

CRS MP REPLACEMENT OPERATIONAL CONSIDERATIONS AND PROCEDURES

Version 6.0 March 28, 2001

This document accompanies the CRS MP replacements to document new and modified operational workarounds and procedures dictated by the upgraded operating system and two major CRS software enhancements. The System Administration Manual (SAM) contains procedures and workarounds that may no longer apply or may need to be modified. This document is intended to update the SAM until it can be formally modified and distributed. Where appropriate, the operational procedures contained in this document will reference existing SAM procedures. The CRS Web page (<http://www.nws.noaa.gov/oso/oso1/oso12/crs.htm>) also contains workarounds and procedures that are referenced in this document.

Backup and Recovery Procedure Changes

Significant changes to the backup and recovery procedures have been made as a result of three software enhancements and one hardware modification. The following discussion lists the changes and their operational ramifications.

1. ECR 627 - Cannot Save GUI Changes. A new utility allows sites to generate ASCII database files from the latest database changes made via the CRS GUI. This utility is invoked from the **XCRS_SITE** program via the **Create ASCII file** button. Once completed, all the database configuration information is stored in a compatible .ASC format in the user-named file. Since this process is automated, a standard .ASC file format will be generated that can be easily understood by all. This presentation includes verbose comments describing every field in the file.

As an added convenience, daily snapshots of the current database configuration are taken at midnight UTC, stored in the /crs/data/SS directory, and copied to the shadow MP as well. Nine days of old daily snapshots plus the latest snapshot are retained.

The operational significance of this change is that sites no longer must manually update their ASCII database files to guarantee protection from database corruption. They may safely make all required database changes via the CRS GUI, and the new utility will generate the ASCII file for them.

2. ECR 626 - Dictionary Files Always Reset. Previously, reloading the database from the ASCII database file with the full compile option set caused the dictionary-related database files to be lost. Now, the **XCRS_SITE** option button **Do NOT CLEAR the Dictionary-related table data** prevents these tables from being reinitialized during a full site compile. This option is the default setting for all full database configurations, and we recommend that all future full compiles be performed with this option selected.

The operational significance of this change is that sites will no longer need to restore the dictionary files immediately after performing XCRS_SITE.

3. Removal of Tape Drive As A Supported Device. The tape drive that has been used for several backup and recovery procedures is not supported in the MP replacement.

The operational significance of this change is that several of the backup and recovery procedures in the SAM must be modified. Sufficient backup and recovery capabilities exist to eliminate the necessity of the tape drive.

4. ECR 688 - Shadow Files During Database Backup. Sites have long had the capability to backup their complete system configuration and database for subsequent recovery when faced with a database corruption. Previously, however, the backup set was not copied to the Shadow MP. Therefore, if, because of a OMP failure, a site were forced to switch to 5MP as the Master

and subsequently 5MP suffered a database corruption, 5MP would not contain the database set previously backed up on 0MP and the site would not be able restore the database. This possible scenario is eliminated with this change.

The operational significance of this change is that it is no longer necessary to backup the complete system configuration and database to tape. In fact, because the tape is no longer supported, the Database Backup/Restore window has been modified to remove the backup and restore to tape options.

1.0 Database Modification Backup Recommendations

Database changes no longer must be made to the database ASCII file. The user-friendly GUI may safely be used for all database modifications. The daily ASCII file will be generated once a day, and it shall be used in the event that a reload of the database is required. After making modifications to the database via the GUI, the following steps should be taken to ensure proper database backups exist:

1. Run **Create ASCII file** from the **XCRS_SITE** window. This will ensure that a current ASCII exists on the /crs/data/SS directory until the daily ASCII file is created at midnight UTC.
2. Run **Database Backup to Disk** from the **Database Backup/Restore** window, which is activated from the **Maintenance** menu. This will ensure that the current database is backed up on both 0MP and 5MP. This step also ensures that the ASCII file created in step 1 will exist on the backup directories on 0MP and 5MP.

For example, if the ASCII file is named EAX1204.ASC and the name of the backup directory is 120400, the ASCII file will be found as follows on 0MP and 5MP:

/crs/data/DB_BKUP/120400/data/SS/EAX1204.ASC

Until the next daily file is generated, this will be the current ASCII file on 5MP. Once the new daily file is generated at 00Z, the current daily file on both 0MP and 5MP can be found on

/crs/data/SS/daily.ASC

3. CRS contains redundant MPs, so the chances of both hard drives being destroyed are extremely remote. However, to ensure that sites always have the ability to load their database even if both MP hard drives are destroyed, they should regularly (once a month or when significant changes have been made to the database) copy their current ASCII daily file to a diskette. Please note the syntax change described in section 3.0 below.

2.0 Dictionary Modification Backup Recommendations

Reloading the database from the ASCII database file will no longer destroy the database dictionary files. Therefore they no longer must be restored from a backup after running **XCRS_SITE**. However, sites must still ensure that proper backup procedures are followed in case of catastrophic failure. Therefore, we recommend performing the following procedures after dictionary changes have been made through the **Word Pronunciation** window:

1. Run **Database Backup to Disk** from the **Database Backup/Restore** window, which is activated from the **Maintenance** menu. This will ensure that the database, including all dictionary files is backed up on both OMP and SMP.
2. CRS contains redundant MPs, so the chances of both hard drives being destroyed are extremely remote. However, to ensure that sites always have the ability to restore their dictionaries, even if both MP hard drives are destroyed, they should regularly (once a month or when significant changes have been made to the dictionary) copy their current dictionary files to a diskette. **We strongly urge sites to use the scripts contained in Appendix M of the SAM.**

3.0 SAM Section 2 (Bootting and System States)

Among other things, this section of the SAM contains instructions for copying the ASCII database file from the CRS hard drive directory to a diskette (step A.4 on page 2-21) and vice versa (step 2 on page 2-23). The UnixWare command for performing a dos copy of a text file has changed from **doscp** to **mcopy -t**. The commands on pages 2-21 and 2-23 respectively have changed as follows:

from CRS to diskette: **mcopy -t /crs/data/SS/MMDD.ASC a: mmdd.asc**

from diskette to CRS: **mcopy -t a:filename /crs/data/SS/filename**

4.0 SAM Section 7 (Backup and Recovery) Modifications

Because of the removal of the tape unit support and enhancements to the software, significant changes to some sections of the Backup and Recovery procedures are in order. The significant changes are discussed in the following sections.

4.1 Creation of Emergency Recovery Diskettes

For MPs, replace this procedure with Operational Procedure 5. Continue to use this procedure for FEPs.

4.2 Creation of Emergency Recovery Tapes

This section should be deleted, since there no longer is a tape unit. Recovery of the operating system on the MPs shall be done only by ordering a new hard drive from NLSC. No backup of the FEP operating system to tape was ever possible.

4.3 Recovery from Panics and Hangs

No changes are necessary.

4.4 Restoring Data from the Emergency Recovery Diskette and Tapes

You may still use the Emergency Recovery Diskette created in section 7.1, but you may no longer restore data from the emergency recovery tape. You no longer have the ability to restore your MP operating system from tape - you must order a new hard drive from NLSC.

4.5 Recovery of the MP Hard Drives

Recovery of the MP hard drive using option B (tape option) is no longer available.

4.6 Recovery of the FEP Hard Drives

No changes are necessary.

4.7 Backup and Recovery of the CRS Program

The option to backup the /crs directory to tape is no longer available. The appropriate means for recovering a corrupted /crs directory is to reinstall the CRS application from the installation CD.

4.8 Backup and Recovery of the CRS Database

The discussion on page 7-11 under Critically Important Notes About Using the ASCII Database File emphasizes the need to manually update the ASCII file to guarantee sufficient database backup capability. With the additional Create ASCII file capability in the MP Replacement software, this is no longer necessary. The ASCII file will be created automatically from the GUI settings, and it is sufficient to make all database changes **only** via the GUI.

4.9 Backup and Recovery of the Word Pronunciation Dictionary Files

The discussion on the bottom of page 7-13 under Critically Important Cautions Concerning the Use of **XCRS_SITE** emphasized the need to restore the dictionary files immediately after performing **XCRS_SITE**. With the additional capability to run **XCRS_SITE** without destroying the database dictionary files, this is no longer necessary. The old database dictionary files will

remain as they were after the new database is loaded.

The discussion on page 7-13 concerning backing up and recovering the dictionary files references the **doscp** command. In UnixWare 7.1 this command has been replaced with **mcopy**. While we still strongly recommend using the tar format for backup and recovery of the word pronunciation dictionary files to and from diskette, sites that insist on using mcopy vice doscp should follow the following procedures. The mcopy command does not function identically to doscp.

4.9.1 Procedure to Backup Dictionary Files to Diskette Using mcopy Command

1. Click on the Maintenance menu and click on Unix shell. A Unix command line prompt will appear.
2. Insert a clean dos formatted diskette in the floppy drive and type the following commands to backup the appropriate files:
 - a. **cd /crs/data/DB/tables**
 - b. **mcopy Dict*.* a:**
 - c. **cd /crs/data/CI**
 - d. **mcopy ENG.* a:**
 - e. **mdir**

The mdir command will display a list of all the files you have copied to the diskette. The list should contain the following files:

DICTION~1	DAT	SIZE	DATE	TIME	Dictionary.dat
DICTION~1	IDX	SIZE	DATE	TIME	Dictionary.idx0
DICTION~2	IDX	SIZE	DATE	TIME	Dictionary.idx1
DICTION~3	IDX	SIZE	DATE	TIME	Dictionary.idx2
DICTION~2	IDX	SIZE	DATE	TIME	DictionaryData.dat
DICTION~6	IDX	SIZE	DATE	TIME	DictionaryData.idx0
ENG	SAV	SIZE	DATE	TIME	
ENG	dtu	SIZE	DATE	TIME	ENG.dtu
ENG	tab	SIZE	DATE	TIME	ENG.tab
ENG	tmp	SIZE	DATE	TIME	ENG.tmp

3. Type the following command to exit from the Unix shell: **exit**

4.9.2 Procedure to Recover Dictionary Files from Diskette Using mcopy Command

1. Click on the Maintenance menu and click on Unix shell. A Unix command line prompt will appear.
2. Insert the correct backup diskette in the floppy drive and type the following commands to restore the dictionary files:
 - a. **cd /crs/data/DB/tables**
 - b. **mcopy a:D*.* .** (Make sure you leave a space between the 2nd asterisk and the second period.) Answer “Y” to the overwrite questions so that the files on the diskette will replace the old ones on the hard drive.
 - c. **cd /crs/data/CI**
 - d. **mcopy a:ENG*.* .** (Make sure you leave a space between the asterisk and the second period.) Answer “Y” to the overwrite questions.
 - e. **exit**

4.10 Recovery from Database Corruption

The discussion on page 7-14 under Restoring the Database emphasizes the need to manually update the ASCII file to guarantee sufficient database backup capability. With the additional Create ASCII file capability in the MP Replacement software, this is no longer necessary. The ASCII file will be created automatically from the GUI settings, and it is sufficient to make all database changes **only** via the GUI.

5.0 SAM Appendix F (CRS Time Problems)

The time problems associated with the switchover between standard time and daylight savings time that are described in Appendix F no longer apply to the MPs. The UnixWare 7.1 operating system does not cause the problems seen previously in UnixWare 2.03. However, since the FEPs are still running the older version of the operating system, they may still have the problem.

This could present a slight problem for those sites that are receiving their weather messages over the serial port (AFOS mode) rather than over the LAN (AWIPS mode). Sites that receive their messages over the LAN will get an automatic time synchronization message from AWIPS when the CRS application is started. The AWIPS time is synchronized to all processors (MPs and FEPs). However sites that are still receiving their messages over the serial port do not receive this message even if they are physically connected to AWIPS. Therefore the incorrect time on the FEPs that may occur the first time they are rebooted following a transition between standard time and daylight savings time will remain even after CRS is started. The incorrect time will not be obvious to the operator, since he only sees the MP (correct) time on the user display. The time on all the CRS processors (MPs and FEPs) is synchronized from the Master MP every 12 hours. Therefore, the incorrect FEP time will remain for at most 12 hours without manual intervention. However, in the meantime, if one or more FEPs are one hour off from the correct time, it will affect when messages will start playing and expire. Sites need to manually check the time on the

FEP after it is rebooted. If it's different from the MP, the operator should force a time synchronization from the OMP by saving the time from the Date/Time Update window. Better yet, sites should receive their messages over the LAN (AWIPS mode).

Operational Procedure 1 - Modify Current Time Settings

SAM Appendix G - CRS Time Parameters Update Procedure

The following procedure should be used to alter the time zone or to modify the daylight savings time flag. The UnixWare command **echo \$TZ** will return time zone information that looks like the following: **:EST5EDT**. This would indicate that the time zone is eastern (5 hour offset from UTC) and the daylight savings flag is set. **:EST5** would indicate the same time zone, but the daylight savings time flag is not set. The UnixWare 7.1 System Time Manager uses this same format to set the time zone. To ensure that the time parameters are properly set, you must shutdown and reboot the processor. Please use the following procedure to set the proper time zone:

I. At OMP

- 1) Click on the Maintenance menu and click on Unix shell. A Unix command line prompt will appear.
- 2) Type the following command to return OMP time zone: **echo \$TZ**
- 3) Type the following commands to return 5MP, 1FEP, and 4BKUP time zones respectively:
 - a) **rsh 5MP echo \$TZ**
 - b) **rsh 1FEP echo \$TZ**
 - c) **rsh 4BKUP echo \$TZ**

If you have a 2FEP and/or 3FEP, repeat this command for them as well.

Perform the following steps if you need to change the time zone on the respective processors:

II. OMP and/or 5MP Time Zone Modification

- 1) Click on the System menu and click on Stop System to stop the CRS application. Wait until all the icons on the CRS System Status menu turn red.
- 2) Enter the following commands from the Unix shell prompt to start the System Time Manager:
 - a) **su root and enter password**
 - b) **scoadmin System T**

This will display a window entitled **Time on 0MP** with a time using the following format:

Tue Oct 31 11:19:54 EST 2000

Three icons are displayed left to right across the top of the window as follows:

Icon 1 - Manage time on another host

Icon 2 - Modify current time settings...

Icon 3 (world map) - Modify the current time zone settings

3) Click on the world map to modify the time zone.

4) Click on the down arrow to see a list of available time zone settings. Select the proper time zone and press OK button.

5) An information dialogue is returned indicating that you modified the time zone and what the new one is. Click the OK button.

6) Continue with steps 7 through 10 if the time zone on 5MP must be changed. Otherwise skip to step 11.

7) Click on the leftmost icon to manage time on another host.

8) The **Open Host** dialogue box is displayed. Enter host name **5MP** and click the OK button.

9) The **Time on 5MP** window is displayed. Change time zone on 5MP as in steps 3 through 5 above.

10) Click on Host, click on Exit to exit the Time Manager on 5MP.

11) Click on Host, click on Exit to exit the Time Manager on 0MP.

12) Shutdown 0MP and /or 5MP as follows:

a) 5MP 1st if necessary: **rsh 5MP /sbin/shutdown -y -i0 -g0**

b) then 0MP if necessary: **cd /**

/sbin/shutdown -y -i0 -g0

13) Wait for system(s) to shutdown, then press any key to reboot.

III. FEP Time Zone Modification

- 1) Set the FEP Shared Monitor Switch to 1FEP.
- 2) Login as root by typing **root and password**. The 1FEP{root} prompt is displayed.
- 3) Type the following command: **su sysadm**. The extra admin window is displayed.
- 4) At the extra admin window do the following:
 - a) Select system setup by moving the cursor with the arrow keys and hit enter. The system setup window is displayed in red border.
 - b) Select the date/time. The date/time window is displayed red border.
 - c) Select set. The current system date/time is displayed. Update the time zone and/or daylight savings time flag as appropriate. Answering yes to the daylight savings time question means that the time will switch to daylight savings time on the proper date. It doesn't mean that it is necessarily daylight savings time at the current time.
 - d) Press F3 to save the updated information. A window is displayed with updated date/time values.
 - e) Press F7 to display the CMD-MENU.
 - f) Select exit at the CMD-MENU to exit the extra admin window and return to the 1FEP{root} prompt.
- 5) Shutdown 1FEP with the following commands: **cd /
/sbin/shutdown -y -i0 -g0**
- 6) Wait for system to shutdown, then press any key to reboot.
- 7) Repeat steps 1 through 6 for the other FEPs as appropriate.

IV. Start the CRS Application

- 1) Login as admin by typing admin and the password from the CRS GUI login screen. The CRS main menu is displayed with an error message indicating that CRS is not operational. Click on OK to continue.
- 2) Click on the System menu and click on Start System to start the CRS application.

Operational Procedure 2 - Update Netmask Value

CRS Web Page - Voice Recorded Weather Messages In Broadcast Cycle But Not Being Transmitted, May 2000 (Listed Under Warnings After Clicking On Tips & Troubleshooting)

The following procedure should be used to correct the netmask setting if it is incorrect. If it is incorrect, it will manifest itself with the inability to manually record weather messages. If you are unsure if the netmask is correct follow the first few steps to check its value.

I. At OMP

1) Click on the Maintenance menu and click on Unix shell. A Unix command line prompt will appear.

2) Type the following command: **ifconfig -a** The display will be as follows:

lo0: flags with four lines

net0: flags with four lines.

Look at the second line in net0 for the flag netmask; it should be ffff0000. If it isn't, the OMP Change Netmask Procedure below must be performed.

3) Type the following to check the netmask on 5MP:

- a) **rsh 5MP**
- b) **ifconfig -a**

If the netmask is incorrect, perform the 5MP Change Netmask Procedure below.

II. OMP Change Netmask Procedure

1) Click on the System menu and click on Stop System to stop the CRS application. Wait until all the icons on the CRS System Status menu turn red.

2) Enter the following commands from the Unix shell prompt to start the Network Configuration Manager:

- a) **su root and enter password**
- b) **scoadmin Network Configuration Manager**

3) The Network Configuration Manager window is displayed. Click on Protocol.

4) Click on Modify Protocol Configuration which will cause a window of Internet protocol values to be displayed. NETMASK has four boxes, and the correct values for each from left to right are the following:

255 255 0 0

5) Click on the appropriate box whose value needs to be changed. The box will become highlighted in black. Make the change for each of the boxes as necessary, and when completed click on OK.

6) The system will return to tell you the following product modified: TCPIP

7) Click on OK, click on Hardware, then click on exit.

8) The Unix shell prompt is returned. If 5MP netmask needs to be changed, perform 5MP Change Netmask Procedure. Otherwise skip to Shutdown 0MP and/or 5MP Procedure.

III. 5MP Change Netmask Procedure

1) If CRS was not stopped from the previous procedure, stop it by clicking on the System menu and then clicking on Stop System. Wait until all the icons on the CRS System Status menu turn red.

2) Enter the following commands from the Unix shell prompt to start the Network Configuration Manager:

a) **rsh 5MP**

b) make sure you are root user - if necessary, type **su root and enter password**

c) **scoadmin Network Configuration Manager**

3) The Network Configuration Manager menu is displayed. Scroll down to TCPIP and hit Tab key, which will jump you up to the main menu bar. The following three options are displayed: **Hardware Protocol View**

4) With right arrow key, select Protocol and hit enter.

5) Scroll down and highlight the Modify Protocol Configuration option and hit enter. This will bring up a screen of Internet protocol values.

6) Tab down to the four netmask octets and make the appropriate changes. The correct values follow:

255 255 0 0

- 7) Use the tab key to tab through the remaining entries until you highlight o.k. and hit enter.
- 8) The system will return to tell you the following product modified: TCPIP
- 9) Select o.k. and hit enter. This returns you to the main menu.
- 10) Use the left arrow key to select hardware and hit enter.
- 11) The Unix shell prompt for 5MP is returned. Type **exit** as many times as necessary until the 0MP shell prompt is returned.
- 12) Follow the procedure below to reboot 5MP. Also reboot 0MP if netmask changes were made there as well.

IV. Shutdown 0MP and/or 5MP Procedure

- 1) Shutdown 0MP and/or 5MP as follows:
 - a) make sure you are root user: if necessary type **su root and enter password**
 - b) 5MP 1st if necessary: **rsh 5MP /sbin/shutdown -y -i0 -g0**
 - c) then 0MP if necessary: **cd /
/sbin/shutdown -y -i0 -g0**
- 2) Wait for system(s) to shutdown, then press any key to reboot.

V. Start the CRS Application

- 1) Login as admin by typing admin and the password from the CRS GUI login screen. The CRS main menu is displayed with an error message indicating that CRS is not operational. Click on ok to continue.
- 2) Click on the System menu and click on Start System to start the CRS application.

Operational Procedure 3 - Restore CRS GUI Display To Master And/Or Shadow Console

CRS Web Page - CRS X Display/Login Screen Recovery Procedure, August 1999 (Listed Under Workarounds After Clicking On Tips & Troubleshooting And Under Procedures After Clicking On Operations)

The following procedure should be used to restore the CRS GUI display to the Master and/or Shadow console. The operator should first determine if the CRS application is continuing to run and the only problem is the failure to have a proper display on either or both consoles. If it is determined that the CRS application is not running, this procedure should not be followed.

I. No shadow display.

A. On master console, run Nudge XDM from the CRS Utilities menu.

B. If the display does not return, run the following procedure:

1) Click on the Maintenance menu and click on Unix shell. A Unix command line prompt will appear.

2) Type the following commands to login to 5MP and start the xserver:

a) **rsh 5MP**

b) **su root and enter password**

c) **/bin/sh /etc/rc2.d/S99start_xserver stop**

d) **/bin/sh /etc/rc2.d/S99start_xserver start**

e) **exit**

f) **exit**

g) **exit**

C. If the display does not return, run the following procedure to do an in-place Main Processor (MP) switch. That is you will run the MP switch procedure, but keep the same Master and Shadow processors. This will reset the X Display Manager process. **Please note that this procedure will stop and restart the CRS application on the MP, but will not affect the running of CRS on the FEPs, i.e. messages will continue to be transmitted.**

1) Click on the Maintenance menu and click on Main Processor Switch. The Main Processor Switch window will be displayed.

2) Verify that the 5MP and yes radio buttons are selected. Click on the 0MP radio button to keep the master on 0MP.

3) Click the Apply hotkey in the hotkey menu bar. The Wait for Autoswitch dialogue and the Message Monitor window will then be displayed to confirm the switch request. At this point, you will have 15 seconds to cancel the request. Once the timer expires, the request to switch the MPs will subsequently be executed, the screens on both MPs will momentarily go blank, and then status messages will be displayed on both MPS.

4) When the CRS Login screens appear on the consoles, log into CRS from both consoles. After a short time both status screens should indicate that CRS is fully operational.

II. No master display.

A. On shadow console, run Nudge XDM from the CRS Utilities menu.

B. If the display does not return, run the following procedure:

1) On master console, hit enter. If no login prompt is displayed, type **exit** until the login prompt is displayed.

2) Type the following commands to start the xserver:

a) **su root and enter password**

b) **/bin/sh /etc/rc2.d/S99xdm stop**

c) **/bin/sh /etc/rc2.d/S99xdm start**

C. If the display does not return, perform procedure IC above to run an in-place MP switch.

III. No Master and No Shadow Display - Perform procedure IIB above.

Operational Procedure 4 - Enable Print Capability on 5MP (New Procedure)

As part of the CRS installation procedure, the printer on the Master MP (normally 0MP) is set up for future print requests. However, the installation procedure is unable to do the same for the Shadow MP (normally 5MP). As a result, sites will be unable to successfully print with 5MP as Master the first time they try to do so after the installation. They will have the same problem if they replace the 5MP hard drive. The following procedures should be followed to allow for printing when 5MP is the Master.

1. Click on the Maintenance menu and click on Main Processor Switch. The Main Processor Switch window will be displayed.
2. Verify that the 5MP and yes radio buttons are selected. Click on the Apply hotkey in the hotkey menu bar. (This will cause 5MP to become the Master and 0MP the Shadow.) The Wait for Autoswitch dialogue and the Message Monitor window will then be displayed to confirm the switch request. At this point, you will have 15 seconds to cancel the request. Once the timer expires, the request to switch the MPs will subsequently be executed, the screens on both MPs will momentarily go blank, and then status messages will be displayed on both MPs.
3. When the CRS Login screens appear on the consoles, log into CRS from both consoles. After a short time both status screens should indicate that CRS is fully operational.
4. Click on the Maintenance menu and click on Unix shell. A Unix command line prompt will appear.
5. Type: **su root and enter password** to login as root.
6. Type: **/usr/X/bin/xprmon** to start the print monitor display program
7. If the title bar of the print monitor does not display "**lx300**" (it will probably display "**lmxnul**"), click on the **Printer** button.
8. Select **Enable Queue** (or **Disable Queue** then **Enable Queue**). Repeat this step as many times as necessary until the print monitor titlebar indicates that the lx300 printer is ready with the following display:

Print Monitor - lx300 [Ready **]**
9. Click **Dismiss** to exit the Print Monitor program.
10. Type: **exit** twice to close Unix shell.

Operational Procedure 5 - Create MP Emergency Recovery Diskettes

SAM Section 7.1 Creation of Emergency Recovery Diskettes

NOTE: ALL sites *SHALL* create Emergency Recovery Diskettes.

NOTE: This procedure pertains to CRS Build 7.0 and above.

Create MP Emergency Recovery Diskettes

1. Locate and label a 1.44 Mbyte floppy as **0MP Emergency Start Disc #1 (UnixWare 7.1)**.
2. Locate and label a 1.44 Mbyte floppy as **0MP Emergency Start Disc #2 (UnixWare 7.1)**.
3. Locate and label a 1.44 Mbyte floppy as **5MP Emergency Start Disc #1 (UnixWare 7.1)**.
4. Locate and label a 1.44 Mbyte floppy as **5MP Emergency Start Disc #2 (UnixWare 7.1)**.
5. Stop the CRS application, exit to the Main Login screen and login to the **0MP** system as the “**root**” user.
6. Click the **KDE Desktop Application Starter** icon (the big “*K Wheel*” icon) in the lower left part of the *KDE Desktop panel*.
7. Click on the **Utilities -> Terminal** pop-up menu selection. Note that you also may start the *Terminal Emulation* by clicking on the **Terminal** icon on the *KDE Desktop panel* (the “*double Terminal*” icon).
8. Insert the **0MP Emergency Start Disc #1 (UnixWare 7.1)** disc in the **0MP** floppy drive.
9. At the command prompt, format the diskette using the following command string:

0MP{root} format -v /dev/rdisk/f03ht

10. Repeat Step 9 for the three (3) remaining floppy discs.
11. Remove any floppy discs from the **0MP** floppy drive.
12. On **5MP** at the security screen, press **Ctrl-Alt-Esc** simultaneously. Note that it may be necessary to press the **<Enter>** key to get the login prompt. Login to the **5MP** system as the **root** user.
13. At the command prompt execute the following command string:

```
5MP{root} /sbin/shutdown -y -g0 -iS
```

14. A number of messages will scroll by on the screen. Wait for the **5MP** to display the following message:

Type Ctrl-d to proceed with normal startup, (or give root password for a single user mode)

15. Enter the root password and wait for the following message and root command prompt:

```
Entering Single User Mode  
5MP{root}
```

16. On the **5MP node**, place the **5MP Emergency Start Disc #1 (UnixWare 7.1)** disc in the **5MP** floppy disc drive. At the command prompt execute the following command string:

```
5MP{root} /sbin/emergency_disk -d /var/tmp diskette1
```

If prompted for a disc, make sure the **5MP Emergency Start Disc #1 (UnixWare 7.1)** disc is in the **5MP** floppy disc drive, then press the **<Enter>** key.

When prompted “**Please enter the medium to use for emergency_rec (e.g. ctape1)**”, press the **<Enter>** key.

When prompted, insert the **5MP Emergency Start Disc #2 (UnixWare 7.1)** disc in the **5MP** floppy disc drive, then press the **<Enter>** key. **DO NOT SELECT ANY OTHER MENU CHOICES.**

Wait for the procedure to complete and the command prompt to return. **DO NOT REBOOT AT THIS TIME.**

17. On **OMP**, click the **KDE Desktop Application Starter** icon (the big “*K Wheel*” icon) in the lower left part of the *KDE Desktop panel* and select **Logout**. The *Session Prepared for Logout* window is displayed. Click on **Logout**.
18. On **OMP** at the security screen, press **Ctrl-Alt-Esc** simultaneously. Note that it may be necessary to press the <Enter> key to get the login prompt. Login to the **OMP** system as the **root** user.
19. At the command prompt execute the following command string:

```
OMP{root} /sbin/shutdown -y -g0 -iS
```

20. A number of messages will scroll by on the screen. Wait for the **OMP** to display the following message:

```
Type Ctrl-d to proceed with normal startup, (or give root password for a single user mode)
```

21. Enter the root password and wait for the following message and root command prompt:

```
Entering Single User Mode  
OMP{root}
```

22. On the **OMP node**, place the **OMP Emergency Start Disc #1 (UnixWare 7.1)** disc in the **OMP** floppy disc drive. At the command prompt execute the following command string:

```
OMP{root} /sbin/emergency_disk -d /var/tmp diskette1
```

If prompted for a disc, make sure the **OMP Emergency Start Disc #1 (UnixWare 7.1)** disc is in the **OMP** floppy disc drive, then press the <Enter> key.

When prompted “**Please enter the medium to use for emergency_rec (e.g. ctape1)**”, press the <Enter> key.

When prompted, insert the **OMP Emergency Start Disc #2 (UnixWare 7.1)** disc in the **OMP** floppy disc drive, then press the <Enter> key. **DO NOT SELECT ANY OTHER MENU CHOICES.**

Wait for the procedure to complete and the command prompt to return. **DO NOT REBOOT AT THIS TIME.**

Test 5MP Emergency Recovery Diskettes

1. On the **5MP node** insert the **5MP Emergency Start Disc #1 (UnixWare 7.1)** disc in the **5MP** floppy disc drive, then type the following command string:

```
5MP{root} shutdown -y -g0 -i0
```

Wait for the message:

System has halted and may be powered off (Press any key to reboot)

Press the <Enter> key.

When prompted, insert the **5MP Emergency Start Disc #2 (UnixWare 7.1)** disc in the **5MP** floppy disc drive, then press the <Enter> key.

Wait for the “*The Hard Disc is Sane*” message, then press the <Enter> key.

2. Select *Mount File Systems* and press <Enter>.
3. Select *Access UnixWare Shell* and press <Enter>.
4. At the “**root**” prompt, type the following command and press <Enter>.

```
# ls -l /mnt
```
6. Verify a basic directory structure is present on the 5MP node.
7. At the “**root**” prompt, type “**exit**” and press <Enter>.
8. Remove the **5MP Emergency Start Disc #2 (UnixWare 7.1)** disc from the **5MP** floppy disc drive.
9. **WARNING - DO NOT REBOOT 5MP AT THIS TIME..**

Test OMP Emergency Recovery Diskettes

1. On the **OMP node** insert the **OMP Emergency Start Disc #1 (UnixWare 7.1)** disc in the **OMP** floppy disc drive, then type the following command string:

```
OMP{root} shutdown -y -g0 -i0
```

Wait for the message:

System has halted and may be powered off (Press any key to reboot)

Press the <Enter> key.

When prompted, insert the **OMP Emergency Start Disc #2 (UnixWare 7.1)** disc in the **OMP** floppy disc drive, then press the <Enter> key.

Wait for the “*The Hard Disc is Sane*” message, then press the <Enter> key.

2. Select *Mount File Systems* and press <Enter>.
3. Select *Access UnixWare Shell* and press <Enter>.
4. At the “**root**” prompt, type the following command and press <Enter>.

```
# ls -l /mnt
```
5. Verify a basic directory structure is present on the MP node.
6. At the “**root**” prompt, type “**exit**” and press <Enter>.
7. Remove the **OMP Emergency Start Disc #2 (UnixWare 7.1)** disc from the **OMP** floppy disc drive.
8. On **OMP** select *Reboot* and press <Enter>.
9. On **5MP** select *Reboot* and press <Enter>.
10. Wait for the **CRS Login Screen** to appear on both **OMP** and **5MP**.

Operational Procedure 6 - CRS Software Installation Procedure

SAM Appendix C - CRS Build Installation Procedure

Installation from CD-ROM.

1. If the CRS application is running, terminate it by selecting the **Stop System** option from the CRS Main Menu item, **System**, at one of the Main Processor (MP) consoles, wait until CRS is “down” (red down arrow indicator in the **Status Monitor** window), then select the **Exit to Unix** option from the **System** menu item. The CRS login menu will be displayed.
2. Ensure that all processors (MPs and FEPs) are powered on and on-line (accessible over the local area network).
3. From the CRS login menu, login as root, then click the *KDE Desktop “Application Starter”* icon (the big “*K Wheel*” icon) in the lower left part of the *KDE Desktop panel*.
4. Click on the “*SCO Control Center*” popup menu selection. Note that you also may start the “*SCO Control Center*” by clicking on the “*SCO Admin*” icon on the *KDE Desktop panel* (the “*Swiss Army Knife*” icon).
5. Select and double-click on the “*Software_Management*” menu selection
6. Double-click the “*Applications Installer*” menu selection.
7. Insert the CD-ROM into the CD drive of the selected installation main processor, then select CD-ROM_1 from the "pop-up" menu following the "Install from:" prompt in the upper half of the Application Installer window pane.
8. After the CRS application package icons (crsopsais, crsopsfpm and crsopsmpm) are displayed immediately below the “Install from” prompt, select crsopsais, and click on Install (Note: crsopsfpm and crsopsmpm can only be installed indirectly through crsopsais).
9. Respond to the prompts displayed in the Add Application: *crsopsais* and *auto_install* terminal windows.

Note 1:

The **Add Application: crsopsais** window and the **auto_install** window are used to display the installation activity log as well as the prompts to the installation operator. The log information and the prompt sequences vary depending on the responses to the prompts.

Installation Prompts

Note 2:

The installation prompts that follow assume a typical configuration (OMP, 5MP, 1FEP, 4BKUP).

Note 3:

The prompt sequence begins with **prompt p1**. Unless otherwise indicated prompts occur in sequence (**p1 ... p11**).

p1 *Build [version] installation options*

- a) all processors (OMP 5MP 1FEP 4BKUP | 5MP 0MP 1FEP 4BKUP)
- f) front-end processors (1FEP 4BKUP)
- m) main processors (OMP 5MP | 5MP 0MP)
- s) specific processor

Make sure that installation default option a is selected to load the software on all processors.

p2 *Clean out (reset) log files? (default: y)*

An affirmative (y) response to this prompt will result in the resetting of all the CRS application software log files on all the processors in the configuration. A negative response (n) will result in no changes to the CRS log files on any of the processors. **It is normally good practice to clean the log files when a new software release is installed.**

p3 *Change CRS system date and time? (default: n)*

An affirmative (y) response to this prompt will result in a sequence of additional prompts beginning with **p4**. The entered date will be used to change the date and time on all the processors. A negative response (n) will result in no changes to the current system date and time (displayed prior to the prompt), and the next prompt will be **p9**.

p4 *Enter year (e.g., 1997):*

p5 *Enter month (e.g., 01<=mm<=12):*

p6 *Enter day (e.g., 01<=dd<=31):*

p7 *Enter hour (e.g., 00<=HH<23):*

p8 *Enter minute (e.g., 00=MM<=59):*

Note 3 Continued:

p9 *Build [version] will be installed on the following processors:
[OMP | 5MP | 1FEP | 4BKUP ...]
with the following options:*

*Detected configuration is typical
[CRS master (and X-window client) [will be | remains] OMP | 5MP]
[OMP | 5MP will be shutdown at the end of installation]
[CRS shadow (and X-window server) [will be | remains] OMP | 5MP]
[OMP | 5MP will be shutdown at the end of installation]
[CRS log files will be cleaned (reset) on: [5MP OMP 1FEP 4BKUP]]*

Proceed with Build [version] installation? (default: y)

An affirmative (y) response to this prompt will result in the installation of the CRS application software with the appropriate constraints indicated. A negative (n) response results in the display of a **Message** dialog window with the text "User does not have permission to install packages pkgadd". OK terminates the installation.

If it is determined that the IP addresses in /etc/inet/hosts (preinstalled by the CRS software contractor at the factory) are not correct, then prompt **p10** is displayed.

p10 *Enter your CRS site ID (e.g., DLH or NRC1):*

Enter the correct local site ID. Entry of a valid site ID results in a comparison of a set of expected IP addresses and the actual IP addresses in /etc/inet/hosts on all accessible (online) CRS processors. Differences between expected and actual IP addresses are displayed and logged. Entry of no response or an invalid site ID results in prompt **p11**.

p11 *Display a list of all valid CRS site IDs? (default: y)*

An affirmative (y) response to this prompt will result in the display of a list of all valid CRS site IDs and associated site locations (city, state, region). The list is presented in "pages" via the UNIX utility "pg". The RETURN key or '+' displays the next page, the '-' key displays the previous page, and 'q' results in the display of prompt **p10**. A negative (n) response results in the display of prompt **p10**.

Note 4:

The master and shadow states that exist on the main processors at the time of installation are preserved if possible; otherwise, the installation scripts determine new main processor states based on the old main processor states, whether software is being installed on them, and whether they are online.

Post-Installation Caveats and Conventions

Note 5:

Software is installed to CRS processors in a predefined sequence (MPs, then FEPs). When the software has successfully been installed on a processor other than the installation MP, that processor is automatically shut down (and restarted). Because the front-end processors share a single console (monitor and keyboard), **only one of the FEPS** (the one to which the console is physically connected through the switch box) **starts itself automatically** after the shutdown. The startup sequence on a FEP that is not connected to a keyboard pauses while waiting for an F1 key to be struck at the keyboard. To complete the startup sequence for a FEP that is “stuck” waiting for the F1 key to be struck, **connect (via the switch box) the keyboard to the FEP, verify that it is waiting (prompt message on the monitor), and strike the F1 key.**

While the installation is in progress many messages are displayed in the **auto_install** log window on the console. Messages are of three types - ERROR, INFO and WARNING. Most of these messages are also written to the installation log file (/crs/install.log). All ERROR and WARNING messages from the installation log file are displayed in the **auto_install** log window at the completion of installation in accordance with the following template:

Installation ERRORS

[ERROR messages from the installation log file | None]

[Refer to the installation procedures for further assistance]

Installation WARNINGS

[WARNING messages from the installation log file | None]

Note 5 Continued:

[Refer to the installation procedures for further assistance]

NOTE: Shutting down the installation MP [0MP | 5MP] is an option. It is not necessary to shut down after software has been installed on a FEP. A shut down is **RECOMMENDED** after CRS software has been installed on an MP to ensure that the installation MP [0MP | 5MP] and the other MP [0MP | 5MP] are functionally synchronized as CRS master and CRS shadow.

Continue [0MP | 5MP] shutdown? (Default: y)

If there are no **ERROR** or **WARNING** messages (i.e., “None”), the reference to the installation procedures is not displayed. The **auto_install** log window is displayed until the operator responds to the prompt. An affirmative response results in the automatic shut down and restart of the installation MP. A negative response results in the disappearance of the prompt and the **auto_install** log window unless the state (master or shadow) of the installation main processor has been changed, in which case the prompt “shutting down to synchronize MP functionality” informs the operator that the installation MP will be shutdown regardless (shutdown occurs when the operator strikes any key).

ERROR and WARNING messages must be resolved before attempting to start the system!

Logging and the installation log file

Note 6:

Results of the installation are logged to the **auto_install** window and to a log file (**/crs/install.log**). Logged messages are of three types - ERROR, INFO and WARNING. INFO messages can be ignored. ERROR and WARNING messages are summarized in the **auto_install** window at the completion of the installation, and they must be resolved before the system is started.

All logged messages have the following format:

date: script: type: [...] on PROC

where

date = DDD MMM dd hh:mm:ss LLL YYYY

DDD day of week abbreviation (e.g., Thu = Thursday)

MMM month of year abbreviation (e.g., Sep=September)

dd numeric day of month (1<dd<31)

hh hour of the day in military format (00<hh<23)

mm minute of the hour (00<mm<59)

ss second of the minute (00<ss<59)

LLL local standard time (e.g., PDT = Pacific Daylight Time)

YYYY calendar year

script = name of shell script in which message is generated

type = ERROR | INFO | WARNING

[...] = text describing a condition of the type indicated

PROC = processor (e.g., 0MP, 5MP, 3FEP, 4BKUP) on which condition described by the text occurred

