaded or a ControlFile that has had all software in the NV memory cleared.

Requirements and Preparation:

- You must own the node before you begin this procedure. Call up the Plant Status screen (PS [ENTER]). Cursor to the “Node Type Displayed” field and press [NEXT OPTION] until “Local Peerway” is displayed. On an owned node, the field to the right of the number is highlighted. If it is not highlighted, cursor to that field and press [ENTER]. This toggles between the owned and not-owned state.
- Only one CP should be enabled otherwise the system doesn’t know which CP is the primary one.
- Make sure that the NV memory board is disabled.

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Summary

For those of you who are familiar with the RS3, the following summary will serve as a checklist. For those who need more detail to perform the procedure, the detailed steps follow the summary.

- _____ 1. Load the software to the disk.
- _____ 2. Determine which CP program and images you will use.
- _____ 3. Perform a Disk Boot CP.
- _____ 4. Perform an Initialize NV Memory Config.
- _____ 5. Use Disk Load Program or Script to load the coordinator processor images to the ControlFile NV memory.
- _____ 6. Load the required images from disk.
- _____ 7. Configure and save the Configure Alarm Broadcast.
- _____ 8. Perform a wipe bubble.
- _____ 9. Load the plant configuration into the ControlFile.

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Detailed Procedure

Before you begin this procedure, load the software onto the disk.

PeerWay Booting the Coordinator Processor (CP) Board:

- _____ 1. Call up the Disk Directory PeerWay screen for your console (**DDP** [ENTER]).
- _____ 2. Cursor to the disk that has the file that you want to use and press [SELECT].
- _____ 3. Cursor to the Plant Prog Folder and press [SELECT].
- _____ 4. Cursor to the CP file that matches the type of CP (CPIV or CPIV+) and CP program that you wish to load. Press [PAGE AHEAD] if the file you want is not on the first page. Press [ENTER] to call up the Disk Activity screen.

For more information about CP program files, see DT: 1.

- _____ 5. On the Disk Activity screen cursor to the "Operation" field and press [NEXT OPTION] until "Disk Boot CP" appears. Press [ENTER].
- _____ 6. Cursor to the "Node Range" field and type in the node number of the ControlFile where the operation is to be performed. Press [ENTER].
- _____ 7. Cursor to the "Press <ENTER> to Begin" field and press [ENTER].
- _____ 8. When the operation is done, press [EXCH] to go to the Disk Event list. There should be an entry indicating successful completion of the activity such as "PeerWay Boot of CP node # was successful."

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Loading the Coordinator Processor Program to the ControlFile NV memory:

- _____ 9. Enable the NV memory.
- _____ 10. Call up the ControlFile Status screen (**CFS** [ENTER]).
- _____ 11. Perform an Initialize NV Memory Config (**IC: node #** [ENTER]). After 30 seconds or so the ControlFile Status screen should show “Program free 100% NVM”.
- _____ 12. Call up the Disk Activity screen (**DA** [ENTER]).
- _____ 13. Move the cursor to the “Operation” field and press [NEXT OPTION] until “Disk Load Program or Script” appears. Press [ENTER].
- _____ 14. Redo steps 6, 7, and 8.

Load the Controller Processor image(s) to the ControlFile:

- _____ 15. Call up the Disk Directory PeerWay screen (**DDP** [ENTER]).
- _____ 16. Cursor to the disk that has the image file that you want to use and press [SELECT].
- _____ 17. Cursor to the Plant Prog Folder and press [SELECT].
- _____ 18. Cursor to the image file that should be loaded into the additional image slot. Press [ENTER] to call up the Disk Activity screen.
- _____ 19. On the Disk Activity screen, cursor to the “Operation” field and press [NEXT OPTION] until “Disk Load Program or Script” appears. Press [ENTER].
- _____ 20. Cursor to the “Node Range” field and type in the node number of the ControlFile where the operation is to be performed.
- _____ 21. Cursor to the “Press <ENTER> to Begin” field and press [ENTER].
- _____ 22. When the operation is done, press [EXCH]. Check the Disk Event List to make sure that there is a message indicating successful completion of the activity.
- _____ 23. Press [RECALL]. Cursor to the “Plant Prog” field and press [SELECT].
- _____ 24. Redo steps 19 through 22 until each additional image has been successfully loaded.
- _____ 25. Call up the ControlFile Status screen (**CFS** [ENTER]) to confirm that all “Additional Images” have been loaded.

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Starting the Coordinator Processor(s) running:

- _____ 26. Disable the running CP with the Disable switch (and let it go red).
- _____ 27. Enable the CP switch. After the CP comes up, call up the ControlFile Status screen (**CFS** *node #* [ENTER]). When the ControlFile status information appears, the CP is running.
- _____ 28. Enable the redundant CP. Both CP fields on the ControlFile Status screen should say "Boot *rev #*."

Configuring and saving the Alarm Broadcast Configuration for the ControlFile:

- _____ 29. Call up the Configure Alarm Broadcast screen (**CAB** *node #* [ENTER]).
- _____ 30. Cursor to the "LocalPway" field and press [ENTER].
- _____ 31. Call up the Disk Directory PeerWay screen (**DDP** [ENTER]).
- _____ 32. Cursor to the disk that has the file that you want to use and press [SELECT].
- _____ 33. Cursor to the Plant Config folder and press [SELECT].
- _____ 34. Cursor to any file and press [ENTER] to get to the Disk Activity screen.
- _____ 35. Cursor to the "Source File" field and enter the new name for this file. Press [ENTER].
- _____ 36. Cursor to the "Operation" field and press [NEXT OPTION] to access the "Save Configuration Alarm Broadcast" operation. Press [ENTER].
- _____ 37. Cursor to the "Node Range" field and enter the node number. Press [ENTER].
- _____ 38. Cursor to the "Press <ENTER> to begin" field and press [ENTER].
- _____ 39. When the operation is done, press [EXCH] to see the Disk Event List. You should see the message "Save Configure Alarm Broadcast was successful."

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Performing a Wipe Bubble on each controller listed on the ControlFile Status screen:

- _____ 40. Disable the Controller Processor card.
- _____ 41. Wipe the bubble (**WB=** *Controller Processor address* [ENTER]).
- _____ 42. Go to the Cleared System Status screen (**SSC** [ENTER]) to see the alarm that is generated: BUBBLE WIPED FOR CONTROLLER=*xx*
- _____ 43. Repeat steps 40, 41, and 42 for each controller.
- _____ 44. Enable the Controllers.

Loading the Plant Configuration into the ControlFile:

- _____ 45. Call up the Disk Directory PeerWay screen (**DDP** [ENTER]).
- _____ 46. Cursor to the disk that has the configuration file that you want to use and press [SELECT].
- _____ 47. Cursor to the Plant Config Folder and press [SELECT].
- _____ 48. Cursor to the configuration file that matches with the latest configuration backup or prebuilt configuration (determined by plant). Press [ENTER] to call up the Disk Activity screen.
- _____ 49. On the Disk Activity screen, cursor to the "Operation" field and press [NEXT OPTION] until "Disk Load Cont" appears. Press [ENTER].
- _____ 50. Cursor to the "Address Range" field and type in the address range to be restored to the ControlFile (*=node #, slot #* [ENTER]).
- _____ 51. Cursor to the "Press <ENTER> to Begin" field. Press [ENTER].
- _____ 52. When the operation is done, press [EXCH] to go to the Disk Event List. You should see a message that lists the high and low addresses that were stored.
- _____ 53. Verify that the configuration loaded is correct before putting the Controllers in normal. Controller types are correct (for example MPC+) and operator-initiated actions are correct.
- _____ 54. Call up the ControlFile Status screen (**CFS** *node #* [ENTER]).
- _____ 55. Cursor to the "File Status" field. Press [NEXT OPTION] until "Norm" appears. Press [ENTER].

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Appendix A: Booting Consoles

This appendix provides instructions for booting a console from:

- Performance Series Release 1 Base System tape
- Another disk across the PeerWay

Use one of the two groups of steps when a boot operation is needed.

- If you have a **keyed console with no password**, you can boot from tape or across the PeerWay from another disk. Use either of the procedures as appropriate for your system.
- If you must boot a console with a **password system**, you can boot from tape or across the PeerWay; but you will not be able to log into the console until you copy the Console Program to that hard disk from another running console. **All disk activity must be performed from another console.**

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Booting from the Performance Series Release 1 Base System Tape

Booting the console:

- _____ 1. Insert the Performance Series Release 1 Base System Software tape into the Command Console tape drive. Slide the tape drive button to lock the tape in place.
- _____ 2. If a printer is connected to the console, switch the printer off-line.
- _____ 3. Open the console electronics cabinet. Turn off the switch to the OI Card Cage and turn it back on. The console begins to boot.
- _____ 4. When the power-up diagnostics screen (Figure A.1) appears, press the [HARDWARE ALARM] button or the "H" key on the enhanced keyboard. The screen displays:

LOADING CONSOLE PROGRAM FROM STREAMING TAPE

```

CC Console <Boot Version x.xx>.....PASSED
  Instruction Set Test      ROM Test      Four Meg. RAM Test
  Bus/Interrupt Test      Watch Dog Timer      EDAC Test      SR Test

Video Generator.....PASSED
  RAM TEST      PIT TEST      DAC TEST      COLOR TEST SYNC TEST

Keyboard.....PASSED
                                Trackball 4.0      Keyboard Interface 4.1

Power Supply..... ..PASSED
  +5  +12      A: +30      B: +30 (Note: either A or B may be backlit)

PeerWay.....PASSED
  Register Check      RAM Test #1      RAM Test #2
  Jobber-Halt      Local Loop Back

Printer.....PASSED
  RTC      Periodic Interrupt      NV RAM Test
  RTC Battery      Printer Ready (NOTE: If there is no printer, "Printer
                                Ready" is backlit - but not red.)

SCSI Board.....PASSED
  DMA Registers      RAM Test #1      RAM Test #2      SCSI Master
  
```

Figure A.1. Sample Power-up Diagnostics Screen

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Deleting the Console Program folder:

- _____ 1. With the console booted up and running, call up the Disk Directory screen (**DD: node number : drive number** [ENTER]) of the disk that you are booting.
- _____ 2. Cursor to the Console Program folder and press [ENTER].
- _____ 3. Cursor to the "Operation" field and press [NEXT OPTION] to access the "Folder Delete" operation. Press [ENTER].
- _____ 4. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. This deletes the Console Program folder.
- _____ 5. Press [EXCH] to call up the Disk Event List in order to verify that the Console Program folder has been deleted.

Restoring the ECCBOOT or SMSBOOT program from tape:

- _____ 1. Call up the Disk Directory Peerway screen (**DDP** [ENTER]). Cursor to the tape drive containing the Performance Series Release 1 Base System Software tape and press [SELECT]. The Tape Directory screen appears.
- _____ 2. Cursor to the ECCBOOT or SMSBOOT program and press [ENTER]. The Disk Activity screen appears.
- _____ 3. Cursor to the "Operation" field and press [NEXT OPTION] to access the "Disk File Restore From Tape" operation. Cursor to the "Destination Disk" field, type the name of the disk that the program should be restored to, and press [ENTER].
- _____ 4. Cursor to the "Press <ENTER> to begin" field and press [ENTER].
- _____ 5. Call up the Disk Event List (**DEL** [ENTER]). Verify that the restore operation is complete.

Cycling power:

- _____ 1. Shut down the disk (**DS: node number** [ENTER]).
- _____ 2. Wait approximately 15 seconds. If you have the alarm summary line enabled, wait until "Napping" appears on the bottom line of the screen.
- _____ 3. Toggle the card cage power switch.
- _____ 4. Wait approximately 10 seconds.
- _____ 5. Toggle the power switch on. The node performs a diagnostic check and loads the console software.

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Booting Across the PeerWay from Another Disk

Booting the console:

- _____ 1. Turn off the console to be booted.
- _____ 2. Turn on the console to be booted. When the power-up diagnostics screen (Figure A.1) appears, press the [PeerWay STATUS] button or the “P” key on the enhanced keyboard. The screen displays:

LOADING COMMAND CONSOLE PROGRAM

WAITING FOR DOWNLOAD FROM PeerWay

- _____ 3. Go to the console that is running the software version you want to copy. Call up the Plant Status screen (**PS** [ENTER]).
- _____ 4. Cursor to the “Node Type Displayed” field, type “all nodes”, and press [ENTER]. Cursor to the node number of the console to be booted and press [ENTER].
- _____ 5. Call up the Disk Directory Peerway screen (**DDP** [ENTER]). Cursor to the disk that you want to boot from, and press [SELECT]. The Disk Directory screen appears.
- _____ 6. Cursor to the Console Program folder name and press [SELECT]. The Console Program Directory screen appears.
- _____ 7. Cursor to the ECCBOOT or SMSBOOT file name and press [ENTER]. The Disk Activity screen appears.
- _____ 8. Cursor to the “Operation” field on the Disk Activity screen and press [NEXT OPTION] to access the “PeerWay Boot Console from Disk” operation, and press [ENTER]. In the “Node Range” field, type the node number of the console to be booted, and press [ENTER].
- _____ 9. Cursor to the “Press <ENTER> to begin” field and press [ENTER]. The console being booted displays these messages:

LOADING COMMAND CONSOLE PROGRAM

LOADING FROM PeerWay TRANSMISSIONS

- _____ 10. Call up the Disk Event List (**DEL** [ENTER]). If the operation was successful, the “Console PeerWay Boot was successful” entry appears.

Deleting the Console Program folder (if present):

- _____ 1. With the console booted up and running, call up the Disk Directory screen (**DD: node number : drive number** [ENTER]) of the disk that you are booting.
- _____ 2. Cursor to the Console Program folder and press [ENTER].
- _____ 3. Cursor to the "Operation" field and press [NEXT OPTION] to access the "Folder Delete" operation. Press [ENTER].
- _____ 4. Cursor to the "Press <ENTER> to begin" field and press [ENTER]. This deletes the Console Program folder.
- _____ 5. Press [EXCH] to call up the Disk Event List in order to verify that the Console Program folder has been deleted.

Copying ECCBOOT or SMSBOOT program:

- _____ 1. Now you must copy a Console Program to the console that was booted. Call up the Disk Activity screen (**DA** [ENTER]), cursor to the "Operation" field, press [NEXT OPTION] to access the "Disk Copy Boot Program" operation, and press [ENTER]. In the "Destination Disk" field, type the node number of the console that was booted and press [ENTER].
- _____ 2. To verify that the operation was successful, call up the Disk Event List (**DEL** [ENTER]).

Cycling power:

NOTE: Perform this procedure for the console that was booted.

- _____ 1. Shut down the disk (**DS: node number** [ENTER]).
- _____ 2. Wait approximately 15 seconds. If you have the alarm summary line enabled, wait until "Napping" appears on the bottom line of the screen.
- _____ 3. Toggle the power switch.
- _____ 4. Wait approximately 10 seconds.
- _____ 5. Toggle the power switch on. The node performs a diagnostic check and loads the console software.

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