900 Series HP 3000 Computer Systems

AutoRestart/iX
User's Guide

HEWLETT
PACKARD

Printing History

The following table lists the printings of this document, together with the respective release dates for each edition. The software version indicates the version of the software product at the time that this document was issued. Many product releases do not require changes to the document; therefore, do not expect a one-to-one correspondence between product releases and document editions.

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First Edition	April 1990	A.40.00
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Preface

The *AutoRestart/iX User's Guide* (36375-90001) provides the information necessary to configure and manage AutoRestart/iX, a product that enables a 900 Series HP 3000 to automatically reset itself in the event of a system abort, to save dump failure state information to disk, and to restart itself, all without the need for operator intervention.

This user's guide is written for the system administrator who has completed Hewlett-Packard system administrator training courses.

This manual is divided into five chapters:

Chapter 1   **Introduction** provides an introduction to AutoRestart/iX functionality, as well as hardware and software requirements for the product.

Chapter 2   **Preparing Your System** describes the steps necessary to prepare the hardware and software required by AutoRestart/iX.

Chapter 3   **Configuring and Managing the Dump-to-Disk and Mini-Dump Features** describes the steps necessary to configure the dump-to-disk and mini-dump functionality provided by AutoRestart/iX. In addition, dump-to-disk and mini-dump management tasks are described in detail.

Chapter 4   **Configuring and Managing the Autoboot Feature** describes the steps necessary to configure and manage the restart and autoboot functionality provided by AutoRestart/iX. In addition, autoboot management tasks are described in detail.

Chapter 5   **Managing Your AutoRestart/iX System** describes tasks related to managing an AutoRestart/iX system after initial configuration.

Conventions

UPPERCASE
In a syntax statement, commands and keywords are shown in uppercase characters. The characters must be entered in the order shown; however, you can enter the characters in either uppercase or lowercase. For example:

COMMAND

can be entered as any of the following:

command   Command   COMMAND

It cannot, however, be entered as:

comm   com_mand   comamnd

italics
In a syntax statement or an example, a word in italics represents a parameter or argument that you must replace with the actual value. In the following example, you must replace *filename* with the name of the file:

COMMAND *filename*

bold italics
In a syntax statement, a word in bold italics represents a parameter that you must replace with the actual value. In the following example, you must replace **filename** with the name of the file:

COMMAND(**filename**)

punctuation
In a syntax statement, punctuation characters (other than brackets, braces, vertical bars, and ellipses) must be entered exactly as shown. In the following example, the parentheses and colon must be entered:

(*filename*):(*filename*)

underlining
Within an example that contains interactive dialog, user input and user responses to prompts are indicated by underlining. In the following example, yes is the user's response to the prompt:

Do you want to continue? >> yes

{   }
In a syntax statement, braces enclose required elements. When several elements are stacked within braces, you must select one. In the following example, you must select either ON or OFF:

COMMAND $\left\{ \begin{array}{c} \text{ON} \\ \text{OFF} \end{array} \right\}$

[   ]
In a syntax statement, brackets enclose optional elements. In the following example, OPTION can be omitted:

COMMAND *filename* [OPTION]

When several elements are stacked within brackets, you can select one or none of the elements. In the following example, you can select OPTION or *parameter* or neither. The elements cannot be repeated.

COMMAND *filename* $\left[\begin{array}{c} \text{OPTION} \\ \textit{parameter} \end{array} \right]$

Conventions
(Continued)

[...]   In a syntax statement, horizontal ellipses enclosed in brackets indicate that you can repeatedly select the element(s) that appear within the immediately preceding pair of brackets or braces. In the example below, you can select *parameter* zero or more times. Each instance of *parameter* must be preceded by a comma:

                [,*parameter*][...]

          In the example below, you use the comma only as a delimiter if *parameter* is repeated; no comma is used before the first occurrence of *parameter*:

                [*parameter*][,...]

| ... | In a syntax statement, horizontal ellipses enclosed in vertical bars indicate that you can select more than one element within the immediately preceding pair of brackets or braces; however, each particular element can be selected only once. In the following example, you must select **A, AB, BA,** or **B**. The elements cannot be repeated.

$$\left\{ \begin{matrix} \text{A} \\ \text{B} \end{matrix} \right\} | \ \ldots \ |$$

...   In an example, horizontal or vertical ellipses indicate where portions of an example have been omitted.

Δ   In a syntax statement, the space symbol Δ shows a required blank. In the following example, *parameter* and *parameter* must be separated with a blank:

                (*parameter*)Δ(*parameter*)

⬭   The symbol ⬭ indicates a key on the keyboard. For example, (RETURN) represents the carriage return key or (Shift) represents the shift key.

(CTRL)*character*   (CTRL)*character* indicates a control character. For example, (CTRL)Y means that you press the control key and the Y key simultaneously.

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Introduction

AutoRestart/iX is intended for users of 900 Series HP 3000 computer systems who are concerned with the following:

■ maintaining a high level of system availability

■ eliminating the need for operator intervention after system software failures

This user's guide provides the information necessary to configure and manage AutoRestart/iX on your 900 Series HP 3000 computer system.

What Is AutoRestart/iX?

AutoRestart/iX is a software product that automatically restarts your system in the event of a system software failure. It minimizes system recovery time and automatically saves system state information to disk using data compression, for later analysis.

If the system fails, AutoRestart/iX resets the system, dumps failure state information to disk, then restarts the system.

This fully automatic process requires no operator intervention. In addition, dump-to-disk takes substantially less time than the traditional dump-to-tape method.

Once the system transfers error information to disk, you can begin problem analysis. This saves you from transferring error information from tape to disk. You can perform problem analysis locally or remotely.

Note   AutoRestart/iX is supported on MPE/iX release A.40.00 or later.

Product Features

AutoRestart/iX supports the following features:

- dump-to-disk
- restart
- autoboot
- mini-dump

Dump-to-disk feature

The dump-to-disk feature enables MPE/iX to write system dump information directly to a preallocated disk file. This feature is an addition to the dump-to-tape feature available on all MPE/iX-based systems.

Use the `BLDDUMP` utility to configure and manage the dump-to-disk feature. Using `BLDDUMP`, you can create, manage, and purge dump files.

Use the `DTODSIZ` utility to predict the dump-to-disk file size that you need. The file should be large enough to store the largest dump that your system can generate. Use this information to create dump files large enough to store system dumps that occur even when your system is busiest.

Restart feature

AutoRestart/iX provides special enhancements to the system abort feature available on MPE/iX-based systems, allowing an automatic nondestructive reboot (memory contents are preserved) following a system abort. The restart feature is activated when your system is started (either interactively or through an autoboot file) using the `-R` option with the `START` command, at the ISL prompt.

Note

If you don't use the `-R` option, your system will not reboot after a system abort.

Autoboot feature

AutoRestart/iX provides a `FORMAT` utility that enables you to create a specially formatted autoboot format file that contains your own sequence of ISL startup commands. The system automatically executes these ISL commands in sequence during system startup (if you have activated the autoboot feature and installed the autoboot file). System startup needs no operator.

A typical autoboot file contains the `DUMP` command followed by the `START-R` command. For example:

```
DUMP
START -R
```

This sequence of ISL commands guarantees that a dump will occur prior to subsequent MPE/iX startups.

Mini-dump feature In an environment with many systems with similar configurations and operating system versions, duplicate problems can occur. This feature is used to bypass a full memory dump for system failures. When a system failure occurs, the mini-dump feature enables MPE/iX to write the system failure information to a disk file, which can be analyzed at a later time. Specifically, a mini-dump is an ASCII file containing output from the SAT utility summarizing the system failure. The summary information contains a date and time stamp, the MPE/iX version identification, the system failure number, and a stack trace.

With the mini-dump feature, new problems cannot be diagnosed; however, repeat problems can be identified and system recovery time minimized. This feature can also function in an operator-less environment, where full dumps can be preconfigured to dump to disk.

Note Mini-dump is not intended to replace a full memory dump; it provides only a summary of the system failure. When a system failure occurs, to diagnose it, a full memory dump must be taken.

Overview of AutoRestart/iX Installation and Configuration

This user's guide provides directions that enable you to install, configure, and manage all AutoRestart/iX features.

To successfully install and configure AutoRestart/iX, you must follow the instructions in chapters 2, 3, and 4.

Note Each customer installation is different. Read through the installation and configuration procedures completely before attempting to configure AutoRestart/iX on your system. Examine the processes described for areas that you may need to customize to fit your system.

The following Hewlett-Packard publications are useful:

- *System Startup, Configuration, and Shutdown Reference Manual* (32650-90042)
- *MPE/iX Commands Reference Manual* (32650-90003)
- *Volume Management Reference Manual* (32650-90045)
- *HP 3000 MPE/iX Installation and Update Manual* (36123-90001)
- *MPE/iX Asynchronous Serial Communications System Administrator's Manual* (32022-90001)
- *NS3000/XL Network Manager's Reference Manual* (36920-90002)

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Preparing Your System

This chapter describes how to prepare your system for successful configuration of AutoRestart/iX. System preparation for AutoRestart/iX consists of the following steps:

1. Determine your dump-to-disk needs.

2. Determine your mini-dump needs.

3. Add one or more disk drives to your system's configuration.

4. Physically install the disk drives.

5. Create the AutoRestart/iX account structure.

Note   You can perform the procedures in this chapter before you install AutoRestart/iX.

Determining Your Dump-to-Disk Needs

Give careful consideration to managing your system's dump files. You can preallocate from one to ten dump files. Due to the large size of each dump file, the actual number of dump files that you can preallocate depends on the disk space or disk drives available to AutoRestart/iX.

Logically configure and physically install one or more disk drives before you configure AutoRestart/iX. To determine your disk drive needs prior to AutoRestart/iX configuration, follow these steps:

1. Estimate the size of the largest dump file.

2. Determine the number of dump files that you want to preallocate.

3. Determine the number of disk drives required to store all of your dump files and the AutoRestart/iX utilities.

Estimate size of largest dump file

Calculating the actual size of a system dump is difficult. The following variable factors contribute to the size of a dump:

- number of active jobs and sessions
- number of child processes associated with the jobs and sessions
- memory size

To ensure that the size of the dump file that you create covers all possible cases, you must estimate the largest dump possible on your system. Two methods that can be used to estimate your system's largest possible dump size are as follows:

- Estimate using the number of active jobs/sessions.
- Estimate using the `DTODSIZ` utility (only if you have already installed AutoRestart/iX on your system).

Use number of active jobs/sessions to estimate largest dump size

The following table shows the possible ranges of dump sizes, based on the number of active jobs and sessions on your system, and the size of your main memory.

Note

Hewlett-Packard strongly recommends that you preallocate dump files using the high estimates, to ensure successful dumps to disk.

Table 2-1. Dump File Size Estimates

# Active Jobs/Sessions	Main Memory Size	Dump Size Low Estimate	Dump Size High Estimate
50	64 MB 96 MB 128 MB	94 MB 106 MB 119 MB	154 MB 166 MB 179 MB
100	64 MB 96 MB 128 MB	124 MB 136 MB 149 MB	244 MB 256 MB 269 MB
150	64 MB 96 MB 128 MB	154 MB 166 MB 179 MB	334 MB 346 MB 359 MB
200	64 MB 96 MB 128 MB	184 MB 196 MB 209 MB	424 MB 436 MB 449 MB
250	64 MB 96 MB 128 MB	214 MB 226 MB 239 MB	514 MB 526 MB 539 MB
300	64 MB 96 MB 128 MB	244 MB 256 MB 269 MB	604 MB 616 MB 629 MB

Use DTODSIZ utility to estimate largest dump size

If you have already installed AutoRestart/iX on your system, you can use the DTODSIZ utility to estimate dump size, based on system activity occurring when DTODSIZ is executed. The DTODSIZ utility can be run either interactively or from a job.

At the system prompt, enter:

```
:RUN DTODSIZ.HP36375.TELESUP
```

When DTODSIZ runs, it estimates the size of a dump that would occur at that time, and recommends the megabyte size required to hold that dump.

Following is an example of what DTODSIZ displays (in this example, the dump-to-disk feature is not yet configured):

```
Dump-to-Disk environment not set up on this system.

****************************************************
*
*    Dump-to-Disk Dumpfile size check FAILED!-
*
*        current Dumpfile size -               0 MB
*
*        checkpoint estimate -               192 MB
*
*    RECOMMENDATION:
*
*    Increase Dumpfile size to:             230 MB
*    at earliest convenience using
*    BLDDUMP.HP36375.TELESUP
*
****************************************************

END OF PROGRAM
```

Note   It is recommended that you run DTODSIZ twice weekly (either interactively or from a scheduled job) during peak periods of system activity to get a more accurate estimate of the largest dump file size possible for your system. Verify that the configured dump file size is greater than the largest possible dump. If dump files are too small, increase their size. After estimates become fairly consistent, execute DTODSIZ less frequently (for example, monthly) to confirm correct dump file size. Run DTODSIZ frequently whenever your system undergoes any substantial change in activity (for example, a change in the number of regular users).

Determine the number of dump files required

Determine the number of dump files that you want to preallocate. Base your decision on the cost of additional disk drives versus the risk of losing important dump information. You can lose information if a dump occurs before you can examine existing dump information and there are no additional dump files to store subsequent dump information.

Determine the number of disk drives required

Determine the number of disk drives that you need, based on the disk space requirements of AutoRestart/iX and the capacity of the disk drives to be allocated for dump file storage.

Note

Up to 100 megabytes of disk space on a nonsystem volume set are reserved for MPE/iX system use. Include this space in your calculations for number of disk drives required for AutoRestart/iX.

Determining Your Mini-Dump Needs

You can preallocate only one mini-dump file. The size of the mini-dump file must be estimated. If the mini-dump file is too small, then not all of the mini-dump information will be written to the file. If the mini-dump file is too large, then there will be a large amount of white space in your file. In most cases, a mini-dump size of 500 records is reasonable and can be used if you have not changed any of the default values for the mini-dump.

Note

The mini-dump feature does not need to be configured to successfully configure AutoRestart/iX.

Adding an AutoRestart/iX Disk Drive to Your System's Configuration

This section describes the steps necessary to logically configure disk drives on your system. Note that a disk drive is not completely configured until your configuration is saved to a new system load tape (SLT) and your system is rebooted.

Note

This section assumes that you are installing disk drives on your system for use by AutoRestart/iX.

If you plan to make configuration changes to a group other than the default configuration group (`CONFIG.SYS`), refer to the *System Startup, Configuration, and Shutdown Reference Manual* (32650-90042).

For more information about configuring and installing disk drives, refer to the *System Startup, Configuration, and Shutdown Reference Manual* (32650-90042).

To add a disk drive to your system's configuration, perform the following steps:

1. Log on to the console as `MANAGER.SYS` and invoke the `SYSGEN` utility. At the system prompt, enter:

   `:HELLO MANAGER[/`*userpass*`].SYS[/`*acctpass*`]`
   `:SYSGEN`

2. Invoke the `SYSGEN` IO configurator. At the `SYSGEN` prompt, enter:

   `sysgen>IO`

3. Use the `LDEV` and `LPATH` commands to get current IO configuration listings. At the IO prompt, enter:

   `io>LDEV DEST=OFFLINE`
   `io>LPATH DEST=OFFLINE`
   `io>OCLOSE`

   The `OCLOSE` command closes `SYSGEN`'s listing file, `SYSGLIST`, and prints the information in the file.

4. Decide on which LDEV to add the drive. View the `LDEV` command output. Choose any unused LDEV and assign it to the disk drive.

5. Decide on the path of the added disk drive. View the `LPATH` command output. If you are adding the drive to a newly installed HP-IB card, you must first use the `APATH` command to define the path down to the device adapter level.

   For example, assume that you plan to add the drive to a newly installed HP-IB card (ID number, HP27113A) and the card was placed in the CIO expander (CA 36) on channel adapter 2, and device adapter slot 2. At the IO prompt, enter:

   ```
   io>APATH 36.2 HP27113A
   ```

6. Add the device. Use the `ADEV` command to add the device, including the device address. At the IO prompt, enter:

   ```
   io>ADEV LDEV=ldev PATH=path_spec ID=device_id CLASS=DISC
   ```

7. Use the `HOLD` command to temporarily hold the changes that you made to the IO configuration and the `EXIT` command to exit the IO configurator. At the IO prompt, enter:

   ```
   io>HOLD
   io>EXIT
   ```

8. Use the `KEEP` command to store to disk the changes that you have made to your system's configuration. At the `SYSGEN` prompt, enter:

   ```
   sysgen>KEEP
   ```

   The `SYSGEN` utility saves to the default configuration group the configuration changes made in the IO configurator. Respond `Y` when `SYSGEN` asks if it should overwrite that group:

   ```
   keeping to group CONFIG.SYS
   Purge old configuration (yes/no)? Y
   ** configuration files successfully saved **
   ```

9. Mount a write-enabled tape on the tape drive. Put the tape online.

   Use the `TAPE` command at the `SYSGEN` prompt to generate a customized system load tape (SLT) that includes the new configuration. At the `SYSGEN` prompt, enter:

   ```
   sysgen>TAPE
   ```

   Reply to the tape request. The system indicates when the tape is completed:

   ```
   **Boot tape is successfully built**
   ```

   This is your system's new SLT. Label the tape, and store it in a secure location.

10. Exit `SYSGEN` after creating the SLT and perform an orderly system shutdown, then reboot your system using `START NORECOVERY`; this will enable your configuration changes. Refer to the *System Startup, Configuration, and Shutdown Reference Manual* (32650-90042) for details on performing an orderly shutdown and rebooting your system.

Installing the AutoRestart/iX Disk Drive

Physically install the disk drive using directions located in the disk drive installation manual. The physical connection must match the logical connection that you configured in the previous section.

The disk drive, once logically configured and physically installed, is ready for use. You must now configure the volume for use by AutoRestart/iX.

Configuring an AutoRestart/iX Nonsystem Volume Set

To install and configure a nonsystem volume set, for use by AutoRestart/iX, on your system, you must perform the following steps:

1. Create the master nonsystem volume set.
2. If required, add one or more additional member volumes to the master nonsystem volume set.
3. Post configuration information to the master nonsystem volume set.

For more information about configuring nonsystem volume sets, refer to the *Volume Management Reference Manual* (32650-90045).

Create a master volume set

To create a master nonsystem volume set, you must initialize it using the `VOLUTIL NEWSET` command. When the `DISKDUMP` master nonsystem volume set is created, it is recognized by the system and is ready for use.

To create a nonsystem volume set, perform the following steps:

1. Log on to the console as `MANAGER.SYS` and invoke `VOLUTIL`. At the system prompt, enter:

   :`HELLO MANAGER[/`*userpass*`].SYS[/`*acctpass*`]`
   :`VOLUTIL`

2. Enter the `DSTAT` command to determine which volumes can be initialized. Precede this command with a colon (`DSTAT` is a system command, not a `VOLUTIL` command). At the `VOLUTIL` prompt, enter:

> volutil: :DSTAT

The `DSTAT` command displays information about nonsystem volume sets. The following example shows three nonsystem volumes sets, each in a different state (`UNKNOWN`, `SCRATCH`, and `LONER`).

```
 LDEV-TYPE  STATUS    VOLUME  (VOLUME SET - GEN)

 - - - - -  - - - -  - - - - - - - - - - - - - -
 11-07937   UNKNOWN
 12-07937   SCRATCH
 13-07937   LONER
```

Note   You must mount the volume in the `SCRATCH` or `UNKNOWN` state before you can configure it as a master nonsystem volume set.

---

3. If the nonsystem volume set is in a `LONER` state and no longer contains any required data, use the `SCRATCHVOL` command to convert the nonsystem volume to a `SCRATCH` state. At the `VOLUTIL` prompt, enter:

> volutil: SCRATCHVOL *ldev#*

4. Use the `VOLUTIL NEWSET` command to create the `DISKDUMP` master nonsystem volume set. Specify the name of the volume set (for example, `DISKDUMP_VOLUME_SET`), the name of the volume (for example, `MEMBER1`), and the volume's LDEV number (for example, `LDEV11`). At the `VOLUTIL` prompt, enter:

> volutil: NEWSET DISKDUMP_VOLUME_SET MEMBER1 LDEV11

The system asks you to verify that the information entered is correct. When you respond Ⓨ followed by (Enter), the system displays process information.

5. Enter the `DSTAT` command to verify that the volume set was created. At the VOLUTIL prompt, enter:

> volutil: :DSTAT

DSTAT displays the updated volume information. In the following example, the volume on LDEV 11 has been configured as the master volume, named `MEMBER1` volume set `DISKDUMP_VOLUME_SET`.

```
LDEV-TYPE    STATUS    VOLUME  (VOLUME SET  -   GEN)
- - - - -    - - - -   - - - - - - - - - - - - - - -
11-07937    MASTER      MEMBER1 (DISKDUMP_VOLUME_SET-0)
12-07937    SCRATCH
13-07937    LONER
```

Note   Ensure that you see the message verifying that the volume was initialized correctly. If an error occurs during initialization, the volume must be reinitialized.

Adding member volumes to a master volume set

To add one or more member volumes to the master volume set, perform the following steps:

1. Enter the `DSTAT` command to determine which volumes can be initialized. At the VOLUTIL prompt, enter:

> volutil: :DSTAT

The DSTAT command displays information about nonsystem volume sets. The following example shows two volumes, each in a different state (`SCRATCH` and `LONER`).

```
LDEV-TYPE    STATUS    VOLUME  (VOLUME SET - GEN)
- - - - -    - - - -   - - - - - - - - - - - - - -
11-07937    MASTER      MEMBER1 (DISKDUMP_VOLUME_SET-0)
12-07937    SCRATCH
13-07937    LONER
```

Note   You must mount the volume in the `SCRATCH` or `UNKNOWN` state before you can configure it as a nonsystem volume set.

2. If the volume that you require is in a `LONER` state (for example, LDEV 13) and no longer contains any required data, use the `SCRATCHVOL` command to convert the volume from `LONER` state to `SCRATCH` state. At the VOLUTIL prompt, enter:

> volutil: SCRATCHVOL LDEV13

3. Use the `NEWVOL` command to add a member volume to a master nonsystem volume set. For example, to add the `SCRATCH` volume as a member volume to the master nonsystem volume set `DISKDUMP_VOLUME_SET`, at the `VOLUTIL` prompt, enter:

    volutil: NEWVOL DISKDUMP_VOLUME_SET:MEMBER2 LDEV13

    The system asks you to verify that the information that you entered is correct. When you respond Ⓨ followed by (Enter), the system displays process information.

4. After you add a member volume to a volume set, use the `DSTAT` command to verify that the member volume was added. At the `VOLUTIL` prompt, enter:

    volutil: :DSTAT

    The `DSTAT` command displays the updated volume information. In the following example, the volume on LDEV 13 has been configured as the member volume, named `MEMBER2`, of the nonsystem volume set.

```
LDEV-TYPE    STATUS     VOLUME   (VOLUME SET - GEN)

- - - - -    - - - -    - - - - - - - - - - - - - - -
11-07937     MASTER     MEMBER1 (DISKDUMP_VOLUME_SET-0)
12-07937     SCRATCH
13-07937     MEMBER     MEMBER2 (DISKDUMP_VOLUME_SET-0)
```

Note Make sure that you see the message verifying that the member volume was initialized correctly. If an error occurs during initialization, you must reinitialize the member volume.

Posting configuration information

To ensure that the new volume set configuration is posted to disk, you must invoke the commands `VSCLOSE` and `VSOPEN` against the master nonsystem volume set.

To post volume set configuration data to disk, perform the following steps:

1. Use the `VSCLOSE` command at the console to close the master nonsystem volume set. At the system prompt, enter:

    :VSCLOSE DISKDUMP_VOLUME_SET

2. Use the `VSOPEN` command at the console to reopen the master nonsystem volume set. At the system prompt, enter:

    :VSOPEN DISKDUMP_VOLUME_SET

Creating the HP36375 and DISKDUMP groups

AutoRestart/iX requires two groups, HP36375 and DISKDUMP, located in the TELESUP account. Two NEWGROUP commands are required (if you are creating a nonsystem volume set) to configure each of the new groups in both the system volume set and the nonsystem volume set.

The following enables you to create both groups on your system:

1. Log on as MANAGER.SYS. At the system prompt, enter:

       :HELLO MANAGER[/*userpass*].SYS[/*acctpass*]

2. Ensure that the TELESUP account exists on your system. At the system prompt, enter:

       :LISTACCT TELESUP

   If TELESUP exists, proceed to step 3. If TELESUP does not exist, you must create the account before proceeding. To create the TELESUP account, enter:

       :NEWACCT TELESUP,MGR;CAP=SM,AM,AL,GL,&
       DI,OP,UV,LG,CS,ND,SF,BA,IA,PM,MR,DS,PH,CV

3. The ONVS option of the NEWACCT command allows the TELESUP account groups to exist on any nonsystem volume set (for example, a nonsystem volume set called DISKDUMP_VOLUME_SET).

   To copy the TELESUP account structure to a nonsystem volume set, enter:

       :NEWACCT TELESUP,MGR;ONVS=DISKDUMP_VOLUME_SET

4. Ensure that the group `HP36375.TELESUP` resides on your system. At the system prompt, enter:

    `:LISTGROUP HP36375.TELESUP`

    If `HP36375.TELESUP` does not reside on your system, go to step 5.

    If `HP36375.TELESUP` resides on your system, it was created on your system master volume set (`MPE XL_SYSTEM_VOLUME_SET`) when you installed AutoRestart/iX, during an update or an installation. To move `HP36375.TELESUP` to the nonsystem volume set (for example, `DISKDUMP_VOLUME_SET`), perform the following steps:

    a. Mount a write-enabled tape on the tape drive. Put the tape drive online.

    b. Store all files located in `HP36375.TELESUP` to tape. At the system prompt, enter:

        `:FILE T;DEV=TAPE`
        `:STORE @.HP36375.TELESUP;*T;SHOW`

    c. Reply to the tape request.

Note   Remove the write ring and keep the tape containing the files stored from `HP36375.TELESUP`. You will restore these files in step 8, after you create `HP36375.TELESUP` on the nonsystem volume set.

---

    d. Use the `PURGEGROUP` command to purge `HP36375.TELESUP`. At the system prompt, enter:

        `:PURGEGROUP HP36375.TELESUP`

5. Use the `HOMEVS` option of the `NEWGROUP` command to create accounting information for the group `HP36375.TELESUP` on the system volume set. At the system prompt, enter:

    `:NEWGROUP HP36375.TELESUP;CAP=IA,&`
    `BA,PM,MR,DS,PH;HOMEVS=DISKDUMP_VOLUME_SET`

6. Use the `ONVS` option of the `NEWGROUP` command to create `HP36375.TELESUP` on the nonsystem volume set (for example, `DISKDUMP_VOLUME_SET`). At the system prompt, enter:

    `:NEWGROUP HP36375.TELESUP;ONVS=DISKDUMP_VOLUME_SET`

7. Ensure that `HP36375.TELESUP` has been successfully installed on the nonsystem volume set. At the system prompt, enter:

    `:LISTGROUP HP36375.TELESUP`

    The `LISTGROUP` command displays the home volume set where `HP36375.TELESUP` currently exists.

8. If you had to purge `HP36375.TELESUP` prior to recreating it on the nonsystem volume set, you must restore the AutoRestart/iX files to `HP36375.TELESUP`, now located on the nonsystem volume set.

   a. Mount a write-enabled tape on the tape drive. Put the tape drive online.

   b. Restore AutoRestart/iX files to `HP36375.TELESUP`. At the system prompt, enter:

      ```
      :FILE T;DEV=TAPE
      :RESTORE *T;@.@.@;SHOW
      ```

   c. Reply to the tape request.

9. Use the `HOMEVS` option of the `NEWGROUP` command to create accounting information for the group `DISKDUMP.TELESUP` on the system volume set. At the system prompt, enter:

   ```
   :NEWGROUP DISKDUMP.TELESUP;CAP=IA,&
   BA,PM,MR,DS,PH;HOMEVS=DISKDUMP_VOLUME_SET
   ```

10. Use the `ONVS` option of the `NEWGROUP` command to create `DISKDUMP.TELESUP` on the nonsystem volume set (for example, `DISKDUMP_VOLUME_SET`). At the system prompt, enter:

    ```
    :NEWGROUP DISKDUMP.TELESUP;ONVS=DISKDUMP_VOLUME_SET
    ```

11. Confirm that `DISKDUMP.TELESUP` has been successfully installed on the nonsystem volume set. At the system prompt, enter:

    ```
    :LISTGROUP DISKDUMP.TELESUP
    ```

3

Configuring and Managing the Dump-to-Disk and Mini-Dump Features

This chapter describes how to configure and manage the dump-to-disk and mini-dump features on your system.

The first part of this chapter details the steps that you need to perform to successfully configure the dump-to-disk feature on your system. If you are performing an initial configuration of the dump-to-disk feature, start by reading "Overview of Dump-to-Disk Configuration."

The remaining sections of this chapter deal with managing the dump-to-disk feature and the mini-dump feature after initial configuration. The following tasks are described:

- specifying the alternate dump device strategy
- building a dump file
- building a mini-dump file
- purging a dump file
- purging a mini-dump file
- resetting a dump file
- initializing a mini-dump
- specifying mini-dump criteria
- altering the size of a dump file
- changing a dump file's protection scheme
- listing dump-to-disk information
- listing mini-dump information
- displaying the autoboot status
- using the **BLDDUMP** Help Facility
- exiting **BLDDUMP**

Overview of Dump-to-Disk Configuration

Following is a summary of the steps necessary to configure the dump-to-disk feature:

■ Define your alternate dump device strategy.
■ Define your dump file protection scheme.
■ Configure the dump-to-disk feature.

Many of the steps described in this chapter require you to log on to the console, to an account with system manager capability. For convenience, this manual recommends that you perform all steps from the console.

Note Before proceeding with dump-to-disk configuration, become familiar with the `BLDDUMP` commands `TAPE`, `BUILD`, `AUTOBOOT`, `PROTECT`, `LIST`, and `RESET`. They are described in detail in "Managing the Dump-to-Disk and Mini-Dump Features," later in this chapter.

Overview of Mini-Dump Configuration

The mini-dump feature allows you to create an ASCII file that is a summary of a system dump when the system fails. The mini-dump created is output from `SAT`, which summarizes the system failure. The mini-dump contains a date and time stamp, the MPE/iX version identification, the system failure number, and a stack trace. This information can be used to track system failures and to notify system managers, through network transmissions.

The mini-dump feature is especially beneficial for customers with homogeneous environments (many systems with similar configurations and operating system versions).

In a homogeneous environment many duplicate problems can occur; therefore, the mini-dump feature can be used to bypass taking a full memory dump for system failures that have already occurred. The mini-dump can be configured for reoccurring failures. New problems cannot be diagnosed; however, if you want to minimize system recovery time due to repeat failures, then the mini-dump feature is recommended.

The mini-dump is not intended to replace a full memory dump. A mini-dump provides a summary of the system failure only. When a system failure occurs, a full memory dump is required so that diagnostics can be run.

Note Before proceeding with the mini-dump configuration, become familiar with the `BLDDUMP` commands `BUILDMD`, `INITMD`, and `LISTMD`. These commands are described in the "Managing the Dump-to-Disk and Mini-Dump Features" later in this chapter.

Defining Your Alternate Dump Device Strategy

Before you configure the dump-to-disk feature, you must define what the system should do if complete dump information is not stored to a dump file on disk. If either of the following are true, then complete dump information is not stored to disk:

■ No dump files are available because existing dump files contain dump information and are protected from overwrites.

■ The size of the dump is larger than the size of the available dump file.

Use the `BLDDUMP TAPE` command to select either of the following dump strategies:

■ Do a dump-to-tape if a dump-to-disk is not successful.

■ Terminate the dump if the dump-to-disk is not successful.

If dump-to-disk was previously invoked, and you do not reinvoke the `BLDDUMP TAPE` command, `BLDDUMP` defaults to dump-to-disk.

Note

If dump is invoked in any of the following situations, the dump facility always dumps to tape.

■ No dump files are configured.

■ The last step (Shut 5) of a Ctrl A shutdown has begun, and the system has not yet been successfully restarted.

■ Either an update or an installation has been done, and the system has not been successfully restarted.

Dump-to-tape　You can have the dump facility initiate a dump-to-tape if it cannot write complete dump information to a dump file; however, operator intervention is required to mount tapes and put the tape drive online. In this case, valuable dump information is guaranteed at the expense of an operator-less environment.

If a dump-to-tape was initiated because the size of the dump is larger than the size of the dump file, you must use the `ALTSIZE` command to change the dump file size. This can be done after a system restart. Refer to "Reset a Dump File," later in this chapter, for directions on emptying the contents of this dump file.

The `BLDDUMP` utility defaults to the dump-to-disk option if you do not use the `TAPE` command to specify otherwise. If you configured `BLDDUMP` to terminate the dump on an unsuccessful dump-to-disk, you can use the `TAPE` command to change the dump strategy and enable dump-to-tape. Refer to "Specify the Alternate Dump Device Strategy," later in this chapter, for more information about the `TAPE` command.

Terminate dump　You can choose to have the dump facility terminate if it cannot store complete dump information to a dump file. Autoboot continues by invoking the next ISL command in the autoboot file.

Dump results depend on the reasons for the unsuccessful dump-to-disk:

- If the dump facility initially determines that no dump files are available, dump terminates immediately and all dump information is lost. This option guarantees an operator-less environment at the expense of valuable dump information.

- If the size of the dump is larger than the size of the dump file, the dump facility terminates when the file is filled. In this case, the last part of the dump is lost. An operator-less environment is guaranteed, but the partial dump information may not be useful for determining the reasons for the system software failure.

Defining Your Protection Scheme

Use the `BLDDUMP BUILD` command to define the protection scheme for a dump file when you create it. The `PROTECT` command enables you to change the protection scheme of an existing dump file. You can either protect a dump file from overwrites by subsequent dumps-to-disk or leave it unprotected.

Protected dump files

The `BLDDUMP` utility enables you to protect valuable dump information from accidental overwrites by subsequent dumps. If a protected dump file is empty, however, it is available for a subsequent dump.

If you have only one dump file configured on your system, you must check its status regularly and minimize the amount of time that it is unavailable for subsequent dumps.

Unprotected dump files

If you choose to have a dump file unprotected, the system can write to it repeatedly; however, each time that the system writes to an unprotected dump file, any previous dump information in that file is lost.

Protection scheme alternatives

If you configure only one dump file for AutoRestart/iX, you should protect it. You must also regularly monitor dump-to-disk activity, so that you can analyze dump information quickly and reset the dump file (empty the contents). If you configure two or more dump files, protect the first file shown by the `LIST` command.

While you analyze the information in your first (protected) file, the system writes any subsequent dumps to the additional dump file. When you finish analyzing the protected file, you can store it to tape (if necessary) before you use the `RESET` command to set the file content status to zero.

Configuring the Dump-to-Disk Feature

This section describes the steps necessary to initially configure the dump-to-disk feature, using the BLDDUMP utility. You should have already defined your protection scheme and alternate dump device strategy.

Note

Before proceeding with this section, read each of the steps and become familiar with the BLDDUMP commands BUILD and TAPE. Both commands are described in detail later in this chapter.

The steps below describe how to create two new dump files, DUMP1 and DUMP2, on a two-volume nonsystem volume set called DISKDUMP_VOLUME_SET. The sample system supports 50 terminals during peak operating times. Main memory size is 96 megabytes.

For more detailed information about BLDDUMP commands and features, refer to "Managing the Dump-to-Disk and Mini-Dump Features," later in this chapter.

To configure the dump files, follow these steps:

1. Log on as MANAGER.SYS. At the system prompt, enter:

   :HELLO MANAGER [/*userpass*].SYS[/*acctpass*]

2. Invoke the BLDDUMP utility. At the system prompt, enter:

   :RUN BLDDUMP.HP36375.TELESUP

3. Use the BUILD command to build a dump file, using the file size and protection scheme that you have already defined. At the BLDDUMP prompt, enter:

   (#1) blddump > BUILD *fileid file size protection*

   where:

   fileid   The name of the dump file that you want to create. The *fileid* parameter can be up to five alphanumeric characters in length and must begin with an alpha character. The BLDDUMP utility appends the characters "MEM" to the *fileid*. For example, DUMP1 becomes DUMP1MEM.

   file size   The size, in megabytes, of the dump file.

   protection   Indicates whether or not a dump file is protected from overwrites. If Y[es] is specified, the dump file is protected from overwrites by subsequent dumps to disk, if it contains dump information. If N[o] is specified, subsequent dumps to disk can write new dump data to the file, deleting any existing data. The YES option is the default.

   If you want two or more dump files, use the BUILD command to create them.

4. Use the `TAPE` command to specify your alternate dump device strategy. At the `BLDDUMP` prompt, enter:

    (#2) blddump > TAPE *dump_strategy*

where:

dump_strategy   If `Y[es]` is specified, the dump facility initiates dump-to-tape if dump-to-disk is unsuccessful. If `N[o]` is specified, the dump facility terminates immediately if dump-to-disk is unsuccessful. If neither is specified, `TAPE` defaults to `YES`.

5. Use the `LIST` command to display the current state of the dump-to-disk feature: `LIST` displays information about the dump files that you just created and the dump strategy.

6. Use the `EXIT` command to exit `BLDDUMP`. At the `BLDDUMP` prompt, enter:

    (#3) blddump > EXIT

7. When you exit `BLDDUMP`, invoke both `VSCLOSE` and `VSOPEN` against the nonsystem volume set. This is necessary because you used the `BUILD` command, and it ensures posting of directory information. You must enter `VSCLOSE` and `VSOPEN` at the console. At the system prompt, enter:

    :VSCLOSE DISKDUMP_VOLUME_SET
    :VSOPEN DISKDUMP_VOLUME_SET

Configuring the Mini-Dump Feature

This section describes the steps necessary to configure the mini-dump, using the BLDDUMP utility.

Overview of mini-dump configuration

The following is a summary of the steps required to configure the mini-dump feature:

- Initialize and define the contents of the mini-dump.

- Initialize and define the criteria for a full dump to be taken.

- Create the autoboot format file specifying that the SAT utility must be invoked.

Once the mini-dump is configured and a system failure occurs, the following happens:

1. The system boots into SAT.

2. SAT uses the information defined for the contents of the mini-dump.

3. SAT uses the criteria defined to decide whether a full dump should be taken.

4. The SAT output is written to the mini-dump file.

5. The system exits SAT and either a full dump is taken or the system is restarted based on the criteria specified.

Build the mini-dump file

The following steps describe how to build a mini-dump file that is 500 records in size. The mini-dump feature is initialized using the template MDINPUT.HP36375.TELESUP, criteria for a full dump is specified, and the autoboot file is configured to support the mini-dump feature.

To configure the mini-dump feature, perform the following steps:

1. Log on as MANAGER.SYS and invoke the BLDDUMP utility. At the system prompt, enter:

       :RUN BLDDUMP.HP36375.TELESUP

2. Use the BUILDMD command to build the mini-dump file, specifying the file size. At the blddump prompt, enter:

       (#1) blddump> BUILDMD 500

    With the above command, you have built a mini-dump file in the size of 500 records. It is named MINIDUMP and is located in the MPEXL.SYS group and account.

Initialize the mini-dump contents.

To initialize the mini-dump contents, you must initialize a file that contains the `SAT` commands for creating the mini-dump. A template (`MDINPUT.HP36375.TELESUP`) contains the minimum set of SAT commands that must be used. This file also defines the contents of the mini-dump; a date and time stamp, the MPE/iX version identification, the system failure number, and a stack trace.

To initialize the data structures required by `SAT`, use the `BLDDUMP` command `INITMD`. From the `BLDDUMP` prompt, enter:

        (#2) blddump> <u>INITMD</u> *mdinput*

where *mdinput* is `MDINPUT.HP36375.TELESUP` or a local copy of this file (for example, `mdinput.mygroup`).

Specify mini-dump criteria

You can specify the criteria where a full dump should be taken in addition to the mini-dump.

Note

This is optional; however, if it is not performed, and the mini-dump feature is configured it defaults to take a full dump in addition to a mini-dump for all system failures.

To do this, you must use a text editor to construct an ASCII format file. You can explicitly specify the default for the mini-dump feature to take a mini-dump only for all system failures by putting the ASCII string `DEFAULT` on the first line of the file followed by the action for a `NULLDUMP`. This macro is defined in the file `MDINPUT.HP36375.TELESUP` and when invoked by `SAT`, a full dump is not taken.

1. If a mini-dump contains enough information to analyze all system failures, then `KEEP` the file and go to step 3.

2. If a mini-dump does not contain enough information to analyze all system failures, then each subsequent line should contain a system failure number prefixed with `SA` (system abort) or `SD` (sudden death). On the same line, you must specify the `SAT` macro that is to take the full dump when the system fails with this number. The macro that takes the full dump is included in the template `MDINPUT.HP36375.TELESUP` and is called `FULLDUMP`. For example, to specify that a full dump should be taken if the system fails with a 1451 or a 2001, you would create a file with the following information:

```
:RUN EDITOR.PUB.SYS

HP32201A.07.20 EDIT/3000 FRI, JUL 10, 1992, 1:30 PM
(C) HEWLETT PACKARD CO 1990
/ADD
    1          DEFAULT       NULLDUMP
    2          SA1451        FULLDUMP
    3          SA2001        FULLDUMP
    4          EOF
    5          //
/KEEP TEMP,UNN
/EXIT
```

3. The file that you just created must be in a specific file format. Use the CI `BUILD` command to build a file with the specified characteristics, then copy the file created above to the new file using the `FCOPY` utility. At the system prompt, enter:

    :BUILD *mdinfo*;REC=-80,,F,ASCII
    :FCOPY FROM=TEMP;TO=*mdinfo*
    :PURGE TEMP

4. To allow the mini-dump feature to recognize the commands specified in your file, initialize the data structures through the `BLDDUMP` command `INITMD`. Enter the `BLDDUMP` utility, and enter the following:

    :RUN BLDDUMP.HP36375.TELESUP
    (#1) blddump> INITMD,*mdinfo*

Where *mdinfo* is the name of your file.

List mini-dump information

Use the LISTMD command to display the name and size of the mini-dump file that you created and to display the files that were initialized with the INITMD command. At the BLDDUMP prompt, enter:

```
(#2) blddump> LISTMD

Mini-Dump Version                    A.00.00

Autoboot Status                      ON
Restart Enabled                      YES
Mini-Dump Enabled                    YES

MINI-DUMP FILE: MINIDUMP.MPEXL.SYS
MAXIMUM RECORDS: 500

INPUT FILE: MDINPUT.MYGROUP.SYS
INITIALIZED: FRI, JUL 3, 1992, 1:10 PM

DUMP CRITERIA FILE: MDINFO.MYGROUP.SYS
INITIALIZED: FRI, JUL 3, 1992, 1:35 PM
```

Create the autoboot file to invoke SAT

To create an autoboot file that invokes SAT, use a text editor to add the following commands to the AUTOIN file (autoboot format file):

```
SAT SATINIT
START -R
```

The mini-dump feature is now configured. If your system was previously started with the -R option, then if a system failure should occur, SAT writes out the mini-dump information and the system automatically restarts.

Managing the Dump-to-Disk and Mini-Dump Features

Use the AutoRestart/iX BLDDUMP utility to manage dump files. The BLDDUMP utility provides a set of easy-to-use commands that allow you to perform the tasks required to manage the dump-to-disk and mini-dump features. Following is a summary of BLDDUMP commands and their functions:

Table 3-1. Summary of BLDDUMP Commands

Command Name	Function
ALTSIZE	Alters the size of a specified dump file.
AUTOBOOT	Allows you to enable or disable the autoboot feature for system startup.
BUILD	Builds a dump file with the specified name, size in megabytes, and protection scheme (protected or unprotected).
BUILDMD	Builds the mini-dump file with the specified size in number of 80-byte records.
CMDL	Displays a list of available BLDDUMP commands.
DO	Allows you to immediately reinvoke a previously invoked BLDDUMP command (same as the CI DO command).
EXIT	Exits BLDDUMP.
HELP	Displays information about BLDDUMP command syntax, parameters, and usage.
INITMD	Initializes the file that contains the information defining the contents of the mini-dump. The default file, MDINPUT.HP36375.TELESUP, defines the contents of the mini-dump. Initializes the file containing the criteria for specified system failures.
LIST	Lists the current status of dump files, including maximum configured size, protection scheme, and the size of current contents. The LIST command also specifies whether or not the DUMP facility dumps to tape if dump-to-disk is unsuccessful.
LISTMD	Lists information pertaining to the mini-dump.
LISTREDO	Displays all commands invoked during the current session of BLDDUMP (same as the VI REDO command).
PROTECT	Alters the protection scheme of a dump file.
PURGE	Purges the specified dump file.
PURGEMD	Purges the specified mini-dump file.
RESET	Resets a dump file to indicate zero contents, thus readying it for a subsequent dump.
REDO	Allows you to respecify any previously invoked BLDDUMP command for modification prior to reinvoking it (same as the CI REDO command).
RESET	Resets a dump file to indicate zero contents, thus readying it for a subsequent dump.
TAPE	Specifies your alternate dump device strategy. Indicates whether or not the DUMP facility dumps to tape if it cannot store complete dump information to disk.

The BLDDUMP prompt provides a number in parentheses that indicates the number of BLDDUMP commands invoked during the current session of BLDDUMP (helpful for use with the DO and REDO commands). For example, (#4) blddump > indicates that three previous BLDDUMP commands have been invoked in the current session of BLDDUMP.

Specify the alternate dump device strategy

Use the TAPE command to specify whether or not the dump facility initiates a dump-to-tape if it cannot write complete dump information to a dump file on disk. The default is YES. If NO is specified, the dump facility writes to EOF and terminates if it cannot write complete dump information to disk.

TAPE command syntax

TAPE *dump_strategy*

TAPE command parameters

dump_strategy   Optional. If Y[es] is specified, the dump facility initiates dump-to-tape if dump-to-disk is unsuccessful. If N[o] is specified, the dump facility terminates immediately if dump-to-disk is unsuccessful. If neither is specified, TAPE defaults to YES.

For more information about specifying your dump strategy, refer to "Defining Your Alternate Dump Device Strategy," earlier in this chapter.

TAPE command example

To indicate that you want to terminate the dump if dump-to-disk is unsuccessful, enter the following at the BLDDUMP prompt:

(#1) blddump > TAPE NO

Building a dump file   Use the `BUILD` command to build a dump file. You can build up to 10 dump files. The `BUILD` command enables you to specify the following about the dump file:

- the dump file ID
- the maximum number of megabytes that can be written to the file
- the protection scheme

BUILD command syntax

BUILD *fileid*, *file size* [,*protection*]

Note   Building dump files on the `MPEXL_SYSTEM_VOLUME_SET` can cause problems. To ensure a successful creation of a new dump file on the `MPEXL_SYSTEM_VOLUME_SET`, a (CTRL) (A) shutdown must be performed. For example:

```
(#2) blddump > BUILD TEST 100 N
(#2) blddump > E
:(CTRL) (A)
=SHUTDOWN
(CTRL) (B)
CM> (CTRL) (M)
ISL> START NORECOVERY
```

If a dump is required before the dump file label is posted to disk, then `DISKDUMP` fails.

BUILD command parameters

fileid   Required. The *fileid* parameter specifies the name of the dump file that you want to create. The *fileid* parameter can be up to five alphanumeric characters in length and must begin with an alpha character. The `BLDDUMP` utility appends the characters `MEM` to *fileid*. For example, `DUMP1` becomes `DUMP1MEM`.

file size   Required. The size, in megabytes, of the dump file. The size of the dump file should be greater than the largest dump possible on the system. (The `DTODSIZ` utility provides you with this information.)

protection   Optional. If `Y[es]` is specified, the dump file is protected from overwrites by subsequent dumps to disk, if it contains dump data. If `N[o]` is specified, subsequent dumps to disk can write new dump data to the file, deleting any existing data. `YES` is the default.

BUILD command example

To build a protected dump file named `DUMP1` with a size of 417 megabytes and its contents protected from overwrites, enter the following at the `BLDDUMP` prompt:

```
(#2> blddump > BUILD DUMP1 417 Y

Building new Dumpfile.
This can take a while...
```

Note

The process of building a large dump file takes time. Large dump files can take 15 minutes or more to create.

If you invoke `BUILD`, you must invoke both `VSCLOSE` and `VSOPEN` against the nonsystem volume set when you exit `BLDDUMP`. This ensures posting of directory information. At the system prompt, enter:

```
:VSCLOSE DISKDUMP_VOLUME_SET
:VSOPEN DISKDUMP_VOLUME_SET
```

Building a mini-dump file

Use the `BUILDMD` command to build a mini-dump file. One mini-dump file only is allowed. In order to protect it from being overwritten by a subsequent mini-dump, you must copy it to another file prior to invoking the `INITMD` command.

The `BUILDMD` command enables you to specify the maximum number of records that can be written to the file.

BUILDMD command syntax

BUILDMD *filesize*

BUILDMD command parameters

filesize   Required. The size, in 80-byte records, of the mini-dump file.

BUILDMD command example

To build a mini-dump file of 500 80-byte records, enter the following at the `BLDDUMP` prompt:

(#2> blddump > BUILDMD 500

This builds a mini-dump file named `MINIDUMP` in the group and account `MPEXL.SYS`.

Initializing a mini-dump file

The `INITMD` command initializes two files; the *mdinput* file that defines the contents of the mini-dump, and the *mdinfo* file that contains the criteria action to be taken for specified system failures.

INITMD command syntax

`INITMD` *mdinput mdinfo*

INITMD command parameters

Note	If no parameters are specified, all files currently initialized become uninitialized, and the mini-dump feature is disabled.

mdinput Optional. The file containing the `SAT` commands that define the contents of the mini-dump. This file must be an unnumbered, 80-byte record file.

The mini-dump consists of the output from a `SAT` session based on a set of supplied commands. When the option `SATINIT` is specified, SAT automatically executes the file commands that were initialized through the `INITMD` command. The `MDINPUT.HP36375.TELESUP` template contains the minimum set of `SAT` commands that must be used to create the mini-dump with a date and time stamp, the MPE/iX version number, system failure information, and a stack trace. If these commands are not specified in your file, the mini-dump may not be created or its contents could be incorrect.

mdinfo Optional. The file containing the action criteria. This file must be an unnumbered, 80-byte record file.

The *mdinfo* file that you create must specify the action to take based on the system failure number specified. The two actions that can be taken are to perform a full dump (`FULLDUMP`) or to not perform a full dump (`NULLDUMP`). To specify that a mini-dump should be taken for all system failures, then the ASCII string `DEFAULT` must be placed on the first line of the file followed by the action `NULLDUMP` (do not perform a full dump).

For example, to create an *mdinfo* file that will perform a mini-dump for all system failures except a system abort number 1451 and a sudden death number 311, you would create the following unnumbered temporary (TEMP) file:

```
DEFAULT    NULLDUMP
SA1451     FULLDUMP
SD311      FULLDUMP
EOF
```

When you have completed the contents of your temporary file (TEMP), keep the contents as an unnumbered file, build a permanent *mdinfo* file, and copy the contents of the TEMP file to it. At the system prompt, enter:

:BUILD *mdinfo*;REC=-80,,F,ASCII
:FCOPY FROM=TEMP;TO=*mdinfo*
:PURGE TEMP

INITMD command example

To initialize a mini-dump file with MDINPUT containing the SAT commands and MDINFO containing the action criteria, enter the following at the BLDDUMP prompt:

(#1> blddump > INITMD MDINPUT MDINFO

The INITMD command reinitializes the mini-dump file to blank records; therefore, you must copy it to another name before using the INITMD command. Once the INITMD command is invoked, you cannot access the mini-dump file, and any attempts to view or text the file fails.

The INITMD command must be used each time the file containing the action criteria is modified, or after you purge the mini-dump file and build a new one, and each time the system is reset.

To ensure that the INITMD command is used each time the system is reset, the following can be placed in a job and streamed in the SYSSTART file:

:JOB MINI,MANAGER.SYS,PUB;OUTCLASS=LP,2
:COPY MINIDUMP.MPEXL.SYS,MINISAVE
:RUN BLDDUMP.HP36375.TELESUP;INFO="INITMD *mdinput,mdifo*;EXIT"
:EOJ

The last execution of INITMD determines which files are initialized.

Purging a dump file   Use the PURGE command to purge a dump file from the nonsystem volume set. Dump files are specially protected files and can be purged only through the BLDDUMP utility. The PURGE command available through the command interpreter does not remove a dump file from your system.

Note   Do not purge a dump file until you have determined that you no longer need its contents and that you no longer need the space allocated.

PURGE command syntax

   PURGE *fileid*

PURGE command parameters

fileid   Required. The *fileid* parameter is the name of the existing dump file that you want to purge. Do not specify the characters MEM, appended by BLDDUMP.

PURGE command example

To purge a file named DUMP1, enter the following at the BLDDUMP prompt:

   (#3) blddump > PURGE DUMP1

The BLDDUMP utility asks you to reaffirm your intention to purge the file. Respond Y to purge the file.

If you invoke PURGE, you must invoke both VSCLOSE and VSOPEN against the nonsystem volume set when you exit BLDDUMP. This ensures posting of directory information. You must enter VSCLOSE and VSOPEN at the console. At the system prompt, enter:

   :VSCLOSE DISKDUMP_VOLUME_SET
   :VSOPEN DISKDUMP_VOLUME_SET

Note   Do not purge a dump file when it is being accessed by another process (for example, during dump analysis or during a store-to-tape). If you try to purge a dump file being accessed, BLDDUMP asks you if you want to purge the file from BLDDUMP. Do not purge the dump file. Instead, wait to purge it until after access is complete.

Purging a mini-dump file

Use the `PURGEMD` command to purge a mini-dump file. Mini-dump files are specially protected files and can be purged only through the `BLDDUMP` utility. When you use the `PURGEMD` command to purge your mini-dump file, it invalidates the system data structures that contain information regarding the mini-dump; therefore, if you use the `BUILDMD` command to build another mini-dump file, the `INITMD` command must be invoked to reinitialize the files that contain the `SAT` commands and dump criteria.

Note

Do not purge a mini-dump file until you have determined that you no longer need its contents and that you no longer need the space allocated.

PURGEMD command syntax

```
PURGEMD
```

PURGEMD command example

To purge the mini-dump file, enter the following at the `BLDDUMP` prompt:

```
(#3) blddump > PURGEMD
```

The `BLDDUMP` utility asks you to reaffirm your intention to purge the mini-dump file. Respond `Y` to purge the file.

Reseting a dump file   Use the RESET command to delete or reset the contents of a dump file without altering the file's size or protection scheme. Invoking RESET on a dump file empties it. After you reset a dump file, a subsequent dump-to-disk can write to the empty dump file. You should reset a dump file after you analyze the dump information.

Note   Even after a dump file has been reset, it still contains readable dump information; however, the dump-to-disk feature can now write new dump information to it, even if it is a protected dump file.

RESET command syntax

　　RESET *fileid*

RESET command parameters

fileid　　　　　Required. The *fileid* parameter is the name of the existing dump file with contents that you want to delete. The file size (configured by BUILD or ALTSIZE) and the protection scheme (configured by BUILD or PROTECT) are not altered. Do not specify the characters MEM, appended by BLDDUMP.

RESET command example

To empty the contents of the dump file DUMP1, enter the following at the BLDDUMP prompt:

　　(#4 blddump > <u>RESET DUMP1</u>

Altering the size of a dump file

Use the `ALTSIZE` command to alter the size of a dump file. Use this command when the dump file is too large (wasting disk space) or too small (causing unsuccessful dumps to disk). `ALTSIZE` purges the dump file, then creates a new dump file of the same name and protection scheme. Any contents in the dump file are lost.

Note

Do not alter the size of a dump file until you have determined that you no longer need its contents.

Because `ALTSIZE` can take some time, `BLDDUMP` asks you to reaffirm your intention to alter the size of a file. Respond `Y` to alter the file size.

After you have initially configured dump files, use the `DTODSIZ` utility periodically during your system's peak operating periods to predict more closely the required dump file size.

ALTSIZE command syntax

ALTSIZE *fileid*, *newsize*

ALTSIZE command parameters

fileid   Required. The *fileid* parameter is the name of the existing dump file that you want to enlarge or reduce. Do not specify the characters `MEM`, appended by `BLDDUMP`.

newsize   Required. The new size, in megabytes, of the dump file. The size of the dump file should be greater than the largest dump possible on the system. The `DTODSIZ` utility provides you with this information.

ALTSIZE command example

To alter the maximum configurable size of a dump file `DUMP1` to 417 megabytes, enter the following at the `BLDDUMP` prompt:

    (#5 blddump > ALTSIZE DUMP1 417

If you invoke `ALTSIZE`, you must invoke both `VSCLOSE` and `VSOPEN` against the nonsystem volume set when you exit `BLDDUMP`. This ensures posting of directory information. You must enter `VSCLOSE` and `VSOPEN` at the console. At the system prompt, enter:

    :VSCLOSE DISKDUMP_VOLUME_SET
    :VSOPEN DISKDUMP_VOLUME_SET

Note

Do not alter the size of a dump file when it being accessed by another process (for example, during dump analysis or during a store-to-tape). If you try to alter the size of a dump file being accessed, `BLDDUMP` asks you if you want to purge the file from `BLDDUMP`. Do not purge the dump file. Instead, wait to purge it after access is complete.

Changing a dump file's protection scheme

Use `PROTECT` to alter the protection scheme of a dump file. You can either protect a dump file from overwrites by subsequent dumps to disk, or leave it unprotected.

PROTECT command syntax

PROTECT *fileid* [, *protection_scheme*]

PROTECT command parameters

fileid
Required. The *fileid* parameter is the name of an existing dump file with a protection scheme that you want to alter. Do not specify the characters `MEM`, appended by `BLDDUMP`.

protection _scheme
Optional. If `Y[es]` is specified, the dump file containing dump data is protected from overwrites by subsequent dumps to disk. If `N[o ]` is specified, subsequent dumps to disk can write new data to the file. `YES` is the default.

PROTECT command example

To remove protection from `DUMP2`, enter the following at the `BLDDUMP` prompt:

```
(#6) blddump > PROTECT DUMP2 NO
```

Listing dump-to-disk information

Use the LIST command to review the following information:

- Current status of all dump files, including file size, size of contents, and protection scheme.

- Alternate dump device strategy. Determine if the dump facility initiates dump-to-tape if it cannot write complete dump information to a disk dump file.

- Current status of the autoboot feature. Determine if the autoboot feature is enabled or disabled.

LIST command syntax

        LIST

LIST command example

To list the current status of the dump-to-disk feature, enter the following at the BLDDUMP prompt:

```
(#7) blddump > LIST

Autoboot Status                                      OFF
Dump-to-tape if dump-to-disk is not successful?      NO

DUMP FILE NAME      DUMP FILE        CURRENT SIZE     PROTECTED?
 (ID + "MEM")       MAXIMUM SIZE     OF CONTENTS
                    (megabytes)      (megabytes)
--------------      ------------     -------------    ----------
DUMP1MEM               417               0               YES
```

Listing mini-dump information

Use the `LISTMD` command to review the following information:

- current mini-dump version
- current status of the autoboot, restart, and mini-dump features
- current mini-dump record size, input file and when it was initialized, and the criteria file and when it was initialized

LISTMD command syntax

```
LISTMD
```

LISTMD command example

To list the current status of the mini-dump feature, enter the following at the BLDDUMP prompt:

```
(#1) blddump > LISTMD

Mini-Dump Version                                        A.00.00

Autoboot Status                                          ON
Restart Enabled                                          YES
Mini-Dump Enabled                                        YES

MINI-DUMP FILE:MINIDUMP.MPEXL.SYS
MAXIMUM RECORDS: 500

INPUT FILE: MDINPUT.MYGROUP.SYS
INITIALIZED: FRI, JUL 3, 1992, 1:10 PM

DUMP CRITERIA FILE: MDINFO.MYGROUP.SYS
INITIALIZED: FRI, JUL 3, 1992, 1:35 PM
```

Displaying the autoboot status

Use the `AUTOBOOT` command to display the current status of autoboot and toggle the autoboot flag.

AUTOBOOT command syntax

$$\text{AUTOBOOT} \left\{ \begin{array}{l} \text{ON} \\ \text{OFF} \\ \text{STATUS} \end{array} \right\}$$

AUTOBOOT command parameters

ON   Optional. The `ON` option enables the autoboot feature.

OFF   Optional. The `OFF` option disables the autoboot feature.

STATUS   Optional. The `STATUS` option displays the current status of the autoboot feature. For example, a message similar to the following is displayed:

Autoboot is enabled.

AUTOBOOT command example

To enable the autoboot feature, enter the following at the `BLDDUMP` prompt:

(#1) blddump > <u>AUTOBOOT ON</u>

A message similar to the following is displayed:

Autoboot is already enabled.

Note   This message indicates that the autoboot feature was already set to `ON`.

Using the **BLDDUMP** help facility

Use the `HELP` command to review detailed information about BLDDUMP commands. If you enter `HELP` alone, you see a syntax description of all BLDDUMP commands. If you enter `HELP` with a command name, you see detailed information about that command.

HELP command syntax

HELP $\left[\,cmd\_name\,\right]\left[\,options\,\right]$

HELP command parameters

cmd_name   Optional. The name of a `BLDDUMP` command. The value for *cmd_name* can be any of the following: `TAPE`, `BUILD`, `PURGE`, `ALTSIZE`, `AUTOBOOT`, `PROTECT`, `RESET`, `LIST`, `HELP`, or `EXIT`.

options   Any combination of the following: `[NO]USE`, `NO[PARMS]`, `NO[DESC]`, `NO[EXAMPLE]`, `NO[ACCESS]`, `ALL`

HELP command example

To list the detailed information about the `ALTSIZE` command, enter the following at the `BLDDUMP` prompt:

```
(#8) blddump > HELP ALTSIZE,USE
```

Exiting the BLDDUMP utility

Use the EXIT command to exit the BLDDUMP utility.

If you invoke BUILD, PURGE, or ALTSIZE, you must invoke both VSCLOSE and VSOPEN against a nonsystem volume set when you exit BLDDUMP. This ensures posting of directory information. You must enter VSCLOSE and VSOPEN at the console specifying the nonsystem volume set name. For example, if you invoked the BUILD command against a nonsystem volume set named DISKDUMP_VOLUME_SET then, at the system prompt, enter:

```
:VSCLOSE DISKDUMP_VOLUME_SET
:VSOPEN DISKDUMP_VOLUME_SET
```

EXIT command syntax

```
EXIT
```

EXIT command example

To exit BLDDUMP, enter the following at the BLDDUMP prompt:

```
(#9) blddump> EXIT
```

If a nonsystem volume set (for example, EXAMPLE_SYSTEM_VOLUME_SET) is selected, then the following is displayed:

```
Remember to do a VSCLOSE and then a VSOPEN
 on EXAMPLE_SYSTEM_VOLUME_SET.
```

If the system volume set MPEXL_SYSTEM_VOLUME_SET is selected, then nothing is displayed. This is because you cannot perform a VSCLOSE or a VSOPEN on the system volume set.

Note

Hewlett-Packard does not recommend that you use the system volume set for dump-to-disk. If the system comes down before it can post information to the MPEXL_SYSTEM_VOLUME_SET disk directory, then you cannot perform the dump-to-disk on this failure. Since the disk directory format is posted at startup time, subsequent dumps-to-disk will be successful.

4

Configuring and Managing the Autoboot Feature

This chapter describes how to configure and manage the autoboot feature on your system.

The first part of this chapter details the steps that you must perform to successfully configure the autoboot feature on your system. If you are performing an initial configuration of autoboot, start by reading "Overview of Autoboot Configuration."

The remaining sections in this chapter deal with managing the autoboot feature after initial configuration. They include the following:

- using the autoboot toggle
- temporarily disabling autoboot
- modifying the autoboot file
- removing the autoboot feature
- configuring the autoboot feature for mini-dump

Note Do not proceed with autoboot configuration until you have completed the steps described in chapters 2 and 3.

Overview of Autoboot Configuration

The following steps are necessary to configure the autoboot feature:

1. Create the autoboot format file.

2. Add the autoboot feature to your system's configuration.

3. Halt system activity.

4. Perform a configuration update and test for successful configuration of AutoRestart/iX.

5. Return your system to a normal operating state.

The final step in autoboot configuration is a test for successful configuration of all three AutoRestart/iX features: dump-to-disk, restart, and autoboot. For a successful test, you must have already configured the dump-to-disk feature and must have created at least one dump file.

Many of the steps described in this chapter require you to log on to the console, to an account with system manager capability. For convenience, this manual recommends that you perform all steps from the console.

Note

Each customer installation is different. Read these steps before you start, and customize any areas that require customization for your system.

Creating the Autoboot Format File

This section describes how you create the autoboot format file. The autoboot format file is a specially formatted file and is required to add a system autoboot file.

To create the autoboot format file, follow these steps:

1. Log on to the console as `MGR.TELESUP,HP36375`. At the system prompt, enter:

   `:HELLO MGR[/`*userpass*`].TELESUP[/`*acctpass*`],HP36375`

2. Create a text file named `AUTOIN`, containing the sequence of ISL commands that you want the system to perform at system boot. The file should contain one ISL command per line. The following example creates a text file that contains `DUMP` followed by `START -R` (enable the restart feature):

```
:RUN EDITOR.PUB.SYS

HP32201A.07.18 EDIT/3000 THU, JAN 18, 1990,  9:34 AM
(C) HEWLETT-PACKARD CO. 1989
/ADD
      1      DUMP
      2      START -R start_options
      3      //
...
/KEEP AUTOIN.HP36375.TELESUP
/EXIT

END OF PROGRAM
```

3. Use the AutoRestart/iX `FORMAT` utility to convert the contents of `AUTOIN.HP36375.TELESUP` to a file named `AUTOOUT` with the required format. The `FORMAT` utility looks for a file named `AUTOIN` in your current logon group. Format then creates the format file `AUTOOUT` in the same group. At the system prompt, enter:

    :<u>RUN FORMAT.HP36375.TELESUP</u>

The following is displayed:

```
   Autoutil 1.0:  A.43.11
   AUTOIN converted to autoboot format file AUTOOUT

   END OF PROGRAM
   :
```

4. Purge the file `AUTOIN.HP36375.TELESUP`. At the system prompt, enter:

    :<u>PURGE AUTOIN.HP36375.TELESUP</u>

Adding the Autoboot File to Your System's Configuration

This section describes the steps necessary to do the following:

- Add an autoboot file to a system without one.
- Replace an existing autoboot file with the AutoRestart/iX autoboot file.
- Perform a configuration update to your system.

This manual assumes that you are making configuration changes to the default configuration group of the 900 Series HP 3000 system that you are currently logged on to. If you plan to make configuration changes to a group other than the default configuration group (`CONFIG.SYS`), refer to instructions in the *System Startup, Configuration, and Shutdown Reference Manual* (32650-90042).

To add the AutoRestart/iX autoboot file to your system's configuration, perform the following steps:

1. Log on to the console as `MANAGER.SYS`. At the system prompt, enter:

    :<u>HELLO MANAGER[/*userpass*].SYS[/*acctpass*]</u>

2. Invoke `SYSGEN`. At the system prompt, enter:

    :<u>SYSGEN</u>

3. Access the SYSFILE configurator. At the `SYSGEN` prompt, enter:

    sysgen> <u>SYSFILE</u>

4. Use the `SHOW` command to confirm that a disk autoboot file is not currently configured on your system. At the `SYSFILE` prompt, enter:

    sysfile> <u>SHOW AUTO</u>

    If a disk autoboot file has not already been installed on your system, `SYSGEN` displays the following:

    DISK AUTOBOOT = NONE

    If a disk autoboot file has been installed on your system, `SYSGEN` displays the following:

    DISK AUTOBOOT = *filename.grpname.acctname*

Note If a disk autoboot file is already installed on your system, skip step 5 and proceed to step 6 for directions on replacing your current autoboot file with the AutoRestart/iX autoboot file.

5. If you do not have an autoboot file installed on your system, use the `AAUTO` command to add the AutoRestart/iX autoboot format file `AUTOOUT.HP36375.TELESUP` to your system's configuration. The `FILE=` parameter specifies the autoboot format file. The `TYPE=DISK` parameter indicates that the autoboot file contents will be invoked only during a boot from disk. At the `SYSFILE` prompt, enter:

   sysfile> <u>AAUTO FILE=AUTOOUT.HP36375.TELESUP TYPE=DISC</u>

   Go to step 7.

6. If you already have an autoboot file installed on your system, use the `RAUTO` command to replace the existing autoboot file with the AutoRestart/iX autoboot format file `AUTOOUT.HP36375.TELESUP`. The `FILE=` parameter specifies the autoboot format file. The `TYPE=DISK` parameter indicates that the autoboot file contents are invoked only during a boot from disk. At the `SYSFILE` prompt, enter:

   sysfile> <u>RAUTO FILE=AUTOOUT.HP36375.TELESUP TYPE=DISC</u>

7. Use the `SHOW AUTO` command to confirm that `SYSGEN` has accepted `AUTOOUT.HP36375.TELESUP`. At the `SYSFILE` prompt, enter:

   sysfile> <u>SHOW AUTO</u>

   The `SYSGEN` utility displays the following:

   DISC AUTOBOOT = AUTOOUT.HP36375.TELESUP

8. Use the `HOLD` command to temporarily hold the changes that you made in the `SYSFILE` configurator. At the `SYSFILE` prompt, enter:

   sysfile> <u>HOLD</u>

9. Exit the `SYSFILE` configurator to return to the `SYSGEN` menu. At the `SYSFILE` prompt, enter:

   sysfile> <u>EXIT</u>

10. Use the `KEEP` command to store to disk the changes that you have made to your system's configuration. At the `SYSGEN` prompt, enter:

      sysgen> <u>KEEP</u>

    The `SYSGEN` utility saves to the default configuration group the configuration changes made in the SYSFILE configurator. Respond `Y` when `SYSGEN` asks if it should overwrite that group:

```
         keeping to group CONFIG.SYS
         Purge old configuration (yes/no)? Y̲
         ** configuration files successfully saved **
```

11. Mount a write-enabled tape on the tape drive. Put the tape drive on-line.

12. Use the `TAPE` command at the `SYSGEN` prompt to generate a customized system load tape (SLT), sometimes called a boot tape, that includes the system autoboot file. Enter:

      sysgen> <u>TAPE</u>

13. Reply to the tape request. The system tells you that it has completed the tape:

      Boot tape is successfully built

    After all of the files are stored, remove the write ring from the tape. This is your system's new SLT. Label the tape in preparation for a configuration update to complete installation of the autoboot file.

14. Exit `SYSGEN` after building the SLT. Enter:

      sysgen> <u>EXIT</u>

15. You now must halt system activity before you perform a configuration update.

Halting System Activity

This section describes the steps necessary to perform an orderly shutdown of your system prior to a configuration update.

Note

This section describes procedures associated with shutting down your system. Read through this section before you attempt a shutdown based on these instructions. Go over the areas that you want to customize for your system. Refer to *System Startup, Configuration, and Shutdown Reference Manual* (32650-90042) for additional information about halting system activity.

To halt system activity, follow these steps:

1. Ensure that you have complete backup tapes. If you do not have up-to-date backups, reschedule the update. Refer to *System Backup and Recovery* (32650-90039) for more information on backing up a system.

2. Log on to the console as `MANAGER.SYS`.

3. Include shutdown information in the welcome message. Remember to include information about the time of the shutdown and whom a user should contact with questions. At the system prompt, enter:

   ```
   :WELCOME
   #Return
   ```

   This erases the present welcome message. Enter it a second time:

   ```
   :WELCOME
   ```

   When the pound sign prompt (`#`) appears, enter the message line by line, ending each line with `Return`. Press `Return` at the prompt to terminate the welcome message facility.

4. Use the `TELL` command to alert users to the upcoming shutdown approximately 15 minutes beforehand. At the system prompt, enter:

   ```
   :TELL @S;Shutdown in 15 minutes.  Please log off.
   ```

5. Use the `LIMIT` and `JOBFENCE` commands to prevent any new users from logging on or any scheduled jobs from starting. At the system prompt, enter:

   ```
   :LIMIT 0,0
   :JOBFENCE 14
   ```

6. To verify that the printer is available and to shut down spool queues, follow these steps:

   a. Verify that the printer is active. At the system prompt, enter:

      `:SHOWDEV nn`

      (*nn* `is your printer's LDEV number.`)

   b. Use the `SHUTQ` command to shut down the spool queues. This prevents users from sending reports to the printer. At the system prompt, enter:

      `:SHUTQ nn`

      (*nn*`=printer's LDEV number`)

      `or`

      `:SHUTQ devname`

      (*devname*`=device name of spooled device`)

7. A configuration update to install an autoboot file requires a minimum number of sectors on LDEV 1. Ensure that you have this space by following these steps:

   a. Build a dummy file on LDEV 1 that contains 1000 sectors. At the system prompt, enter:

      `:BUILD AXLDEV1;DISC=1000,1,1;DEV=1;TEMP`

Note   If you do not have enough disk space to build this file, you must store files located on LDEV 1 to tape, purge those files from LDEV 1, then repeat this step.

---

   b. Purge the dummy file. At the system prompt, enter:

      `:PURGE AXLDEV1,TEMP`

8. Warn users two minutes before shutting down the system. At the system prompt, enter:

   `:WARN @S;SYSTEM SHUTDOWN IN 2 MINUTES.  LOG OFF.`

9. Close any of the system's open communication lines. At the system prompt, enter both of the following to deactivate the NS3000/XL product:

   `:NSCONTROL STOP`
   `:NETCONTROL STOP`

10. Refer to the manuals of any other communications products for instructions on deactivating them.

11. To shut down the system, enter:

    CTRL A
    =SHUTDOWN

    The console responds by listing shutdown messages similar to these:

    ```
    Shutdown of operating system begins. (Shut 1)
    Shutdown of user processes begins. (Shut 2)
    Shutdown of jobs & sessions begins. (Shut 3)
    Spoolers notified of a shutdown. (Shut 16)
    Shutdown of system processes begins. (Shut 4)
    Shutdown of system managers begins. (Shut 5)
    Shutdown of operating system complete. (Shut 6)
    ```

    All system activity is now halted.

12. You must now perform a configuration update to complete installation of the autoboot file.

Performing a Configuration Update

This section describes how to perform a configuration update, so that you can complete configuration of your autoboot feature and test for successful configuration of AutoRestart/iX.

Note

This section describes procedures associated with rebooting your system and performing a configuration update. Read this section before you follow the instructions, and review the areas that you want to customize for your system. Refer to *System Startup, Configuration, and Shutdown Reference Manual* (32650-90042) for additional information.

To update the operating system of your 900 Series HP 3000, complete these steps:

1. Mount the system load tape containing the autoboot configuration on the tape drive. Put the tape drive on-line.

2. Put the console in control mode by pressing (CTRL) and (B) simultaneously.

Note

If the ISL autoboot flag is enabled, the MPE/iX startup sequence attempts to automatically boot from the primary boot path after the system is reset. This should not occur. After resetting the system in the next step, carefully watch console messages and press any key within 10 seconds of seeing the following display on the console:

```
Autoboot from primary boot path enabled.
 To override, press any key within 10 seconds.
```

3. Reset the system. At the control mode prompt (CM>), enter:

    CM> <u>RS</u>

    Enter Y at the prompt to confirm the reset.

4. If your system has autoboot enabled, override the autoboot by pressing any key within 10 seconds of seeing the following display on the console:

    ```
    Autoboot from primary boot path enabled.
    To override, press any key within 10 seconds.
    ```

5. Boot your system from the alternate boot path by responding N to the Boot from primary boot path (Y or N)?> prompt and Y to the Boot from alternate boot path (Y or N)?> prompt.

6. Respond Y to the Interact with IPL (Y or N)?> prompt.

The following example represents a boot sequence received at the console for a Series 950/980 with autoboot enabled, ending with the system displaying the ISL prompt. Sequences for other installations can vary.

```
CTRL  B
CM> TC

Processor-Dependent Code (PDC) revision 2.8

Console path        = 2/4.1.0.0.0.0.0
Primary boot path   = 2/4.0.0.0.0.0.0
Alternate boot path = 6/4.3.0.0.0.0.0

48 MB of memory configured and tested.

Autoboot from primary path enabled.
To override, press any key within 10 seconds.  RETURN

** A key is pressed **

Boot from primary boot path (Y or N)?> N
Boot from alternate boot path (Y or N?> Y

Interact with IPL( Y/N ) Y

Booting.

Console IO-Dependent Code (IODC) revision 3
Boot    IO-dependent Code (IODC) revision 3

Booted.

ISL Revision 2738  September, 1987

ISL>
```

7. Disable the autoboot flag. At the ISL prompt, enter:

    ISL> AUTOBOOT OFF

8. To confirm that `FASTSIZE` is set to `0000000F`, follow these steps:

   a. Display the current `FASTSIZE` value. At the ISL prompt, enter:

      ISL> <u>DISPLAY</u>

      Fastsize value is 0000000F
                    .
                    .
                    .

   b. If `FASTSIZE` is any value other than `0000000F`, you must change the value of `FASTSIZE` to `0000000F`. At the ISL prompt, enter:

      ISL><u>FASTSIZE F</u>

   c. If you changed the value of `FASTSIZE`, you must reset the system for the new value to take effect. Repeat the steps described in "Performing a Configuration Update," beginning with step 2.

9. Use the `UPDATE` command to execute a configuration update. At the ISL prompt, enter:

   ISL> <u>UPDATE</u>

   The system prompts for the correct date and time shortly after receiving the `UPDATE` command. If the date and time are correct, press ⌷Return⌷ at the date prompt. If the date or the time is incorrect, press `N` and respond as requested with the correct date and time (in 24-hour format).

   The configuration update proceeds for approximately 10 minutes. After it completes the update, your system resets itself.

10. Boot from the primary boot path by responding `Y` to the `Boot from primary boot path (Y or N)?>` prompt.

11. Respond `Y` to the `Interact with IPL (Y or N)?>` prompt.

12. Use the ISL `AUTOBOOT` command to enable the autoboot feature. At the ISL prompt, enter:

    ISL> <u>AUTOBOOT ON</u>

13. Use the `START` command with the `-R` restart option, to start your system with the restart feature enabled. At the ISL prompt, enter:

    ISL> <u>START -R *start_options*</u>

Note   When you get to the ISL prompt, be sure to use the `-R` option with `START` so that reboot occurs automatically the next time that a system abort occurs. If you do not use the `-R` option with `START`, the system does not reboot after a system abort.

14. When startup is complete, perform a soft reset of your system, to test successful installation and configuration of AutoRestart/iX. At the console, enter:

   `CTRL` `B`
   CM> <u>TC</u>

   After resetting itself, the system executes the ISL commands in the system autoboot file. The first ISL command invoked is usually `DUMP`. If the dump-to-disk feature has been correctly configured, the `DUMP` facility locates the first dump file and proceeds to dump-to-disk.

   After dump-to-disk is successfully accomplished, the next command in the system autoboot file is invoked.

15. You can now return your system to a normal operating state.

Returning the System to Normal Operation

When you complete the update process and successful testing of AutoRestart/iX, you must do the following:

- Return the system to its normal operating state.
- Remove system dependency on the autoboot format file.
- Return dump-to-disk to its pre-test state, if you tested for successful configuration of AutoRestart/iX.

Returning to a normal operating state

This section describes many of the steps required to return your system to its normal operating state. Not all possible steps are included here, because each customer installation is different. Review the steps below and decide what additional steps you want to take. For example, if `SYSSTART` is enabled on your system, most or all of the following steps may already be done automatically if they are invoked by your `SYSSTART.PUB.SYS` file.

To return the system to a normal operating state, follow these steps:

1. Log on to the console as `MANAGER.SYS;HIPRI`.

2. Bring up network services with the appropriate interface names. For example, if you have configured network interfaces with the names `LOOP` and `LAN`, enter:

   ```
   :NETCONTROL START;NET=LOOP
   :NETCONTROL START;NET=LAN
   :NSCONTROL START
   ```

   Refer to the *NS3000/XL Network Manager's Reference Manual* (36920-90002) for more information.

3. Use the `JOBFENCE` and `LIMIT` commands to reset the jobfence and limit to pre-update values.

4. Use the `OPENQ` command to open the spool queues for spoolable devices not already spooled during system startup. Repeat this step for each device. At the system prompt, enter:

   ```
   :OPENQ nn
   ```

   Where *nn* is either the LDEV number, device name, or class name of the device that you want spooled.

5. Invoke `SYSGEN` and replace the name of the autoboot format file `AUTOOUT.HP36375.TELESUP` with the system autoboot file `AUTOBOOT.MPEXL.SYS`. Refer to the next section for directions.

Removing dependency on the autoboot format file

This section describes how to replace `AUTOOUT.HP36375.TELESUP` with the system autoboot file `AUTOBOOT.MPEXL.SYS`. Whenever you create a system load tape (SLT) in `SYSGEN` on a system that has an autoboot file, `SYSGEN` searches for the specified autoboot file before creating the SLT. If `SYSGEN` does not locate the autoboot file, it does not create the SLT.

Note
Hewlett-Packard recommends that you replace the AutoRestart/iX autoboot file name in `SYSGEN` with the system autoboot file name. The system autoboot file is named `AUTOBOOT.MPEXL.SYS`. The system searches the contents of `AUTOBOOT.MPEXL.SYS` during the startup sequence. `AUTOBOOT.MPEXL.SYS` is a specially protected system file and cannot be purged or modified by a customer.

To replace `AUTOOUT.HP36375.TELESUP` with the system autoboot file `AUTOBOOT.MPEXL.SYS`, follow these steps:

1. Log on to `MANAGER.SYS`.

2. Invoke `SYSGEN`. At the system prompt, enter:

   `:SYSGEN`

3. Access the `SYSFILE` configurator. At the `SYSGEN` prompt, enter:

   `sysgen> SYSFILE`

4. Use the `RAUTO` command to replace the existing autoboot file with the system autoboot file `AUTOBOOT.MPEXL.SYS`. At the `SYSFILE` prompt, enter:

   `sysfile> RAUTO FILE=AUTOBOOT.MPEXL.SYS TYPE=DISC`

5. Use the `SHOW AUTO` command to confirm that `SYSFILE` has accepted `AUTOBOOT.MPEXL.SYS`. At the `SYSFILE` prompt, enter:

   `sysfile> SHOW AUTO`

   The following is displayed:

   `DISK AUTOBOOT  = AUTOBOOT.MPEXL.SYS`

6. Use the `HOLD` command to temporarily hold the changes that you made in the `SYSFILE` configurator. At the `SYSFILE` prompt, enter:

   `sysfile> HOLD`

7. Exit the `SYSFILE` configurator to return to the `SYSGEN` menu. At the `SYSFILE` prompt, enter:

   `sysfile> EXIT`

8. Use the `KEEP` command to store to disk the changes that you have made to your system's configuration. At the `SYSGEN` prompt, enter:

       sysgen> KEEP

The `SYSGEN` utility saves to the default configuration group the configuration changes made in the `SYSFILE` configurator. Respond `Y` when `SYSGEN` asks if it should overwrite that group.

```
keeping to group CONFIG.SYS
Purge old configuration (yes/no)? Y
** configuration files successfully saved **
```

9. Exit `SYSGEN`. At the `SYSGEN` prompt, enter:

       sysgen> EXIT

10. Purge both `AUTOIN.HP36375.TELESUP` and `AUTOOUT.HP36375.TELESUP`. At the system prompt, enter:

       :PURGE AUTOIN.HP36375.TELESUP
       :PURGE AUTOOUT.HP36375.TELESUP

Returning dump-to-disk to initial configuration

If you tested the successful configuration of AutoRestart/iX, you must reset the dump file that was used during the test. Reset the dump file after you return to the initial configuration.

Note

If a dump occurs after you performed either a soft or a hard reset of your system (not as a result of a system abort), and you allowed the autoboot sequence to proceed, the dump that occurs does not contain valid dump information. In this case, you must follow these steps to remove the invalid dump information from the affected dump file.

To reset the dump file, follow these steps:

1. Log on to the console as `MANAGER.SYS`.

2. Execute the `BLDDUMP` utility. At the system prompt, enter:

       :RUN BLDDUMP.HP36375.TELESUP

3. Use the LIST command to determine the current state of dump files. At the BLDDUMP prompt, enter:

> (#1) blddump > <u>LIST</u>

The BLDDUMP utility displays the current state of all dump files. In the following example, DUMP1 is the name of the dump file that was written to during the invalid dump:

```
Autoboot Status                                    ON
Dump-to-tape if dump-to-disk is not successful?    YES

DUMP FILE NAME       DUMP FILE        CURRENT SIZE    PROTECTED?
 (ID + "MEM")        MAXIMUM SIZE     OF CONTENTS
                     (megabytes)      (megabytes)
---------------      ------------     --------------   ----------
DUMP1MEM                400               229             YES
```

The current size of DUMP1 is 229 megabytes, indicating that the system wrote dump information to it during the AutoRestart/iX testing.

4. Use the RESET command to remove the contents of the dump file that was filled when you tested AutoRestart/iX. At the BLDDUMP prompt, enter:

> (#2) blddump > <u>RESET DUMP1</u>

5. Use the `LIST` command to confirm that `DUMP1` has been reset. At the `BLDDUMP` prompt, enter:

```
(#1) blddump > LIST
```

`BLDDUMP` displays the following:

```
Autoboot Status                                    ON
Dump-to-tape if dump-to-disk is not successful?    YES

DUMP FILE NAME      DUMP FILE      CURRENT SIZE   PROTECTED?
 (ID + "MEM")       MAXIMUM SIZE   OF CONTENTS
                    (megabytes)    (megabytes)
--------------      ------------   -------------  ----------
DUMP1MEM                400              0            YES
```

The current size of `DUMP1` is 0 megabytes, indicating a successful reset. The `DUMP1` file is now ready for use as a target file for a subsequent dump-to-disk.

6. Use the `EXIT` command to exit `BLDDUMP` and return to the system prompt. At the `BLDDUMP` prompt, enter:

```
(#4) blddump > EXIT
```

Managing the Autoboot Feature

This section deals with managing the autoboot feature after initial configuration. The tasks described are as follows:

- using the autoboot toggle
- temporarily disabling autoboot
- modifying the autoboot file
- removing the autoboot feature

Using the autoboot toggle

The autoboot toggle allows you to access the current status of autoboot and turn it on or off.

The autoboot toggle performs reads and writes on stable storage; therefore, restrictions pertaining to stable storage apply to its use. Stable storage has a guaranteed write life of 10,000 times. After 10,000 writes, the values can no longer be guaranteed to be modified successfully. For example, used once per day the stable storage has a lifetime of 27 years.

Note

Autoboot must not be used carelessly.

Accessing the current status of autoboot

To obtain the current status of the autoboot feature, perform the following steps:

1. Log on to the console as MANAGER.SYS.

2. Execute the BLDDUMP utility. At the system prompt, enter:

   :RUN BLDDUMP.HP36375.TELESUP

3. Use the LIST command to determine the current status of autoboot. At the BLDDUMP prompt, enter:

   (#1) blddump > LIST

   The BLDDUMP utility displays the current state of all dump files and the autoboot status:

```
(#1) blddump > LIST

Autoboot Status                                        OFF
Dump-to-tape if dump-to-disk is not successful?        NO

DUMP FILE NAME        DUMP FILE        CURRENT SIZE    PROTECTED?
 (ID + "MEM")         MAXIMUM SIZE     OF CONTENTS
                      (megabytes)      (megabytes)
--------------        ------------     -------------   ----------
DUMP1MEM                  417               0             YES
```

Toggling the autoboot flag

To toggle the autoboot flag, perform the following steps:

1. Log on to the console as `MANAGER.SYS`.

2. Execute the `BLDDUMP` utility. At the system prompt, enter:

   `:RUN BLDDUMP.HP36375.TELESUP`

3. Use the `AUTOBOOT` xx command to determine the current status of autoboot. At the `BLDDUMP` prompt, enter:

   `(#1) blddump > AUTOBOOT` xx

Where:

xx is either on or off. The `ON` option enables autoboot, and the `OFF` option disables autoboot.

The following message is displayed:

   `Autoboot has been enabled.`

If autoboot was already set to `ON`, and the `AUTOBOOT ON` command was issued, then the following message is displayed:

   `Autoboot is already enabled.`

Similarly, for disabling autoboot, If autoboot was already set to `OFF` and the `AUTOBOOT OFF` command was issued, then the following message is displayed:

   `Autoboot is already disabled.`

Displaying autoboot status

To obtain the current status of autoboot, perform the following steps:

1. Log on to the console as `MANAGER.SYS`.

2. Execute the `BLDDUMP` utility. At the system prompt, enter:

   `:RUN BLDDUMP.HP36375.TELESUP`

3. Use the `LIST` command to determine the current status of autoboot. At the `BLDDUMP` prompt, enter:

   `(#1) blddump > AUTOBOOT STATUS`

or

   `(#1) blddump > AUTOBOOT`
   Status is the default

The `BLDDUMP` utility displays a message similar to the following:

   `Autoboot is enabled.`

Temporarily disabling autoboot

There are two ways to temporarily disable the autoboot feature; however, both require operator intervention during the startup sequence. These are as follows:

- Override the autoboot sequence at the console.

- Get into ISL and disable the autoboot flag.

Both options require an operator's presence during system startup.

If the autoboot feature is configured on your system, it is invoked each time your system is reset. Your system can be reset in either of the following ways:

- After a system abort occurs on a system that was started using the -R option of START.

- After you perform either a soft reset Ctrl B TC or a hard reset Ctrl B RS.

If you have interactively performed either a soft or a hard reset, you probably do not want to invoke the DUMP command located in the autoboot file. You must remain at the console after the reset in order to override the autoboot sequence.

Note

Any time that you invoke the ISL commands UPDATE or INSTALL, the dump-to-disk feature is not functional until after you have restarted your system using the ISL START -R command. If a dump occurs during or immediately after a system update or install, dump always defaults to tape. If autoboot is enabled on your system, be sure to disable the autoboot flag prior to update or install. Remember to reenable the autoboot flag after the update or install is complete and before you restart your system. If you do not disable the autoboot flag prior to the install or update, you must override the autoboot sequence after the install or update and before the DUMP command located in the autoboot file is invoked.

Overriding the autoboot sequence at startup

If you are at the console, you can override autoboot after you reset the system.

You must repeat the following steps each time the system is restarted. Follow these steps:

1. Override autoboot by pressing any key within 10 seconds after you see this display on the console:

       Autoboot from primary boot path enabled.
       To override, press any key within 10 seconds.

2. Respond Y to the Boot from primary path (Y or N)?> prompt.

3. Respond Y to the Interact with IPL (Y or N)?> prompt.

You are now at the ISL prompt. From here you can invoke ISL commands, including `START -R`.

Note	Remember to use the `-R` option with `START` if you want the system to restart after the next system abort. If you do not use the `-R` option, the system does not reboot after the next system abort.

Disabling the autoboot flag

You can temporarily disable autoboot by getting into ISL and disabling the autoboot flag. To disable the autoboot flag, follow these steps:

1. Log on to the console as `MANAGER.SYS`.

2. Halt system activity. (Refer to the directions in "Halting System Activity," earlier in this chapter.)

3. Place the console in control mode by pressing (CTRL) and (B) simultaneously.

Note	Because the ISL autoboot flag is enabled, the MPE/iX startup sequence attempts to automatically boot from the primary boot path after the system is reset. This should not occur. After resetting the system in the next step, carefully watch console messages and press any key within 10 seconds after you see this display on the console:

```
Autoboot from primary boot path enabled.
To override, press any key within 10 seconds.
```

4. Reset the system. At the control mode prompt (`CM>`), enter:

    `CM> RS`

5. If your system has autoboot enabled, override the autoboot by pressing any key within 10 seconds after you see this display on the console:

    ```
    Autoboot from primary boot path enabled.
    To override, press any key within 10 seconds.
    ```

6. Respond `Y` to the `Boot from primary path (Y or N)?>` prompt.

7. Respond `Y` to the `Interact with IPL (Y or N)?>` prompt.

8. At the ISL prompt, enter:

    `ISL> AUTOBOOT OFF`

9. Restart your system using the `-R` option with `START` if you want your system to reboot after the next system abort (for directions on restarting your system, refer to "Returning the System to a Normal Operating State," earlier in this chapter).

Modifying your autoboot sequence

To modify the sequence of ISL commands in the system autoboot file, replace the contents of the system autoboot file with the modified contents of `AUTOOUT.HP36375.TELESUP`. This process is similar to the one used to add an autoboot file. You must perform an update to allow the system to write the new autoboot contents to the system autoboot file.

Follow these steps:

1. Log on to the console as `MGR.TELESUP,HP36375`.

2. Purge the file `AUTOOUT.HP36375.TELESUP`. At the system prompt, enter:

   `:PURGE AUTOOUT.HP36375.TELESUP`

   Confirm that the file no longer exists.

3. Use a text editor either to modify the contents of `AUTOIN.HP36375.TELESUP` or to purge it and create a new `AUTOIN.HP36375.TELESUP` containing the list of ISL commands that you want.

4. Use the `FORMAT` utility to convert the contents of `AUTOIN`, and create the autoboot format file `AUTOOUT.HP36375.TELESUP`. At the system prompt, enter:

   `:RUN FORMAT.HP36375.TELESUP`

5. Confirm that `AUTOOUT.HP36375.TELESUP` was created. At the system prompt, enter:

   `:LISTF AUTOOUT.HP36375.TELESUP`

6. Purge the file `AUTOIN.HP36375.TELESUP`. At the system prompt, enter:

   `:PURGE AUTOIN.HP36375.TELESUP`

7. Log on to the console as `MANAGER.SYS`.

8. Invoke `SYSGEN`. At the system prompt, enter:

   `:SYSGEN`

9. Access the `SYSFILE` configurator. At the `SYSGEN` prompt, enter:

   `sysgen> SYSFILE`

10. At the `SYSFILE` prompt, enter:

    `sysfile> SHOW AUTO`

    The `SYSGEN` utility displays:

    `DISK AUTOBOOT = AUTOBOOT.MPEXL.SYS`

11. Use the `RAUTO` command to replace the existing autoboot
    file with the AutoRestart/iX autoboot format file
    `AUTOOUT.HP36375.TELESUP`. The `FILE=` parameter specifies the
    autoboot format file. The `TYPE=DISK` parameter indicates that
    the autoboot file contents are invoked only during a reboot from
    disk. At the `SYSFILE` prompt, enter:

    sysfile> <u>RAUTO FILE=AUTOOUT.HP36375.TELESUP TYPE=DISK</u>

12. Use the `SHOW AUTO` command to confirm that `SYSGEN` has
    temporarily accepted `AUTOOUT.HP36375.TELESUP`. At the
    `SYSFILE` prompt, enter:

    sysfile> <u>SHOW AUTO</u>

    The `SYSGEN` utility displays:

    DISK AUTOBOOT = AUTOOUT.HP36375.TELESUP

13. Use the `HOLD` command to temporarily hold the changes that
    you made in the `SYSFILE` configurator. At the `SYSFILE` prompt,
    enter:

    sysfile> <u>HOLD</u>

14. Exit the `SYSFILE` configurator to return to the `SYSGEN` menu. At
    the `SYSFILE` prompt, enter:

    sysfile> <u>EXIT</u>

Note   Do not use the `KEEP` command to save this information to your
system configuration. Instead, the system will copy the contents of
`AUTOOUT` to the system autoboot file without reestablishing system
dependence on the `AUTOOUT` file.

15. Mount a write-enabled tape on the tape drive. Put the tape
    drive on-line.

16. Use the `TAPE` command at the `SYSGEN` prompt to generate a
    customized system load tape (SLT), sometimes called a boot
    tape, which includes the system autoboot file. Enter:

    sysgen> <u>TAPE</u>

17. Reply to the tape request.

    The system tells you that it has completed the tape:

    Boot tape is successfully built

    After all the files are stored, remove the write ring from the tape.
    This is your system's new SLT. Label the tape in preparation for
    a configuration update to complete replacement of the autoboot
    file.

18. Exit SYSGEN after building the SLT. At the `SYSGEN` prompt, enter:

```
sysgen> EXIT
```

When you exit `SYSGEN` without keeping the modifications to disk, the system autoboot file `AUTOBOOT.MPEXL.SYS` remains in `SYSGEN` (not `AUTOOUT.HP36375.TELESUP`).

Deleting the autoboot feature

To permanently delete the autoboot feature from your system, you must delete the autoboot file from your system configuration, create a new SLT, then reinstall your system using the ISL `INSTALL` command.

For more information about deleting the autoboot file and reinstalling your system, refer to the *System Startup, Configuration, and Shutdown Reference Manual* (32650-90042).

Configuring and Managing the Autoboot Feature for Mini-Dump

The autoboot feature must be used in order to configure the mini-dump feature so that it is fully automatic. The following commands must be included in your autoboot file to ensure that a mini-dump is taken and the system is automatically restarted:

```
SAT SATINIT
START -R
```

The ISL command `SAT SATINIT` invokes `SAT`, specifying that it must execute the commands in the file that was initialized through the `BLDDUMP INITMD` command. If this command is not in the autoboot file, a mini-dump is not taken. The `-R` option of the `START` command enables the restart feature.

5

Managing Your AutoRestart/iX System

This chapter describes various tasks used to manage your system after initial AutoRestart/iX installation and configuration. The tasks described in this chapter are:

- periodically checking your system's maximum dump size
- periodically checking for an occurrence of a dump
- handling an occurrence of a dump
- backing up an AutoRestart/iX system
- previewing a mini-dump file

Periodically Checking Maximum Dump Size

Use the `DTODSIZ` utility to periodically estimate dump file size, based on system activity occurring when `DTODSIZ` is executed. Execute `DTODSIZ` (either interactively or in a scheduled job) during times of peak system activity to estimate the largest possible dump for your system.

Note

Hewlett-Packard recommends that the `DTODSIZ` utility be used twice per week until the estimates that you get are fairly consistent. After this initial period, continue to use `DTODSIZ` monthly during peak periods of system activity to confirm that dump files managed by `BLDDUMP` are big enough to handle your system's largest possible dump.

To execute `DTODSIZ`, enter the following at the system prompt:

    :RUN DTODSIZ.HP36375.TELESUP

When `DTODSIZ` runs, it displays the megabyte size that a dump file must be to hold dump information when a dump occurs. The `DTODSIZ` utility checks the size of dump files managed by `BLDDUMP` and tells you if the files are too small for the estimated dump size.

If you find that dump files are either too large or too small, execute `BLDDUMP` and use the `ALTSIZE` command to change the size of each dump file to the new maximum size estimated by `DTODSIZ`.

Checking for the Occurrence of a Dump

Because AutoRestart/iX guarantees automatic startup and dump-to-disk after a system software failure, you might not notice that a dump has occurred on your system. It is important that you establish procedures requiring regular checks for dump information in your dump files.

Note

You should check your system daily for evidence of a system abort and dump.

One way that you can check your system is to execute `BLDDUMP` and use the `LIST` command to list dump file information. Execute `BLDDUMP` either interactively or from a regularly scheduled job. Examine the output for evidence of a dump file that contains dump information from a system abort. In the following example, `BLDDUMP` shows that the dump file `DUMP1` has 330 megabytes of new dump information that resulted from a system abort that occurred since the last time that you checked.

```
:RUN BLDDUMP.HP36375.TELESUP
(#7) blddump > LIST

Autoboot Status                                        YES
Dump to tape if dump-to-disk is not successful?        NO

DUMP FILE NAME      DUMP FILE        CURRENT SIZE    PROTECTED?
 (ID + "MEM")       MAXIMUM SIZE     OF CONTENTS
                    (megabytes)      (megabytes)
--------------      ------------     -------------   ----------
DUMP1MEM                417              330            YES
```

Another way to check for a system abort and dump is to enable system console logging and to regularly examine system console log files for evidence of a system abort. Refer to *System Startup, Configuration, and Shutdown Reference Manual* (32650-90042) for details on enabling and examining system console logging.

Handling an Occurrence of a Dump

If a dump has occurred on your system, follow your site's defined procedures for handling dumps. These procedures could include contacting an Hewlett-Packard response center.

Note

It is important that dumps are handled immediately so that you can free the filled dump file for subsequent dumps.

Protecting Critical Data

Use caution any time that you use your tape device to restore information to your system, to avoid loss of critical data if a system abort occurs during the restore process. The tape device can remain online, and AutoRestart/iX dumps to that tape if dump-to-disk is unsuccessful. Be sure to remove the write ring from any tape that you try to restore.

If a system abort occurs during a backup, AutoRestart/iX can write dump information to the write-enabled backup tape currently mounted on the tape drive. If this occurs, you will not have complete backup information. Be sure that you perform a second backup as soon as possible.

Caution

Critical information stored on a tape mounted on your system's tape device can be lost if the tape is write-enabled when a system abort occurs.

Backing Up an AutoRestart/iX System

You may not want to include dump files in your normal system backup procedures. AutoRestart/iX dump files are normally hundreds of megabytes in size, the total size of dump files can exceed a gigabyte of disk space, when you have more than one dump file on a large system.

To ensure that dump files are not included in system backup, modify your system backup commands to exclude all dump files in `DISKDUMP.TELESUP`. The following example shows a `STORE` command that stores all system files except dump files.

```
:FILE T;DEV=TAPE
:STORE @.@.SYS,@.@.@-@.@.SYS-@.DISKDUMP.TELESUP;*T;SHOW=OFFLINE
```

If a system abort occurs during a backup, AutoRestart/iX can write dump information to the write-enabled backup tape currently mounted on the tape drive. If this occurs, you will not have complete backup information. Be sure that you perform a second backup as soon as possible.

Resetting an AutoRestart/iX System

Whenever you perform either a soft reset ($\boxed{\text{Ctrl}}\boxed{\text{B}}$ TC) or a hard reset ($\boxed{\text{Ctrl}}\boxed{\text{B}}$ RS) on a system with the autoboot feature configured, your system invokes the commands located in the autoboot file. In this case (and any case where a system abort did not occur), you do not want to invoke the DUMP command located in your autoboot file. Instead, stay at the console and override the autoboot sequence by pressing any key within 10 seconds after you see this display on the console:

```
Autoboot from primary boot path enabled.
To override, press any key within 10 seconds.
```

At the ISL prompt, restart your system, remembering to use the -R option with START.

If you are unable to press a key to override autoboot, and autoboot proceeds to invoke the DUMP command located in the autoboot file, you should ignore the dump and perform a soft or hard system reset from the console. Attempt again to override the autoboot sequence, then restart the system using the -R option with START.

Note

If dump-to-disk has already proceeded, it could be storing invalid dump information to a dump file. You have to run the BLDDUMP utility and reset the dump file that contains the invalid dump information.

Performing Updates or Installs

Whenever you perform an update or install on a system where AutoRestart/iX is configured, you should disable the autoboot flag at the ISL prompt prior to invoking either UPDATE or INSTALL. This action removes the possibility of the system invoking DUMP from the autoboot file before you have completed the update or installation.

Note

The dump-to-disk feature does not work immediately following an update or install and prior to a startup. If a dump is attempted at this time, the system dumps only to tape.

To disable autoboot, enter the following at the ISL prompt:

```
ISL> AUTOBOOT OFF
```

Remember to reenable the autoboot flag immediately after completion of the update or installation and before you enter START -R. To reenable autoboot, enter the following at the ISL prompt:

```
ISL> AUTOBOOT ON
```

If you did not disable the autoboot flag prior to installation or update, then, upon an update or install completion, you should override the autoboot sequence by pressing any key within 10 seconds after you see this display on the console:

```
Autoboot from primary boot path enabled.
To override, press any key within 10 seconds.
```

If you are unable to press a key to override autoboot, and autoboot proceeds to invoke the DUMP command located in the autoboot file, you should ignore the dump to tape and, instead, perform a soft or hard system reset from the console. Attempt again to override the autoboot sequence, then restart the system using the -R option with START.

Cases Where Dump-to-Disk Does Not Work

There are some situations in which a dump after a system abort does not dump-to-disk because the volume set is inaccessible to the dump facility. Instead, your system always dumps to tape; however, these situations are unlikely to occur. The situations are:

- After the last step, Shut 5, in a Ctrl A shutdown has begun and before the system has been successfully restarted.

- After an update or an install has begun and before the system has been successfully restarted.

Reviewing the Mini-Dump File

The mini-dump file is an ASCII format file that can be viewed with the PRINT command, an editor, or any way you are able to view an ASCII file. Following is an example mini-dump file:

```
FRI, JUL 3, 1992 3:49 PM

RELEASE A.41.00    MPEXL HP31900 A.51.07    USER VERSION: A.41.00

SYSTEM ABORT #1789 FROM SUBSYSTEM #107


        PC=a.00196ec0 system_abort
NM*  0) SP=402c5e58 RP=a.003e50ac unlock_range_from_cache+$94
NM   1) SP=402c5e58 RP=a.003e8a68 unlock_from_vpn_cache+$c4
NM   2) SP=402c5de8 RP=a.002c5b08 change_vps_state+$3c0
NM   3) SP=402c5d50 RP=a.002cb0b0 reserve_pages+$22c
NM   4) SP=402c5b20 RP=a.002b6f5c fetch_pages+$398
NM   5) SP=402c5a70 RP=a.002dd874 prefetch_+$63c
NM   6) SP=402c58a8 RP=a.00898df8 sm_soft_prefetch+$128
NM   7) SP=402c5370 RP=a.0089a5d0 disc_sm_start_read+$2e8
NM   8) SP=402c52e0 RP=a.0084b324 tm_ord_var_buf_disc.tm_read+$1d4
NM   9) SP=402c51b8 RP=a.0084d058 tm_ord_var_buf_disc+$12c
NM   a) SP=402c5018 RP=a.00803e1c FREAD+$3dc
NM   b) SP=402c4fa0 RP=a.oo802094 ?FREAD+$8
Can't unwind.  Error reading a value from virtual memory.
Can't get next stack frame.  Can't trace any further.
```

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