

# **Online Diagnostics Subsystem Utilities Manual**

**HP 3000 Series 900 Computers  
HP 9000 Series 800 Computers**



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**System Technology Division  
19483 Pruneridge Avenue  
Cupertino, CA 95014**

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## Printing History

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## Safety and Regulatory Information

For your protection this product has been tested to various national and international regulations and standards. The scope of this regulatory testing includes electrical/mechanical safety, radio frequency interference, ergonomics, acoustics, and hazardous materials. Where required, approvals obtained from third-party test agencies are shown on the product label. In addition, various regulatory bodies require some of the information under the following headings.

### USA Radio Frequency Interference

The United States Federal Communications Commission (in 47CFR Subpart J, of Part 15) has specified that the following notice be brought to the attention of the users of this product:

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#### Warning



**This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested for compliance with the limits for Class A computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.**

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The following notice is for users of this product in Japan:

この装置は、第一種情報装置(商工業地域において使用されるべき情報装置)で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会(VCCI)基準に適合しております。

従って、住宅地域またはその隣接した地域で使用する、ラジオ、テレビジョン受信機等に受信障害を与えることがあります。

取扱説明書に従って正しい取り扱いをして下さい。

#### Japanese Radio Frequency Notice

## Safety Considerations

This product and related documentation must be reviewed for familiarization with safety markings and instructions before operation. The following figure shows some of the safety symbols used on the product to indicate various safety considerations.

### SAFETY SYMBOLS



Instruction manual symbol: the product will be marked with this symbol when it is necessary for the user to refer to the instruction manual in order to protect the product against damage.



Indicates hazardous voltages.



Indicates earth (ground) terminal (sometimes used in manual to indicate circuit common connected to grounded chassis).

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#### Warning



The **WARNING** sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not done correctly or adhered to, could result in injury. Do not proceed beyond a **WARNING** sign until the indicated conditions are fully understood and met.

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#### Caution



The **CAUTION** sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not done correctly or adhered to, could damage or destroy part or all of the product. Do not proceed beyond a **CAUTION** sign until the indicated conditions are fully understood and met.

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## Preface

This manual contains information about the Online Diagnostics Subsystem Utilities for the HP 3000 Series 900 and HP 9000 Series 800 computer systems. It is intended to be used as technical support hardware documentation for Hewlett-Packard CEs, CEC Engineers, SEs, and other qualified support personnel. The procedures and software described are focused primarily on the hardware troubleshooting environment and require specific training for correct and safe usage. Specifically, this manual describes the Online Diagnostics Subsystem utility programs currently supported, and descriptions of the subsystem under MPE XL and HP-UX. Information concerning subsystem diagnostics, the user interface, and a general description can be found in the *Online Diagnostics Subsystem Manual, Volume I: SPU* (part number 09740-90028).





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## System And Memory Log

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### Introduction

The LOGTOOL utility program provides the user with a complete environment in which to identify, purge/clear and display the various log files present within the host operating system. LOGTOOL is available in multi-user mode, but the user is required to execute at diagnostic security level 1 for some functions. The host operating system has two types of log files: system log files and the memory error log file. A set of commands is available to handle each type of log file.

System log files contain information generated by the host operating system. The **LIST** command will display the contents of the system log files based on selection criteria given by the user. A summary report of the contents of the system log files can be generated using the **SUMMARIZE** command. The **ALTFIELD** command can be used to specify that only a portion of certain log records found within the system log files are to be displayed by the **LIST** command. Commands are also available to purge log files, create new log files, and to create LOGTOOL "work" files, which will contain a subset of log files. When new log entries are developed, the **LAYOUT** command with a record definition file will allow code developers to "tell" LOGTOOL how to format the information they have sent to the system log files.

The memory error log file contains memory error information gathered by the memory error logging process (MEMLOGP). The **MEMRPT** command will produce a summary report based on the information from the memory log file. The **MEMCLR** command will give the user the ability to clear all the information in the memory log file. In addition, the **MENTIMER** command allows the user to change the time interval in which the MEMLOGP process will scan all the memory controllers to see if any memory errors occurred.

In addition to the various log file commands, LOGTOOL contains commands which aid the user during a LOGTOOL session.

|                |                                                                                                           |
|----------------|-----------------------------------------------------------------------------------------------------------|
| <b>HELP</b>    | Displays detailed and syntax summary information to the user upon request.                                |
| <b>REDO</b>    | Allows the user to edit/recycle previous input.                                                           |
| <b>SUSPEND</b> | Allows the user to temporarily suspend LOGTOOL and return control to the Diagnostic User Interface (DUI). |

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## Defects and Enhancements

Submit defect reports and enhancement requests concerning this diagnostic through the STARS database referencing product number 30600-10019.

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## Minimum Configuration

The System and Memory Log Analysis Tool executes on any HP Precision Architecture RISC computer up and running on the MPE XL or HP-UX operating systems. The Online Diagnostic subsystem must be supported.

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## Operating Instructions

### RUN Command

To bring up the Online Diagnostic subsystem, enter the following command to the system prompt:

**sysdiag**

The system responds with the following Diagnostic User Interface prompt:

**DUI >**

Typing **HELP** causes a summary of the DUI and its commands to be printed. Refer to the DUI Section of this manual for details.

To run the diagnostic, enter:

```
DUI > RUN LOGTOOL
      |
      | no parameters required to
      | load
```

## Test Execution

The utility responds with the following header and welcome message:

```
*****
****                                ****
****                                LOGT00L                                ****
****                                ****
****                                (C) Copyright Hewlett Packard Co. 1989,90 ****
****                                All Rights Reserved.                    ****
****                                ****
****                                Version A.02.03                          ****
****                                ****
*****
```

Welcome, Today is < Current date and time >

LOGT00L initializing, please wait ...

At this point, if the user gave any of the following DUI parameters: LOOP, ERRPAUSE, ERRCOUNT, or ERRONLY,—a warning message will be displayed, indicating that the parameter will be ignored.

The LOGT00L> prompt will then be displayed. The user is now free to enter commands.

To exit LOGT00L, the user types EXIT. The message

LOGT00L Exiting ...

will be displayed to confirm that LOGT00L completed properly. Control will then be returned to the DUI.

## Definitions and Conventions

All keywords, commands and options may be abbreviated to the shortest number of characters that make the reserved word unique. Delimiters for keywords and options include spaces and/or semicolons. The delimiter for items in a list is a comma.

The user may be prompted from time to time for certain data. If one of several specific responses is required (a YES or NO question, for example), the valid responses will be indicated in parentheses. In all instances, a default response is indicated in square brackets. This response may be selected simply by pressing **Return**. For example, a user who is deleting a system log file might be asked the question:

Purge LOG3251.pub.sys (Y/N) [N] ?

Valid responses include Y and N. Simply pressing the **Return** key selects the default response, N. If the text of a command is too long to fit on one line, the user may use continuation lines to complete entry of the command. To accomplish this task, the user simply places an ampersand (&) character as the last character of the line. LOGT00L will then prompt the user for the rest of the input. A command may consist of numerous continuation lines provided that the total length of the text entered does not exceed 255 characters. For example:

```
LOGT00L>select log=100/400, 234/599 ;type= 101, 105, 109 &
LOGT00L>>name=hp7935, hp7933
```

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The LOGT00L> prompt appears slightly different to indicate that a continuation line is expected.

Command lines may include comments if desired. The beginning of a comment is indicated by the "{" character. A "}" or **Return** terminates the comment (i.e., For **Return** everything after the "{" is ignored). The continuation character "&" within a comment is ignored. For example:

```
LOGT00L>status { This is a comment }
LOGT00L>select log=1,2 { This is line 1's comment } &
LOGT00L>>ldev=4 { Note the "&" above was recognized! }
```

Typing a user interrupt while LOGT00L is performing a lengthy task (i.e., producing a report or selecting out a subset of error log records) will cause that task to be interrupted. The user may be asked in some cases to choose either to abort or to continue the current task. If the user decides to terminate the task and there was output being directed to a disk file (a report, for example), that file will be closed and preserved as is. Any appropriate cleanup is performed and the user will be returned to the LOGT00L> prompt.

The following notation appears throughout the remainder of this document. This notation is also used when performing the HELP HELP command.

|     |                                                                                                                |
|-----|----------------------------------------------------------------------------------------------------------------|
| [ ] | An element inside brackets is optional.                                                                        |
| <>  | Items within angle brackets will be replaced with user-supplied information. Do NOT type the angle brackets.   |
| { } | Items within curly brackets are required. (Usually you must choose one of several options).                    |
| ... | A horizontal ellipsis indicates that the previous element may be repeated, or that elements have been omitted. |
|     | A vertical bar means "or." For example, (YES   NO) means (YES or NO).                                          |
| ::  | Means "is defined as."                                                                                         |

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### Parameters

The following list of parameters will be used to define the functions and options of the LOGTOOL package. The USER COMMANDS section of this document makes constant reference to the terms defined here.

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| log list  | <p>Specifies a list of log file ranges. All system log files are named "LOGxxxx" where "xxxx" is a 4-digit number.</p> <p>&lt;log_list&gt; ::= &lt;log_range&gt;   &lt;log_range&gt; , &lt;log_list&gt;<br/>         &lt;log_range&gt; ::= &lt;log#&gt;   &lt;log#&gt; / &lt;log#&gt;<br/>         &lt;log#&gt; ::= (Any 4 digit integer)</p> <p>Example: LOG=1/5, 253/1004</p>                                                                                                                                                              |
| file list | <p>Specifies a list of file names used as input or output to LOGTOOL. LP can be specified if output is to be directed to the system printer. All input and output files are assumed to be located in the diagnostic directory (DIAG.SYS for MPE XL, /usr/diag/bin for HP-UX).</p> <p>&lt;file_list&gt; ::= &lt;file_name&gt;   &lt;file_name&gt; , &lt;file_list&gt;<br/>         &lt;file_name&gt; ::= Alpha-numeric text (starting with an alpha)  </p> <p>Example: FILE=file1,file8junk,work</p>                                          |
| type list | <p>The system error logs contain several different "types" of log records. These record types may be referred to by a type number. (The LOGTOOL command TYPES gives the user a list of the types known to LOGTOOL.)</p> <p>&lt;type list&gt; ::= &lt;type number range&gt;   &lt;type number range&gt; , &lt;type list&gt;<br/>         &lt;type number range&gt; ::= &lt;type number&gt;   &lt;type number&gt; /<br/>         &lt;type number&gt;<br/>         &lt;type number&gt; ::= integer value</p> <p>Example: TYPE=101, 104, 106</p> |
| ldev list | <p>A list of logical names for devices.</p> <p>&lt;ldev_list&gt; ::= &lt;ldev&gt;   &lt;ldev&gt; , &lt;ldev_list&gt;<br/>         &lt;ldev&gt; ::= (Any positive integer) (For MPE XL)<br/>         &lt;ldev&gt; ::= (Special device file name) (For HP-UX)</p> <p>Example:<br/>         LDEV=1,2,5,10 {For MPE XL}<br/>         LDEV = dsk/c0d0 {For HP-UX}</p>                                                                                                                                                                             |



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### pdev list

A list of physical devices. Please note that bus converters are applicable to some HPPA systems only.

```
<pdev_list> ::= <pdev> | <pdev> , <pdev_list>
<pdev> ::= <BUSCONV>/<CA>.<DA>.<device> |
<BUSCONV>/<CA>.<DA>.<device> |
<BUSCONV>/<CA>.<DA> |
<BUSCONV>/<CA> |
<CA>.<DA>.<device> |
<CA>.<DA>.<device> |
<CA>.<DA> |
<CA>
<BUSCONV> ::= <BUSNUM> | <BUSNUM>/<BUSNUM>
<BUSNUM> ::= An integer giving the bus converter address.
<CA> ::= An integer giving the channel address
<DA> ::= An integer giving the DA address
<device> ::= An integer giving the device address
```

Example: PDEV=1.1, 1.2, 1.2.3, 1.2.1, 3.2.1

### Field label keywords

Field label keywords allow the user to select log records based on the data present in the log record. Quotes are only required for field labels and data items which contain embedded blanks or LOGTOOL reserved words used as part of the command syntax. If a quote is needed as part of the field label, entering a quote twice (") will be interpreted as a single quote as part of the field label. For fields which are always displayed as hex arrays or can be displayed as hex arrays by using the HEXDUMP option, the index construct will allow users to select log records by individual array elements. To use the index construct, the field label must be followed by the array element index number enclosed in square brackets. Please note that all arrays start with an element index of 1. The selection criteria specified by a field label keyword will only be met if the data item and the data found in the log record match exactly. All field labels and text data items will be upshifted before the evaluation is performed.

```
<field label> ::= text | "text" | text[<index>] | "text"[<index>]
<index> ::= integer value starting at 1
<data list> ::= <data item> | <data item> , <data list>
<data item> ::= integer value | text | "text"
```

Ex: Ldev=1,7 "PRODUCT NAME"=HP7935 JSNAME=JREPORT  
"Hardware status"[1]=4

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##### DATE & TIME

Date and time formats are language dependent. Machines which support language localization may support numerous date and time formats at one time. The format expected will correspond to the language custom the program is run in.

Standard USA formats are:

<date> ::= <month#> / <day#> / <year>

<day#> ::= 1 .. 31

<month#> ::= 1 .. 12

<year> ::= 1800 .. 2000

<time> ::= <hours> : <minutes> AM | PM

<hours> ::= 0 .. 12

<minutes> ::= 0 .. 59

##### integer

Any integer value. Any time an integer is expected, that value can be entered in any of 4 bases by preceding the value with one of the base indication characters. If no base character is present, decimal is assumed.

\$ = Hex

% = Octal

B = Binary

Example:

%12 is 10 base ten.

B1001 is 9 base ten.

\$1A is 26 base ten.

## Command Summary

Commands are inputs executed immediately after they are received. There are three categories of input commands available to the user:

- System Log File Commands (SFL)
- Memory Log File Commands (MLF)
- Miscellaneous Commands (MC)

The following is a list and brief description of commands available in LOGTOOL.

| Command Name | Command Category | Description                                                                               |
|--------------|------------------|-------------------------------------------------------------------------------------------|
| ALTFIELD     | (SFL)            | Specifies which fields of a log record should be displayed in a report generated by LIST. |
| DISPLAYLOG   | (SFL)            | Displays I/O entries as information is logged.                                            |
| EXIT         | (MC)             | Exits LOGTOOL and returns user to DUI.                                                    |
| HELP         | (MC)             | Gives help on running LOGTOOL.                                                            |
| LAYOUT       | (SLF)            | Reads in a layout file.                                                                   |
| LIST         | (SLF)            | Lists contents of a system log file.                                                      |
| MEMCLR       | (MLF)            | Clears the memory logging process log files.                                              |
| MEMRPT       | (MLF)            | Displays the contents of the memory log file.                                             |
| MENTIMER     | (MLF)            | Alters the timer value of the memory error logging process.                               |
| PURGESYSLOG  | (SLF)            | Deletes the specified system log files from the disc.                                     |
| PURGEWORK    | (SLF)            | Deletes the specified work files from the disc.                                           |
| REDO         | (MC)             | Edits any of the last four lines of text entered.                                         |
| SELECT       | (SLF)            | Selects specified records from the system log files.                                      |
| STATUS       | (SLF)            | Reports on the status of all system log files.                                            |
| SUMMARIZE    | (SLF)            | Allows user to generate summary report based on contents of system log files.             |
| SUSPEND      | (MC)             | Suspends LOGTOOL and returns control to the DUI.                                          |
| SWITCHLOG    | (SLF)            | Causes the system to start a new system log file.                                         |
| TYPES        | (SLF)            | Describes the system log file "types."                                                    |

---

## Command Descriptions

This section explains the standard set of LOGT00L commands available to the user. (An additional set of commands used in connection with Record Definition Files is explained following this section.) Each description contains the command explanation, syntax definition, parameter definition and an example.

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### DISPLAYLOG

The DISPLAYLOG command displays I/O and diagnostic log entries as they are logged into the host system log file. The user can terminate this command by hitting a user interrupt. This command accepts a parameter which is a list of either LDEV or PDEV numbers of an I/O device(s). If this parameter is given, only the I/O and diagnostic log entries for those devices will be displayed. Otherwise, all I/O and diagnostic log entries will be displayed.

#### Syntax:

```
DISPLAYLOG [;LDEV=<LDEV_list>]
           [;PDEV=<PDEV_list>]
```

#### Parameters:

- LDEV= <LDEV\_list> - This is a list of logical names for I/O devices for which the user would like to see log entries displayed.
- Example: LDEV=1,2,5,10 {For MPE XL}
- LDEV=dsk/c0d0 {For HP-UX}
- PDEV= <PDEV\_list> - This is a list of PDEV numbers for I/O devices for which the user would like to see log entries displayed.
- Example: PDEV=1.1, 1.2, 1.2.3, 1.2.1, 3.2.1.1

#### Command Example:

```
LOGTOOL>displaylog
```

#### I/O ERROR

|                  |          |               |            |
|------------------|----------|---------------|------------|
| PRODUCT NAME:    | HP7935H  | PDEV:         | 8.0.1      |
| LDEV:            | 2        | DEVICE CLASS: | Hard Disc  |
| I/O EVENT CLASS: | Software | LLIO STATUS:  | \$DFD700C6 |

MPE/XL I/O Status: Proc. Num. = -41, Error Num. = -33, Subsystem = 198

|               |                    |                |     |
|---------------|--------------------|----------------|-----|
| RETRY SCHEME: | Summarized Retries | WILL RETRY:    | NO  |
| I/O RESULT:   | I/O Failed         | RUN AUTODIAG:  | NO  |
| RETRY COUNT:  | 5                  | MGR PORT NUM.: | -82 |
| TRANS. NUM. : | 1279               | # HDWR BYTES:  | 20  |

HARDWARE STATUS:

```
Status =
Unit = 0   Volume = 0
No units with status pending
>>>>>>>>> Access Errors <<<<<<<<<<
Drive is not ready for access
New target address is :
  Vector address =
    Cylinder = 0   Head = 0   Sector = 0
```

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Block address = 0

|                     |                                        |                 |           |
|---------------------|----------------------------------------|-----------------|-----------|
| DATA LEN:           | 52                                     | MGR CODE:       | 121       |
| STATUS INFORMATION: | 0                                      | COMMAND BUFFER: |           |
|                     | 1 2 3 4 5 6 7 8 9 10 11 12             |                 |           |
|                     | == == == == == == == == == == == == == |                 |           |
| 1:                  | 40 01 00 0A 20 10 00 00 00 00 00 08    | Q               | . . . . . |
| 13:                 | 34 34 34 18 00 00 00 00 02 00 00 00    | 4 4 4           | . . . . . |
| MSG DESCRIPTOR:     | 4                                      | MESSAGE ID:     | -1000     |
| TRANSACTION NUM.:   | 1277                                   | PORT NUMBER:    | -82       |
| COMMAND RESIDUE:    | 0                                      | DATA RESIDUE:   | -1        |
| STATUS RESIDUE:     | 0                                      |                 |           |

<hit user interrupt>  
LOGTOOL>

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### EXIT

The **EXIT** command causes LOGT00L to terminate returning control to the diagnostic user interface.

**Syntax:** EXIT

**Example:**

```
LOGT00L >EXIT
LOGT00L Exiting ....
LOGT00L (PIN 42) has just terminated
DUI >
```

**HELP**

Help for any of the LOGT00L commands may be obtained by using the HELP command. Using the SYNTAX option prints only the syntax of the command. Typing HELP all by itself produces a general description and a list of commands. The symbols used in the HELP syntax output are defined on page 1-5 under the "Notation and Special Symbols" heading.

**Syntax:**

```
HELP [<command name> [;SYNTAX]]
```

**Optional Parameters:**

- <command\_name>        - Any valid LOGT00L command for which help is desired.
- SYNTAX                - This option causes only the syntax of the indicated to be printed.

**Example:**

```
LOGT00L>HELP
```

The System and Memory Log Analysis Tool (LOGT00L) enables the user to perform numerous functions on the various system log files. These functions include deleting/clearing of log files and displaying the contents of log files. LOGT00L will allow the user to manipulate two types of log files.

- o System log files: Contains information logged by the host operating system.
- o The Memory log file: contains information concerning memory errors obtained from memory controller hardware.

LOGT00L is available in multi-user mode, but the user will be required to execute at diagnostic security 1 to perform some functions.



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LOGTOOL command summary:

| Command Name | Description                                        |
|--------------|----------------------------------------------------|
| =====        | =====                                              |
| SUSPEND      | Return control to the DUI - Suspend LOGTOOL        |
| EXIT         | Exit LOGTOOL - return to the DUI                   |
| REDO         | Edit the last line of text entered                 |
| HELP         | Gives help on running LOGTOOL                      |
| LIST         | List contents of a system error log                |
| DISPLAYLOG   | Display I/O entries as information is logged       |
| PURGESYSLOG  | Delete from disc the specified system error logs   |
| PURGEWORK    | Delete from disc the specified "work" files        |
| LAYOUT       | Read in layout file                                |
| ALTFIELD     | Specify which fields are to be displayed in report |
| SELECT       | Select specified records from system log files     |
| STATUS       | Report on status of all system log files           |
| SUMMARIZE    | Summarize contents of a system log file.           |
| SWITCHLOG    | Cause the system to start a new system log file    |
| MEMCLR       | Clears MEMLOGP log file.                           |
| MENTIMER     | Alter timer value of MEMLOGP process.              |
| MEMRPT       | Display contents of Memory Log File.               |
| TYPES        | Describes System Log File "types"                  |
| =====        | =====                                              |

Any command, keyword, or option may be entered by specifying the shortest number of characters which makes the name unambiguous.

Keywords and options may be separated by spaces and/or semicolons.

LOGTOOL>

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### ALTFIELD

The ALTFIELD command allows the user to identify which fields of a log record are to be displayed in a report generated by the LIST command. LOGTOOL will assume that all fields of all record types are to be displayed unless this command is used to indicate otherwise. Disabling or enabling the display of a field will only effect the fields given in the field label list. All other fields within the record types given by the TYPE parameter will remain unchanged. If the ALL reserved word is used with either the DISABLE or ENABLE keywords, all the fields in the record types given by the TYPE parameter will be changed to the appropriate setting. If the format of a record type is redefined by using the LAYOUT command, all fields for that record type will be re-enabled.

#### Syntax:

```
ALTFIELD TYPE=<type list>
;DISABLE = <field label list> | ENABLE = <field label list>
```

#### Parameters:

TYPE=<type list> - The TYPE keyword is used to specify which log record types (id's) the fields given in the DISABLE or ENABLE parameter applies to. Log record Id's range from 0 to 255. If this TYPE is not used, all log record types will be considered.

```
<type list> ::= <type number range> | <type number range>,<type list>
<type number range> ::= <type number> | <type number>/<type number>
<type number> ::= integer value
```

Ex: TYPE=101,104,106

DISABLE = <field label list> - Specifies which fields are not to be displayed in a report generated by the LIST command. Quotes are only required for field labels which contain embedded blanks.

```
<field label list> ::= <field label range> |
    <field label range>,<field label list> | ALL
<field label range> ::= <field label> | <field label>/<field label>
<field label> ::= text | "text"
```

Ex: DISABLE="NL CHECKSUM"/"SL CHECKSUM"

ENABLE = <field label list> - Specifies which fields are to be displayed in a report generated by the LIST command. Quotes are only required

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for field labels which contain embedded blanks.

```
<field label list> ::= <field label range> |  
    <field label range>,<field label list> | ALL  
<field label range> ::= <field label> | <field label>/<field label>  
<field label> ::= text | "text"
```

Ex: ENABLE = PDEV/"LLIO STATUS"

**Command Example:**

```
LOGTOOL> altfield type=111 disable="retry scheme"/"mgr code"  
LOGTOOL>
```

**LAYOUT**

The **LAYOUT** command will allow the user to define the format of a particular log entry, which may be found in the system log file. This command requires special files containing the definition of some log file record entries defined in a special language. Please refer to the Record Definition File Formatting section for more detailed information.

Once the record definitions have been accepted, **LOGTOOL** will display the record entry as specified when performing a **LIST** command. If any syntax errors are detected by the **LAYOUT** command, the errors will be displayed to the user and the record definition will not be accepted. Upon completion of the record definition file processing, **LAYOUT** will display the number of errors detected, the number of record definition accepted and the number of tag definitions accepted. If the **APPEND** option is given, **LOGTOOL** will append the new record definitions to the record decoding files (**LAYOUTF** and **LAYMSG**). These decoding files are used as a data base of record definitions. The record definitions in the record decoding files will be used by all users when performing a **LIST** command. If the **APPEND** option is not given, the record definitions given will be used only by the current session of **LOGTOOL** and will be lost upon exiting **LOGTOOL**.

During the processing of a record definition file, if a record definition already exists, the user will be prompted to determine if the previous definition should be overwritten. If the answer **YES** is given, the previous definition will be destroyed. This prompting can be disabled by giving the **NOVERIFY** option and the overwrite case is assumed.

To execute this command, the user must possess at least diagnostic security 1. (It is assumed that the record definition files given are located in the diagnostic directory—**DIAG.SYS** on MPE XL, **/usr/diag/bin** on HP-UX).

**Syntax:**

```
LAYOUT FILES=<file_list>
          [;VERIFY | ;NOVERIFY]
          [;APPEND]
```

**Optional Parameters:**

**FILES** - <file\_list> The **FILES** keyword is used to specify the names of the record definition files to be processed. File is assumed to reside in the diagnostic directory—**DIAG.SYS** on MPE XL, **/usr/diag/bin** on HP-UX).

<file\_list> ::= <file\_name> | <file\_name> , <file\_list>  
 <file\_name> ::= Alpha-numeric text (starting with an alpha)

Example: **FILE=laympxl, layio**

**APPEND** - If given, specifies that the record definitions given are to be saved permanently in **LOGTOOL**'s record decoding file.

**VERIFY|NOVERIFY** - Specifies if the user is to be asked to overwrite record definitions which already exist.

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**Example:**

```
LOGTOOL>layout file=laytemp;noverify
  Processing ID 101 ...
  Processing ID 102 ...
  Processing ID 103 ...
=====

End processing of layout file LAYTEMP.DIAG.SYS

0 Errors encountered
3 out of 3 record'IDs were accepted.
0 out of 0 tag'IDs were accepted.

LOGTOOL>
```

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### LIST

The **LIST** command allows the user to generate a report which will display the contents of the system log files. The user can use the **LIST** command to display all of the records contained in the system log files, or can specify which individual log records are to be displayed using various command options. The report from the **LIST** command may be sent to a file, line printer, or to the terminal (default).

In order for a log record to be included in the report, it must match all of the selection criteria specified. The user can define the selection criteria by using the **TYPE** keyword, **DATE** or **TIME** options, or field label keywords.

**TYPE keyword:** The **TYPE** keyword can be used to indicate that only log records of the types specified are to be displayed. The **LOGTOOL** command **TYPES** can be used to obtain a list of the log record types available.

**DATE or TIME options:** The **DATE** or **TIME** options can be used to indicate that only the log records generated between the date and time entered are to be displayed.

**Field Label Keywords:** Field label keywords allow the user to select log records based on the data present in the log record. Whenever the **LIST** command displays a data item from a log record, a field label is shown before the data item to identify what the item represents. This field label is usually a text abbreviation. Field label keywords allow the user to use this text abbreviation as a selection keyword. For example, if the user wishes to see all log records with a field label of "LDEV" and a logged data value of 1, the parameter of "LDEV=1" can be entered as part of the **LIST** command.

If no selection criteria are given, all log records found will be included in the report. After all the selected log records have been displayed, this report will be terminated with a summary indicating the number of log records selected. Please note that if **LOGTOOL** cannot find a record definition for a log record type, the entire log record will be displayed in **HEX**.

To execute this command, the user must possess at least diagnostic security level 1.

#### Syntax:

```
LIST LOG=<log list> | FILES=<file list>
[;OUTFILE=<file name>]
[;TYPE=<type list>]
[;<field label>=<data list>]
[;DATE]
[;TIME]
[;WIDE]
[;HEXDUMP]
```

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### Parameters:

LOG=<log list>      - The LOG keyword specifies which log files to base the report on. Use the STATUS command to obtain a list of the system log files available on the host system.

<log list> ::= <log number range> | <log number range> , <log list>  
<log number range> ::= <log number> | <log number>/<log number>  
<log number> ::= integer value

Ex: LOG=100/105, 150

FILES=<file list>   - The FILES keyword is optionally used in place of the LOG keyword. The file list must be a list of "work" files (created by the SELECT command). Note: All "work" files are created in the diagnostic directory (DIAG.SYS on MPE XL, /usr/diag/bin on HP-UX).

<file list> ::= <file name> | <file name> , <file list>  
<file name> ::= Alpha-numeric text (starting with an alpha)

Ex: FILE=file1,file8,junk,work

OUTFILE=<file name> - The OUTFILE keyword lets the user direct the report to a file or the line printer.  
Note: All files created by using the OUTFILE parameter will reside in the diagnostic directory (DIAG.SYS on MPE XL, /usr/diag/bin on HP-UX).

<file name> ::= Alpha-numeric text (starting with an alpha) |

LP

Ex: OUTFILE=listfile      or

OUTFILE=lp                {Output to printer}

TYPE=<type list>    - The TYPE keyword is used to specify which log record types (id's) to select for the report. Log record Id's range from 0 to 255. If this TYPE is not used, all log record types will be considered.

<type list> ::= <type number range> | <type number range>,<type list>  
<type number range> ::= <type number> | <type number>/<type number>  
<type number> ::= integer value

Ex: TYPE=101,104,106

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**<field label>=<data list>** - Field label keywords allow the user to select log records based on the data present in the log record. Quotes are only required for field labels and data items which contain embedded blanks or reserved words used as part of the LIST command syntax. If a quote is needed as part of the field label, entering a quote twice ("" ) will be interpreted as a single quote as part of the field label. For fields which are always displayed as hex arrays or can be displayed as hex arrays by using the HEXDUMP option, the index construct will allow users to select log records by individual array elements. To use the index construct, the field label must be followed by the array element index number enclosed in square brackets. Please note that all arrays start with an element index of 1. The selection criteria specified by a field label keyword will only be met if the data item and the data found in the log record match exactly. All field labels and text data items will be upshifted before the evaluation is performed.

```
<field label> ::= text | "text" | text[<index>] | "text"[<index>]
<index> ::= integer value starting at 1
<data list> ::= <data item> | <data item> , <data list>
<data item> ::= integer value | text | "text"
```

```
Ex: Ldev=1,7 "PRODUCT NAME"=HP7935 JSNAME=JREPORT
    "Hardware status"[1]=4
```

**DATE** - The DATE option will cause the user to be prompted for a range of dates. Only those log records falling into one of the specified date ranges will be included in the report. Default is the current day.

```
Ex: Enter the starting date [01/01/86] ? 02/02/86
    Enter the ending date [<starting date>]? 02/03/86
    Do you have more dates (Y/N) [N] ? n
```

**TIME** - The TIME option will cause the user to be prompted for a range of times. Only those log records falling into one of the specified time



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ranges will be included in the report.  
Default is the current time.

Ex: Enter the starting time [12:47 PM]? 1:00 PM  
Enter the ending time [<starting time>]? 5:00 PM  
Do you have more to enter (Y/N) [N] ? n

- WIDE**                    - The WIDE option is used when the output is directed to a device which has 120 or more columns. If the output device is LP, this option is automatically set.
- HEXDUMP**                - The HEXDUMP option is applicable only for I/O and diagnostic records. If used, the hardware status and diagnostic error stack is dumped in HEX rather than being decoded into text statements.

#### Command Examples:

```
LOGTOOL> list log=1 out=demo
Processing LOG0001.PUB.SYS ...

Total records checked = 52.   Records selected = 52.
LOGTOOL>
```



The following is an example display of a log file (LOG0039.PUB.SYS) through the LOGTOOL LIST command.

**00000000000000000000000000000000**

Report Date/Time: FRI, APR 27, 1990 - 5:09 PM

(OUTPUT)SYSTEM LOG FILE #39 IS ON

```

USER:          MANAGER          GROUP:          PUB
ACCOUNT:       SYS              JSNAME:

```

NM FILE CLOSE

|                        |                         |
|------------------------|-------------------------|
| NUM. LOGICAL READS: 3  | NUM. BYTES READ: 2048   |
| NUM. LOGICAL WRITES: 1 | NUM. BYTES WRITTEN: 256 |
| FILE NAME: PEGCMD      | GROUP NAME: PEGASUS     |
| ACCOUNT NAME: FVSTOOLS | CREATOR NAME: MGR       |
| USER NAME: MANAGER     | USER GROUP: PUB         |
| USER ACCOUNT: SYS      | UFID:                   |

```

1  2  3  4  5  6  7  8  9 10 11 12
== == == == == == == == == ==
1: 05 5A 00 03 06 0E 6A 13 00 01 B0 B4 . Z . . . j . . . .
13: 0C 04 2C A7 03 97 D3 96

```

```

CLOSE DISP.:      No Change      OPEN DOMAIN:      Old Perm File
FILE SIZE (BYTES): 8192          FILE OPEN COUNT:  2

```

I/O ERROR

|                  |          |               |            |
|------------------|----------|---------------|------------|
| PRODUCT NAME:    | HP7935H  | PDEV:         | 8.0.1      |
| LDEV:            | 2        | DEVICE CLASS: | Hard Disc  |
| I/O EVENT CLASS: | Software | LLIO STATUS:  | \$DFD700C6 |

MPE/XL I/O Status: Proc. Num. = -41, Error Num. = -33, Subsystem = 198

|                  |                    |                |     |
|------------------|--------------------|----------------|-----|
| RETRY SCHEME:    | Summarized Retries | WILL RETRY:    | NO  |
| I/O RESULT:      | I/O Failed         | RUN AUTODIAG:  | NO  |
| RETRY COUNT:     | 5                  | MGR PORT NUM.: | -82 |
| TRANS. NUM. :    | 1279               | # HDWR BYTES:  | 20  |
| HARDWARE STATUS: |                    |                |     |

Status =  
Unit = 0    Volume = 0

```
No units with status pending
>>>>>>>> Access Errors <<<<<<<<
Drive is not ready for access
New target address is :
    Vector address =
        Cylinder = 0   Head = 0   Sector = 0
    Block address = 0
```

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```

FILE SIZE (BYTES): 524288      FILE OPEN COUNT: 6
=====
TUE, APR 10, 1990   9:11 AM      LOG0039.PUB.SYS      #J4 (PIN 42)
PROCESS TERMINATION
CPU TIME(MILLI-SEC):458          STACK SIZE (8 BITS):393216
HEAP SIZE ( 8 BITS):81920000    CM STACK (16 BITS): 4686
TERMINATION TYPE:   Normal      USER:           MGR
GROUP:              SU          ACCOUNT:         FVSTEST
JSNAME:             SUSLG01J
=====
TUE, APR 10, 1990   9:11 AM      LOG0039.PUB.SYS      #J4 (PIN 40)
PROCESS CREATION
PROGRAM FILE NAME:  PEGCMD.PEGASUS.FVSTOOLS
PID INITIATED:     94489280515   PRIORITY:         6911
SPACE ID:           561          PARENT ID:        171798691842
NM_HEAP_SIZE:       81920000     PROCESS CAP BA:    YES
PROCESS CAP IA:     YES          PROCESS CAP PM:    NO
PROCESS CAP MR:     NO           PROCESS CAP DS:    NO
PROCESS CAP PH:     NO           USER:             MGR
GROUP:              SU          ACCOUNT:         FVSTEST
JSNAME:             SUSLG01J
=====
TYPE      DESCRIPTION      COUNT
=====
115      CONSOLE LOG        2
105      NM FILE CLOSE      2
111      I/O ERROR          1
141      PROCESS CREATION    2
104      PROCESS TERMINATION 1
=====

```

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### MEMCLR

The **MEMCLR** command will clear the memory error log file of all data. It is recommended that the user generate a memory report using the **MEMRPT** command before entering this command. The user must possess at least diagnostic security 1.

#### Syntax:

**MEMCLR**

#### Limitations:

This command affects only the memory error log file.

#### Example:

```
LOGTOOL>memclr  
LOGTOOL>
```

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### MEMRPT

The **MEMRPT** command produces a summary report of the memory errors detected by the memory logging process (MEMLOGP). Error information will be displayed for each memory controller present on the system. To execute this command, the user must possess at least diagnostic security level 1.

#### Syntax:

```
MEMRPT [OUTFILE=<file name>]
      [;WIDE]
```

#### Optional Parameters:

**OUTFILE=** <file name> - The output from the command is directed to the user's terminal unless the **OUTFILE** keyword is present.

<file\_name> ::= Alpha-numeric text (starting with an alpha) |

**Example:** **OUTFILE=**listfile

**WIDE** - The **WIDE** option is used when the output is directed to a device which has 120 or more columns. If the output device is **LP** this option is automatically set.

#### Limitations:

This command accesses only the memory error log file.

#### Example:

```
LOGTOOL>memrpt outfile=lp
LOGTOOL>
```

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## Memory Report Example

The following memory report will be generated from an HP3000/930 system with three memory controllers:

### MEMORY ERROR LOGGING REPORT

SYSTEM START TIME -- WED, JUL 22, 1989, 2:36 PM  
 LAST ERROR CHECK TIME -- WED, JUL 22, 1989, 3:29 PM  
 LOGGING TIME INTERVAL -- 3600 seconds

#### MEMORY CONTROLLER # 1

| SLOT                                            | CHIP | BIT | 1 ST ERROR  | LAST ERROR  | ERROR | LOG BY  |
|-------------------------------------------------|------|-----|-------------|-------------|-------|---------|
| NUM                                             | ID   | NUM | DETECTED AT | DETECTED AT | COUNT | PROCESS |
| *** NO MULTI BIT ERRORS HAVE BEEN DETECTED ***  |      |     |             |             |       |         |
| *** NO SINGLE BIT ERRORS HAVE BEEN DETECTED *** |      |     |             |             |       |         |

#### MEMORY CONTROLLER # 2

| SLOT                                           | CHIP  | BIT   | 1 ST ERROR       | LAST ERROR       | ERROR | LOG BY  |
|------------------------------------------------|-------|-------|------------------|------------------|-------|---------|
| NUM                                            | ID    | NUM   | DETECTED AT      | DETECTED AT      | COUNT | PROCESS |
| A                                              | u3105 | 20/ 7 | 07/22/87 3:04 PM | 07/22/87 3:05 PM | 3     | MEMLOGP |
| *** NO MULTI BIT ERRORS HAVE BEEN DETECTED *** |       |       |                  |                  |       |         |

#### MEMORY CONTROLLER # 3

| SLOT                                            | CHIP | BIT | 1 ST ERROR  | LAST ERROR  | ERROR | LOG BY  |
|-------------------------------------------------|------|-----|-------------|-------------|-------|---------|
| NUM                                             | ID   | NUM | DETECTED AT | DETECTED AT | COUNT | PROCESS |
| *** NO MULTI BIT ERRORS HAVE BEEN DETECTED ***  |      |     |             |             |       |         |
| *** NO SINGLE BIT ERRORS HAVE BEEN DETECTED *** |      |     |             |             |       |         |

## MENTIMER

The **MENTIMER** command alters the time interval between successive interrogation of the memory controllers to determine if any memory errors occurred. This error information, from the memory controllers, is logged into the memory log file. The default value (3600 seconds) is retained while the system is down. Altering this timer causes MEMLOGP to update the log file immediately and then periodically thereafter according to the new interval. The user must possess at least diagnostic security 1 to execute this command.

### Syntax:

**MENTIMER SECONDS=<#seconds>**

### Optional Parameters:

**SECONDS= <#seconds>** - The time between memory log scans

**Example:** SEC=3600

### Example:

```
LOGT00L>mentimer sec=9600
LOGT00L>
```



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### PURGESYSLOG

The **PURGESYSLOG** command will delete from disc the specified system log file(s). Included is a verify mode ( default ) which will ask the user to confirm the deletion of each file specified before the program actually purges it from the system. The user must possess at least diagnostic security 1 to execute this instruction.

#### Syntax:

```
PURGESYSLOG LOG=<log list>
                [;VERIFY | ;NOVERIFY]
```

#### Optional Parameters:

LOG= <log\_list>                    - The LOG keyword specifies which log files to purge.

Example: LOG=1000/1400,3418/3590,3400,4

VERIFY|NOVERIFY                    - The VERIFY option is default for this command. It causes the user to be prompted before each log file is deleted. If NOVERIFY is selected, the specified log files will be purged without query.

#### Limitations:

This command affects only the system log files.

#### Example:

```
LOGTOOL>purgesyslog log=4232/4235
Purge LOG4232.PUB.SYS (Y/N) [N] ? Y
...Deleted LOG4232.PUB.SYS
Purge LOG4233.PUB.SYS (Y/N) [N] ? Y
...Deleted LOG4233.PUB.SYS
LOG4234.PUB.SYS was missing
Purge LOG4235.PUB.SYS (Y/N) [N] ? N
...Kept
LOGTOOL>
```

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### PURGEWORK

This command will delete from disc the specified “work” file(s). These working log files are created by using the SELECT command. There are no naming conventions for these files. LOGTOOL can, however, tell the difference between a “work” file and files of any other type. In otherwords, this is NOT a general file purge command. Included is a verify mode (default) which will ask the user to confirm the deletion of each file specified before the program actually purges it from the system. All work files are currently created in the diagnostic directory (DIAG.SYS on MPE XL, /usr/diag/bin on HP-UX).

#### Syntax:

```
PURGEWORK FILES=<file list>
[;VERIFY | ;NOVERIFY]
```

#### Optional Parameters:

FILES= <file\_list> - The FILES keyword is used to specify the names of the work files to purge.

Example: FILE=stuff,junk,foo

VERIFY|NOVERIFY - The VERIFY option is default for this command. It causes the user to be prompted before each work file is deleted. If NOVERIFY is selected, the specified work files will be purged without query.

#### Limitations:

This command affects only work files.

#### Example:

```
LOGTOOL>purgework file=subset1,subset2,junkfile,logtool
Purge SUBSET1.DIAG.SYS (Y/N) [N] ? Y
...Deleted SUBSET1.DIAG.SYS
SUBSET2.DIAG.SYS does not exist
Purge JUNKFILE.DIAG.SYS (Y/N) [N] ? N
...Kept
LOGTOOL.DIAG.SYS is not a work file - skipped
LOGTOOL>
```

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### REDO

The **REDO** command allows you to edit any of the last 4 lines of input entered to **LOGTOOL**. If redo is given with no parameters, the last command given can be edited. If the “?” is given, a list of the last 4 commands given will be displayed. The user can also give a redo index number or an offset number to indicate which command on the redo stack is to be modified.

#### Syntax:

```
REDO [? | <index> | <offset>]
```

#### Parameters:

- |          |                                                                                                              |
|----------|--------------------------------------------------------------------------------------------------------------|
| ?        | - Will display redo stack to user.                                                                           |
| <index>  | - A positive number of the command to be modified.                                                           |
| <offset> | - A negative number indicating the offset from the last command given.<br>“redo -1” is equivalent to “redo.” |

The valid edit characters are:

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|       |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| i     | - INSERT: Text following this character is inserted at the location just prior to the location of the "I"                                                                                                                                                                                                                                                                                                                 |
| r     | - REPLACE: Text following this character overlays existing text starting at the location of the "R"                                                                                                                                                                                                                                                                                                                       |
| d     | - DELETE: Each "D" will cause the corresponding character to be deleted.                                                                                                                                                                                                                                                                                                                                                  |
| d>    | - DELETE: Deletes to the end of the current line from the position specified by d>. It may be followed by an INSERT or REPLACE operation.                                                                                                                                                                                                                                                                                 |
| >     | - APPEND >: Followed by text, appends the text to the end of the current line. If > is positioned beyond the end of the current line, then a replacement is performed instead.                                                                                                                                                                                                                                            |
| >d    | - DELETE: Deletes from the end of the current line, right-to-left. Multiple d's may be specified after >, as well as INSERT and REPLACE strings.                                                                                                                                                                                                                                                                          |
| >r    | - REPLACE: Replaces characters at the end of the command line. The replacement is done so that the last (rightmost) character of the replacement string is at the end of the line.                                                                                                                                                                                                                                        |
| c     | - CHANGE: Change all occurrences of one string to another in the current line when the search string and replace string are properly delimited. A proper delimiter is a non-alpha-betic character: ', ", /, etc.<br><br>The substitution is specified as: c<delim> search-string <delim> [replace-string [<delim>]]. Omitting the replace-string causes occurrences of search-string to be deleted, with no substitution. |
| other | - Simple replacement: Any other character ( not i, r, d, d>, >, >d, or c) causes that character to be replaced in the current line at the position indicated by the character. In fact, simple replacement also occurs for the editing characters i, r, c, or > if they are not followed by text; or if > appears at or beyond the current end of the line.                                                               |

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### Command Example:

```
LOGTOOL>sel log=1,,4,5 type=11 ldev=1,2 outfile=myoutfile

LOG FILE NUMBER EXPECTED. (LTERR 614)
LOGTOOL>redo
>sel log=1,,4,5 type=11 ldev=1,2 outfile=myoutfile
>      d
>sel log=1,4,5 type=11 ldev=1,2 outfile=myoutfile
>      i,3
>sel log=1,4,5 type=11 ldev=1,2,3 outfile=myoutfile
>      ddd
>sel log=1,4,5 type=11 ldev=1,2,3 outfile=myfile
>      12
>sel log=1,4,5 type=12 ldev=1,2,3 outfile=myfile
>
LOGTOOL>sel log=1,4,5 type=12 ldev=1,2,3 outfile=myfile

( Logtool now processes the corrected select command ... )
```

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### SELECT

The **SELECT** command allows the user to create a "work" file containing a subset of the log records found in the system log files. Currently, the work file will be created in the diagnostic directory (DIAG.SYS on MPE XL, /usr/diag/bin on HP-UX).

In order for a log record to be included in the work file, it must match all of the selection criteria specified. The user can define the selection criteria by using the **TYPE** keyword, **DATE** or **TIME** options, or field label keywords.

**TYPE keyword:** The **TYPE** keyword can be used to indicate that only log records of the types specified are to be included. The **LOGTOOL** command **TYPES** can be used to obtain a list of the log record types available.

**DATE or TIME options:** The **DATE** or **TIME** options can be used to indicate that only the log records generated between the date and time entered are to be included.

**Field Label Keywords:** Field label keywords allow the user to select log records based on the data present in the log record. Whenever the **LIST** command displays a data item from a log record, a field label is shown before the data item to identify what the item represents. This field label is usually a text abbreviation. Field label keywords allow the user to use this text abbreviation as a selection keyword. For example, if the user wishes to see all log records with a field label of "LDEV" and a logged data value of 1, the parameter of "LDEV=1" can be entered as part of the **LIST** command.

If no selection criteria are given, all log records found will be included in the work file.

To execute this command, the user must possess at least diagnostic security level 1.

#### Syntax:

```
SELECT LOG=<log list>
      ;OUTFILE= <file name>
      [;TYPE=<type list>]
      [;<field label>=<data list>]
      [;DATE]
      [;TIME]
      [;APPEND]
```

#### Parameters:

**LOG=<log list>** - The **LOG** keyword specifies which log files to base the report on. Use the **STATUS** command to obtain a list of the system log files available on the host system.

**<log list> ::= <log number range> | <log number range> , <log list>**  
**<log number range> ::= <log number> | <log number>/<log number>**  
**<log number> ::= integer value**

Ex: LOG=100/105, 150

**OUTFILE=<file name>** - The **OUTFILE** keyword lets the user specify the work file name.

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<file\_name> ::= Alpha-numeric text (starting with an alpha)

Ex: OUTFILE=listfile

TYPE=<type list> - The TYPE keyword is used to specify which log record types (id's) to select for the report. Log record Id's range from 0 to 255. If this TYPE is not used, all log record types will be considered.

<type list> ::= <type number range> | <type number range>,<type list>  
<type number range> ::= <type number> | <type number>/<type number>  
<type number> ::= integer value

Ex: TYPE=101,104,106

<field label>=<data list> - Field label keywords allow the user to select log records based on the data present in the log record. Quotes are only required for field labels and data items which contain embedded blanks or reserved words used as part of the SELECT command syntax. If a quote is needed as part of the field label, entering a quote twice ("" ) will be interpreted as a single quote as part of the field label. For fields which are always displayed as hex arrays or can be displayed as hex arrays by using the HEXDUMP option, the index construct will allow users to select log records by individual array elements. To use the index construct, the field label must be followed by the array element index number enclosed in square brackets. Please note that all arrays start with an element index of 1. The selection criteria specified by a field label keyword will only be met if the data item and the data found in the log record match exactly. All field labels and text data items will be upshifted before the evaluation is performed.

<field label> ::= text | "text" | text[<index>] | "text"[<index>]  
<index> ::= integer value starting at 1  
<data list> ::= <data item> | <data item> , <data list>  
<data item> ::= integer value | text | "text"

Ex: Ldev=1,7 "PRODUCT NAME"=HP7935 JSNAME=JREPORT  
"Hardware status"[1]=4

DATE - The DATE option will cause the user to be

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prompted for a range of dates. Only those log records falling into one of the specified date ranges will be included in the report. Default is the current date.

Ex: Enter the starting date [01/01/86] ? 02/02/86  
Enter the ending date [<starting date>]? 02/03/86  
Do you have more dates (Y/N) [N] ? n

TIME - The TIME option will cause the user to be prompted for a range of times. Only those log records falling into one of the specified time ranges will be included in the report

Ex: Enter the starting time [12:47 PM]? 1:00 PM  
Enter the ending time [<starting time>]? 5:00 PM  
Do you have more to enter (Y/N) [N] ? n

APPEND - The APPEND option will append data to the file specified in the OUTFILE parameter.

**Command Example:**

```
LOGTOOL>select log=1,2 type=100,105 outf=subset1
Processing LOG0001.PUB.SYS ...
Processing LOG0002.PUB.SYS ...

Total records checked = 109.   Records selected = 2.
LOGTOOL>
```



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### STATUS

The **STATUS** command displays a list of the currently existing system log files. The system log file currently being used by the system is indicated by the presence of a "\*" after the file name. If no options are given, only the log file names will be displayed. If the **DETAIL** option is given, the log file name, the number of records within that log file and the date/time of the first log entry will be displayed.

#### Syntax:

**STATUS** [**DETAIL**]

#### Optional Parameter:

**DETAIL** - Causes detailed information (# of records and date/time of first log entry) for all of the system log files to be displayed.

#### Example:

LOGT00L>status

System Log Files:

=====

LOG0001    LOG0002    LOG0003    LOG0004    LOG0005\*

LOGT00L>status detail

| Log File<br>Name | Rec #1<br>Date | Rec #1<br>Time | Total<br>#Records |
|------------------|----------------|----------------|-------------------|
| =====            | =====          | =====          | =====             |
| LOG0001          | 11/10/86       | 10:49 PM       | 52                |
| LOG0002          | 11/17/86       | 12:46 PM       | 57                |
| LOG0003          |                |                | 0                 |
| LOG0004          | 11/22/86       | 7:22 AM        | 10                |
| LOG0005*         | 12/01/86       | 8:30 AM        | 10                |

LOGT00L>

## SUMMARIZE

The **SUMMARIZE** command allows the user to generate a summary report based on the contents of the system log files. The user can use the **SUMMARIZE** command to generate a simple summary report, which will display the number of each type of log record present in the log files, or can specify that the content of the system log files are to be summarized based on particular fields of a log record using the **FIELD** keyword. The summary report from the **SUMMARIZE** command may be sent to a file, line printer, or to the terminal (default).

In order for a log record to be considered during the generation of a summary report, it must match all of the selection criteria specified. The user can define the selection criteria by using the **TYPE** keyword, **DATE** or **TIME** options, or field label keywords.

**TYPE keyword:** The **TYPE** keyword can be used to indicate that only log records of the types specified are to be displayed. The **LOGTOOL** command **TYPES** can be used to obtain a list of the log record types available.

**DATE or TIME options:** The **DATE** or **TIME** options can be used to indicate that only the log records generated between the date and time entered are to be displayed.

**Field Label Keywords:** Field label keywords allow the user to select log records based on the data present in the log record. Whenever the **LIST** or **SUMMARIZE** command displays a data item from a log record, a field label is shown before the data item to identify what the item represents. This field label is usually a text abbreviation. Field label keywords allow the user to use this text abbreviation as a selection keyword. For example, if the user wishes to have all log records with the field label of "LDEV" and a logged data value of 1 considered during the generation of the summary report, the parameter of "LDEV=1" can be entered as part of the **SUMMARIZE** command.

If no selection criteria is given, all log records present in the system log files will be considered during the generation of the summary report.

The **SUMMARIZE** command can produce two types of summary report.

**Simple summary report:** If the user does not use the **FIELD** keyword, a simple summary report will be generated. A simple summary report will display the number of each type of log record present in the specified log files.

**Summary report:** To generate a summary report using the **FIELD** keyword, the user must specify which fields of a log record are to be summarized. **LOGTOOL** will display each unique value found for the fields specified and the number of log records in the log files which have that unique value. If the user specifies more than one field, **LOGTOOL** will display each unique combination of field values found and the number of log records in the log files which have that unique combination. The summary report will contain the first log record with the unique value found. Please note that the summary report will only display the fields specified by the **FIELD** keyword.

To execute this command, the user must possess at least diagnostic security level 1.

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### Syntax:

```
LIST LOG=<log list> | FILES=<file list>
      [;OUTFILE=<file name>]
      [;TYPE=<type list>]
      [;<field label>=<data list>]
      [;FIELD=<field label list>]
      [;DATE]
      [;TIME]
      [;WIDE]
      [;HEXDUMP]
```

### Parameters:

LOG=<log list> - The LOG keyword specifies which log files to base the report on. Use the STATUS command to obtain a list of the system log files available on the host system.

<log list> ::= <log number range> | <log number range> , <log list>  
<log number range> ::= <log number> | <log number>/<log number>  
<log number> ::= integer value

Ex: LOG=100/105, 150

FILES=<file list> - The FILES keyword is optionally used in place of the LOG keyword. The file list must be a list of "work" files (created by the SELECT command). Note: All "work" files are created in the diagnostic directory (DIAG.SYS on MPE XL, /usr/diag/bin on HP-UX)

<file list> ::= <file name> | <file name> , <file list>  
<file name> ::= Alpha-numeric text (starting with an alpha)

Ex: FILES=file1,file8,junk,work

OUTFILE=<file name> - The OUTFILE keyword lets the user direct the report to a file or the line printer.  
Note: All files created by using the OUTFILE parameter will reside in the diagnostic directory (DIAG.SYS on MPE XL, /usr/diag/bin on HP-UX)

<file name> ::= Alpha-numeric text (starting with an alpha) |

LP

Ex: OUTFILE=listfile or

OUTFILE=lp {Output to printer}

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TYPE=<type list> - The TYPE keyword is used to specify which log record types (id's) to select for the report. Log record Id's range from 0 to 255. If this TYPE is not used, all log record types will be considered.

<type list> ::= <type number range> | <type number range>,<type list>  
<type number range> ::= <type number> | <type number>/<type number>  
<type number> ::= integer value

Ex: TYPE=101,104,106

<field label>=<data list> - Field label keywords allow the user to select log records based on the data present in the log record. Quotes are only required for field labels and data items which contain embedded blanks or reserved words used as part of the SUMMARIZE command syntax. If a quote is needed as part of the field label, entering a quote twice ("" ) will be interpreted as a single quote as part of the field label. For fields which are always displayed as hex arrays or can be displayed as hex arrays by using the HEXDUMP option, the index construct will allow users to select log records by individual array elements. To use the index construct, the field label must be followed by the array element index number enclosed in square brackets. Please note that all arrays start with an element index of 1. The selection criteria specified by a field label keyword will only be met if the data item and the data found in the log record match exactly. All field labels and text data items will be upshifted before the evaluation is performed.

<field label> ::= text | "text" | text[<index>] | "text"[<index>]  
<index> ::= integer value starting at 1  
<data list> ::= <data item> | <data item> , <data list>  
<data item> ::= integer value | text | "text"

Ex: Ldev=1,7 "PRODUCT NAME"=HP7935 JSNAME=JREPORT  
"Hardware status"[1]=4

FIELD=<field label list> - The FIELD keyword is used to specify which fields of a log record are to be summarized by the SUMMARIZE command. Quotes are only required

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for field labels which contain embedded blanks.

```
<field label list> ::= <field label list>,<field label> |  
                    <field label>  
<field label>      ::= text | "text"
```

Ex: FIELD=ldev,"Hardware status",jsname

DATE - The DATE option will cause the user to be prompted for a range of dates. Only those log records falling into one of the specified date ranges will be included in the report. Default is the current day.

Ex: Enter the starting date [01/01/86] ? 02/02/86  
Enter the ending date [<starting date>]? 02/03/86  
Do you have more dates (Y/N) [N] ? n

TIME - The TIME option will cause the user to be prompted for a range of times. Only those log records falling into one of the specified time ranges will be included in the report. Default is the current time.

Ex: Enter the starting time [12:47 PM]? 1:00 PM  
Enter the ending time [<starting time>]? 5:00 PM  
Do you have more to enter (Y/N) [N] ? n

WIDE - The WIDE option is used when the output is directed to a device which has 120 or more columns. If the output device is LP, this option is automatically set.

HEXDUMP - The HEXDUMP option is applicable only for I/O and diagnostic records. If used, the hardware status and diagnostic error stack is dumped in HEX rather than being decoded into text statements.

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Command Examples:

```
LOGTOOL> summarize log=9/10
```

SUMMARY SYSTEM ERROR LOG REPORT  
=====

Report Date/Time: TUE, MAR 31, 1990 - 10:34 AM

| TYPE  | DESCRIPTION     | COUNT |
|-------|-----------------|-------|
| ===== | =====           | ===== |
| 103   | JOB TERMINATION | 1     |
| 105   | FILE CLOSE      | 3     |
| 108   | SPOOLING        | 1     |
| 111   | I/O ERROR       | 45    |
| 115   | CONSOLE LOG     | 12    |
| ===== | =====           | ===== |

```
LOGTOOL> summarize log=9/10;type=111;field="hardware status","ldev"
```

SUMMARY SYSTEM ERROR LOG REPORT  
=====

Report Date/Time: TUE, MAR 31, 1990 - 10:34 AM

```
=====
TUE, MAR 31, 1990  10:34 AM      LOG0009.PUB.SYS      SYSTEM (PIN 28)
I/O ERROR (NUMBER OF RECORDS = 44)
LDEV:              2
HARDWARE STATUS:

Status =
Unit = 0   Volume = 0
No units with status pending
>>>>>>>> Access Errors <<<<<<<<
Drive is not ready for access
New target address is :
  Vector address =
    Cylinder = 0   Head = 0   Sector = 0
  Block address = 0
=====
```

```
=====
TUE, MAR 31, 1990  10:36 AM      LOG0009.PUB.SYS      SYSTEM (PIN 28)
I/O ERROR (NUMBER OF RECORDS = 1)
LDEV:              2
=====
```

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HARDWARE STATUS:

Status =  
Unit = 0 Volume = 0  
No units with status pending  
>>>>>>>> Access Errors <<<<<<<<<  
Received an address which exceeds device bounds  
New target address is :  
Vector address =  
Cylinder = 0 Head = 0 Sector = 0  
Block address = 0

=====

| TYPE  | DESCRIPTION | COUNT |
|-------|-------------|-------|
| ===== | =====       | ===== |
| 111   | I/O ERROR   | 45    |
| ===== | =====       | ===== |

LOGTOOL>

## FOR HP INTERNAL USE ONLY

### SUSPEND

The **SUSPEND** command returns control to the diagnostic user interface. **LOGTOOL** is temporarily suspended and may be resumed by typing **RESUME**.

#### Syntax:

**SUSPEND**

#### Example:

```
LOGTOOL>suspend
LOGTOOL SUSPENDED - [Type RESUME to continue]
DUI>(any DUI commands)
DUI>
DUI>resume
LOGTOOL resuming from SUSPEND mode ...
LOGTOOL>
```



## FOR HP INTERNAL USE ONLY

### SWITCHLOG

The **SWITCHLOG** command causes a new system log file to be opened and the old one to be closed. The **LOGTOOL STATUS** command may be used to obtain the new log file name.

To execute this command, the user must possess at least diagnostic security level 1. (For MPE XL, the display from the **SHOWLOG** command and **SWITCHLOG** command will appear on the system console).

#### Syntax:

```
SWITCHLOG
```

#### Limitations:

This command affects only the system log files.

#### Examples:

```
LOGTOOL>switchlog  
LOGTOOL>
```

**TYPES**

The **TYPES** command lists all the record identifiers currently defined within LOGTOOL. This command is useful for users who wish to display specific types of log records, or need specific information concerning how a log record will be formatted. When this command is executed without any options or keyword, the record ID number and the record label used when the log entry is displayed, will be listed. If the **DETAIL** option is given, the full definition of the record ID will be given. The information displayed will conform to the data given when the record definition file was processed. If the **SUMMARY** option is given, a list of all field label keywords, data field labels, and whether the field will be displayed in a **LIST** report, will be displayed for each log record. If the user needs information for a specific log record, the **TYPE=** keyword may be used to display information for a specify log record ID.

**Syntax:**

```
TYPES [TYPE=<type list>]
      [;DETAIL | ;SUMMARY]
```

**Parameter:**

**TYPE=<type list>** - The **TYPE** keyword is used to specify which log record types (id's) to display information for. Log record Id's range from 0 to 255. If this **TYPE** is not used, all log record types will be displayed.

```
<type list> ::= <type number range> | <type number range>,<type list>
<type number range> ::= <type number> | <type number>/<type number>
<type number> ::= integer value
```

Ex: **TYPE=101,104,106**

**DETAIL** - Causes detailed information for each record ID to be displayed.

**SUMMARY** - Causes the field label keywords and data field labels to be displayed for each field of a record ID.

**Command Example:**

```
LOGTOOL> types
```

| Type | Description         |
|------|---------------------|
| 100  | LOG FAILURE         |
| 101  | SYSTEM UP           |
| 102  | JOB INITIATION      |
| 103  | JOB TERMINATION     |
| 104  | PROCESS TERMINATION |
| 105  | FILE CLOSE          |
| 106  | SHUTDOWN            |
| 107  | POWER FAILURE       |
| 108  | SPOOLING            |

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|     |                     |
|-----|---------------------|
| 111 | I/O ERROR           |
| 112 | PHY. MOUNT/DISMOUNT |
| 113 | LOG. MOUNT/DISMOUNT |
| 114 | TAPE LABELS         |
| 115 | CONSOLE LOG         |
| 116 | PROGRAM FILE EVENT  |
| 143 | CHGROUP             |
| 144 | FILE OPEN           |
| 150 | AUTO-DIAG/SUM       |
| 151 | HPMC                |
| 152 | LPMC                |

LOGTOOL>

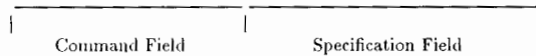


## Record Definition Files

Each entry found in the system error log has an associated record ID number, which is the first 16 bits of every log entry. Since these record ID numbers identify unique log entries, LOGTOOL will use these record ID numbers to match data from the log files with a record ID declaration. The record ID declarations specify the exact format of each log record and will be used during the translation of a log file. Therefore, the record definition file contains a series of RECORD ID DECLARATIONS. To support PASCAL record variants, a second type of record ID may also appear in the file. These are referred to as TAG IDs, since they describe a variant record tag field. Therefore, the record definition file would look as follows:

```
<record id X control statements>
<record id Y control statements>
<record id Z control statements>
```

The record definition file consists of control statements. Each statement has two fields: the "command field" that contains the record definition command that identifies the remainder of the data and the "specification field" that contains all of the parameters and arguments required by a particular control command. The specification field may span multiple lines. The terminator of a specification field is another command. Commands must be the first character of a line with no preceding white space (i.e., they must start at column 1). Comments can be embedded within the specifications field by using braces { }.



The following example should clarify these concepts:

|           |                                                                                                                                                                                                                                                           |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COMMENT   | The "COMMENT" is a record definition command. The body of the comment is called the specification field (that is what you are reading now). Notice that this field can span as many lines as desired. A new control command ends the specification field. |
| RECORD ID | 23 {This is a comment too}                                                                                                                                                                                                                                |
| COMMENT   | The above line has "RECORD ID" as the Command and "23" as the specification field.                                                                                                                                                                        |

On MPE XL, the record definition file can be created with any editor, but must be kept as a Fixed ASCII 80-Byte Unnumbered file. On IIP-UX, each line of the record definition file must not exceed 80 characters.

## Record Definition Commands

The following section describes the various commands that can be used in a record definition file.

All commands are terminated by finding a new command (remember, all commands must start at column one). Command names may be abbreviated to the shortest unambiguous number of characters. For example, the FIELD'FORMAT command could be abbreviated to F, since no other commands begin with the letter F.

## FOR HP INTERNAL USE ONLY

### COMMENT

The **COMMENT** command allows one to separate record definitions and supply useful information to the maintainer of the file. Comments are ignored.

#### Syntax:

```
COMMENT      <anything may follow>
```

#### Example:

```
COMMENT      This is a comment.  
              It spans several lines.
```

## FOR HP INTERNAL USE ONLY

### RECORD'ID

This command must precede all commands which specify an attribute of a RECORD'ID. It identifies the numeric RECORD'ID that can be used to distinguish log entries in the system log file. All commands following (until the next RECORD'ID or TAG'ID) are assumed to belong to the current RECORD'ID.

#### Syntax:

```
RECORD'ID      <record id #>
```

#### Notes:

RECORD'ID numbers must be between 0 and 255.

#### Examples:

```
RECORD'ID      1
RECORD'ID      123
```

**TAG'ID**

This command defines the variant tag portion of a previously defined RECORD'ID or TAG'ID. For example, refer to the following PASCAL record definition:

```
TYPE my_record = RECORD
    field1 : integer;
    CASE select : boolean OF
        true  : (true_case : some_other_type);
        false : (false_case : yet_another_type);
    END;
```

It has a tag field called "select" and two possible variant parts. Each of the two variant parts would need a TAG'ID entry (with additional record definition commands) to define the variant part. The specifications field indicates which RECORD'ID this TAG'ID is to be used with. For more details, see the section called "Tag Usage Example."

**Syntax:**

```
TAG'ID      <record id # this definition is used with>
```

**Examples:**

```
TAG'ID      100
```



## Record Description Commands

The following set of commands are used to define the attributes of an individual log record (RECORD'ID) or tag variant of some record (TAG'ID). (From here on RECORD and TAG'IDs will not be differentiated unless required). If the LOGTOOL LAYOUT command sees any of the commands without a RECORD or TAG'ID command, it will generate an error. Additionally, only one of the possible definition commands may be provided for any one record. The following commands must be provided when defining a RECORD or TAG'ID:

```
RECORD'LENGTH  
N'FIELDS  
RECORD'LABEL  
FIELD'FORMATS
```

The RECORD'LENGTH and N'FIELDS commands must be provided before any of the other commands. For a TAG'ID definition, the VARIANT command is required.

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**RECORD'LENGTH**

This command specifies the total length in bits for the maximum size of the current RECORD'ID. This value should not include the size of any data added by the system (i.e., the actual RECORD'ID, time stamp, etc.). This value and the number of bits specified in the FIELD'FORMAT must agree.

**Syntax:**

RECORD'LENGTH <# of bits>

**Notes:**

The maximum number of bytes is 2028.

**Example:**

RECORD'LENGTH 220

## FOR HP INTERNAL USE ONLY

### N'FIELDS

This command specifies the number of fields (pieces of data) in the current RECORD'ID. Variant tags are considered as 1 field. The subfields are defined with subsequent TAG'ID commands. This value must be equal to the number of entries on the FIELD'FORMAT command.

#### Syntax:

```
N'FIELDS      <# of fields>
```

#### Example:

```
N'FIELDS      5
```

**FOR HP INTERNAL USE ONLY**

**RECORD LABEL**

This command assigns a label to the log record. The label is restricted to 20 characters and must be enclosed by either double or single quotes.

**Syntax:**

```
RECORD LABEL    "<name>"
```

**Example:**

```
RECORD LABEL    "I/O"  
RECORD LABEL    ' '
```

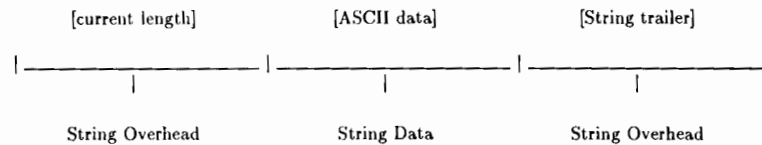
## FOR HP INTERNAL USE ONLY

### FIELD FORMAT

This command defines (bit for bit) what the record contains and the data types of each field. Several "types" are known, as follows:

- JUNK** Typically a reserved field and is not formatted. (Don't include VALUE LABEL or VAR LABEL entries for this type).
- INTEGER** Numeric data. It may be displayed in any of the popular bases (2,8,10,16). Currently a maximum of 64 bits is allowed.
- ASCII** ASCII data. The full specified bit count will be displayed.
- STRING** A PASCAL string. [Length information in the front]. Only the valid characters in the string will be printed.

For the present, assume PASCAL/MODCAL strings are of the following format:



The current length field requires 32 bits.  
String trailer requires 32 bits.

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|                  |                                                                                                                                                                                                                                                                                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>ARRAY</i>     | <p>An array of data. The specified number of bits (rounded up to the nearest byte count) will be displayed in HEX AND ASCII (if the character is valid) - something like the following:</p> <p>XX XX XX XX XX XX XX XX ..hello..<br/>XX XX XX XX XX XX XX XX ..w.... 4.</p>                                                                           |
| <i>MPEXLSTAT</i> | <p>Specifies this field to be interpreted as an MPE XL Operating System status. LOGTOOL will display a text message from the system message catalog corresponding to the value obtained. If a message cannot be found in the catalog, the value will be displayed in the report. This type requires that the &lt;#bits&gt; parameter given is 32.</p> |
| <i>LLIOSTAT</i>  | <p>Specifies this field is to be interpreted as an MPE XL Low Level I/O status. LOGTOOL will display a text message from the system message catalog corresponding to the value obtained. If a message cannot be found in the catalog, the value will be displayed in the report. This type requires that the &lt;#bits&gt; parameter given is 32.</p> |
| <i>TIME</i>      | <p>Specifies this field is to be interpreted as a timestamp produced from the CLOCK intrinsic. The time obtained will be obtained in a native Language format. This type requires that the &lt;#bits&gt; parameter given is 32.</p>                                                                                                                   |
| <i>DATE</i>      | <p>Specifies this field is to be interpreted as a datestamp produced from the CALENDAR intrinsic. The date will be displayed in a native Language format. This type requires that the &lt;#bits&gt; parameter given is 16.</p>                                                                                                                        |
| <i>HARDSTAT</i>  | <p>This specifies that this field is to be interpreted as device hardware status. The hardware status bytes found in this field will be translated into text form. This type can only be successfully used for the I/O ERROR (111) record type. Use of this type for any other record id will produce unpredictable results.</p>                      |
| <i>DIAGSTACK</i> | <p>This specifies that this field is to be interpreted as a diagnostic error stack. The diagnostic error stack found in this field will be translated into text form. This type can only be successfully used for the DIAGNOSTICS (150) record type. Use of this type for any other record id will produce unpredictable results.</p>                 |

## FOR HP INTERNAL USE ONLY

### Syntax:

```
FIELD'FORMAT    <field list>

<field list>    ::= <repeat factor> (<field def>) |
                  <repeat factor> (<field def>) <field list>
<repeat factor> ::= an integer | <nil>
<field def>     ::= <#bits>, JUNK |
                  <#bits>, STRING |
                  <#bits>, ARRAY |
                  <#bits>, ASCII |
                  <#bits>, LLIOSTAT |
                  <#bits>, MPEXLSTAT |
                  <#bits>, TIME |
                  <#bits>, DATE |
                  <#bits>, INTEGER, <base> |
                  <#bits>, INTEGER, <base>, TAG, <#bits>

<#bits>         ::= 0 .. 16256
<base>          ::= 2 | 8 | 10 | 16
```

### Notes:

- The total # of bits must match the record length specification.
- The number of fields must match the N'FIELDS specifications.
- ARRAY, ASCII, & STRING data must start on byte boundaries.
- ARRAY, ASCII, & STRING data must be multiples of 8 bits in length.
- ARRAY, ASCII, & STRING data can have a maximum of 132 bytes.
- ARRAY data will always print out in whole bytes.
- Integer data is at most 64 bits long.
- The length given for string data should include the overhead bytes value.

### Examples:

```
FIELD'FORMAT    2(32,INTEGER,16) (160,ASCII)(3,INT,8)(13,JUNK)
                 (64,STRING) (64,ARRAY) (12,INTEGER,10,TAG,20)
```

- TWO (2) 32 bit integer fields printed in HEX
- 160 bits (32 chars) of printed in ascii.
- A 3 bit integer printed in octal
- 13 bits of junk which it not printed
- A 64 bit (8 char max) string - only valid chars printed.
- A 64 bit (8 bytes) array printed as HEX/ASCII
- A 12 bit integer tag field printed in decimal
- 20 additional bits [identified by the tag] follow.
- A TAG'ID must be used to describe the data.

## FOR HP INTERNAL USE ONLY

### VAR'LABELS

This command provides the ability to give each field a label. The string provided will be what is used to label the field when LOGTOOL decodes the log record. If the label is longer than the maximum number of allowable characters, the user is warned that the label is truncated. Error checking is performed to prevent duplicate labels within the current record. If a field is not given a VAR'LABEL, a null string will be used.

#### Syntax:

```
VAR'LABELS      <label def>

<label def>     ::= <label index> "<label>" <label def> |
                  <label index> "<label>" | <nil>
<label index>   ::= [ <field#> ]
<label>         ::= ASCII text (up to 20 chars)
<field#>        ::= an integer
```

#### Notes:

- Single or double quotes may be used to bracket the label.
- The maximum # of characters is 20.

#### Examples:

```
VAR'LABELS      [ 1 ]      "Name for field 1 : "
                  [ 2 ]      "field 2 name : "
                  [ 4 ]      "field 3 is unlabeled"
```



## FOR HP INTERNAL USE ONLY

### VALUE LABELS

This command allows the binding of values in a field with ASCII descriptions of those values. Error checking is performed to ensure that only numeric (INTEGER) data has VALUE LABELS. The value is not limited to a single value, but a range of values may be specified for a particular label. All ranges must be unique and may not overlap with any other value or range.

#### Syntax:

```
VALUE LABELS <label def>

<label def>      ::= <label index> (<label list>) <label def> | <nil>
<label index>    ::= [ <field#> ]
<label list>     ::= <value range>, "<label>" |
                   <value range>, "<label>" ; <label list> | <nil>
<value range>    ::= <value> | <value>/<value>
<value>          ::= an integer
<label>          ::= ASCII text (up to 20 chars)
<field#>         ::= an integer
```

#### Notes:

- Single or double quotes may be used to bracket the label.
- The maximum number of characters is 20.
- If a value label is given and data in the log file does not match one of the indicated values, it will simply be printed as numeric data as indicated in the FIELD FORMAT command.

#### Examples:

```
VALUE LABELS [ 2 ] (1, "one"; 2, "two"; 3, "three")
              [ 3 ] (-1, "Unlimited"; 1/14 "Half power")
              [ 8 ] (-32768/-1, "Negative";
                    0/32767, "Positive")
```

**VARIANT**

This command must be provided for a TAG'ID definition. This command indicates which field of the RECORD'ID or TAG'ID the current TAG'ID definition is to be used. The RECORD'ID definition must contain a field declared as a tag. For example, a RECORD'ID must have a field similar to the following:

```
FIELD'FORMAT      (8,INT,10,TAG,64)
```

In this example, we have an 8-bit tag field (to be printed in decimal) followed by 64 bits of variant data. The VARIANT command will identify the RECORD'ID that the current TAG'ID is to be used with by a field number and value range. The VARIANT command will identify the TAG'ID containing a tag data type by a list of field number and value range pairs, which will specify the path to the current TAG'ID.

Error checking is performed to ensure that only TAG data types have variants. The value associated with a tag is not limited to a single value, but a range of values may be specified for a tag. All ranges must be unique and may not overlap with any other value or range.

**Syntax:**

```
VARIANT    <variant def>
```

```
<variant def> ::= <label index> ( <variant list> ) <variant def> | <nil>
<label index> ::= [ <field#> ]
<variant list> ::= <value range>
<value range> ::= <value> | <value>/<value>
<value>       ::= an integer
<field#>      ::= an integer
```

**Examples:**

```
VARIANT      [ 1 ] (1/100)
              [ 3 ] (-5 )  {This example is for a TAG'ID which
                           has a variant field}
```

## Tag Usage Example

The system log file is expected to contain data structures as defined in PASCAL. In order to handle Pascal case variant records, the notion of TAGs has been provided. In the following example, a record definition file will be written for the PASCAL record "MY\_RECORD."

```

TYPE
    some_other_type = integer;          { 32 bits }

    yet_another_type = RECORD
        count : integer;                { 32 bits }
        name  : string[4];              { (4 * 8 bits) + 64 bit overhead }
        CASE stuff : integer OF
            0 : ( f1 : integer );        { 32 bits }
            1 : ( f2 : bit8 );           { 8 bits }
        END;                            { SIZEOF = 192 bits }

YET_ANOTHER_TYPE          MAX RECORD SIZE = x18 BYTES
COUNT                    x0.0 @ 4.0
NAME                      x4.0 @ C.0 <- Note compiler added
                               32 bits for string
                               header and 32 bits
                               for string trailer.

STUFF                     x10.0 @ 4.0
F1                         x14.0 @ 4.0
F2                         x14.0 @ 1.0

my_record = RECORD
    field1 : integer;                  { 32 bits }
    CASE select : boolean OF
        true : (true_case : some_other_type); { 32 bits }
        false : (false_case : yet_another_type); { 192 bits (max) }
    END;                              { SIZEOF = 256 bits }

MY_RECORD                 MAX RECORD SIZE = x20 BYTES
FIELD1                    x0.0 @ 4.0
SELECT                    x4.0 @ 1.0 <- Note: compiler padded
                               to next word.
TRUE_CASE                 x8.0 @ 4.0
FALSE_CASE                x8.0 @ 18.0

```

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The following would define the above structures:

```

COMMENT          This defines MY_RECORD "

RECORD'ID        1
RECORD'LENGTH    256
RECORD'LABEL     "MY_REC"
N'FIELDS        2

FIELD'FORMAT     {field1} (32,INT,10)
                 {select} (8,INT,10,TAG,216)

VAR'LABELS       [ 1 ] "field 1 : "
                 [ 2 ] "select code : "

VALUE'LABELS     [ 2 ] (0,"False"; 1, "True" )

COMMENT          " This defines the case variant "TRUE"
                 (SOME_OTHER_TYPE) from the above record

TAG'ID           1      {This tag is to be used with RECORD'ID 1}
RECORD'LENGTH    216    {Must match length given in FIELD'FORMAT}
RECORD'LABEL
VARIANT          [ 2 ] (1)
N'FIELDS        3

FIELD'FORMAT     {compiler filler} (24,junk)
                 {some_other_type} (32,INT,10)
                 (160, junk)      {Total # bits must match RECORD'LENGTH}
VAR'LABELS       [ 1 ] "True Case"

COMMENT          " This defines the case variant "FALSE"
                 (YET_ANOTHER_TYPE) from the above record "

TAG'ID           1      {This tag is to be used with RECORD'ID 1}
RECORD'LENGTH    216    {Must match length given in FIELD'FORMAT}
RECORD'LABEL
VARIANT          [ 2 ] (0)  {Use this TAG'ID for RECORD'ID 1, when}
                       {the second field has a value of zero}
N'FIELDS        4

FIELD'FORMAT     (24,junk) (32,INT,10) (96,STRING) (32,INT,16,TAG,32)
VAR'LABELS       [ 1 ] "Count : "
                 [ 2 ] "Name : "
                 [ 3 ] "Stuff tag : "

COMMENT          " This defines the case variant "0" of
                 (YET_ANOTHER_TYPE) from the above record "

TAG'ID           1      {This tag is to be used with RECORD'ID 1}
RECORD'LENGTH    32      {Must match length given in FIELD'FORMAT}

```

# FOR HP INTERNAL USE ONLY

RECORD'LABEL

```
VARIANT          [ 2 ] (0)
                  [ 4 ] (0)    {Use this TAG'ID when field 3 of}
                                {previous TAG'ID has a value of zero}

N'FIELDS         1

FIELD'FORMAT     (32,INT,10)
VAR'LABELS       [ 1 ] "F1:"

COMMENT          " This defines the case variant "1" of
                  (YET_ANOTHER_TYPE) from the above record "

TAG'ID           1             {This tag is to be used with RECORD'ID 1}
RECORD'LENGTH    32           {Must match length given in FIELD'FORMAT}
RECORD'LABEL
VARIANT          [ 2 ] (0)
                  [ 4 ] (1)    {Use this TAG'ID when field 3 of}
                                {previous TAG'ID has a value of zero}

N'FIELDS         2

FIELD'FORMAT     (8,INT,10) (24,junk)
VAR'LABELS       [ 1 ] "F2:"
```

As in the above example, TAG'IDs may be nested. Variants without tags are not supported. Consider the following:

```
TYPE
  some_record = RECORD
    case integer of
      0 : (f1 : type1);
      1 : (f2 : type2);
      2 : (f3 : type3);
    END;
```

LOGTOOL does not know which of the variants to print, since it has no idea which variant the data matches.

## RECORD'ID Installation Example

This section describes in detail the process required for LOGT00L to decode a log entry. Normally, when LOGT00L is instructed to display the contents of a system log file, it searches through the LOGT00L data structures for a RECORD'ID definition. If a RECORD'ID definition cannot be found, the log entry is displayed based on the definition located.

For the following example, the log entry will be that of the MPE XL low-level I/O (LLIO) system which consists of many software modules called "I/O managers." This log entry has the unique attribute that the record definition is written in parts. The log entry itself is written in two parts. A main header which displays information common to all "I/O managers" and a LLIO software dependent portion, which contains information specific to one software module.

The PASCAL declaration for the log entry header information is as follows:

```
type
  io_fixed_rec_type = record
    product_name   : dac_prodnun_type; { Name: i.e. "HP7933" }
    pdev           : pdev_str;         { Physical path i.e. "1.1.3" }
    ldev           : ldev_str;         { Logical device name }
    dev_class_code : shortint;         { 'ID for DISC, TAPE, etc }
    diag_msg_class : bit8;             { Indicates HW/SW/OTHER I/O err }
    lllo_stat      : integer;          { HPE status }

    log_all_retries : boolean;         { TRUE if retries not summarized }
    retry_again     : boolean;         { TRUE if log_all_entries&will retry }
    io_worked       : boolean;         { Did I/O finally work ? }
    run_autodiag    : boolean;         { Were Auto diagnostics run? }
    retry_count     : shortint;        { N'th retry OR Total retries }
    mgr_port_num    : integer;         { port number of manager }
    tran_num        : integer;         { transaction number }
    hwr_len         : shortint;        { # of valid bytes in the HDWR_STAT }
    hwr_stat        : hwr_stat_type;   { Hardware status bytes }
  end; {io_fixed_rec_type}

  io_event_array = packed array [ 1..max_buff_bytes ] of char;

  io_var_rec_type = record
    data_len : shortint; { # of valid bytes in DATA }
    mgr_code : shortint; { Uniquely IDs the mgr }
    case boolean of
      true : (data : packed array [1..max_event_count] of io_event_array);
      false : (buff : packed array [1..io_var_len-4] of char);
    end; {io_var_rec_type}
```

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The previous record structure is used when logging information to the system log file. This record must be translated into a LOGTOOL record definition file which will be processed by LOGTOOL and incorporated into its data base. The following is a listing of a file named LAYLLIO, which contains the record definition for the above PASCAL record.

```

RECORD'ID      111
RECORD'LENGTH  16224
N'FIELDS      25
RECORD'LABEL   "I/O ERROR"
FIELD'FORMAT   {1 product_name}      (320,string)
                {2 pdev}              (320,string)
                {3 ldev}              (320,string)
                {4 dev_class_code}     (16,int,10)
                {5 diag_msg_class}     (8,int,10) (8,junk)
                {7 llio_stat}          (0,int, 10 ) (32,lliostat)
                {9 log_all_retries}    (7,junk) (1,int,10)
                {11 retry_again}       (7,junk) (1,int,10)
                {13 io_worked}        (7,junk) (1,int,10)
                {15 run_autodiag}      (7,junk) (1,int,10)
                {17 retry_count}       (16,int,10)
                {18 mgr_port_num }     (16,junk) (32,int,16)
                {20 tran_num}          (32,int,16)
                {21 hdwr_len}          (16,int,10)
                {22 reserved}          (16,junk)
                {23 hdwr }             (320,hardstat)
                {24 datalen}           (16,int,10)
                {25 mgrcode}           (16,int,10,tag,14688)
                {---IO_VAR portion }

VAR'LABELS     [ 1 ] "PRODUCT NAME:"
                [ 2 ] "PDEV:"
                [ 3 ] "LDEV:"
                [ 4 ] "DEVICE CLASS:"
                [ 5 ] "I/O EVENT CLASS:"
                [ 8 ] "LLIO STATUS:"
                [10 ] "RETRY SCHEME:"
                [12 ] "WILL RETRY:"
                [14 ] "I/O RESULT:"
                [16 ] "RUN AUTODIAG:"
                [17 ] "RETRY COUNT:"
                [19 ] "MGR PORT NUM.:"
                [20 ] "TRANS. NUM. :"
                [21 ] "# HDWR BYTES:"
                [23 ] "HARDWARE STATUS:"
                [24 ] "DATA LEN:"
                [25 ] "MGR CODE:"

```

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VALUE LABELS

```
[ 5 ] (0,"Hardware";      1,"Software";    2,"Other")
[ 4 ] (0,"Hard Disc";     1,"Mag Tape";    2,"Terminal";
      4,"Plotter";        7,"Bus Converter" 13,"Crd Rdr";
      16,"DTC";           19,"Term. Mux."; 21,"Printer";
      22,"CA";            23,"DA")
[ 10 ] (1,"Log Each Retry"; 0,"Summarized Retries")
[ 12 ] (1,"YES"; 0,"NO" )
[ 14 ] (1,"I/O Successful"; 0,"I/O Failed")
[ 16 ] (1,"YES"; 0,"NO" )
```

Now that the record definition file for the header is complete, it can be installed using LOGTOOL. The user must enter the Diagnostic User Interface (DUI) to access LOGTOOL. The following LOGTOOL session will perform this task:

:sysdiag

```
*****
****
****          ONLINE DIAGNOSTIC SYSTEM          ****
****
****          (C) Copyright Hewlett Packard Co. 1987 ****
****          All Rights Reserved.               ****
****
**** DUI   Version A.00.00   Monitor Version A.00.00 ****
****
*****
```

Welcome, Today is MON, August 10, 1987 at 12:30 PM

Type HELP for assistance.

DUI >run logtool

```
*****
****
****          LOGTOOL          ****
****
****          (C) Copyright Hewlett Packard Co. 1987 ****
****          All Rights Reserved.               ****
****          Version A.00.00                     ****
****
*****
```

Welcome, Today is MON, August 10, 1987 at 12:30 PM

LOGTOOL>list log=23;type=111 {Display the log entry  
without a record definition}



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SYSTEM ERROR LOG REPORT  
=====

Report Date/Time: TUE, JAN 1, 1987 - 2:25 AM

```
=====
TUE, JAN 1, 1987    2:22 AM    LOG0023.PUB.SYS    SYSTEM (PIN 27)
RECORD TYPE 111
  1  2  3  4  5  6  7  8  9 10 11 12
  == == == == == == == == == == == ==
1: 00 00 00 07 48 50 49 42 44 41 4D 00 . . . . H P I B D A M .
13: 00 00 00 00 00 00 00 00 00 00 00 00 . . . . .
25: 00 00 00 00 00 00 00 00 00 00 00 00 . . . . .
37: 00 00 00 00 00 00 00 03 38 2E 32 00 . . . . . 8 . 2 .
49: 00 00 00 00 00 00 00 00 00 00 00 00 . . . . .
61: 00 00 00 00 00 00 00 00 00 00 00 00 . . . . .
73: 00 00 00 00 00 00 00 00 00 00 00 00 . . . . .
85: 00 00 00 00 00 00 00 00 00 00 00 00 . . . . .
97: 00 00 00 00 00 00 00 00 00 00 00 00 . . . . .
109: 00 00 00 00 00 00 00 00 00 00 00 00 . . . . .
121: 00 06 00 00 5A 00 00 74 00 00 00 00 . . . . Z . . t . . .
133: 00 00 00 00 FF FF FF AE 00 00 00 00 . . . . .
145: 00 01 00 00 01 02 00 00 00 00 00 00 . . . . .
157: 00 00 00 00 00 00 00 00 00 00 00 00 . . . . .
169: 00 00 00 00 00 00 00 00 00 00 00 00 . . . . .
181: 00 00 00 00 00 00 00 00 00 18 00 74 . . . . . t
193: 02 00 00 00 00 00 00 0C 00 45 45 45 . . . . . E E E
205: 00 00 00 0C 00 67 46 94 00 00 00 09 . . . . . g F . . . .
```

DEVICE HARDWARE STATUS:

```
  1  2  3  4  5  6  7  8  9 10 11 12
  == == == == == == == == == == == ==
1: FF
```

```
=====
TYPE      DESCRIPTION      COUNT
=====
111      1
=====
```

```
LOGT00L>layout file=layllio; append    {Update data base file}
Processing ID 111 ...
```

```
=====
End processing of layout file LAYLLIO.DIAG.SYS
0 Errors encountered
1 out of 1 record ID's were accepted.
0 out of 0 tag ID's were accepted.
```

```
Number of messages in LAYMSG = 287
Header records in LAYOUTF = 25
```

1-70 System And Memory Log

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Total record in LAYOUTF = 799

LOGTOOL> list log=23; type=111 {Display log entry with header}

SYSTEM ERROR LOG REPORT  
=====

Report Date/Time: TUE, JAN 1, 1987 - 2:26 AM

=====

|                  |          |                 |                 |
|------------------|----------|-----------------|-----------------|
| TUE, JAN 1, 1987 | 2:22 AM  | LOG0023.PUB.SYS | SYSTEM (PIN 27) |
| I/O ERROR        |          |                 |                 |
| PRODUCT NAME:    | HPIBDAM  | PDEV:           | 8.2             |
| LDEV:            |          | DEVICE CLASS:   | 6               |
| I/O EVENT CLASS: | Hardware | LLIO STATUS:    | \$5A000074      |

MPE/XL I/O Status: Proc. Num. = 0, Error Num. = 90, Subsystem = 116

|               |                    |                |     |
|---------------|--------------------|----------------|-----|
| RETRY SCHEME: | Summarized Retries | WILL RETRY:    | NO  |
| I/O RESULT:   | I/O Failed         | RUN AUTODIAG:  | NO  |
| RETRY COUNT:  | 0                  | MGR PORT NUM.: | -82 |
| TRANS. NUM. : | 0                  | # HDWR BYTES:  | 1   |

HARDWARE STATUS:

|    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 |
| == | == | == | == | == | == | == | == | == | == | == | == |
| 1: | FF |    |    |    |    |    |    |    |    |    |    |

DATA LEN: 24 MGR CODE: 116

TAG DEFINITION NOT GIVEN - FIELD WILL BE DISPLAYED IN HEX:

|     |    |    |    |    |    |    |    |    |    |    |    |                         |
|-----|----|----|----|----|----|----|----|----|----|----|----|-------------------------|
| 1   | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 |                         |
| ==  | == | == | == | == | == | == | == | == | == | == | == |                         |
| 1:  | 02 | 00 | 00 | 00 | 00 | 00 | 0C | 00 | 45 | 45 | 45 | . . . . . E E E         |
| 13: | 00 | 00 | 00 | 0C | 00 | 67 | 46 | 94 | 00 | 00 | 09 | . . . . . g F . . . . . |

=====

| TYPE  | DESCRIPTION | COUNT |
|-------|-------------|-------|
| ===== | =====       | ===== |
| 111   | I/O ERROR   | 1     |
| ===== | =====       | ===== |

LOGTOOL>

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Because the record definition file only contains declarations for the header, the "I/O manager" dependent portion of the log entry is displayed as a hex dump. The "I/O manager" dependent portion of the record definition will be given in the format of TAG'ID declarations. As an example, the following PASCAL record defines an "I/O manager" dependent portion of the log entry:

```
TYPE
  dam_log_info_type = PACKED RECORD
    hw_status      : bit8;
    dam_mgr_ptr    : srv_ptr_type;
    dam_msg_ptr    : msg_ptr_type;
    dam_uid_num    : integer;
  END;

DAM_LOG_INFO_TYPE          MAX_RECORD_SIZE = x18 BYTES
HW_TSTATUS                 x0.0 @ 1.0
DAM_MGR_PTR                x4.0 @ 8.0
DAM_MSG_PTR                xC.0 @ 8.0
DAM_UID_NUM                x14.0 @ 4.0
```

The TAG'ID definition for the above declaration is the following, which will be stored in the file LAYPORT:

```
TAG'ID 111                      {HP-IB device adapter manager}
RECORD'LENGTH 192
N'FIELD 7
RECORD'LABEL
VARIANT [25] (116)
FIELD'FORMAT (8,int,16)         {Hardware status}
                  (24,junk)      {Compiler filler}
                  (32,int,16)    {Port data area address}
                  (32,int,16)
                  (32,int,16)    {Message pointer}
                  (32,int,16)
                  (32,int,10)    {UID}

VAR'LABEL [ 1 ] "HDWR STATUS:"
          [ 3 ] "PDA SPACE'ID:"
          [ 4 ] "PDA OFFSET:"
          [ 5 ] "MSG SPACE'ID:"
          [ 6 ] "MSG OFFSET:"
          [ 7 ] "UID:"
```

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Now, the TAG'ID can be installed through LOGTOOL:

:sysdiag

```
*****
****                               ****
****      ONLINE DIAGNOSTIC SYSTEM      ****
****                               ****
****      (C) Copyright Hewlett Packard Co. 1987      ****
****      All Rights Reserved.      ****
****                               ****
****      DUI Version A.00.00      Monitor Version A.00.00      ****
****                               ****
*****
```

Welcome, Today is MON, August 10, 1987 at 12:30 PM

Type "HELP" for assistance.

DUI >run logtool

```
*****
****                               ****
****      LOGTOOL      ****
****                               ****
****      (C) Copyright Hewlett Packard Co.      ****
****      All Rights Reserved.      ****
****      Version A.00.00      ****
****                               ****
*****
```

Welcome, Today is MON, August 10, 1987 at 12:30 PM

LOGTOOL>layout file=layport;append  
Processing TAG'ID 111 ...

=====

End processing of layout file LAYPORT.DIAG.SYS

0 Errors encountered  
0 out of 0 record'IDs were accepted.  
1 out of 1 tag'IDs were accepted.

Number of messages in LAYMSG = 292  
Header records in LAYOUTF=26  
Total records in LAYOUTF = 819

LOGTOOL>list log=14;type=111 {Display log entry}

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SYSTEM ERROR LOG REPORT  
=====

Report Date/Time: TUE, JAN 1, 1987 - 2:27 AM

```
=====
TUE, JAN 1, 1987    2:22 AM      LOG0023.PUB.SYS          SYSTEM (PIN 27)
I/O ERROR
PRODUCT NAME:      HPIBDAM          PDEV:              8.2
LDEV:              DEVICE CLASS:    6
I/O EVENT CLASS:   Hardware         LLIO STATUS:       $5A000074
```

MPE/XL I/O Status: Proc. Num. = 0, Error Num. = 90, Subsystem = 116

```
RETRY SCHEME:      Summarized Retries WILL RETRY:      NO
I/O RESULT:        I/O Failed      RUN AUTODIAG:       NO
RETRY COUNT:       0                MGR PORT NUM.:     -82
TRANS. NUM. :      0                # HDWR BYTES:      1
```

```
HARDWARE STATUS:
  1  2  3  4  5  6  7  8  9 10 11 12
  == == == == == == == == == == ==
1:  FF
```

```
DATA LEN:          24                MGR CODE:         116
HDWR STATUS:       $2                PDA SPACE ID:       $C
PDA OFFSET:        $454545          MSG SPACE ID:       $C
MSG OFFSET:        $674694          UID:                9
```

```
=====
TYPE      DESCRIPTION      COUNT
=====
111      I/O ERROR        1
=====
```

LOGTOOL>

LOGTOOL is not able to display all the information for the log entry. Since the append option was used in the LAYOUT command, all subsequent users have access to the definition given. To shorten this process, the LAYLLIO and LAYPORT record definition files can be merged together. Then LOGTOOL will process the RECORD'ID, followed by the TAG'ID.

---

**Error and Warning Messages**

The following are general error messages which may be encountered during the execution of LOGTOOL. Please note that system dependent error messages may be displayed from the On-Line diagnostic system before any error message generated by this diagnostic. All error messages without the ( LTERR # ) trailer are generated by the online diagnostics subsystem. Each of the error messages is followed by CAUSE/ACTION explanations. These explanations will not be displayed to the user.

---

|            |                                                                                                                                                                                                                                                                                                                                                                            |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>401</b> | <b>*** PASCAL CASE STATEMENT OVERFLOW IN ! (LTERR 401)</b>                                                                                                                                                                                                                                                                                                                 |
| CAUSE      | LOGTOOL has hit the otherwise clause of an CASE statement. This is a software error.                                                                                                                                                                                                                                                                                       |
| ACTION     | Please submit a service request indicating the following:<br>a) The exact text of the above error message including the parameter.<br>b) Any other error messages displayed with this error message.<br>c) The sequence of LOGTOOL commands which were being performed when this error message was encountered.<br>d) The version (A.nn.nn) of the LOGTOOL being executed. |

---

|            |                                                                                                                                                                                                                                                                                                                                                                            |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>404</b> | <b>*** UNABLE TO OBTAIN MESSAGE ! FROM DIAG. CATALOG (LTERR 404)</b>                                                                                                                                                                                                                                                                                                       |
| CAUSE      | LOGTOOL was not able to obtain a text message from LOGTOOL's message set in the diagnostic message catalog.                                                                                                                                                                                                                                                                |
| ACTION     | Please submit a service request indicating the following:<br>a) The exact text of the above error message including the parameter.<br>b) Any other error messages displayed with this error message.<br>c) The sequence of LOGTOOL commands which were being performed when this error message was encountered.<br>d) The version (A.nn.nn) of the LOGTOOL being executed. |

---

|            |                                                                                                                                                                          |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>405</b> | <b>*** ERROR ATTEMPTING TO DELETE FILE !. (LTERR 405)</b>                                                                                                                |
| CAUSE      | LOGTOOL encountered an error while attempting to purge a file. The file name will be displayed in this error message.                                                    |
| ACTION     | Error messages containing further information will be displayed with this message.<br>Please refer to the ACTION clause of those error messages for further information. |

---

|            |                                                                                                                                                                          |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>406</b> | <b>*** ERROR ATTEMPTING TO OPEN FILE !. (LTERR 406)</b>                                                                                                                  |
| CAUSE      | LOGTOOL encountered an error while attempting to open a file. The file name will be displayed in this error message.                                                     |
| ACTION     | Error messages containing further information will be displayed with this message.<br>Please refer to the ACTION clause of those error messages for further information. |

---

|            |                                                                                                                                                                            |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>407</b> | <b>*** ERROR ATTEMPTING TO CLOSE FILE !. (LTERR 407)</b>                                                                                                                   |
| CAUSE      | LOGTOOL encountered an error while attempting to close a file. The file name will be displayed in this error message.                                                      |
| ACTION     | An error message containing further information will be displayed with this message.<br>Please refer to the ACTION clause of those error messages for further information. |

---

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|            |                                                                                                                                                                                                                                |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>408</b> | <b>*** ERROR ATTEMPTING TO READ FROM FILE !. (LTERR 408)</b>                                                                                                                                                                   |
| CAUSE      | LOGTOOL encountered an error while attempting to read from a file. The file name will be displayed in this error message.                                                                                                      |
| ACTION     | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of those error messages for further information.                                                        |
| <b>409</b> | <b>*** ERROR ATTEMPTING TO WRITE TO FILE !. (LTERR 409)</b>                                                                                                                                                                    |
| CAUSE      | LOGTOOL encountered an error while attempting to write to a file. The file name will be displayed in this error message.                                                                                                       |
| ACTION     | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of those error messages for further information.                                                        |
| <b>410</b> | <b>*** ERROR ATTEMPTING TO CREATE FILE !. (LTERR 410)</b>                                                                                                                                                                      |
| CAUSE      | LOGTOOL encountered an error while attempting to create a file. The file name will be displayed in this error message.                                                                                                         |
| ACTION     | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of those error messages for further information.                                                        |
| <b>414</b> | <b>*** FILE "LAYOUTF" CORRUPTED. ID !. EXPECTED !. REC# !. (LTERR 414)</b>                                                                                                                                                     |
| CAUSE      | LOGTOOL discovered some inconsistencies while it was reading its data base file LAYOUTF.                                                                                                                                       |
| ACTION     | Contact support personnel to get new LAYOUTF and LAYMSG files.                                                                                                                                                                 |
| <b>417</b> | <b>*** COULD NOT DECODE STATUS FOR ! DEVICE (LTERR 417)</b>                                                                                                                                                                    |
| CAUSE      | LOGTOOL issued a request to the diagnostic system to have the appropriate diagnostic program initiated for decode of hardware status. That request was not granted. Therefore, the hardware status is displayed as a HEX dump. |
| ACTION     | Messages indicating why the request was not granted will be displayed with this error message. Please refer to the ACTION clause for those messages for further information.                                                   |
| <b>418</b> | <b>*** COULD NOT KILL ! AFTER STATUS DECODE FINISHED (LTERR 418)</b>                                                                                                                                                           |
| CAUSE      | LOGTOOL was not able to abort a diagnostic program which was initiated for decoding of hardware status.                                                                                                                        |
| ACTION     | Messages indicating why the diagnostic program could not be aborted will be displayed with this error message. Please refer to the ACTION clause for those messages for further information.                                   |
| <b>421</b> | <b>*** ERROR ATTEMPTING TO READ RECORD ! FROM "!" (LTERR 421)</b>                                                                                                                                                              |
| CAUSE      | LOGTOOL encountered an error while attempting to read from a file. The file name will be displayed in this error message.                                                                                                      |
| ACTION     | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of those error messages for further information.                                                        |

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|            |                                                                                                                                                                                                          |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>429</b> | <b>*** SWITCHLOG COMMAND WAS NOT PERFORMED ( LTERR 429 )</b>                                                                                                                                             |
| CAUSE      | LOGTOOL requested that a switchlog command be performed by the operating system. That request returned an error.                                                                                         |
| ACTION     | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause for those error messages.                                                           |
| <b>430</b> | <b>*** UNABLE TO DETERMINE CURRENT LOG FILE. ( LTERR 430 )</b>                                                                                                                                           |
| CAUSE      | LOGTOOL requested that a showlog command be performed by the operating system. That request returned an error.                                                                                           |
| ACTION     | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause for those error messages.                                                           |
| <b>446</b> | <b>*** UNABLE TO OBTAIN PDEV FOR LDEV !. (LTERR 446)</b>                                                                                                                                                 |
| CAUSE      | LOGTOOL was not able to convert a physical device specifier into a logical device number.                                                                                                                |
| ACTION     | Error messages giving further detail as to the type of problem encountered will be displayed with this message. Please refer to the ACTION clause for those error messages for further information.      |
| <b>452</b> | <b>*** WARNING: SYSTEM LOGGING IS SUSPENDED (LTWARN 452)</b>                                                                                                                                             |
| CAUSE      | The host operating system indicates that the system logging facility has been suspended. Therefore, the SWITCHLOG request was not performed.                                                             |
| ACTION     | Resume the system logging facility.                                                                                                                                                                      |
| <b>453</b> | <b>*** WARNING: SYSTEM LOGGING IS DISABLED (LTWARN 453)</b>                                                                                                                                              |
| CAUSE      | The host operating system indicates that the system logging facility has been disabled. Therefore, the SWITCHLOG request was not performed.                                                              |
| ACTION     | Start the system logging facility.                                                                                                                                                                       |
| <b>455</b> | <b>*** UNABLE TO COMMUNICATE WITH MEMORY LOGGING PROCESS (LTERR 455)</b>                                                                                                                                 |
| CAUSE      | The user has issued either a MEMTIMER, MEMCLR, or MEMRPT command to LOGTOOL. To perform these commands, LOGTOOL must communicate with the memory logging process. LOGTOOL is not able to locate MEMLOGP. |
| ACTION     | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                    |
| <b>456</b> | <b>*** UNABLE TO OBTAIN MEMORY REPORT DATA (LTERR 456)</b>                                                                                                                                               |
| CAUSE      | The user has issued a MEMRPT command to LOGTOOL. LOGTOOL was not able to successfully obtain memory report information from the memory logging process (MEMLOGP).                                        |
| ACTION     | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                    |



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|        |                                                                                                                                                                                                                                                                                                                                                                            |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 457    | *** UNABLE TO START DISPLAYLOG COMMAND (LTERR 457)                                                                                                                                                                                                                                                                                                                         |
| CAUSE  | LOGTOOL was not able to notify the diagnostic system that DISPLAYLOG was to start.                                                                                                                                                                                                                                                                                         |
| ACTION | An error message containing further information will be displayed with this message.<br>Please refer to the ACTION clause of that error message for further information.                                                                                                                                                                                                   |
| 458    | *** UNABLE TO STOP DISPLAYLOG COMMAND (LTERR 458)                                                                                                                                                                                                                                                                                                                          |
| CAUSE  | LOGTOOL was not able to notify the diagnostic system that DISPLAYLOG was to stop.                                                                                                                                                                                                                                                                                          |
| ACTION | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DUI command line, and file a service request with the trace information generated when performing the LOGTOOL command again.                                                                                                                                                           |
| 459    | *** LOGTOOL ABORTING DUE TO AN UNRECOVERABLE ERROR.<br>FURTHER ERROR INFORMATION HAS BEEN LOGGED IN THE SYSTEM LOG FILE. (LTERR 459)                                                                                                                                                                                                                                       |
| CAUSE  | LOGTOOL encountered an error it could not recover from. Further error information has been logged into the system log file as a diagnostic log record. Depending on the error, this message may not make it to the users terminal, but LOGTOOL is try to tell the user that it is aborting.                                                                                |
| ACTION | Please find the diagnostic log record containing the detailed error information on why LOGTOOL aborted. In most cases, a service request may need to be submitted.                                                                                                                                                                                                         |
| 460    | *** LOGTOOL ERROR NUMBER IS !. (LTERR 460)                                                                                                                                                                                                                                                                                                                                 |
| CAUSE  | LOGTOOL encountered an error it could not recover from. The number given will identify the type of error encountered.                                                                                                                                                                                                                                                      |
| ACTION | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DUI command line, and file a service request with the trace information generated when performing the LOGTOOL command again.                                                                                                                                                           |
| 461    | *** LOGTOOL ABORTED DUE TO AN ERROR IN PROCEDURE ! (LTERR 461)                                                                                                                                                                                                                                                                                                             |
| CAUSE  | LOGTOOL encountered an error it could not recover from. The procedure name given will identify the location in LOGTOOL code where the error occurred.                                                                                                                                                                                                                      |
| ACTION | Please submit a service request indicating the following:<br>a) The exact text of the above error message including the parameter.<br>b) Any other error messages displayed with this error message.<br>c) The sequence of LOGTOOL commands which were being performed when this error message was encountered.<br>d) The version (A.nn.nn) of the LOGTOOL being executed. |

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|               |                                                                                                                                                                                                                                                                                                                   |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>462</b>    | <b>*** UNEXPECTED ERROR OCCURRED WHILE TRYING TO CONVERT A LOG NUMBER TO A PASCAL STRING (LTERR 462)</b>                                                                                                                                                                                                          |
| <b>CAUSE</b>  | After obtaining a log number from the user, LOGTOOL needs to convert that number from an integer to a PASCAL string. This string is later used to form a log file name.                                                                                                                                           |
| <b>ACTION</b> | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                                                                                                             |
| <hr/>         |                                                                                                                                                                                                                                                                                                                   |
| <b>463</b>    | <b>*** UNEXPECTED ERROR OCCURRED WHILE TRYING TO FULLY QUALIFY A LOG FILE NAME (LTERR 463)</b>                                                                                                                                                                                                                    |
| <b>CAUSE</b>  | After LOGTOOL has formed a log file name from the log file number given, it must fully qualify the file name to access the file. An unexpected error occurred while trying to fully qualify the log file name with the directory where log files are stored.                                                      |
| <b>ACTION</b> | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                                                                                                             |
| <hr/>         |                                                                                                                                                                                                                                                                                                                   |
| <b>464</b>    | <b>*** UNABLE TO START PROGRAM TRACE (LTERR 464)</b>                                                                                                                                                                                                                                                              |
| <b>CAUSE</b>  | LOGTOOL was not able to notify the diagnostic system that tracing of program procedures is to begin.                                                                                                                                                                                                              |
| <b>ACTION</b> | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                                                                                                             |
| <hr/>         |                                                                                                                                                                                                                                                                                                                   |
| <b>465</b>    | <b>*** UNABLE TO START PROGRAM AND LIBRARY TRACE (LTERR 465)</b>                                                                                                                                                                                                                                                  |
| <b>CAUSE</b>  | LOGTOOL was not able to notify the diagnostic system that tracing of program and diagnostic library procedures is to begin.                                                                                                                                                                                       |
| <b>ACTION</b> | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                                                                                                             |
| <hr/>         |                                                                                                                                                                                                                                                                                                                   |
| <b>466</b>    | <b>*** UNEXPECTED ERROR OCCURRED WHILE TRYING TO WRITE THE LOGTOOL FILE HEADER TO THE WORK FILE (LTERR 466)</b>                                                                                                                                                                                                   |
| <b>CAUSE</b>  | The first record of each work file create by LOGTOOL contains a unique header. LOGTOOL uses this header to identify work files from other disk files found in the diagnostic directory. In this situation, LOGTOOL encountered an unexpected error while trying to write the header information to the work file. |
| <b>ACTION</b> | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                                                                                                             |
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| 467    | *** UNEXPECTED ERROR OCCURRED WHILE TRYING TO APPEND FILE PATH TO LOG FILE NAME (LTERR 467)                                                                                                                                                                  |
| CAUSE  | After LOGTOOL has formed a log file name from the log file number given, it must fully qualify the file name to access the file. An unexpected error occurred while trying to fully qualify the log file name with the directory where log files are stored. |
| ACTION | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                                                        |
| 468    | *** UNEXPECTED ERROR OCCURRED WHILE TRYING TO OBTAIN LIST OF LOG FILES (LTERR 468)                                                                                                                                                                           |
| CAUSE  | The user entered the STATUS command in LOGTOOL. LOGTOOL encountered an unexpected error while trying to obtain the list of log files available on the system.                                                                                                |
| ACTION | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                                                        |
| 470    | *** UNABLE TO OBTAIN THE SIZE OF A LOG FILE (LTERR 470)                                                                                                                                                                                                      |
| CAUSE  | LOGTOOL encountered an unexpected error while trying to determine how many records were in a log file.                                                                                                                                                       |
| ACTION | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                                                        |
| 471    | *** UNEXPECTED ERROR OCCURRED WHILE TRYING TO ABORT A MEMORY REPORT (LTERR 471)                                                                                                                                                                              |
| CAUSE  | The user entered a user interrupt while a memory report was being generated. In response to the user interrupt, LOGTOOL tried to abort the memory report and encountered an error.                                                                           |
| ACTION | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                                                        |
| 472    | *** UNEXPECTED ERROR OCCURRED WHILE TRYING TO DETERMINE IF A USER INTERRUPT WAS ENTERED (LTERR 472)                                                                                                                                                          |
| CAUSE  | An unexpected error status was returned from a diagnostic procedure which determines if a user interrupt was entered.                                                                                                                                        |
| ACTION | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                                                        |
| 473    | *** UNEXPECTED ERROR OCCURRED WHILE TRYING TO DECODE A SECOND HARDWARE STATUS (LTERR 473)                                                                                                                                                                    |
| CAUSE  | LOGTOOL encountered an unexpected error while trying to request that a diagnostic program decode a second hardware status.                                                                                                                                   |
| ACTION | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                                                        |

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| 474    | *** UNEXPECTED ERROR OCCURRED WHILE TRYING TO OBTAIN HARDWARE STATUS TEXT (LTERR 474)                                                                                                                                   |
| CAUSE  | LOGTOOL issued a request to the diagnostic system that a diagnostic program be launched to decode hardware status. LOGTOOL encountered an unexpected error while trying to obtain the text from the diagnostic program. |
| ACTION | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                   |
| 475    | *** UNEXPECTED ERROR OCCURRED WHILE TRYING TO SEND DATA TO THE SYSTEM PRINTER (LTERR 475)                                                                                                                               |
| CAUSE  | LOGTOOL encountered an unexpected error while trying to send one line of a report to the system line printer.                                                                                                           |
| ACTION | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                   |
| 476    | *** UNEXPECTED ERROR OCCURRED WHILE TRYING TO END THE PRINT JOB (LTERR 476)                                                                                                                                             |
| CAUSE  | LOGTOOL encountered an unexpected error while trying to end the print job, which contained either a log report or a memory report.                                                                                      |
| ACTION | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                   |
| 477    | *** UNEXPECTED ERROR OCCURRED WHILE TRYING TO OBTAIN THE NEXT ENTRY FROM THE DIAGNOSTIC ERROR STACK (LTERR 477)                                                                                                         |
| CAUSE  | While translating a diagnostic record from the system log file, LOGTOOL was not able to obtain an entry from the logged diagnostic error stack.                                                                         |
| ACTION | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                   |
| 478    | *** UNEXPECTED ERROR OCCURRED WHILE TRYING TO TRANSLATE AN ENTRY FROM THE DIAGNOSTIC ERROR STACK TO TEXT (LTERR 478)                                                                                                    |
| CAUSE  | While translating a diagnostic record from the system log file, LOGTOOL was not able to obtain text for the entry obtained from the logged diagnostic error stack.                                                      |
| ACTION | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                   |
| 479    | *** UNEXPECTED ERROR OCCURRED WHILE TRYING TO FULLY QUALIFY A DIAGNOSTIC FILE NAME (LTERR 479)                                                                                                                          |
| CAUSE  | LOGTOOL is required to fully qualify the names of all files it needs to access in the diagnostic directory. In this situation, it was not able to successfully perform that task.                                       |
| ACTION | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                                   |

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| <b>502</b> | <b>*** INVALID LOG RECORD TYPE ! RECORD SKIPPED (LTWARN 502)</b>                                                                                                                                                                                                                                                                                                                             |
| CAUSE      | LOGTOOL encountered a log record with an invalid record type. This log record will be skipped and will not appear in the report.                                                                                                                                                                                                                                                             |
| ACTION     | Please submit a service request indicating the following:<br>a) The exact text of the above error message including the parameter.<br>b) Any other error messages displayed with this error message.<br>c) The sequence of LOGTOOL commands which were being performed when this error message was encountered.<br>d) The version (A.nn.nn) of the LOGTOOL being executed.                   |
| <b>503</b> | <b>*** USER INTERRUPTS COULD NOT BE ENABLED. (LTWARN 503)</b>                                                                                                                                                                                                                                                                                                                                |
| CAUSE      | LOGTOOL will not be able to enable user interrupts (CONTROL-Y for MPE XL, CONTROL-C for HP-UX) during initialization. LOGTOOL will execute, but user interrupts will be ignored.                                                                                                                                                                                                             |
| ACTION     | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DUI command line, and file a service request with the trace information.                                                                                                                                                                                                                                 |
| <b>506</b> | <b>*** LAYOUT FILE EMPTY OR HAS FEWER RECORDS THAN HEADER SAYS. (LTWARN 506)</b>                                                                                                                                                                                                                                                                                                             |
| CAUSE      | LOGTOOL has encountered an unexpected end of file while reading its data base file LAYOUTF.                                                                                                                                                                                                                                                                                                  |
| ACTION     | Contact support personnel to get new LAYOUTF and LAYMSG files.                                                                                                                                                                                                                                                                                                                               |
| <b>507</b> | <b>*** NO LAYOUT ENTRY FOR LOG TYPE ! WITH VALUE ! (LTWARN 507)</b>                                                                                                                                                                                                                                                                                                                          |
| CAUSE      | During the generation of a log report, LOGTOOL was not able to locate a "TAG" definition for the log record type indicated.                                                                                                                                                                                                                                                                  |
| ACTION     | Since LOGTOOL cannot find the definition, the data will be displayed as a HEX dump, and the report will continue.                                                                                                                                                                                                                                                                            |
| <b>508</b> | <b>*** NO VALUE LABEL FOR LOG TYPE ! [VALUE= !] (LTWARN 508)</b>                                                                                                                                                                                                                                                                                                                             |
| CAUSE      | During the generation of a log report, LOGTOOL was not able to locate a "TAG" definition for the log record type indicated.                                                                                                                                                                                                                                                                  |
| ACTION     | Since LOGTOOL cannot find the definition, the data will be displayed as a HEX dump, and the report will continue.                                                                                                                                                                                                                                                                            |
| <b>510</b> | <b>*** STRING IN A LOG TYPE ! WITH LENGTH ! IS LARGER THAN MAX SIZE IN LAYOUT (SKIPPING DECODE OF THIS FIELD). (LTWARN 510)</b>                                                                                                                                                                                                                                                              |
| CAUSE      | During the generation of a log report, LOGTOOL encountered a string to be displayed which was larger than the buffer allocated within LOGTOOL.                                                                                                                                                                                                                                               |
| ACTION     | Please submit a service request indicating the following:<br>a) The exact text of the above error message including the parameters.<br>b) Any other error messages displayed with this error message.<br>c) The version (A.nn.nn) of the LOGTOOL being executed.<br>A copy of the log file containing the log record producing this error should also be submitted with the service request. |

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| <b>512</b> | <b>*** CONSOLE TEXT LENGTH OF ! IS INVALID. TEXT NOT DISPLAYED (LTWARM 512)</b>                                                                                                                                                                                                                                                                                                              |
| CAUSE      | LOGTOOL was not able to display the console logging record because the text was larger than the buffer allocated within LOGTOOL.                                                                                                                                                                                                                                                             |
| ACTION     | Please submit a service request indicating the following:<br>a) The exact text of the above error message including the parameters.<br>b) Any other error messages displayed with this error message.<br>c) The version (A.nn.nn) of the LOGTOOL being executed.<br>A copy of the log file containing the log record producing this error should also be submitted with the service request. |
| <b>601</b> | <b>*** ILLEGAL INPUT - UNEXPECTED CHARACTER(S) OR NON UNIQUE TOKEN ( LTERR 601 )</b>                                                                                                                                                                                                                                                                                                         |
| CAUSE      | LOGTOOL has encountered a problem while parsing the input text given by the user. The problem can be any of the following:<br>o Unknown token or a token which did not have enough characters specified to make it unique.<br>o Extra characters on a line.<br>o User entered non-printable characters.                                                                                      |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                                                                                                                                                                                                                                                      |
| <b>602</b> | <b>*** VALUE INDICATING NUMBER OF SECONDS EXPECTED ( LTERR 602 )</b>                                                                                                                                                                                                                                                                                                                         |
| CAUSE      | The user did not specify a mandatory parameter which is the number of seconds to be used.                                                                                                                                                                                                                                                                                                    |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                                                                                                                                                                                                                                                      |
| <b>603</b> | <b>*** THIS OPTION HAS ALREADY BEEN SPECIFIED OR CONFLICTS WITH ANOTHER ( LTERR 603 )</b>                                                                                                                                                                                                                                                                                                    |
| CAUSE      | The user has specified an option more than once. This includes the situation where one of two types of parameters are needed but not both.                                                                                                                                                                                                                                                   |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                                                                                                                                                                                                                                                      |
| <b>604</b> | <b>*** OPTION INVALID FOR THIS COMMAND ( LTERR 604 )</b>                                                                                                                                                                                                                                                                                                                                     |
| CAUSE      | The option given by the user is not appropriate for the command.                                                                                                                                                                                                                                                                                                                             |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                                                                                                                                                                                                                                                      |
| <b>605</b> | <b>*** NO SUCH TOPIC. TYPE HELP FOR LIST OF COMMANDS AND TOPICS ( LTERR 605 )</b>                                                                                                                                                                                                                                                                                                            |
| CAUSE      | The command given by the user does not exist within LOGTOOL.                                                                                                                                                                                                                                                                                                                                 |
| ACTION     | Entering HELP alone will cause LOGTOOL to display a list of all commands within LOGTOOL.                                                                                                                                                                                                                                                                                                     |

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| <b>606</b> | <b>*** KEYWORD PARAMETER IS INVALID FOR THIS COMMAND ( LTERR 606 )</b>                                     |
| CAUSE      | The keyword parameter given by the user is not appropriate for the command.                                |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                    |
| <hr/>      |                                                                                                            |
| <b>607</b> | <b>*** OUTPUT FILE NAME DESIGNATOR EXPECTED ( LTERR 607 )</b>                                              |
| CAUSE      | The user has given the OUTFILE keyword, but did not specify a file name, or gave an invalid file name.     |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                    |
| <hr/>      |                                                                                                            |
| <b>609</b> | <b>*** FORMAT OF THE DATE IS INVALID ( LTERR 609 )</b>                                                     |
| CAUSE      | The date given by the user was not in the expected format.                                                 |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                    |
| <hr/>      |                                                                                                            |
| <b>610</b> | <b>*** FILE IDENTIFIER EXPECTED ( LTERR 610 )</b>                                                          |
| CAUSE      | User has given the keyword FILE, but did not give a file name, or gave an incorrectly formatted file name. |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                    |
| <hr/>      |                                                                                                            |
| <b>612</b> | <b>*** LDEV IDENTIFIER EXPECTED ( LTERR 612 )</b>                                                          |
| CAUSE      | User has given the keyword LDEV, but did not give a logical device number.                                 |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                    |
| <hr/>      |                                                                                                            |
| <b>613</b> | <b>*** LOG FILE NUMBERS MUST BE BETWEEN 0 AND 9999 ( LTERR 613 )</b>                                       |
| CAUSE      | User has given the keyword LOG, but gave a log file number which was not between 0 and 9999.               |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                    |
| <hr/>      |                                                                                                            |
| <b>614</b> | <b>*** LOG FILE NUMBER EXPECTED ( LTERR 614 )</b>                                                          |
| CAUSE      | User has given the keyword LOG, but did not give a log number.                                             |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                    |
| <hr/>      |                                                                                                            |
| <b>616</b> | <b>*** PDEV IDENTIFIER EXPECTED ( LTERR 616 )</b>                                                          |
| CAUSE      | User has given the keyword PDEV, but did not give physical device specifier.                               |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                    |
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| <b>617</b> | <b>*** INVALID RECORD ID (TYPE) ( LTERR 617 )</b>                                                                                                      |
| CAUSE      | User specified a type number which was outside the valid range of 0 to 255.                                                                            |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                |
| <b>618</b> | <b>*** LOG RECORD TYPE IDENTIFIER EXPECTED ( LTERR 618 )</b>                                                                                           |
| CAUSE      | The user specified the keyword TYPE, but did not give a type number.                                                                                   |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                |
| <b>619</b> | <b>*** THIS KEYWORD HAS ALREADY BEEN SPECIFIED ( LTERR 619 )</b>                                                                                       |
| CAUSE      | The keyword parameter specified by the user has already been found in the input text.                                                                  |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                |
| <b>620</b> | <b>*** INVALID RANGE - ENDING VALUE IS LESS THAN STARTING VALUE ( LTERR 620 )</b>                                                                      |
| CAUSE      | User has specified a range of values where the ending value is less than the starting value.                                                           |
| ACTION     | Please consult the LOGTOOL help facility for further information on the command.                                                                       |
| <b>622</b> | <b>*** VALUE MUST BE BETWEEN ! AND ! ( LTERR 622 )</b>                                                                                                 |
| CAUSE      | The user specified a numeric parameter which was not between the values indicated in the error message.                                                |
| ACTION     | Please consult the LOGTOOL help facility for further information on the command.                                                                       |
| <b>623</b> | <b>*** LDEV NUMBER ALREADY GIVEN ( LTERR 623 )</b>                                                                                                     |
| CAUSE      | In the LDEV= parameter, the user has specified a logical device number more than once. LOGTOOL will display a carat indicating the duplicate data.     |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                |
| <b>624</b> | <b>*** PDEV ALREADY GIVEN ( LTERR 624 )</b>                                                                                                            |
| CAUSE      | In the PDEV= parameter, the user has specified a physical device specifier more than once. LOGTOOL will display a carat indicating the duplicate data. |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                |



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| <b>626</b> | <b>*** WORK FILE ALREADY GIVEN ( LTERR 626 )</b>                                                                                            |
| CAUSE      | In the FILE= parameter, the user has specified a work file name more than once. LOGTOOL will display a carat indicating the duplicate data. |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                     |
| <hr/>      |                                                                                                                                             |
| <b>628</b> | <b>*** TYPE ID ALREADY GIVEN ( LTERR 628 )</b>                                                                                              |
| CAUSE      | In the TYPE= parameter, the user has specified a type number more than once. LOGTOOL will display a carat indicating the duplicate data.    |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                     |
| <hr/>      |                                                                                                                                             |
| <b>629</b> | <b>*** LOG NUMBER OR LOG RANGE ALREADY GIVEN OR OVERLAP ( LTERR 629 )</b>                                                                   |
| CAUSE      | In the LOG= parameter, the user has specified a log number more than once. LOGTOOL will display a carat indicating the duplicate data.      |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                     |
| <hr/>      |                                                                                                                                             |
| <b>630</b> | <b>*** FORMAT OF THE TIME IS INVALID ( LTERR 630 )</b>                                                                                      |
| CAUSE      | The user gave the ;TIME option on the input text. When the user was prompted for the time, it was entered in an incorrect format.           |
| ACTION     | Please consult the LOGTOOL help facility for further information on the command.                                                            |
| <hr/>      |                                                                                                                                             |
| <b>632</b> | <b>*** CLOSE BRACKET EXPECTED (LTERR 632)</b>                                                                                               |
| CAUSE      | The user did not give a close bracket character when giving an index with a field label keyword.                                            |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                     |
| <hr/>      |                                                                                                                                             |
| <b>633</b> | <b>*** INDEX FOR FIELD LABEL KEYWORDS MUST BE GREATER THAN ZERO (LTERR 633)</b>                                                             |
| CAUSE      | The index given in the field label keyword was less than one, which is illegal.                                                             |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                     |
| <hr/>      |                                                                                                                                             |
| <b>634</b> | <b>*** INDEX FOR FIELD LABEL KEYWORD EXPECTED (LTERR 634)</b>                                                                               |
| CAUSE      | The user did not given a value to be used as the index for a field label keyword.                                                           |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                     |
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| <b>635</b> | <b>*** FIELD LABEL GIVEN IN EXCEEDS MAXIMUM LENGTH OF 20 CHARACTERS (LTERR 635)</b>                                                                    |
| CAUSE      | The user give a field label which exceeded 20 character.                                                                                               |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                |
| <b>636</b> | <b>*** DATA ITEM ALREADY GIVEN. (LTERR 636)</b>                                                                                                        |
| CAUSE      | The user gave the same data item in a field label keyword parameter twice.                                                                             |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                |
| <b>637</b> | <b>*** DATA ITEM FOR FIELD LABEL KEYWORD EXPECTED. (LTERR 637)</b>                                                                                     |
| CAUSE      | The user did not give a data item for the field label keyword.                                                                                         |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                |
| <b>638</b> | <b>*** INVALID TO GIVE BOTH 'DETAIL' and 'SUMMARY' OPTIONS (LTERR 638)</b>                                                                             |
| CAUSE      | The user entered both the detail and summary options in the TYPES command, which is illegal.                                                           |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the TYPES command.                                                                  |
| <b>639</b> | <b>*** THIS KEYWORD PARAMETER HAS ALREADY BEEN GIVEN OR CONFLICTS WITH ANOTHER ( LTERR 603 )</b>                                                       |
| CAUSE      | The user has specified an keyword parameter more than once, or specified a second keyword which is not allowed with a keyword parameter already given. |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                |
| <b>640</b> | <b>*** THE FIELD LABEL RANGE HAS ALREADY BEEN GIVEN ( LTERR 640 )</b>                                                                                  |
| CAUSE      | The user has entered the same field label range twice.                                                                                                 |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                |
| <b>641</b> | <b>*** EXPECTING "ALL" RESERVED WORD ( LTERR 641 )</b>                                                                                                 |
| CAUSE      | A reserved word other than "ALL" was found. This is invalid for the command entered.                                                                   |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                                |



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| <b>642</b> | <b>*** FIELD LABEL RANGE EXPECTED ( LTERR 642 )</b>                                                                                             |
| CAUSE      | The user entered the DISABLE= or ENABLE= keyword, but the parameters are not valid field label ranges.                                          |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                         |
| <hr/>      |                                                                                                                                                 |
| <b>643</b> | <b>*** INVALID FIELD LABEL GIVEN ( LTERR 643 )</b>                                                                                              |
| CAUSE      | The user entered an invalid field label. Field labels must be in the format of "text" or text, where text cannot be a empty string or a number. |
| ACTION     | Please consult the LOGTOOL help facility for the correct syntax of the desired command.                                                         |
| <hr/>      |                                                                                                                                                 |
| <b>651</b> | <b>*** REQUIRED "LOG=&lt;LOG RANGE LIST&gt;" PARAMETER WAS NOT FOUND ( LTERR 651 )</b>                                                          |
| CAUSE      | The user did not give a mandatory parameter of LOG= in the input text.                                                                          |
| ACTION     | Please consult the LOGTOOL help facility for further information on the command.                                                                |
| <hr/>      |                                                                                                                                                 |
| <b>652</b> | <b>*** REQUIRED "FILES=&lt;WORK FILE LIST&gt;" PARAMETER WAS NOT FOUND ( LTERR 652 )</b>                                                        |
| CAUSE      | The user did not give a mandatory parameter of FILES= in the input text.                                                                        |
| ACTION     | Please consult the LOGTOOL help facility for further information on the command.                                                                |
| <hr/>      |                                                                                                                                                 |
| <b>653</b> | <b>*** REQUIRED "OUTFILE=&lt;WORK FILE NAME&gt;" PARAMETER WAS NOT FOUND ( LTERR 653 )</b>                                                      |
| CAUSE      | The user did not give a mandatory parameter of OUTFILE= in the input text.                                                                      |
| ACTION     | Please consult the LOGTOOL help facility for further information on the command.                                                                |
| <hr/>      |                                                                                                                                                 |
| <b>655</b> | <b>*** THE LINE PRINTER IS AN INVALID OUTPUT FILE FOR THIS COMMAND ( LTERR 655 )</b>                                                            |
| CAUSE      | The user has specified the line printer with the OUTFILE= parameter. But the product of the command is not a printable file.                    |
| ACTION     | Please consult the LOGTOOL help facility for further information                                                                                |
| <hr/>      |                                                                                                                                                 |
| <b>656</b> | <b>*** COMMAND NAME EXPECTED. ( LTERR 656 )</b>                                                                                                 |
| CAUSE      | The first token given on the input text was not a command.                                                                                      |
| ACTION     | Please consult the LOGTOOL help facility for a list of commands available within LOGTOOL.                                                       |
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| <b>657</b> | <b>*** REQUIRED "SECONDS=&lt;#SECONDS&gt;" PARAMETER WAS NOT FOUND ( LTERR 657 )</b>                                                                                                             |
| CAUSE      | The command given by the user requires a SECONDS= parameter. This parameter indicates the number of seconds that the operation should be performed, or the number of seconds between operations. |
| ACTION     | Please consult the LOGTOOL help facility for further information.                                                                                                                                |
| <b>658</b> | <b>*** REQUIRED "TYPE=&lt;TYPE LIST&gt;" PARAMETER WAS NOT FOUND ( LTERR 658 )</b>                                                                                                               |
| CAUSE      | The user did not give a mandatory parameter of TYPE= in the input text.                                                                                                                          |
| ACTION     | Please consult the LOGTOOL help facility for further information on the command.                                                                                                                 |
| <b>659</b> | <b>*** REQUIRED "ENABLE=&lt;FIELD LABEL LIST&gt;" OR "DISABLE=&lt;FIELD LABEL LIST&gt;" PARAMETER WAS NOT FOUND ( LTERR 659 )</b>                                                                |
| CAUSE      | The user did not give a mandatory parameter of ENABLE= or DISABLE= in the input text.                                                                                                            |
| ACTION     | Please consult the LOGTOOL help facility for further information on the command.                                                                                                                 |
| <b>702</b> | <b>*** INSUFFICIENT CAPABILITIES TO PERFORM THIS COMMAND ( LTERR 702 )</b>                                                                                                                       |
| CAUSE      | The user does not have a high enough diagnostic security level to execute the requested command.                                                                                                 |
| ACTION     | Please consult the diagnostic user interface manual for detail concerning diagnostic security levels.                                                                                            |
| <b>713</b> | <b>*** FILE ! HAS NO MORE ROOM FOR DATA ( LTERR 713 )</b>                                                                                                                                        |
| CAUSE      | The file specified in the OUTFILE= parameter has been filled to capacity.                                                                                                                        |
| ACTION     | Select a smaller set of data to be placed in the outfile.                                                                                                                                        |
| <b>720</b> | <b>*** THE LINE PRINTER MAY NOT BE ACCESSED IN APPEND MODE ( LTERR 720 )</b>                                                                                                                     |
| CAUSE      | The user has selected the system printer as the outfile, and also gave the APPEND option. This is not allowed.                                                                                   |
| ACTION     | Please consult the LOGTOOL help facility for further information on the command.                                                                                                                 |
| <b>731</b> | <b>*** UNABLE TO FIND FIELD LABEL "!"</b>                                                                                                                                                        |
|            | <b>*** ALTFIELD FOR "!"/"!" WAS NOT PERFORMED ( LTERR 731 )</b>                                                                                                                                  |
| CAUSE      | LOGTOOL was not able to locate the field label give in the format for the record type given in the TYPE= parameter. Therefore, the ALTFIELD command could not be performed.                      |
| ACTION     | Please consult the TYPES SUMMARY command to verify that the field label is appropriate for the desired record type.                                                                              |

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| <b>732</b> | <b>*** UNABLE TO FIND FIELD LABEL "!". ALTFIELD WAS NOT PERFORMED (LTERR 732)</b>                                                                                           |
| CAUSE      | LOGTOOL was not able to locate the field label give in the format for the record type given in the TYPE= parameter. Therefore, the ALTFIELD command could not be performed. |
| ACTION     | Please consult the TYPES SUMMARY command to verify that the field label is appropriate for the desired record type.                                                         |
| <hr/>      |                                                                                                                                                                             |
| <b>900</b> | <b>*** THIS ID HAS ALREADY BEEN DEFINED ( LTERR 900 )</b>                                                                                                                   |
| CAUSE      | LOGTOOL has already encountered a RECORD'ID command for the current record definition.                                                                                      |
| ACTION     | Please consult the LOGTOOL manual for the correct usage of the RECORD'ID command.                                                                                           |
| <hr/>      |                                                                                                                                                                             |
| <b>903</b> | <b>*** ONLY 16 BIT VALUES ARE VALID ( LTERR 903 )</b>                                                                                                                       |
| CAUSE      | The record id number given is outside the range of a 16 bit value.                                                                                                          |
| ACTION     | Please consult the LOGTOOL manual for the correct usage of the RECORD'ID command.                                                                                           |
| <hr/>      |                                                                                                                                                                             |
| <b>904</b> | <b>*** CLOSING PARENTHESIS EXPECTED ( LTERR 904 )</b>                                                                                                                       |
| CAUSE      | User did not give the closing parenthesis. The carat will indicate that expected location of the parenthesis.                                                               |
| ACTION     | Please consult the LOGTOOL manual for the correct format of the command.                                                                                                    |
| <hr/>      |                                                                                                                                                                             |
| <b>905</b> | <b>*** CLOSING BRACKET EXPECTED ( LTERR 905 )</b>                                                                                                                           |
| CAUSE      | User did not give the closing bracket. The carat will indicate that expected location of the bracket.                                                                       |
| ACTION     | Please consult the LOGTOOL manual for the correct format of the command.                                                                                                    |
| <hr/>      |                                                                                                                                                                             |
| <b>906</b> | <b>*** INDEX IS GREATER THAN NUMBER OF FIELDS ( LTERR 906 )</b>                                                                                                             |
| CAUSE      | The field index given by the user is greater than the number of fields given in the FIELD'FORMAT command of the current record definition.                                  |
| ACTION     | Please consult the LOGTOOL manual for the correct format of the VAR'LABEL command.                                                                                          |
| <hr/>      |                                                                                                                                                                             |
| <b>907</b> | <b>*** INDEX FOR FIELD NUMBER EXPECTED ( LTERR 907 )</b>                                                                                                                    |
| CAUSE      | The expected field number was not found. LOGTOOL will display a carat indicate where it was expecting to find the field number.                                             |
| ACTION     | Please consult the LOGTOOL manual for the correct format of the VAR'LABEL or VARIANT command.                                                                               |
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| <b>908</b> | <b>*** OPENING BRACKET EXPECTED ( LTERR 908 )</b>                                                                                                                                                                    |
| CAUSE      | LOGTOOL is encountered a token other than a open bracket. LOGTOOL will display a carat to indicate where the bracket was expected.                                                                                   |
| ACTION     | Please consult the LOGTOOL manual for further information on the VAR'LABEL or VARIANT command.                                                                                                                       |
| <b>909</b> | <b>*** ENDING RANGE VALUE EXPECTED HERE ( LTERR 909 )</b>                                                                                                                                                            |
| CAUSE      | LOGTOOL encountered a value range structure, but the ending value was not in the correct format. LOGTOOL will display a carat indicating where it expecting the ending range value to be.                            |
| ACTION     | Please consult the LOGTOOL manual for further information on the VALUE'LABEL command.                                                                                                                                |
| <b>910</b> | <b>*** STARTING VALUE MUST BE LESS THAN ENDING VALUE ( LTERR 910 )</b>                                                                                                                                               |
| CAUSE      | LOGTOOL encountered a value range specifier, but the ending value was greater than the starting value. This is incorrect.                                                                                            |
| ACTION     | Please consult the LOGTOOL manual for further information on the VALUE'LABEL command.                                                                                                                                |
| <b>911</b> | <b>*** STARTING RANGE VALUE EXPECTED HERE ( LTERR 911 )</b>                                                                                                                                                          |
| CAUSE      | LOGTOOL was expecting the next token to be a value range specifier. LOGTOOL will display a carat to indicate where it was expecting the string range value to be.                                                    |
| ACTION     | Please consult the LOGTOOL manual for further information. on the VALUE'LABEL command.                                                                                                                               |
| <b>912</b> | <b>*** RECORD OR TAG ID IS OUT OF RANGE ( LTERR 912 )</b>                                                                                                                                                            |
| CAUSE      | LOGTOOL encountered a record id number which was outside the range of 0 to 255.                                                                                                                                      |
| ACTION     | Please consult the LOGTOOL manual for further information on the RECORD'ID or TAG'ID command.                                                                                                                        |
| <b>913</b> | <b>*** RECORD OR TAG ID IS EXPECTED HERE ( LTERR 913 )</b>                                                                                                                                                           |
| CAUSE      | LOGTOOL is expecting a record id number if the command is RECORD'ID, or a tag id number if the command is TAG'ID. This error message will be displayed is the if number is not present or is in an incorrect format. |
| ACTION     | Please consult the LOGTOOL manual for further information on the appropriate command.                                                                                                                                |
| <b>914</b> | <b>*** RECORD OR TAG ID STATEMENT NOT ALLOWED HERE. COMMAND IGNORED ( LTERR 914 )</b>                                                                                                                                |
| CAUSE      | The user has already specified a RECORD'ID or TAG'ID command for the current record definition. The RECORD'ID or TAB'ID command encountered will be ignored.                                                         |
| ACTION     | Please consult the LOGTOOL manual for further information on the RECORD'ID or TAG'ID command.                                                                                                                        |

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| 915    | *** UNRECOGNIZED TOKEN IN COMMAND FIELD ( LTERR 915 )                                                                                                 |
| CAUSE  | LOGTOOL was expecting a command name. LOGTOOL will display a carat indicating where it was expecting the command name.                                |
| ACTION | Please consult the LOGTOOL manual for further information on record definition files.                                                                 |
| 916    | *** NUMBER OF BITS TOO LARGE FOR THIS TYPE OF FIELD ( LTERR 916 )                                                                                     |
| CAUSE  | The number of bits specified in the field format is too large for the type of field.                                                                  |
| ACTION | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                |
| 917    | *** ARRAY DATA MUST START ON A 8 BIT BYTE BOUNDARY ( LTERR 917 )                                                                                      |
| CAUSE  | LOGTOOL requires array data to start on a 8 bit byte boundary.                                                                                        |
| ACTION | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                |
| 918    | *** ARRAY DATA MUST BE A MULTIPLE OF 8 BITS ( LTERR 918 )                                                                                             |
| CAUSE  | LOGTOOL requires that array data be defined in multiples on 8 bits.                                                                                   |
| ACTION | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                |
| 919    | *** ASCII DATA MUST START ON AN 8 BIT BOUNDARY ( LTERR 919 )                                                                                          |
| CAUSE  | LOGTOOL requires that all ascii data start on a 8 bit byte boundary.                                                                                  |
| ACTION | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                |
| 920    | *** ASCII DATA MUST BE A MULTIPLE OF 8 BITS ( LTERR 920 )                                                                                             |
| CAUSE  | LOGTOOL required that all ascii data be defined in multiples of 8 bits.                                                                               |
| ACTION | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                |
| 921    | *** TAB FIELD TOO LARGE FOR SPECIFIED RECORD LENGTH ( LTERR 921 )                                                                                     |
| CAUSE  | The tab field given along with the other field defined will exceed the bit count given in the RECORD'LENGTH command of the current record definition. |
| ACTION | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                |

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| <b>922</b> |                                                                                                                                                            | <b>*** TAG LENGTH IN BITS EXPECTED ( LTERR 922 )</b>                     |
| CAUSE      | LOGTOOL encountered a token other than a value which is to be used as the tag length. LOGTOOL will display a carat where it expected the tag length value. |                                                                          |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                     |                                                                          |
| <b>923</b> |                                                                                                                                                            | <b>*** COMMA EXPECTED HERE ( LTERR 923 )</b>                             |
| CAUSE      | LOGTOOL encountered a token other than a comma. LOGTOOL will display a carat at the location where it was expecting the comma.                             |                                                                          |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                     |                                                                          |
| <b>924</b> |                                                                                                                                                            | <b>*** "TAG" EXPECTED HERE ( LTERR 924 )</b>                             |
| CAUSE      | LOGTOOL encountered a token other than the reserved word "TAG". LOGTOOL will display a carat where it expected the "TAG".                                  |                                                                          |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                     |                                                                          |
| <b>925</b> |                                                                                                                                                            | <b>*** FIELD BASE MUST BE IN [2,8,10,16] ( LTERR 925 )</b>               |
| CAUSE      | LOGTOOL encountered a value other than a valid base value. LOGTOOL will display a carat indicating where the incorrect base value was found.               |                                                                          |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                     |                                                                          |
| <b>926</b> |                                                                                                                                                            | <b>*** FIELD BASE EXPECTED HERE [2,8,10,16] ( LTERR 926 )</b>            |
| CAUSE      | LOGTOOL encountered a token other than a valid base value. LOGTOOL will display a carat indicating where the base value was expected.                      |                                                                          |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                     |                                                                          |
| <b>927</b> |                                                                                                                                                            | <b>*** COMMA FOLLOWED BY FIELD BASE EXPECTED HERE ( LTERR 927 )</b>      |
| CAUSE      | LOGTOOL encountered a token other than a comma followed by a field base. LOGTOOL will display a carat indicating where the comma was expected.             |                                                                          |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                     |                                                                          |
| <b>928</b> |                                                                                                                                                            | <b>*** STRING DATA MUST START ON A 8 BIT BYTE BOUNDARY ( LTERR 928 )</b> |
| CAUSE      | LOGTOOL requires that string data start on a 8 bit byte boundary. Fields declared before this field must end on a 8 bit byte boundary.                     |                                                                          |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                     |                                                                          |



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| <b>929</b> | <b>*** STRING DATA MUST A MULTIPLE OF 8 BITS ( LTERR 929 )</b>                                                                                                                                                                                 |
| CAUSE      | LOGTOOL requires that string data be declared in multiples of 8 bits.                                                                                                                                                                          |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                                                                                                         |
| <b>930</b> | <b>*** FIELD FORMAT #BITS SUM EXCEEDS RECORD LENGTH ( LTERR 930 )</b>                                                                                                                                                                          |
| CAUSE      | The number of bits specified in the FIELD'FORMAT command exceeds the number of bits specified in the RECORD'LENGTH command for the current record definition. LOGTOOL will display the field format of the entry which exceeds the bit length. |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                                                                                                         |
| <b>931</b> | <b>*** FIELD TYPE EXPECTED ( LTERR 931 )</b>                                                                                                                                                                                                   |
| CAUSE      | LOGTOOL was expecting a field type identifier. LOGTOOL will display a carat indicating where it was expecting the field type to be.                                                                                                            |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                                                                                                         |
| <b>932</b> | <b>*** FIELD BIT COUNT EXPECTED HERE ( LTERR 932 )</b>                                                                                                                                                                                         |
| CAUSE      | LOGTOOL encountered a token other than a field bit count value. LOGTOOL will display a carat at the location where it is expecting the field bit count.                                                                                        |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                                                                                                         |
| <b>933</b> | <b>*** MORE FIELDS IN FIELD FORMAT THEN IN N FIELDS ( LTERR 933 )</b>                                                                                                                                                                          |
| CAUSE      | The number of fields specified in the FIELD'FORMAT is larger than the value specified in the N'FIELDS command for the current record definition.                                                                                               |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                                                                                                         |
| <b>934</b> | <b>*** INVALID REPEAT FACTOR SPECIFIED ( LTERR 934 )</b>                                                                                                                                                                                       |
| CAUSE      | The value given for the repeat factor is greater than the value given in the N'FIELDS command.                                                                                                                                                 |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                                                                                                         |
| <b>935</b> | <b>*** EXPECTED A REPEAT FACTOR OR "(" ( LTERR 935 )</b>                                                                                                                                                                                       |
| CAUSE      | LOGTOOL is expecting the next token to be a repeat factor, which is represented as a number, or a "(".                                                                                                                                         |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                                                                                                         |

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| <b>936</b> | <b>*** FIELD FORMAT IS INVALID HERE OR HAS ALREADY BEEN SPECIFIED ( LTERR 936 )</b>                                                                                           |
| CAUSE      | A FIELD'FORMAT command has already been given for the current record definition, or commands which must proceed the FIELD'FORMAT command were not given.                      |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                                        |
| <b>937</b> | <b>*** NUMBER OF FIELD FORMATS DOES NOT MATCH N'FIELDS VALUE ( LTERR 937 )</b>                                                                                                |
| CAUSE      | The number of fields given in the FIELD'FORMAT command does not match the value given in the N'FIELD.                                                                         |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                                        |
| <b>938</b> | <b>*** TOTAL BITS IN FIELD FORMAT DOES NOT MATCH RECORD LENGTH VALUE ( LTERR 938 )</b>                                                                                        |
| CAUSE      | The total number of bits defined in the FIELD'FORMAT command does not match the RECORD'LENGTH value for the current record definition.                                        |
| ACTION     | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                                        |
| <b>939</b> | <b>*** N FIELDS VALUE EXPECTED HERE ( LTERR 939 )</b>                                                                                                                         |
| CAUSE      | LOGTOOL encountered the N'FIELD command but did not find the number of fields parameter. Either the user did not give a value, or the value was given in an incorrect format. |
| ACTION     | Please consult the LOGTOOL manual for further information on the N'FIELDS command.                                                                                            |
| <b>940</b> | <b>*** N'FIELDS IS INVALID HERE OR HAS ALREADY BEEN SPECIFIED ( LTERR 939 )</b>                                                                                               |
| CAUSE      | A N'FIELD command has already been given for the current record definition, or the commands which must proceed the N'FIELD command were not given.                            |
| ACTION     | Please consult the LOGTOOL manual for further information on the N'FIELD command.                                                                                             |
| <b>945</b> | <b>*** QUOTED RECORD LABEL EXPECTED HERE ( LTERR 945 )</b>                                                                                                                    |
| CAUSE      | LOGTOOL did not encounter a quoted string, which is to be used as the record label, or the string was not given in the proper format.                                         |
| ACTION     | Please consult the LOGTOOL manual for further information on the RECORD'LABEL command.                                                                                        |
| <b>946</b> | <b>*** RECORD LABEL IS INVALID HERE OR HAS ALREADY BEEN SPECIFIED ( LTERR 946 )</b>                                                                                           |
| CAUSE      | The RECORD'LABEL command has already been given for the current record definition, or commands which must proceed the RECORD'LABEL command were not given.                    |
| ACTION     | Please consult the LOGTOOL manual for further information on the RECORD'LABEL command.                                                                                        |

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| 947    | *** RECORD LENGTH VALUE ( # BITS ) IS OUT OF RANGE ( LTERR 947 )                                                                                                               |
| CAUSE  | A RECORD'LENGTH command has been encountered, but the user specified a record length value outside of the valid range.                                                         |
| ACTION | Please consult the LOGTOOL manual for further information on the RECORD'LENGTH command.                                                                                        |
| 948    | *** RECORD LENGTH VALUE ( # BITS ) EXPECTED HERE ( LTERR 948 )                                                                                                                 |
| CAUSE  | A RECORD'LENGTH command has been encountered, but the user either did not give the number of bits parameter, or gave an invalid token for the number of bits parameter.        |
| ACTION | Please consult the LOGTOOL manual for further information on the RECORD'LENGTH command.                                                                                        |
| 949    | *** RECORD LENGTH IS INVALID HERE OR HAS ALREADY BEEN SPECIFIED ( LTERR 949 )                                                                                                  |
| CAUSE  | The RECORD'LENGTH command has already been given for the current record definition, or the commands which must proceed the RECORD'LENGTH command were not given.               |
| ACTION | Please consult the LOGTOOL manual for further information on the RECORD'LENGTH command.                                                                                        |
| 951    | *** QUOTED VALUE LABEL EXPECTED ( LTERR 951 )                                                                                                                                  |
| CAUSE  | LOGTOOL is expecting a quoted string which it will use as a value label. LOGTOOL will display a carat indicating where it expected the quoted string to be.                    |
| ACTION | Please consult the LOGTOOL manual for further information on the VALUE'LABEL command.                                                                                          |
| 952    | *** COMMA FOLLOWED QUOTED VALUE LABEL EXPECTED ( LTERR 952 )                                                                                                                   |
| CAUSE  | LOGTOOL was expecting a comma followed by a quoted string which will be used as a value label. LOGTOOL will display a carat indicating where it was expecting the comma to be. |
| ACTION | Please consult the LOGTOOL manual for further information on the VALUE'LABEL command.                                                                                          |
| 953    | *** OPENING PARENTHESIS EXPECTED ( LTERR 953 )                                                                                                                                 |
| CAUSE  | LOGTOOL was expecting the next token to be an open parenthesis. LOGTOOL will display a carat indicating where it was expecting the open parenthesis to be.                     |
| ACTION | Please consult the LOGTOOL manual for further information on the VALUE'LABEL or VARIANT command.                                                                               |
| 954    | *** VALUE LABELS MAY BE SPECIFIED FOR INTEGER FIELDS ONLY ( LTERR 953 )                                                                                                        |
| CAUSE  | VALUE'LABELS may only be used for fields which have been defined as of type INTEGER within the FIELD'FORMAT command.                                                           |
| ACTION | Please consult the LOGTOOL manual for further information on the VALUE'LABEL command.                                                                                          |

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| 955    | *** VALUE LABEL IS INVALID HERE OR HAS ALREADY BEEN SPECIFIED<br>( LTERR 955 )                                                                                           |
| CAUSE  | The VALUE LABEL command has already been given or commands which must proceed the VALUE LABEL command were not given.                                                    |
| ACTION | Please consult the LOGTOOL manual for further information on the VALUE LABEL command.                                                                                    |
| 956    | *** LABEL ALREADY SPECIFIED FOR THIS INDEX ( LTERR 956 )                                                                                                                 |
| CAUSE  | A label has already been given for the field specified by the field index.                                                                                               |
| ACTION | Please consult the LOGTOOL manual for further information for the VAR LABEL command.                                                                                     |
| 957    | *** INDEX FOR THIS LABEL IS OUT OF RANGE ( LTERR 957 )                                                                                                                   |
| CAUSE  | The field for the VAR LABEL cannot be located in the FIELD FORMAT command.                                                                                               |
| ACTION | Please consult the LOGTOOL manual for further information on the VAR LABEL command.                                                                                      |
| 958    | *** QUOTED VAR LABEL STRING EXPECTED ( LTERR 958 )                                                                                                                       |
| CAUSE  | LOGTOOL was expecting a quoted string, which will be used as a var label. LOGTOOL will display a caret indicating the location where it was expecting the quoted string. |
| ACTION | Please consult the LOGTOOL manual for further information on the VAR LABEL command.                                                                                      |
| 959    | *** VALUE LABEL IS INVALID HERE OR HAS ALREADY BEEN SPECIFIED<br>( LTERR 959 )                                                                                           |
| CAUSE  | The VALUE LABEL command has already been given, or commands which must proceed the VALUE LABEL command were not given.                                                   |
| ACTION | Please consult the LOGTOOL manual for further information on the VALUE LABEL command.                                                                                    |
| 963    | *** VARIANT IS INVALID HERE OR HAS ALREADY BEEN SPECIFIED<br>( LTERR 963 )                                                                                               |
| CAUSE  | The VARIANT command has already been given, or commands which must proceed the VARIANT command were not given.                                                           |
| ACTION | Please consult the LOGTOOL manual for further information on the VARIANT command.                                                                                        |
| 964    | *** LABEL ON LINE ! TO LONG - TRUNCATED TO ! CHARACTERS<br>"! " ( LTERR 964 )                                                                                            |
| CAUSE  | User has specified a record label longer than 20 characters. The label was truncated to 20 characters. The resulting string will be displayed to the user.               |
| ACTION | Please consult the LOGTOOL manual for further information on the RECORD LABEL command.                                                                                   |

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| 966    | *** INTERNAL ERROR - DUMP VAL_LABELS LABEL COUNTS DO NOT MATCH.<br>EXPECTED = ! : ACTUAL = ! ( LTERR 966 )                                                                                                                                                                                                                                                                                     |
| CAUSE  | LOGTOOL encountered an error while trying to save the layout file for the :APPEND option.                                                                                                                                                                                                                                                                                                      |
| ACTION | Please submit a service request indicating the following:<br>a) The exact text of the above error message including the parameters.<br>b) Any other error messages displayed with this error message.<br>c) The version (A.nn.nn) of the LOGTOOL being executed.<br>A copy of the record definition file used in the LAYOUT LOGTOOL command should also be submitted with the service request. |
| 967    | *** INTERNAL ERROR - DUMP=ENTRY VAR COUNTS DO NOT MATCH.<br>EXPECTED = ! : ACTUAL = ! ( LTERR 967 )                                                                                                                                                                                                                                                                                            |
| CAUSE  | LOGTOOL encountered an error while trying to save the layout file for the :APPEND option.                                                                                                                                                                                                                                                                                                      |
| ACTION | Please submit a service request indicating the following:<br>a) The exact text of the above error message including the parameters.<br>b) Any other error messages displayed with this error message.<br>c) The version (A.nn.nn) of the LOGTOOL being executed.<br>A copy of the record definition file used in the LAYOUT LOGTOOL command should also be submitted with the service request. |
| 968    | *** INTERNAL ERROR DELETING FILE ! ( LTERR 968 )                                                                                                                                                                                                                                                                                                                                               |
| CAUSE  | LOGTOOL encountered an error while trying to delete the file indicated in the message.                                                                                                                                                                                                                                                                                                         |
| ACTION | An error message containing further information will be displayed with this message.<br>Please refer to the ACTION clause of those error messages for further information.                                                                                                                                                                                                                     |
| 969    | *** INTERNAL ERROR CLOSING FILE ! ( LTERR 969 )                                                                                                                                                                                                                                                                                                                                                |
| CAUSE  | LOGTOOL encountered an error while trying to close the file indicated in the message.                                                                                                                                                                                                                                                                                                          |
| ACTION | Error messages containing further information will be displayed with this message.<br>Please refer to the ACTION clause of those error messages for further information.                                                                                                                                                                                                                       |
| 978    | WARNING: TRUNCATING THE FOLLOWING STRING TO ! CHARACTERS<br>( LTERR 978 )                                                                                                                                                                                                                                                                                                                      |
| CAUSE  | LOGTOOL was forced to truncate the indicated string by the number of characters indicated inorder to perform the ;APPEND option of the LAYOUT command.                                                                                                                                                                                                                                         |
| ACTION | Please consult the LOGTOOL manual for further information on the format of a record definition files                                                                                                                                                                                                                                                                                           |

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|            |                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>979</b> | <b>*** INTERNAL ERROR - MESSAGE SET FILE ! HAS OVERFLOWED.</b><br><b>( LTERR 979 )</b>                                                                                                                                                                                                                                                                                                         |
| CAUSE      | LOGTOOL has encountered a file overflow while trying to create the new LAYMSG file.<br>The old copy of the file will be returned.                                                                                                                                                                                                                                                              |
| ACTION     | Please submit a service request indicating the following:<br>a) The exact text of the above error message including the parameters.<br>b) Any other error messages displayed with this error message.<br>c) The version (A.nn.nn) of the LOGTOOL being executed.<br>A copy of the record definition file used in the LAYOUT LOGTOOL command should also be submitted with the service request. |
| <b>980</b> | <b>*** INTERNAL ERROR - LAYOUT FILE OVERFLOW WRITING TO RECORD !</b><br><b>CURRENT MAXIMUM RECORD = ! ( LTERR 980)</b>                                                                                                                                                                                                                                                                         |
| CAUSE      | LOGTOOL has encountered a file overflow while trying to create a new LAYOUTF file.<br>The old copy of the file will be returned.                                                                                                                                                                                                                                                               |
| ACTION     | Please submit a service request indicating the following:<br>a) The exact text of the above error message including the parameters.<br>b) Any other error messages displayed with this error message.<br>c) The version (A.nn.nn) of the LOGTOOL being executed.<br>A copy of the record definition file used in the LAYOUT LOGTOOL command should also be submitted with the service request. |
| <b>981</b> | <b>*** FILE ! DOES NOT EXIST ( LTERR 981 )</b>                                                                                                                                                                                                                                                                                                                                                 |
| CAUSE      | The file given by the user for the LAYOUT command cannot be found by LOGTOOL.                                                                                                                                                                                                                                                                                                                  |
| ACTION     | Verify that the file was placed in the diagnostic directory (DIAG.SYS on MPE XL,<br>/usr/diag/bin on HP-UX).                                                                                                                                                                                                                                                                                   |
| <b>984</b> | <b>*** UNABLE TO READ FILE ! ( LTERR 984 )</b>                                                                                                                                                                                                                                                                                                                                                 |
| CAUSE      | LOGTOOL was not able to read the file indicated by the user in the LAYOUT command.                                                                                                                                                                                                                                                                                                             |
| ACTION     | An error message containing further information will be displayed with this message.<br>Please refer to the ACTION clause of those error messages for further information.                                                                                                                                                                                                                     |
| <b>986</b> | <b>*** UNABLE TO OPEN FILE ! ( LTERR 986 )</b>                                                                                                                                                                                                                                                                                                                                                 |
| CAUSE      | LOGTOOL was not able to open the file specified in the LAYOUT command.                                                                                                                                                                                                                                                                                                                         |
| ACTION     | An error message containing further information will be displayed with this message.<br>Please refer to the ACTION clause of those error messages for further information.                                                                                                                                                                                                                     |
| <b>987</b> | <b>*** UNABLE TO WRITE TO FILE ! ( LTERR 987 )</b>                                                                                                                                                                                                                                                                                                                                             |
| CAUSE      | LOGTOOL was not able to write to the temporary file indicated to process the<br>;APPEND option of the LAYOUT command.                                                                                                                                                                                                                                                                          |
| ACTION     | An error message containing further information will be displayed with this message.<br>Please refer to the ACTION clause of those error messages for further information.                                                                                                                                                                                                                     |

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|        |                                                                                                                                                       |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 992    | *** LABEL ALREADY GIVEN FOR RANGE ( LTERR 992 )                                                                                                       |
| CAUSE  | A value label has already been given for the field specified by the field index for the given value range.                                            |
| ACTION | Please consult the LOGTOOL manual for further information on the VALUE LABEL command.                                                                 |
| 993    | *** RECORD ID FOR TAG DOES NOT EXIST ( LTERR 993 )                                                                                                    |
| CAUSE  | The RECORD ID for which the current TAG definition is to be used does not exist.                                                                      |
| ACTION | Verify that the RECORD ID number is correct. Please consult the LOGTOOL manual for further information on the TAG ID command.                         |
| 994    | *** ONE OR MORE FIELD SPECIFIED IN VARIANT IS NOT A TAG FIELD ( LTERR 994 )                                                                           |
| CAUSE  | The field indicated by the VARIANT command is not defined as a TAG field in the FIELD FORMAT command.                                                 |
| ACTION | Please consult the LOGTOOL manual for further information on the VARIANT command.                                                                     |
| 995    | *** TAG RECORD SPECIFIED IN VARIANT CANNOT BE FOUND ( LTERR 995 )                                                                                     |
| CAUSE  | The field indicated by the VARIANT command cannot be located within the FIELD FORMAT command for the record id indicated by the TAG ID command.       |
| ACTION | Please consult the LOGTOOL manual for further information on the VARIANT command.                                                                     |
| 996    | *** TAG RECORD SPECIFIED IN VARIANT HAS NOT BE DEFINED ( LTERR 996 )                                                                                  |
| CAUSE  | The field indicated by the VARIANT command cannot be located within the FIELD FORMAT command for the record id indicated by the TAG ID command.       |
| ACTION | Please consult the LOGTOOL manual for further information                                                                                             |
| 997    | *** FIELD SPECIFIED IN VARIANT IS NOT A TAG ( LTERR 997 )                                                                                             |
| CAUSE  | The field specified to be used with the current TAG ID is not a tag field.                                                                            |
| ACTION | Please verify that the field number and the record id number are correct. Please consult the LOGTOOL manual for correct usage of the VARIANT command. |
| 998    | *** FIELD SPECIFIED IN VARIANT CANNOT BE FOUND ( LTERR 998 )                                                                                          |
| CAUSE  | LOGTOOL was not able to locate the field in the record definition for which the current TAG ID is to be used with.                                    |
| ACTION | Please verify that the field number and record id number are correct. Please consult the LOGTOOL manual for the correct usage of the VARIANT command. |

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|             |                                                                                                                                                                                                     |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1000</b> | <b>*** LLIOSTAT TYPE REQUIRES 32 BITS ( LTERR 1000 )</b>                                                                                                                                            |
| CAUSE       | The FIELD'FORMAT command contained an entry with a type of LLIOSTAT and a parameter which was not a value of 32. A Low level I/O status as defined by the MPE/XL operating system requires 32 bits. |
| ACTION      | Please consult the LOGTOOL manual for correct usage of the FIELD'FORMAT command.                                                                                                                    |
| <b>1002</b> | <b>*** DATE TYPE REQUIRES 16 BITS ( LTERR 1002 )</b>                                                                                                                                                |
| CAUSE       | The FIELD'FORMAT command contained an entry with a type of DATE and a length which was not a value of 16. A datestamp as defined by the MPE/XL operating system requires 16 bits.                   |
| ACTION      | Please consult the LOGTOOL manual for correct usage of the FIELD'FORMAT command.                                                                                                                    |
| <b>1003</b> | <b>*** MPEXLSTAT TYPE REQUIRES 32 BITS ( LTERR 1003 )</b>                                                                                                                                           |
| CAUSE       | The FIELD'FORMAT command contained an entry with a type of MPEXLSTAT and a length which was not a value of 32. A MPE/XL status as defined by the MPE/XL operating system requires 32 bits.          |
| ACTION      | Please consult the LOGTOOL manual for correct usage of the FIELD'FORMAT command.                                                                                                                    |
| <b>1004</b> | <b>*** TIME TYPE REQUIRES 32 BITS ( LTERR 1004 )</b>                                                                                                                                                |
| CAUSE       | The FIELD'FORMAT command contained an entry with a type of TIME and a length which was not a value of 32. A timestamp as defined by the MPE/XL operating system requires 32 bits.                   |
| ACTION      | Please consult the LOGTOOL manual for correct usage of the FIELD'FORMAT command.                                                                                                                    |
| <b>1005</b> | <b>*** LAST RECORD'ID OR TAG'ID IS NOT COMPLETE ( LTERR 1005 )</b>                                                                                                                                  |
| CAUSE       | LOGTOOL has encountered a RECORD'ID or TAG'ID command before all required information for the previous record definition has been given. The partial record definition will be ignored.             |
| ACTION      | Please consult the LOGTOOL manual for the correct format of a record definition.                                                                                                                    |
| <b>1006</b> | <b>*** VALUE GIVEN IN N'FIELDS CANNOT BE NEGATIVE ( LTERR 1006 )</b>                                                                                                                                |
| CAUSE       | The number of fields for the current record definition number be equal to or greater than zero. This value must match the number of entries given in the FIELD'FORMAT command.                      |
| ACTION      | Please consult the LOGTOOL manual for the correct usage of the N'FIELD command.                                                                                                                     |
| <b>1007</b> | <b>*** UNABLE TO COPY FILE ! TO SYSTEM DISK ( LTERR 1007 )</b>                                                                                                                                      |
| CAUSE       | LOGTOOL was not able to copy the layout files to the main system disk.                                                                                                                              |
| ACTION      | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                               |



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|               |                                                                                                                                                                                                          |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1008</b>   | <b>*** UNABLE TO FULLY QUALIFY LAYOUT FILE NAME ( LTERR 1008 )</b>                                                                                                                                       |
| <b>CAUSE</b>  | LOGTOOL was not able to fully qualify the file name for the layout files. LOGTOOL cannot create the layout files with fully qualifying the file name.                                                    |
| <b>ACTION</b> | An error message containing further information will be displayed with this message. Please refer to the ACTION clause of that error message for further information.                                    |
| <hr/>         |                                                                                                                                                                                                          |
| <b>1009</b>   | <b>*** LENGTH OF FIELD CONTAINING HARDWARE STATUS COUNT EXPECTED ( LTERR 1009 )</b>                                                                                                                      |
| <b>CAUSE</b>  | LOGTOOL was expecting value which is the length of the field containing the hardware status count. LOGTOOL will display a carat indicating the location where it was expecting the value.                |
| <b>ACTION</b> | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                                                                   |
| <hr/>         |                                                                                                                                                                                                          |
| <b>1010</b>   | <b>*** INDEX TO THE FIELD CONTAINING HARDWARE STATUS COUNT EXPECTED ( LTERR 1010 )</b>                                                                                                                   |
| <b>CAUSE</b>  | LOGTOOL was expecting value which is the index where the field containing the hardware status count can be found. LOGTOOL will display a carat indicating the location where it was expecting the value. |
| <b>ACTION</b> | Please consult the LOGTOOL manual for further information on the FIELD'FORMAT command.                                                                                                                   |
| <hr/>         |                                                                                                                                                                                                          |
| <b>30011</b>  | <b>WARNING: LOGTOOL DOES NOT USE "ERRCOUNT" PARAMETER. (LTWARN 30011)</b>                                                                                                                                |
| <b>CAUSE</b>  | The user gave the ERRCOUNT parameter when initiating LOGTOOL through the diagnostic user interface. LOGTOOL does not use this parameter.                                                                 |
| <b>ACTION</b> | LOGTOOL will ignore the ERRCOUNT parameter and will continue execution.                                                                                                                                  |
| <hr/>         |                                                                                                                                                                                                          |
| <b>30012</b>  | <b>WARNING: LOGTOOL DOES NOT USE "LOOPCOUNT" PARAMETER. (LTWARN 30011)</b>                                                                                                                               |
| <b>CAUSE</b>  | The user gave the LOOPCOUNT parameter when initiating LOGTOOL through the diagnostic user interface. LOGTOOL does not use this parameter.                                                                |
| <b>ACTION</b> | LOGTOOL will ignore the LOOPCOUNT parameter and will continue execution.                                                                                                                                 |
| <hr/>         |                                                                                                                                                                                                          |
| <b>30013</b>  | <b>WARNING: LOGTOOL DOES NOT USE "ERRONLY" PARAMETER. (LTWARN 30012)</b>                                                                                                                                 |
| <b>CAUSE</b>  | The user gave the ERRONLY parameter when initiating LOGTOOL through the diagnostic user interface. LOGTOOL does not use this parameter.                                                                  |
| <b>ACTION</b> | LOGTOOL will ignore the ERRONLY parameter and will continue execution.                                                                                                                                   |
| <hr/>         |                                                                                                                                                                                                          |
| <b>30014</b>  | <b>WARNING: LOGTOOL DOES NOT USE "ERRPAUSE" PARAMETER. (LTWARN 30013)</b>                                                                                                                                |
| <b>CAUSE</b>  | The user gave the ERRPAUSE parameter when initiating LOGTOOL through the diagnostic user interface. LOGTOOL does not use this parameter.                                                                 |
| <b>ACTION</b> | LOGTOOL will ignore the ERRPAUSE parameter and will continue execution.                                                                                                                                  |
| <hr/>         |                                                                                                                                                                                                          |



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## HP-UX Logging Facility

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### Introduction

The HP-UX Logging Facility provides the user with a means of obtaining and decoding Diagnostic Event Messages (DEM's). The acquisition of these event messages is handled by the HP-UX `DELOG` program. The decoding of these messages is accomplished by using the HP-UX `DECODE` program. The `DELOG` process runs as a daemon and reads diagnostic event messages from the diagnostic driver "diag0" while `DECODE` runs as a user application and does not require any special privilege status. Raw DEM's are written into the logfile "/usr/adm/diaglog" on a regular basis by `DELOG`. `DECODE` reads a DEM from either "stdin" or a designated file and then decodes it into readable text. (`DELOG` and `DECODE` are standard HP-UX operating system commands and do not necessarily need to be run from the Online Diagnostic subsystem DUL.)

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**Note**

The HP-UX Logging Facility is intended for use with pre-8.0 systems. For 8.0 and post-8.0 systems, you should use `LOGTOOL`.

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### Defects and Enhancements

Submit defect reports and enhancement requests concerning this diagnostic through the STARS database using the Standard Defect Traffic System (SDTS) number 92453A.

---

### Minimum Configuration

The minimum configuration required to run this utility consists of an HP Precision Architecture RISC computer system up and running on the HP-UX operating system.

## Operating Instructions

To bring up the Online Diagnostic subsystem, enter the following command to the HP-UX prompt:

```
% /usr/diag/bin/sysdiag
```

The system responds with the following prompt indicating that access has been gained to the Online Diagnostic subsystem:

```
DUI (n)>
```

## Test Execution

Users may now call DELOG to alter the operation of the DELOG background log process daemon, or DECODE to display a particular Diagnostic Event Message (DEM). The example below shows how to run either of these standard HP-UX commands from the Online Diagnostic subsystem DUI by preceeding each command entry with an exclamation point:

```
DUI (n)> !delog
```

*or*

```
DUI (n)> !decode
```

## Test Section Descriptions

The following section describes the functions and use of the `DELOG` and `DECODE` commands. Each description includes syntax, options, and an example.

### DELOG

`DELOG` requires at least one special device file in `/dev` to run. The name of that file should be `"diag0"` and the "minor number" must be 0. If any other name is used for the file, `DELOG` cannot use the default name it knows and the user (system administrator) must edit the `/etc/rc` script to cause `DELOG` to use the new name.

A second special device file may be created using the "minor number" other than zero. This will allow `DELOG` to enter `"diag0"` as a user application but with limited access to the functionality of `"diag0"`.

In both cases, only the root should have access to these files.

The Diagnostic Event Logger (`DELOG`) is written to be run as an HP-UX daemon. It is started up by `"rc"` at bootup time when the system goes from single-user to multi-user mode. The main purpose of `DELOG` is to read Diagnostic Event Messages (DEM) from the diagnostic driver `"diag0"`. `DELOG` can also write a short synopsis of the DEM to the system console and block the processing of all DEM's at the system level.

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The DEM is a generic error message. Whenever a driver has a message (either warning, error, or simply informational) that should be logged, it sends a DEM to the diagnostic driver, "diag0". DEM's are very flexible messages. Each DEM consists of three parts:

|                                    |                                                                                                                                             |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| A fixed portion                    | Contains such general information as error class (hardware or software), retry counts, and special flags.                                   |
| Hardware status                    | Hardware status and (MSI) share a variable buffer.                                                                                          |
| Manager Specific Information (MSI) | (MSI) and hardware status share a variable buffer. MSI gives the manager a flexible area in which any additional information may be placed. |

DELOG uses standard system calls to read DEM's from the diagnostic drivers and to write the DEM back out to the diagnostic log file. When DELOG reads from the diagnostic driver, the driver puts the logger to sleep waiting for an event to be received. When "diag0"'s interrupt handler processes an event, it wakes up DELOG and completes the pending read request. DELOG then opens the log file and writes the DEM into a log file. The log file is then closed and the whole process repeats when necessary.

Before the DEM is actually written out to the log file, information is retrieved from the I/O tree and tagged on to it. The I/O tree is tied directly to the system configuration and contains such information as:

- Manager name
- Hardware path
- lu
- Major number

Although DELOG uses some of this information, most of the information is saved with the DEM for the DECODE process' detailed report on all logged DEM's. Thus, DECODE does not need to be directly tied to the system and its configuration. The log file may be moved to a remote system and be decoded there even though that system uses an entirely different I/O configuration.

### Syntax:

Delog [<optional parameters>]

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### Optional Parameters:

DELOG has several optional parameters. These are broken into two classes. The first class alters the default parameters of DELOG. The second class alters the functionality of either DELOG or "diag0". Each parameter is independent of the other, although changing the "vmunix" file may also require setting the version. When DELOG is run, all necessary parameters are defaulted to an appropriate value.

The following list of parameters may be used to change the default values:

| Option | Value Changed                                                                                                        |
|--------|----------------------------------------------------------------------------------------------------------------------|
| -d     | <device file> Sets the device file; the users must enter the full path. The default value is /dev/diag0.             |
| -L     | <log file> Sets the diagnostic log file; the user must enter the full path. The default value is "/usr/adm/diaglog". |
| -U     | <vmunix file> Sets the kernel file name; the user must enter the full path. The default value is "/hp-ux".           |
| -V     | <version number> Sets the version number of the kernel. The default value is -3; this will change for release.       |

There are four more parameters that DELOG will accept which can alter its functionality or that of "diag0".

| Option   | Value Changed                                                                                                      |
|----------|--------------------------------------------------------------------------------------------------------------------|
| -w       | Print out a brief synopsis of every event received.                                                                |
| -e [1/2] | Print out a brief synopsis of only those events that are errors and for which the I/O transaction actually failed. |
| -b       | Send synopsis to both the system console and a user-defined file.                                                  |
| -f       | Sets the output file path name. Default is /dev/null.                                                              |



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### Console Messages:

When DELOG is run without any parameters, no messages are written to the system console. In most cases, however, a system administrator will want some level of logging to be done at the system console. The **-w** and **-e** options provide this.

The **-w** option prints out warning and error information. Warnings are informational and are not always significant. Errors may be informational or they may be reports of fatal errors.

Therefore, a large amount of data, mostly informational, will go to the system console. The **-e** option causes DELOG to print messages that are only I/O subsystem errors. The **-e** and **-w** options are mutually exclusive. However, due to the nature of I/O subsystem messages, not all superfluous informational messages can be suppressed. The format of the output for the **-e** option is the same as that of the **-w** option.

To further reduce the amount of data written to the system console, the **-e** option has a second numeric parameter. The default value of the number is 1 if nothing is specified. When the number is 2, the hardware status is suppressed.

The example message can be redirected to a file using the **-f** option. In combination with the **-b** option the messages can be sent to the system console and the designated file. If the **-b** option is used by itself, the result is the same as with the **-w** option.

### Example:

```
Diagnostic class type from XX (at a.b.c) status = x
Hw stat = (hardware status printout as a HEX string)
```

Where:

|              |                                                      |
|--------------|------------------------------------------------------|
| <b>class</b> | is replaced with either hardware or software.        |
| <b>type</b>  | is replaced with either error or warning.            |
| <b>XX</b>    | is the name of the driver that reported the event.   |
| <b>a.b.c</b> | is the hardware path derived from the I/O tree.      |
| <b>x</b>     | is an ASCII string corresponding to the LLIO status. |

When a system call fails, DELOG terminates. For example, if the file system is full, logging to the log file will force an error and DELOG will halt. Termination of DELOG indicates an error.

**DECODE**

This command allows the user to gain access to the Diagnostic Event Decoder (DECODE). No special requirements are needed for DECODE to work. In fact, the log files from one HP-UX system can be moved to another HP-UX system and be decoded there. This is true even if the two systems are not configured in a similar fashion.

DECODE is a user application program that translates a diagnostic event message (DEM) into readable text. DEM's are read from the log file, which is updated by DELOG. DELOG is the HP-UX daemon logger process that receives DEM's from the Operating System. (For more details, refer to the previous DELOG discussion.)

DECODE reads a DEM from either "stdin" or a designated file. If the input is from a file, DECODE will decode all of the DEM in that file. The actual formatting of the message depends on the options the user specifies. The options are used to selectively look at one or more types of DEM's. The following section defines what the options are and how they work.

**Syntax:**

Decode [*<optional parameters>*]

**Optional Parameters:**

The options for Decode are:

|           |                                                                                |
|-----------|--------------------------------------------------------------------------------|
| <i>-L</i> | <i>&lt;error log&gt;</i> Sets the error log path/name. (default is stdin)      |
| <i>-d</i> | <i>&lt;dev file&gt;</i> Sets the path for a special device file.               |
| <i>-e</i> | <i>&lt;physical path&gt;</i> Sets the hardware path. (uses the 1.2.3 notation) |
| <i>-m</i> | <i>&lt;major number&gt;</i> Sets the major number.                             |
| <i>-n</i> | <i>&lt;driver name&gt;</i> Sets the driver name.                               |
| <i>-p</i> | <i>&lt;port&gt;</i> Sets the port number.                                      |
| <i>-t</i> | <i>&lt;tail&gt;</i> Sets the tail parameter. (default is last 10 events)       |
| <i>-w</i> | <i>&lt;wait&gt;</i> Sets a flag to wait after printing each event.             |

When setting the log file path, the full path must be specified unless the log file is in the current directory.

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The options `-d`, `-e`, `-m`, `-n`, and `-p` are used to selectively print out information. If the `-d` option is used then the `-m` option is ignored. This results because device file information is found by converting the device special file to a "major number" and "lu". This can conflict with the `-m` option which specifies the "major number".

The `-t` option acts like the tail command. When "n" is positive it shows the last "n" events in the log file. When "n" is negative the first "n" events in the log file are skipped over.

The `-w` option provides a way to step through the logfile one event at a time.

#### Input Example:

DECODE displays events in the following format:

Diagnostic Event number X,    Date = DATE & TIME

Port number of originating event = aaaaaaaa

Manager of originating event = bbbbbbbb

Physical path = a.b.c

Diagnostic event status:

|           |            |
|-----------|------------|
| error     | - cccccccc |
| proc num  | - dddddddd |
| subsystem | - eeeeeeee |

Diagnostic class = ffffffff

Number of retries = gggggggg

Hardware status = (status bytes in HEX formatted  
string)

Mgr info = (Manager specific information in HEX  
formatted string)

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Where:

|                        |                                                                                  |
|------------------------|----------------------------------------------------------------------------------|
| <b>x</b>               | the diagnostic event number relative to the start of the log file.               |
| <b>DATE &amp; TIME</b> | the date and time that "diag0"(DEV)_ processed the event.                        |
| <b>aa</b>              | port number of the I/O subsystem entity that reported the event.                 |
| <b>bb</b>              | manager name for reporting port number derived from the I/O tree.                |
| <b>a.b.c</b>           | physical path as derived from the I/O tree and the manager specific information. |
| <b>cc</b>              | is an ASCII string corresponding to the LLIO status.                             |
| <b>dd</b>              | is an unique number used to identify the I/O subsystem entity.                   |
| <b>ee</b>              | is an unique number used to identify the I/O subsystem entity.                   |
| <b>ff</b>              | is replaced with either DIAG_HW_EVENT or DIAG_SW_EVENT.                          |
| <b>gg</b>              | the number of retries the reporting entity tried before sending the event.       |

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### Output Example:

A example of a DEM that DECODE has processed is shown below:

```
decode diagnostic event

Read diagnostic event from /usr/adm/diaglog

Diagnostic Event number 51,   Date = Tue Apr 29 09:55:46 1986

Port number of originating event = 14

Manager of originating event = tape11

Physical path = 8.2.3

Diagnostic event status:
    error          - TIMEOUT
    proc num       - 4
    subsystem      - 1042

Diagnostic class = DIAG_HW_EVENT

Number of retries = 4

Hardware status = 0x0000000038ac

Mgr info = 0x041200000008000818020000000000
```

The above example is of a DEM from the magtape driver. The event was the result of trying to TAR to the magtape drive when it was offline. The “port number”, “manager name”, and “physical path” are derived from the “iotree” by DELOG when the event was first logged. The physical path tracks the hardware path out to the device that sent the message. In this case, 8.2.3 would lead through the following path: the channel adapter with module 8, to slot 2 in the CIO backplane, and finally to the device that was using address 3 in that slot.

DECODE will issue an error message if the user specifies a log file which does not exist. See the error message section of this diagnostic.

## Error Messages

The following is a list of error messages which may appear when using the HP-UX Logging facility. Listed below each error message are a probable cause and recommended action statement. In addition, the user will see a usage line printed if an invalid or incomplete parameter is used while running DECODE or DELOG. This usage line is as follows:

For DECODE:

```
[-L logfile] [-d dev file path] [-e physical path]
[-m major number] [-n driver/manager] [-p port]
[-t [events] ] [-w]
```

For DELOG:

```
[ [-e [number] ] [-w] ] [-b] [-d device file] [-f output file]
i [-l logfile] [-u umunix file] [-v version number]
```

The following are error messages that can be seen while running the HP-UX Logging facility:

|               |                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------|
| <b>ERROR:</b> | <b>WRONG FORMAT FOR PHYSICAL PATH</b>                                                                         |
| <b>CAUSE</b>  | The user has entered physical path information that is not valid.                                             |
| <b>ACTION</b> | The -e option must have its parameter in the following form: <b>number</b><br>[.number].number]               |
| <b>ERROR:</b> | <b>NO DEVICE FILE CORRESPONDING TO SPECIFIED PATH.</b>                                                        |
| <b>CAUSE</b>  | The user has a special device file that does not exist.                                                       |
| <b>ACTION</b> |                                                                                                               |
| <b>ERROR:</b> | <b>OPEN FAILED, FOR X WHERE X IS THE PATH/NAME OF THE DIAGNOSTIC LOG.</b>                                     |
| <b>CAUSE</b>  | The user has a diagnostic log file that does not exist.                                                       |
| <b>ACTION</b> |                                                                                                               |
| <b>ERROR:</b> | <b>THE -T OPTION IS OUT OF RANGE.</b>                                                                         |
| <b>CAUSE</b>  | The user has specified a value for the -t option that does not exist in the file. (See manual for -t option). |
| <b>ACTION</b> |                                                                                                               |
| <b>ERROR:</b> | <b>ERROR IN DETERMINING SIZE OF X WHERE X IS THE PATH/NAME OF THE DIAGNOSTIC LOG.</b>                         |
| <b>CAUSE</b>  | System call failed.                                                                                           |
| <b>ACTION</b> |                                                                                                               |

**FOR HP INTERNAL USE ONLY**

|               |                                                             |
|---------------|-------------------------------------------------------------|
| <b>ERROR:</b> | ERROR IN SELECTING EVENT IN WHERE X IS THE PATH/NAME OF THE |
|               | DIAGNOSTIC LOG.                                             |
| <b>CAUSE</b>  | System call failed.                                         |
| <b>ACTION</b> |                                                             |

---



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## System Map

---

### Introduction

The System Map (SYSMAP) is a utility that obtains and outputs system configuration information so the support user can get the information without taking the system down, and having to trace cables, remove boards, etc. SYSMAP runs in the online diagnostics environment on HP 9000/800 and HP 9000/900 systems, starting with HP-UX 8.0 systems. Configuration information about the system is obtained and output in four output maps: **cpumap**, **memmap**, **modulemap**, and **iomap**. These maps contain data on the system CPUs, memories, and modules attached to the PA-RISC system bus and the I/O configuration, respectively. Data in the maps should provide all the configuration information needed by the service engineer, while the system is online.

SYSMAP has the following features:

- **cpumap** data includes information on CPUs, coprocessors, and caches
- **memmap** data includes controller and array sizes, interleaved status, and enable status
- **modulemap** data includes CPUs, memories, graphics cards, and other modules that reside on the system bus
- **iomap** map data displays all I/O devices configured into the system, and with CONFIRM mode on, shows which devices are actually connected
- Changeable timeout value for driver calls
- SUPPRESS DTC DEVICES mode to preclude lengthy DTC lists for LANs connected with DTCs
- STEP mode map to allow **iomap** data for only desired sections of system's I/O tree
- CLASS MAP mode to allow **iomap** data for only desired classes of devices (such as disks, tapes, etc.)
- Complete help facilities for all commands

## Defects and Enhancements

Submit defect reports and enhancement requests for this diagnostic through the STARS database referencing product number 30600-10021.

---

## Minimum Configuration

SYSMAP will run on any HP 9000/800 running MPE XL or HP 9000/900 running HP-UX 8.0 or later, with the following diagnostic environment software installed:

- The Diagnostic User Interface
- The Diagnostic Monitor
- The Diagnostic Library
- The Online Diagnostics Subsystem Portability Interface
- All the Low-level Device Managers for all peripherals on the host system

## Operating Instructions

### RUN Command

To bring up the Online Diagnostic Subsystem, enter the following command to the system prompt:

```
sysdiag
```

The system responds with the following prompt indicating that access has been gained to the Diagnostic User Interface (DUI).

```
DUI >
```

SYSMAP doesn't have any runtime parameters such as sections or `pdevs` as other diagnostics do. The syntax for commands is a simple syntax generally consisting of single keyword commands with occasional two word commands.

SYSMAP will allow the user to abbreviate any input, as long as the abbreviated form can be parsed uniquely from other possible user input. For example, if a user wished to enter `timeout` as a desired command, this could be done by entering `timeout`, `time`, or even a `t`, because there are no other commands that begin with a "t". As long as the characters entered can be distinguished from other similar commands, the input will be recognized correctly. `exit all` can be entered in abbreviated form as `e al` at all command levels, but not `e a`, because in CLASS MAP mode the "a" is not sufficient to distinguish between `all` or `adapter` or `autochanger` as the second word of the command.

The user should follow all input with a carriage return. In this document all user input will be underlined. If an unknown command is entered, an error message will be displayed and the user receives a new prompt. For example, if a user wished to enter the `iomap` command, but typed `oomap` instead of `iomap`, then the following would occur:

```
ENTER MAP >oomap
```

```
*** THIS COMMAND IS INVALID. TYPE HELP FOR ASSISTANCE.(SYSMAPERR 5000)
```

```
ENTER MAP >
```

Also, uppercase and lowercase letters are treated as equal.

Typing `HELP` causes a summary of the DUI and its commands to be printed. Refer to the DUI chapter of this manual set for details.

To run the diagnostic, enter:

```
DUI >run sysmap
```

or

```
DUI >sysmap
```

## FOR HP INTERNAL USE ONLY

### Test Execution

The utility responds with the following header and welcome message:

```
*****
*****                                     *****
*****          SYSTEM MAP                 *****
*****                                     *****
*****      (C) Copyright Hewlett Packard Co. 1987,1990 *****
*****          All Rights Reserved.        *****
*****          Version      A.02.08         *****
*****                                     *****
*****
```

Welcome, Today is THU, DEC 06, 1990 at 5:57 PM

SYSMAP INITIALIZATION IN PROGRESS. PLEASE STAND BY.

ENTER MAP >

The user is now in the top level of commands and must enter a command that is available in this level of commands. There are three other levels of user interaction with SYSMAP: `iomap`, `step`, and `class` levels. Each of these other levels has it's own set of commands and operations in addition to some common commands available at all levels. A help facility is available at all levels of command in SYSMAP, and if entered at the top level will display the list of valid commands:

ENTER MAP >help

commands:

|                   |                                         |
|-------------------|-----------------------------------------|
| IOMAP             | (MAP OF THE I/O SYSTEM)                 |
| CPUMAP            | (MAP OF CPUS ON SYSTEM)                 |
| MEMMAP            | (MAP OF MEMORY ON SYSTEM)               |
| MODULEMAP         | (MAP OF SYSTEM MODULES)                 |
| MAPALL            | (OUTPUT ALL MAPS)                       |
| CONFIRM (ON/OFF)  | (CONFIRM HARDWARE PRESENCE)             |
| TIMEOUT           | (SET TIME IN SECONDS, FOR CONFIRM MODE) |
| SHOWSETTINGS      | (SHOW THE CURRENT SYSMAP SETTINGS)      |
| SUPPRESS (ON/OFF) | (SUPPRESS LAN DEVICES OUTPUT)           |
| SUSPEND           | (SUSPEND THIS PROCESS)                  |
| EXIT              | (EXIT PROGRAM)                          |

ENTER MAP >

The top four commands result in the output of a map containing configuration information about the system. `cpumap`, `memmap`, and `modulemap` do this directly. `iomap`, however, puts the user into the next level of commands where various operations involving the I/O configuration of the system are available.

### 3-4 System Map

**FOR HP INTERNAL USE ONLY**

**mapall** outputs all four maps in succession.

**confirm**, **timeout**, and **suppress** commands all change parameters that effect **SYSMAP** operations and **showsettings** displays the state of these parameters.

**suspend** will **suspend** **SYSMAP** in the online diagnostics environment and drop the user back to **DUI**, where he/she can perform other diagnostic operations before resuming execution of **SYSMAP**.

**exit** terminates **SYSMAP** and returns the user to **DUI**.

## FOR HP INTERNAL USE ONLY

### Exit

**exit**, from the top level of user interaction, means to terminate SYSMAP and return to DUI:

```
ENTER MAP >exit  
DUI >
```

## FOR HP INTERNAL USE ONLY

### Suspend

**suspend** is one of the common commands that can be entered from any of the four levels of user commands available in SYSMAP. This command "suspends" execution of SYSMAP from DUI (which it was launched from) and returns to the DUI prompt to allow the user to do various operations. Since SYSMAP was suspended, the user just enters **resume** at the DUI prompt to go back to where SYSMAP was suspended and continue from there. To get a list of the diagnostics currently installed in a HP-UX system from SYSMAP the user enters:

```
ENTER MAP >suspend
DUI >list
Enter the full directory path in which the program(s) are installed.
[<cr> /usr/diag/bin] :<cr>
AFIDAD          CARTDIAG          CENTPBA          CIPERLPD
CS80DIAG        DASSDIAG          DIAG7478         DTDUTIL
FLEXDIAG        GP3DDIAG          GPIODAD          GS2DDIAG
GS3DDIAG        HPFLDIAG          HPIBDAD          HPIBDDS
HPIBDIAG        LANDAD            LOGTOOL          MEMDIAG
MUXDIAG         OPDIAG            OSI4DAD          PMUXDIAG
PSIDAD          REELDIAG          REWRITE          SCSICD
SCSICIO         SCSIDDS           SCSIDISK         SCSIPBA
SCSIREEL        SS80DIAG          SYSMAP
DUI >resume
SYSMAP has been resumed

ENTER MAP >
```



## FOR HP INTERNAL USE ONLY

### Timeout

**timeout** is another command available at all levels of user interaction in SYSMAP. The **timeout** command allows the user to set the value in seconds for all I/O requests before the DAR times out. Note that this is in addition to built-in driver timeouts. Even with the default SYSMAP timeout value of 5 seconds, if a large number of devices are not responding there can be delays of up to 30 seconds per device while each device times out between the operating system and the driver. The 5 second default is based on a worst case SCSI (NIO or CIO) device adapter roll call. The user can make the timeout value smaller to save time during a confirm, but may get roll call errors on SCSI adapters that aren't really errors. The timeout value should be increased if a device is known to take longer than 5 seconds to respond with valid data (usually third party I/O devices, if any).

Timeout values are entered in whole seconds up to 9999:

```
ENTER MAP >timeout
```

```
ENTER TIME IN SECONDS >30
```

```
ENTER MAP >
```

If the user makes an entry mistake, the timeout value remains unchanged from its value prior to attempting the change:

```
ENTER MAP >t
```

```
ENTER TIME IN SECONDS >xyz
```

```
***A NUMERIC INPUT IS EXPECTED IN RESPONSE TO THIS PROMPT.  
(SYSMAPERR 5006)
```

```
TIMEOUT VALUE UNCHANGED
```

```
ENTER MAP >
```

## FOR HP INTERNAL USE ONLY

### Confirm

The **confirm** command is available at all levels, but is a mode that affects the **iomap** output only. **confirm** causes SYSMAP to search the I/O tables of the operating system, and confirm the physical presence of all devices in the tables. Also, any devices present but not in the system tables are found during the confirm. So this operation “confirms” devices insofar as it performs I/O to the devices to have them identify themselves, and then issues them a roll call to detect *all* devices connected to channel adapters, HPIB device adapters, SCSI device adapters, etc. This way, SYSMAP is able to detect if a configured device is missing, if a configured device really has some other device attached at its path, or if a configured device is off or not present. CONFIRM mode is turned on or off with the command:

```
ENTER MAP >confirm on
```

```
CONFIRM MODE IN PROGRESS. PLEASE STAND BY.
```

```
CONFIRM TRAVERSING SYSTEM TABLES ..... CONFIRM COMPLETE
```

```
ENTER MAP >confirm off
```

```
ENTER MAP >
```

Forward progress as the confirm traverses the system's I/O tables is indicated by “.” characters. If confirming a large system with a lot of devices attached, such as an MPE system with many users on DTCs, this process can take minutes. This is especially true if there are devices misconfigured and each one is timing out.

The results of the confirm are reflected in the **iomap** output, but other incidental errors may be reported in the course of the confirm:

```
ENTER MAP >confirm on
```

```
CONFIRM MODE IN PROGRESS. PLEASE STAND BY.
```

```
CONFIRM TRAVERSING SYSTEM TABLES .....
```

```
*** SYSMAP COULD NOT GAIN ACCESS TO DEVICE WITH THE FOLLOWING PDEV. 4.3.1.0  
(SYSMAPERR 5038).
```

```
..... CONFIRM COMPLETE
```

```
ENTER MAP >
```

In this case a device was not available (possibly locked by another process with exclusive access, a hung driver, etc.), when SYSMAP tried to obtain access during the confirm.

Due to the disruptive nature of some identify commands, only users with the capability of running diagnostics with security level 2 will be allowed to invoke the CONFIRM mode.

## FOR HP INTERNAL USE ONLY

### Suppress (DTC Devices)

The **suppress DTC devices** command is available at all **SYSMAP** user levels, however, it (like the **CONFIRM** mode command) really only affects the **iomap** output. When **suppress** is on, any DTC devices found by **iomap** are suppressed in the map output. This is to preclude the user from having to wait while a large number of DTC devices are output by **iomap** in big multiuser systems. This is especially advantageous if running diagnostics over a modem. When **suppress** is off, all DTC devices are output. **SUPPRESS** mode is turned on or off with the command:

```
ENTER MAP >suppress on
```

```
ENTER MAP >
```

**suppress on** is the default for this mode.

```
ENTER MAP >suppress off
```

```
ENTER MAP >
```

There is no other visual indication to the user for **SUPPRESS** mode when it is turned on or off.

## FOR HP INTERNAL USE ONLY

### Showsettings

The modes and timeout value can be displayed via the `showsettings` command at any user level in SYSMAP:

```
ENTER MAP >showsettings
                        SYSMAP SETTINGS
-----
CONFIRM MODE IS OFF  TIMEOUT IS 5 SECOND(S)  SUPPRESS DTC DEVICES IS ON
-----
```

ENTER MAP >

If the user then wanted to change the timeout value and SUPPRESS mode, and see the state of these parameters after the changes, he/she would enter:

```
ENTER MAP >timeout

ENTER TIME IN SECONDS >30

ENTER MAP >suppress off

ENTER MAP >showsettings
                        SYSMAP SETTINGS
-----
CONFIRM MODE IS OFF  TIMEOUT IS 30 SECOND(S)  SUPPRESS DTC DEVICES IS OFF
-----

ENTER MAP >
```

## FOR HP INTERNAL USE ONLY

### Cpumap

**cpumap** is a command available from the top level of user interaction with **SYSMAP** that provides the user with a map of all processor modules present in the system. The map output contains both architected and non-architected information about the processors, as well as about any coprocessors present, along with cache and TLB data. **cpumap** is performed by entering:

```
ENTER MAP >cpumap
```

```

                                SYSTEM CPU MAP
-----
CPU NUMBER 0 - HARDWARE MODEL NUMBER -----> $4
                HARDWARE REVISION NUMBER ---> $0
                SOFTWARE MODEL NUMBER -----> $4
                SOFTWARE REVISION NUMBER ---> $0
                SOFTWARE OPTION -----> $1
                HARDWARE ID -----> 0
                SOFTWARE ID -----> 111111113
                BOOT ID -----> 0
                HARD PHYSICAL ADDRESS -----> $FFF80000
                SLOT NUMBER -----> 0
                SW CAPABILITIES -----> $0
                PDC FIRMWARE REVISION ----->
```

CO-PROCESSORS:

FLOATING POINT COPROCESSOR IS INSTALLED.

CACHES:

```

INSTRUCTION CACHE SIZE - 64K BYTES
DATA CACHE SIZE         - 64K BYTES
INSTRUCTION TLB SIZE    - 4K BYTES
DATA TLB SIZE           - 4K BYTES
-----
```

```
ENTER MAP >
```

The CPU information can be looked up in the latest ACD, to interpret which processor or processors are in the system. The SW CAP value is set at the factory when the processor is manufactured and has to be interpreted bit-by-bit. The PDC firmware revision, a string obtained by accessing the PDC, is in a non-architected location, and therefore, is not always in the map.

#### Note



IODC firmware revisions of devices in a system are generally available by running the particular diagnostic. The IODC firmware revision of a HPIB device adapter, for example, can be obtained by running **HPIBDIAG** in the interactive section.

### 3-12 System Map

**FOR HP INTERNAL USE ONLY**

Any installed coprocessors are also listed, along with cache and TLB sizes. The slot numbers of the CPUs are also present in the `cpumap` output.

## FOR HP INTERNAL USE ONLY

### Memmap

**memmap** is a command available from the top level of user interaction with SYSMAP that provides the user with a map of all memory modules present in the system. The map output contains pertinent information about the memory controllers and array boards in the system. **memmap** is performed by entering:

ENTER MAP >memmap

#### SYSTEM MEMORY MAP

| MODULE TYPE          | SLOT<br>NUMBER | HPA      | MEMORY<br>SIZE | STATUS                  |
|----------------------|----------------|----------|----------------|-------------------------|
| =====                | =====          | =====    | =====          | =====                   |
| MEMORY CONTROLLER #1 | 13             | FFFB4000 | 12 MBYTES      | ENABLED/NON-INTERLEAVED |
| MEMORY ARRAY #1      | 12             | -        | 20 MBYTES      | -                       |
| MEMORY CONTROLLER #2 | 11             | FFFA0000 | 3 MBYTES       | ENABLED/NON-INTERLEAVED |
| MEMORY ARRAY #1      | 10             | -        | 5 MBYTES       | -                       |
| MEMORY CONTROLLER #3 | 9              | FFFA4000 | 3 MBYTES       | ENABLED/NON-INTERLEAVED |
| MEMORY ARRAY #1      | 8              | -        | 5 MBYTES       | -                       |

MEMORY CONTROLLER #1 - HARDWARE MODEL NUMBER - \$12

MEMORY CONTROLLER #1 - REVISION NUMBER - \$0

MEMORY CONTROLLER #2 - HARDWARE MODEL NUMBER - \$8

MEMORY CONTROLLER #2 - REVISION NUMBER - \$0

MEMORY CONTROLLER #3 - HARDWARE MODEL NUMBER - \$8

MEMORY CONTROLLER #3 - REVISION NUMBER - \$0

ENTER MAP >

**FOR HP INTERNAL USE ONLY**

For memories that are capable of being interleaved or disabled, the status field of this output informs the user of the current state of the memories. Generally, however, the status will be **ENABLED/NON-INTERLEAVED**, as shown above. The slot numbers of all memory boards are also present in the **memmap** output.





## FOR HP INTERNAL USE ONLY

### Modulemap

**modulemap** is a command available from the top level of user interaction with SYSMAP that provides the user with a map of all modules connected to the system bus. These modules are also referred to as Precision I/O Modules. These modules can be defined as entities which appear in the system address space, and which adhere to the Precision I/O Architecture. Module types fitting this description are modules such as the native processors, memory controllers, bus converters, foreign processors, bus adapters, mid-bus PSI cards, and special modules such as graphics cards. **modulemap** is performed by entering:

```
ENTER MAP >modulemap
```

#### SYSTEM MODULE MAP

```
-----  
MODULE TYPE-----> NATIVE PROCESSOR  
HARDWARE MODEL NUMBER-----> $4  
HARDWARE REVISION NUMBER ---> $0  
SOFTWARE MODEL NUMBER -----> $4  
SOFTWARE REVISION NUMBER ---> $0  
SOFTWARE OPTION -----> 1  
HARD PHYSICAL ADDRESS -----> $FFF80000  
BUS IDENTIFICATION-----> $3FE  
SLOT NUMBER -----> 0  
  
MODULE TYPE-----> CIO MODULE  
HARDWARE MODEL NUMBER-----> $8  
HARDWARE REVISION NUMBER ---> $0  
SOFTWARE MODEL NUMBER -----> $10  
SOFTWARE REVISION NUMBER ---> $0  
SOFTWARE OPTION -----> 0  
HARD PHYSICAL ADDRESS -----> $FFF88000  
BUS IDENTIFICATION-----> $3FE  
SLOT NUMBER -----> 2  
  
MODULE TYPE-----> TYPE-B DMA MODULE  
HARDWARE MODEL NUMBER-----> $4  
HARDWARE REVISION NUMBER ---> $1  
SOFTWARE MODEL NUMBER -----> $20  
SOFTWARE REVISION NUMBER ---> $0  
SOFTWARE OPTION -----> 128  
HARD PHYSICAL ADDRESS -----> $FFF8C000  
BUS IDENTIFICATION-----> $3FE  
SLOT NUMBER -----> 3  
  
MODULE TYPE-----> CIO MODULE  
HARDWARE MODEL NUMBER-----> $8  
HARDWARE REVISION NUMBER ---> $0  
SOFTWARE MODEL NUMBER -----> $10  
SOFTWARE REVISION NUMBER ---> $0
```

FOR HP INTERNAL USE ONLY

SOFTWARE OPTION -----> 0  
HARD PHYSICAL ADDRESS -----> \$FFF98000  
BUS IDENTIFICATION-----> \$3FE  
SLOT NUMBER -----> 6

MODULE TYPE-----> TYPE-B DMA MODULE  
HARDWARE MODEL NUMBER-----> \$4  
HARDWARE REVISION NUMBER ----> \$0  
SOFTWARE MODEL NUMBER -----> \$19  
SOFTWARE REVISION NUMBER ----> \$0  
SOFTWARE OPTION -----> 0  
HARD PHYSICAL ADDRESS -----> \$FFF9C000  
BUS IDENTIFICATION-----> \$3FE  
SLOT NUMBER -----> 7

MODULE TYPE-----> MEMORY CONTROLLER  
HARDWARE MODEL NUMBER-----> \$8  
HARDWARE REVISION NUMBER ----> \$0  
SOFTWARE MODEL NUMBER -----> \$9  
SOFTWARE REVISION NUMBER ----> \$0  
SOFTWARE OPTION -----> 0  
HARD PHYSICAL ADDRESS -----> \$FFFA4000  
BUS IDENTIFICATION-----> \$3FE  
SLOT NUMBER -----> 9

MODULE TYPE-----> MEMORY CONTROLLER  
HARDWARE MODEL NUMBER-----> \$8  
HARDWARE REVISION NUMBER ----> \$0  
SOFTWARE MODEL NUMBER -----> \$9  
SOFTWARE REVISION NUMBER ----> \$0  
SOFTWARE OPTION -----> 0  
HARD PHYSICAL ADDRESS -----> \$FFFAC000  
BUS IDENTIFICATION-----> \$3FE  
SLOT NUMBER -----> 11

-----  
ENTER MAP >

#### FOR HP INTERNAL USE ONLY

While a lot of this information is redundant for the CPUs and memory, there is additional information, such as BUS ID. The information is architected (except for slot number) and available for all bus modules:

|                                  |                                                                                                                                                                                                                            |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MODULE TYPE</b>               | - Module type is just what the name implies; the module type found attached to the system bus by <b>SYSMAP</b> .                                                                                                           |
| <b>HARDWARE MODEL NUMBER</b>     | - Bits 0..11 of the module's hversion. This field specifies the module hardware implementation. It is changed as required for implementations with incompatible diagnostic and/or system dependent software functionality. |
| <b>HARDWARE REVISION NUMBER</b>  | - Bits 12..15 of the module's hversion. This number is changed for a transparent hardware update.                                                                                                                          |
| <b>SOFTWARE MODEL NUMBER</b>     | - Bits 4..23 of the module's sversion. This number specifies the software interface. It is changed as required for implementations with incompatible generic software capabilities.                                        |
| <b>SOFTWARE REVISION NUMBER</b>  | - Bits 0..3 of the module's sversion. This number is changed when an enhanced architectural feature is added to the module.                                                                                                |
| <b>SOFTWARE OPTION NUMBER</b>    | - Bits 24..31 of the module's sversion. This field is defined differently for each module type.                                                                                                                            |
| <b>HARD PHYSICAL ADDRESS</b>     | - This is the 4-Kbyte address range in the I/O address space that the module responds to.                                                                                                                                  |
| <b>BUS IDENTIFICATION NUMBER</b> | - Bits 4..13 of the module's HPA. This is called the flex field and it identifies the bus to which the module is connected.                                                                                                |

# FOR HP INTERNAL USE ONLY

## Mapall

mapall is a command available only in the top user level of SYSMAP that outputs cpumap, memmap, modulemap, and a general iomap in succession. This command can be used to get all the configuration data about a system in a single command. The iomap output is in the current CONFIRM mode state, so that if the service engineer runs SYSMAP, and then does a mapall, the iomap general map will be out of CONFIRM mode (which is the initial CONFIRM state when SYSMAP is first executed). If the iomap output is desired in CONFIRM mode, using the mapall command, then the user must perform a confirm on, or go into, iomap, and then come back to the top level before performing a mapall command. All the system maps are output by entering:

ENTER MAP >mapall

### SYSTEM CPU MAP

```
-----
CPU NUMBER 0 - HARDWARE MODEL NUMBER -----> $4
                HARDWARE REVISION NUMBER ----> $0
                SOFTWARE MODEL NUMBER -----> $4
                SOFTWARE REVISION NUMBER ----> $0
                SOFTWARE OPTION -----> $1
                HARDWARE ID -----> 0
                SOFTWARE ID -----> 111111113
                BOOT ID -----> 0
                HARD PHYSICAL ADDRESS -----> $FFF80000
                SLOT NUMBER -----> 0
                SW CAPABILITIES -----> $0
                PDC FIRMWARE REVISION ----->
```

### CO-PROCESSORS:

AN UNSUPPORTED COPROCESSOR WAS DETECTED.

### CACHES:

INSTRUCTION CACHE DISABLED.  
DATA CACHE DISABLED.  
INSTRUCTION TLB DISABLED.  
DATA TLB DISABLED.

### SYSTEM MEMORY MAP

```
-----
          SLOT      MEMORY
MODULE TYPE  NUMBER  HPA  SIZE  STATUS
=====
MEMORY CONTROLLER #1  13  FFFB4000  12 MBYTES  ENABLED/NON-INTERLEAVED
          MEMORY ARRAY #1  12  -  20 MBYTES  -
```

FOR HP INTERNAL USE ONLY

|                      |    |          |          |                         |
|----------------------|----|----------|----------|-------------------------|
| MEMORY CONTROLLER #2 | 11 | FFFA0000 | 3 MBYTES | ENABLED/NON-INTERLEAVED |
| MEMORY ARRAY #1      | 10 | -        | 5 MBYTES | -                       |
| MEMORY CONTROLLER #3 | 9  | FFFA4000 | 3 MBYTES | ENABLED/NON-INTERLEAVED |
| MEMORY ARRAY #1      | 8  | -        | 5 MBYTES | -                       |

-----

MEMORY CONTROLLER #1 - HARDWARE MODEL NUMBER - \$12

MEMORY CONTROLLER #1 - REVISION NUMBER - \$0

MEMORY CONTROLLER #2 - HARDWARE MODEL NUMBER - \$8

MEMORY CONTROLLER #2 - REVISION NUMBER - \$0

MEMORY CONTROLLER #3 - HARDWARE MODEL NUMBER - \$8

MEMORY CONTROLLER #3 - REVISION NUMBER - \$0

-----

SYSTEM MODULE MAP

-----

MODULE TYPE-----> NATIVE PROCESSOR  
HARDWARE MODEL NUMBER-----> \$4  
HARDWARE REVISION NUMBER ---> \$0  
SOFTWARE MODEL NUMBER -----> \$4  
SOFTWARE REVISION NUMBER ---> \$0  
SOFTWARE OPTION -----> 1  
HARD PHYSICAL ADDRESS -----> \$FFF80000  
BUS IDENTIFICATION-----> \$3FE  
SLOT NUMBER -----> 0

MODULE TYPE-----> CIO MODULE  
HARDWARE MODEL NUMBER-----> \$8  
HARDWARE REVISION NUMBER ---> \$0  
SOFTWARE MODEL NUMBER -----> \$10  
SOFTWARE REVISION NUMBER ---> \$0  
SOFTWARE OPTION -----> 0  
HARD PHYSICAL ADDRESS -----> \$FFF88000  
BUS IDENTIFICATION-----> \$3FE  
SLOT NUMBER -----> 2

# FOR HP INTERNAL USE ONLY

```
MODULE TYPE-----> TYPE-B DMA MODULE
HARDWARE MODEL NUMBER-----> $4
HARDWARE REVISION NUMBER ----> $1
SOFTWARE MODEL NUMBER -----> $20
SOFTWARE REVISION NUMBER ----> $0
SOFTWARE OPTION -----> 128
HARD PHYSICAL ADDRESS -----> $FF8C000
BUS IDENTIFICATION-----> $3FE
SLOT NUMBER -----> 3
```

```
MODULE TYPE-----> CIO MODULE
HARDWARE MODEL NUMBER-----> $8
HARDWARE REVISION NUMBER ----> $0
SOFTWARE MODEL NUMBER -----> $10
SOFTWARE REVISION NUMBER ----> $0
SOFTWARE OPTION -----> 0
HARD PHYSICAL ADDRESS -----> $FF98000
BUS IDENTIFICATION-----> $3FE
SLOT NUMBER -----> 6
```

```
MODULE TYPE-----> TYPE-B DMA MODULE
HARDWARE MODEL NUMBER-----> $4
HARDWARE REVISION NUMBER ----> $0
SOFTWARE MODEL NUMBER -----> $19
SOFTWARE REVISION NUMBER ----> $0
SOFTWARE OPTION -----> 0
HARD PHYSICAL ADDRESS -----> $FF9C000
BUS IDENTIFICATION-----> $3FE
SLOT NUMBER -----> 7
```

```
MODULE TYPE-----> MEMORY CONTROLLER
HARDWARE MODEL NUMBER-----> $8
HARDWARE REVISION NUMBER ----> $0
SOFTWARE MODEL NUMBER -----> $9
SOFTWARE REVISION NUMBER ----> $0
SOFTWARE OPTION -----> 0
HARD PHYSICAL ADDRESS -----> $FFA4000
BUS IDENTIFICATION-----> $3FE
SLOT NUMBER -----> 9
```

```
MODULE TYPE-----> MEMORY CONTROLLER
HARDWARE MODEL NUMBER-----> $8
HARDWARE REVISION NUMBER ----> $0
SOFTWARE MODEL NUMBER -----> $9
SOFTWARE REVISION NUMBER ----> $0
SOFTWARE OPTION -----> 0
HARD PHYSICAL ADDRESS -----> $FFAC000
BUS IDENTIFICATION-----> $3FE
SLOT NUMBER -----> 11
```

#### FOR HP INTERNAL USE ONLY

```
MODULE TYPE-----> MEMORY CONTROLLER
HARDWARE MODEL NUMBER-----> $12
HARDWARE REVISION NUMBER ----> $0
SOFTWARE MODEL NUMBER -----> $9
SOFTWARE REVISION NUMBER ----> $0
SOFTWARE OPTION -----> 0
HARD PHYSICAL ADDRESS -----> $FFFB4000
BUS IDENTIFICATION-----> $3FE
SLOT NUMBER -----> 13
```

---

#### IOMAP GENERAL HOST MAP

---

CONFIRM MODE IS OFF    TIMEOUT IS 5 SECOND(S)    SUPPRESS DTC DEVICES IS ON

---

#### Channel Adapter(8)

Device Adapter(0) --- HPIB

Device(0) [ ldev /dev/diag/dsk/c1000d0 HP7935H DISK ]

Device(1) [ ldev /dev/diag/dsk/c1001d0 HP7935H DISK ]

Device(2) [ ldev /dev/diag/dsk/c1002d0 HP7935H DISK ]

Device(3) [ ldev /dev/diag/dsk/c1003d0 HP7935H DISK ]

Terminal Mux(1)

Device Adapter(2) --- HPIB

Device(0) [ ldev /dev/diag/lp1 HP2563A LINE PRINTER ]

Device Adapter(3) --- SCSI

Device(1) [ PSEUDO ]

Device(0) [ HPC2213A DISK ]

Device(3) [ PSEUDO ]

Device(0) [ HPC1502A TAPE ]

Local Area Network(4) [ \*\*\*LAN DEV'S OUTPUT SUPPRESSED\*\*\* ]

Device Adapter(6) --- HPFL

Device(0) [ ldev /dev/diag/dsk/c2012d0 HP7937FL DISK ]

Device(1) [ ldev /dev/diag/dsk/c2013d0 HP7937FL DISK ]

---

ENTER MAP >

The general iomap output is displayed with the `showsettings` banner, so that the user knows the `SYSMAP` timeout and modes settings at the time of the `mapall`.

## FOR HP INTERNAL USE ONLY

### **iomap**

**iomap** is the second level of user interaction with **SYSMAP**. Within the **iomap** set of commands the user has the ability to output a map of the I/O configuration of the system and other capabilities. A **help** command from the **iomap** prompt reveals the following at the **iomap** level:

**IOMAP >help**

commands:

|                          |                                         |
|--------------------------|-----------------------------------------|
| <b>GENERAL</b>           | (GENERAL HOST PERIPHERAL MAP)           |
| <b>CLASS</b>             | (SELECTED DEVICE CLASS MAP)             |
| <b>STEP</b>              | (FOR A MORE SPECIFIC GENERAL MAP)       |
| <b>CONFIRM (ON/OFF)</b>  | (CONFIRM HARDWARE PRESENCE)             |
| <b>TIMEOUT</b>           | (SET TIME IN SECONDS, FOR CONFIRM MODE) |
| <b>SHOWSETTINGS</b>      | (SHOW THE CURRENT SYSMAP SETTINGS)      |
| <b>SUPPRESS (ON/OFF)</b> | (SUPPRESS LAN DEVICES OUTPUT)           |
| <b>SUSPEND</b>           | (SUSPEND THIS PROCESS)                  |
| <b>EXIT</b>              | (EXIT IOMAP)                            |
| <b>EXIT ALL</b>          | (EXIT SYSMAP)                           |

**IOMAP >**

The **general** command results in the output of I/O configuration data about the system. The **class** and **step** commands put the user in the other two user levels in **SYSMAP**, where portions of the I/O configuration may be output selectively. The modes and timeout commands (**confirm**, **timeout**, **showsettings**, and **suppress**) are the same at this level as the top level of commands. **suspend** also has the same meaning at the **iomap** level as the top level. **exit** and **exit all** have a slightly different meaning at the **iomap** level.



### FOR HP INTERNAL USE ONLY

The user gets to the `iomap` level of commands by entering the `iomap` command from the top level of user interaction for `SYSMAP`. The first time that `iomap` is selected after running `SYSMAP` `CONFIRM` mode is automatically forced to on and the confirm completes before prompting the user with the `iomap` prompt. This is due to multiple field requests to make confirm on the default (since apparently that is the way the field always uses it). If a user just wants a `cpumap` or other top level map, then he or she doesn't have to pay the time penalty of simply making confirm on the default for `SYSMAP` each time it's run. Only when they execute `iomap` for the first time does the confirm automatically go to on:

```
ENTER MAP >iomap
```

```
CONFIRM MODE IN PROGRESS. PLEASE STAND BY.
```

```
CONFIRM TRAVERSING SYSTEM TABLES ..... CONFIRM COMPLETE
```

```
IOMAP >
```

As noted before, the confirm may take minutes to complete if the system has extensive I/O connections, and errors may occur during the confirm. Once the user has selected `iomap`, confirm is completely controlled by the user. If he/she wants to see only the I/O configuration the system was configured for, then confirm can be turned off again.

The user can exit back to the top level of `SYSMAP` by entering:

```
IOMAP >exit
```

```
ENTER MAP >
```

The user can exit all the way back to `DUI` from `iomap` by entering:

```
IOMAP >exit all
```

```
SYSMAP Exiting...
```

```
SYSMAP has terminated
```

```
DUI >
```

### General

Once at the `iomap` level of user interaction with `SYSMAP` a map of all the I/O devices connected to the system can be obtained using the `general` command. The map will have a different appearance, depending on whether the system is an MPE or HP-UX system, whether or not devices have been confirmed (i.e., `CONFIRM` mode is on), and whether or not `SUPPRESS DTC DEVICES` mode is in effect or not.

# FOR HP INTERNAL USE ONLY

An iomap output from the general, step, or class maps is composed of lines with the following format:

```

Physical Address
Elements
I/O Module | | Module Type (if applicable)
| | |
v v |
Channel Adapter(8) v
Device Adapter(0) --- HPIB
Device(0) [ ldev 1 HP7935 DISK "Exception String" ]
| | |
| | | Device Product Class
| | | Product Number
| | | Logical Device Number(MPE) or Device File Path (HP-UX)
Physical Address Element

```

**Physical address:** In the above example the physical address of the disk device is actually '8.0.0'. The physical address of the HPIB device adapter is '8.0' and the physical address of the channel adapter is '8'. Each level's physical address is a combination of the previous level's physical address element and it's own physical address element. Each line is indented for every path level traversed in the output.

**I/O Module:** The name of the type of module displayed.

**Module Type:** If an I/O module that needs further definition than this type string is appended.

**Logical Device Number:** Number assigned to module when configured into an MPE system during generation or in sysgen. For HP-UX the number is replaced with a path to any device file associated with the device. The example above in HP-UX might look like:

```
Device(0) [ ldev /dev/disk/c1000d0 HP7935H DISK ]
```

**Product number :** Hewlett-Packard product number or string returned by other vendor device.

**Product class :** Tells the class of the device (e.g., tape, disk, printer, etc.).

**Exception String:** If any exceptions to the system's configuration tables occurs, a string is output explaining the discrepancy between what was found during a confirm on and what the system had configured. Normally there aren't any differences and this string does not appear. If CONFIRM mode is off at the time of the iomap output, this string won't appear either. An example of an exception is the case where a device has been configured on a MPE system, but in reality is not connected. After the confirm on has taken place, the line in the iomap output might look like:

```
Device(2) [ ldev 3 HPC2203A DISK ****NOT PRESENT***]
```

### FOR HP INTERNAL USE ONLY

Exceptions are less probable on HP-UX systems, because of the `autoconfig` feature of the system. As long as a driver for a device is supported in `autoconfig`, the system should always be current and devices shouldn't be showing up in a general `iomap` as missing, different id, or off. Only if a non-HP vendor supplies a device not supported, or HP doesn't support a particular device, or the user has misconfigured the I/O section of the `s800` file, will exceptions occur on an HP-UX system. MPE, however, allows the user to configure one thing and connect another, so the chance of seeing an exception is greater than on an HP-UX system.

A general `iomap` is output by entering the following from the `iomap` prompt:

```
IOMAP >general
                                IOMAP GENERAL HOST MAP
-----
CONFIRM MODE IS ON   TIMEOUT IS 5 SECOND(S)   SUPPRESS DTC DEVICES IS ON
-----
Channel Adapter(4)
  Device Adapter(0) --- HPIB
    Device(0) [ ldev /dev/diag/dsk/c1000d0 HP7935H DISK ]
  Terminal Mux(1)
  Device Adapter(3) --- SCSI
    Device(1) [ PSEUDO ]
      Device(0) [ HPC1502A TAPE ]
    Device(3) [ PSEUDO ]
      Device(0) [ HPC1700 AUTOCHANGER ]
    Device(4) [ PSEUDO ]
      Device(0) [ HPC1701A DISK ]
    Device(5) [ PSEUDO ]
      Device(0) [ HPC1701A DISK ]
    Device(6) [ PSEUDO ]
      Device(0) [ HP7980S TAPE ]
  Local Area Network(4) [ ***LAN DEV'S OUTPUT SUPPRESSED*** ]
  Device Adapter(5) --- HPFL
    Device(0) [ ldev /dev/diag/dsk/c2012d0 HP7937FL DISK ]
    Device(1) [ ldev /dev/diag/dsk/c2013d0 HP7937FL DISK ]
    Device(2) [ ldev /dev/diag/dsk/c2014d0 HP7937FL DISK ]
    Device(3) [ ldev /dev/diag/dsk/c2015d0 HP7937FL DISK ]
  Device(8) [ GRAPHICS ]
    Device(0) [ ldev /dev/diag/crt0 GRAPHICS ]
-----
```

#### FOR HP INTERNAL USE ONLY

Again, the user is cautioned to remember any errors reported during the confirm, because they may not show up in the general iomap. If a device did not return a product number during the confirm's identify, for example, the error would occur during the confirm, but would not be reflected in a subsequent iomap output. This is because SYSMAP can't decide if the id is wrong, or if the entry is misconfigured, only that it can't get this data from the driver. This could be a driver problem that SYSMAP would know about only during the confirm, and the general iomap would simply show what was in the system's tables.

This online iomap of the system is similar to, but not to be confused with, the offline iomap from ISL, which talks directly to PDC for its information. The ISL iomap shows all bus modules like modulemap. SYSMAP uses the modulemap output to complement the information in a general iomap. Processors, memories, DMA cards, etc., do not appear in the online iomap output.

If suppress DTC devices is off, general iomap output on a system with DTCs might look like:

```
IOMAP >g
                                IOMAP GENERAL HOST MAP
-----
CONFIRM MODE IS ON   TIMEOUT IS 5 SECOND(S)   SUPPRESS DTC DEVICES IS OFF
-----
Channel Adapter(4)
  Terminal Mux(1)
    Device(0) [ ldev 25 HP2392A TERMINAL ]
  Device Adapter(2) --- HPIB
    Device(2) [ ldev 8 HP7978B TAPE ***NOT PRESENT***]
    Device(3) [ ldev 7 HP7978B TAPE ]
    Device(4) [ ldev 6 HP2680A PAGE PRINTER ***NOT PRESENT***]
    Device(5) [ ldev 10 HP7978B TAPE ***NOT PRESENT***]
    Device(6) [ ldev 19 HP2688A PAGE PRINTER ***NOT PRESENT***]
  Local Area Network(4)
    Device(0) [DTS-DTCM ]
    Device(1) [DTS-FCM ]
      Device(1) [ ldev 200 DTS-TSPDM ]
    Device(2) [DTS-FCM ]
      Device(1) [ ldev 201 DTS-TSPDM ]
    Device(3) [DTS-FCM ]
      Device(1) [ ldev 202 DTS-TSPDM ]
    Device(4) [DTS-FCM ]
      Device(1) [ ldev 203 DTS-TSPDM ]
    Device(5) [DTS-FCM ]
      Device(1) [ ldev 204 DTS-TSPDM ]
    Device(6) [DTS-FCM ]
      Device(1) [ ldev 205 DTS-TSPDM ]
    Device(7) [DTS-FCM ]
      Device(1) [ ldev 206 DTS-TSPDM ]
    Device(8) [DTS-FCM ]
      Device(1) [ ldev 207 DTS-TSPDM ]
    Device(9) [DTS-FCM ]
      Device(1) [ ldev 208 DTS-TSPDM ]
    Device(10) [DTS-FCM ]
      Device(1) [ ldev 209 DTS-TSPDM ]
```

#### FOR HP INTERNAL USE ONLY

```
Device(11) [DTS-FCM ]
  Device(1) [ ldev 210 DTS-TSPDM ]
Device(12) [DTS-FCM ]
  Device(1) [ ldev 211 DTS-TSPDM ]
Device(13) [DTS-FCM ]
  Device(1) [ ldev 212 DTS-TSPDM ]
Device(14) [DTS-FCM ]
  Device(1) [ ldev 213 DTS-TSPDM ]
Device(15) [DTS-FCM ]
  Device(1) [ ldev 214 DTS-TSPDM ]
Device(16) [DTS-FCM ]
  Device(1) [ ldev 215 DTS-TSPDM ]
Device(17) [DTS-FCM ]
  Device(1) [ ldev 216 DTS-TSPDM ]
Device(18) [DTS-FCM ]
  Device(1) [ ldev 217 DTS-TSPDM ]
Device(19) [DTS-FCM ]
  Device(1) [ ldev 218 DTS-TSPDM ]
Device(20) [DTS-FCM ]
  Device(1) [ ldev 219 DTS-TSPDM ]
Device Adapter(6) --- HPIB
  Device(0) [ ldev 1 HP7935H DISK ]
  Device(3) [ ldev 4 HP7935H DISK ]
```

-----

IOMAP >

With suppress on, the DTC devices are not output and the iomap output for the same system looks like:

IOMAP >suppress on

IOMAP >g

#### IOMAP GENERAL HOST MAP

-----

CONFIRM MODE IS ON    TIMEOUT IS 5 SECOND(S)    SUPPRESS DTC DEVICES IS ON

-----

```
Channel Adapter(4)
  Terminal Mux(1)
    Device(0) [ ldev 25 HP2392A TERMINAL ]
  Device Adapter(2) --- HPIB
    Device(2) [ ldev 8 HP7978B TAPE ***NOT PRESENT***]
    Device(3) [ ldev 7 HP7978B TAPE ]
    Device(4) [ ldev 6 HP2680A PAGE PRINTER ***NOT PRESENT***]
    Device(5) [ ldev 10 HP7978B TAPE ***NOT PRESENT***]
    Device(6) [ ldev 19 HP2688A PAGE PRINTER ***NOT PRESENT***]
  Local Area Network(4) [ ***LAN DEV'S OUTPUT SUPPRESSED*** ]
  Device Adapter(6) --- HPIB
    Device(0) [ ldev 1 HP7935H DISK ]
    Device(3) [ ldev 4 HP7935H DISK ]
```

-----

#### 3-28 System Map

## FOR HP INTERNAL USE ONLY

IOMAP >

Suppression of the lengthy, repetitive listing of DTC devices is desirable in general and it is especially desirable if the general iomap is being obtained over a modem.

### Class

The **class** command is another level of user interaction with SYSMAP that allows a user to output I/O devices of selective classes only. This may be useful when using a modem connection and display of the entire map is not desirable. The line format of the output is the same as described in the general iomap. A **help** command from the **class** prompt shows the following commands:

IOMAP CLASS >help

commands:

|                  |                                            |
|------------------|--------------------------------------------|
| <DEVICE CLASS>   | (CHOOSE FROM LIST OF DEVICE CLASSES BELOW) |
| CONFIRM (ON/OFF) | (CONFIRM HARDWARE PRESENCE)                |
| TIMEOUT          | (SET TIME IN SECONDS, FOR CONFIRM MODE)    |
| SHOWSETTINGS     | (SHOW THE CURRENT SYSMAP SETTINGS)         |
| SUPPRESS         | (ON/OFF)(SUPPRESS LAN DEVICES OUTPUT)      |
| SUSPEND          | (SUSPEND THIS PROCESS)                     |
| EXIT             | (EXIT CLASS MODE)                          |
| EXIT ALL         | (EXIT SYSMAP)                              |

The following device classes are available:

|                                  |                |
|----------------------------------|----------------|
| disk                             | tape           |
| printer                          | device adapter |
| bus converter                    | terminal       |
| channel adapters                 | plotter        |
| card reader                      | autochanger    |
| dtc (data terminal concentrator) |                |
| tmux (terminal multiplexer)      |                |

IOMAP CLASS >

Entry of any of the classes listed results in the output of an I/O map that contains all of the devices of that class in the system. The **suspend**, **confirm**, **timeout**, **suppress**, and **showsettings** commands are the same at this level as the top level of use of SYSMAP. **exit** and **exit all** have a slightly different meaning at this level. The user gets to the **class** level of commands by entering the following from the **iomap** level:

IOMAP >class

IOMAP CLASS >

To exit from the **class** level back to the **iomap** level, the user enters:

IOMAP CLASS >exit

## FOR HP INTERNAL USE ONLY

IOMAP >

To exit all the way out of SYSMAP back to the DUI from class, the user enters:

```
IOMAP >exit all
SYSMAP Exiting...
SYSMAP has terminated
DUI >
```

**Class Device.** Upon the entering of a valid device class, SYSMAP will proceed to search the system tables and display every device of the class selected. The selected device class map will be displayed in the form shown below, where a map of all the disk devices in a system is output:

IOMAP CLASS >disk

### IOMAP CLASS MAP

DISK(S):

-----  
CONFIRM MODE IS ON    TIMEOUT IS 5 SECOND(S)    SUPPRESS DTC DEVICES IS ON  
-----

Channel Adapter(4)

Device Adapter(0) --- HPiB

Device(0) [ ldev /dev/diag/dsk/c1000d0 HP7935H DISK ]

Device(1) [ ldev /dev/diag/dsk/c1001d0 HP7935H DISK ]

Device(2) [ ldev /dev/diag/dsk/c1002d0 HP7935H DISK ]

Device(3) [ ldev /dev/diag/dsk/c1003d0 HP7935H DISK ]

Device Adapter(1) --- HPFL

Device(0) [ ldev /dev/diag/dsk/c2012d0 HP7937FL DISK ]

Device(1) [ ldev /dev/diag/dsk/c2013d0 HP7937FL DISK ]

Device(2) [ ldev /dev/diag/dsk/c2014d0 HP7937FL DISK ]

Device(3) [ ldev /dev/diag/dsk/c2015d0 HP7937FL DISK ]  
-----

IOMAP CLASS >

It is important for the user to watch for errors during the class search, just as it is during a confirm on for a general iomap. Errors can occur that won't necessarily be reflected in the class map itself.

### Step

The **step** level, like the **class** level, is another level of user interaction with SYSMAP. This may be useful when using a modem connection and display of the entire map is not desirable. The line format of the output is the same as described in the general iomap. A **help** command from the **step** prompt shows the following commands:

IOMAP STEP MODE >help

Commands

<NEXT PHYSICAL ADDRESS ELEMENT> (SEE STEPPING DIRECTIONS BELOW)

## 3-30 System Map

#### FOR HP INTERNAL USE ONLY

|              |                                                        |
|--------------|--------------------------------------------------------|
| ALL          | (MAP OF ALL THE HARDWARE BELOW THE CURRENT PATH LEVEL) |
| TOP          | (TO GO BACK TO THE HIGHEST PATH LEVEL)                 |
| SAME         | (DISPLAY THE CURRENT LEVEL AGAIN)                      |
| PREVIOUS     | (DISPLAY THE PREVIOUS LEVEL AGAIN)                     |
| CONFIRM      | (ON/OFF) (CONFIRM HARDWARE PRESENCE)                   |
| TIMEOUT      | (SET TIME IN SECONDS, FOR CONFIRM MODE)                |
| SHOWSETTINGS | (SHOW THE CURRENT SYSMAP SETTINGS)                     |
| SUPPRESS     | (ON/OFF)(SUPPRESS LAN DEVICES OUTPUT)                  |
| SUSPEND      | (SUSPEND THIS PROCESS)                                 |
| EXIT         | (EXIT STEP MODE)                                       |
| EXIT ALL     | (EXIT SYSMAP)                                          |

#### Stepping directions

Enter the number of the next element in the current io path to step there and view the io structure at that level. To view any portion of the io structure, the user must step to the desired level by progressively entering the next/previous path levels. Use the all command to determine the element numbers below at any level.

#### IOMAP STEP MODE >

Entry of an existing physical address element number for the current step level causes SYSMAP to traverse and display a device or devices from the system's I/O tree. The suspend, confirm, timeout, suppress, and showsettings commands are all the same at this level as the top level of use of sysmap. exit and exit all have a slightly different meaning at this level. The user gets to the step level of commands by entering the following from the iomap level:

IOMAP >step

#### IOMAP STEPPING MODE

-----  
CONFIRM MODE IS ON    TIMEOUT IS 5 SECOND(S)    SUPPRESS DTC DEVICES IS ON  
-----

Channel Adapter(4)  
Device(8) [ GRAPHICS ]  
-----

CURRENT POSITION---> TOP

#### IOMAP STEP MODE >

The user is now at the top level of the system's I/O tree, where only the I/O modules attached to the system bus appear. The level of the I/O tree currently being display is always indicated by the CURRENT POSITION field in the output.

To exit at any position in the I/O tree in STEP mode and get back to the iomap level, the user enters:

IOMAP STEP MODE >exit



## FOR HP INTERNAL USE ONLY

IOMAP >

To exit all the way out of SYSMAP back to the DUI, from any position in the I/O tree of the system, the user enters:

```
IOMAP STEP MODE >exit all
SYSMAP Exiting...
SYSMAP has terminated
DUI >
```

**Valid Physical Address Element Number.** At the **step** level, the user has the ability to selectively traverse or “step” through and display branches of the system’s I/O tree of device connections. Since some devices connect with other devices (such as a device adapter), there are levels associated with the I/O tree. Each time a valid physical address element is selected from the **step** level prompt, SYSMAP will move down to the next existing I/O level.

On entry to **step** mode, the highest level of devices (those attached to the system bus) are displayed. This is the top level of the I/O tree. The user may then select where to step to next, from any displayed devices. To enter stepping from **iomap**, and step down to a device adapter on a CIO system, the user enters:

```
IOMAP >step
                                IOMAP STEPPING MODE
-----
CONFIRM MODE IS ON  TIMEOUT IS 5 SECOND(S)  SUPPRESS DTC DEVICES IS ON
-----
Channel Adapter(4)
Device(8) [ GRAPHICS ]
-----

CURRENT POSITION---> TOP
```

IOMAP STEP MODE >4

After initial entry into the **step** level, the user has selected the channel adapter shown at physical address 4 to step down to next. As a result, the following output is produced by SYSMAP:

```
DEVICES UNDER PHYSICAL ADDRESS 4 - CA
-----
CONFIRM MODE IS ON  TIMEOUT IS 5 SECOND(S)  SUPPRESS DTC DEVICES IS ON
-----
Device Adapter(0) --- HPPIB
Terminal Mux(1)
Device Adapter(2) --- HPPIB
Device Adapter(3) --- SCSI
Local Area Network(4) [ ***LAN DEV'S OUTPUT SUPPRESSED*** ]
Device Adapter(5) --- HPFL
-----

CURRENT POSITION---> 4.
```

### 3-32 System Map

#### FOR HP INTERNAL USE ONLY

IOMAP STEP MODE >

These are all the devices connected to the channel adapter at 4. If the user wanted to step to the first HPIB device adapter, then he or she would enter:

IOMAP STEP MODE >0

DEVICES UNDER PHYSICAL ADDRESS 4.0 - CA.DA

-----  
CONFIRM MODE IS ON    TIMEOUT IS 5 SECOND(S)    SUPPRESS DTC DEVICES IS ON  
-----

Device(0) [ ldev /dev/diag/dsk/c1000d0 HP7935H DISK ]  
-----

CURRENT POSITION---> 4.0.

IOMAP STEP MODE >

The user is now at the desired device adapter and can view whatever connectivity the device has at this level: a single 7935 disk drive, in this case.

If there are problems with devices at any of the I/O levels displayed, SYSMAP will generate errors along with the **step map** outputs shown above. If **CONFIRM** mode is on, then any discrepancies found will also be displayed. If **SUPPRESS DTC DEVICES** mode is on, then the user cannot step to the DTC devices, because SYSMAP will not traverse them in this mode. **step** would actually show the DTCs when the user steps to the LAN, but would have to leave **SUPPRESS** mode to step to the DTC devices themselves.

**Previous.** To step back up a level in STEP mode, the **previous** command is used. In the example in the immediately preceding section, if the user wanted to go back up a level in the system's I/O tree, then he or she would enter:

IOMAP STEP MODE >previous

DEVICES UNDER PHYSICAL ADDRESS 4 - CA

-----  
CONFIRM MODE IS ON    TIMEOUT IS 5 SECOND(S)    SUPPRESS DTC DEVICES IS ON  
-----

Device Adapter(0) --- HPIB  
Terminal Mux(1)  
Device Adapter(2) --- HPIB  
Device Adapter(3) --- SCSI  
Local Area Network(4) [ \*\*\*LAN DEV'S OUTPUT SUPPRESSED\*\*\* ]  
Device Adapter(5) --- HPFL  
-----

CURRENT POSITION---> 4.

IOMAP STEP MODE >

#### FOR HP INTERNAL USE ONLY

This command can be used at any level in stepping, except at the top level where there is no previous level.

**Top.** The **top** command does just what the name implies: take the STEP mode display back to the top level of the system's I/O, and redisplay the devices connected to the system bus:

```
IOMAP STEP MODE >top
-----
CONFIRM MODE IS ON    TIMEOUT IS 5 SECOND(S)    SUPPRESS DTC DEVICES IS ON
-----
Channel Adapter(4)
Device(8) [ GRAPHICS ]
-----
```

CURRENT POSITION---> TOP

IOMAP STEP MODE >

The user can then traverse other branches in the system's I/O tree starting from devices connected at the top level.

**Same.** If, for whatever reason, a user wants to redisplay the current level of the STEP mode, then the **same** command can be entered. The current I/O level is traversed again and redisplayed (If errors are occurring they will be encountered and redisplayed). To redisplay the current level in STEP mode, using example in the "Valid Physical Address Element Number", above, the user enters:

```
DEVICES UNDER PHYSICAL ADDRESS 4.0 - CA.DA
-----
CONFIRM MODE IS ON    TIMEOUT IS 5 SECOND(S)    SUPPRESS DTC DEVICES IS ON
-----
Device(0) [ ldev /dev/diag/dsk/c1000d0 HP7935H DISK ]
-----
```

CURRENT POSITION---> 4.0.

IOMAP STEP MODE >same

```
DEVICES UNDER PHYSICAL ADDRESS 4.0. - CA.DA
-----
CONFIRM MODE IS ON    TIMEOUT IS 5 SECOND(S)    SUPPRESS DTC DEVICES IS ON
-----
Device(0) [ ldev /dev/diag/dsk/c1000d0 HP7935H DISK ]
-----
```

CURRENT POSITION---> 4.0.

IOMAP STEP MODE >

#### 3-34 System Map

**FOR HP INTERNAL USE ONLY**

**All.** In order to view the next level of I/O devices down in the I/O tree from the current **step** level, a user can use the **all** command. This allows the user to see what devices exist the next I/O level down, without having to step there. To view what the I/O connectivity looks like the next I/O level down from the example in the "Previous" section, above, the user enters:

```
IOMAP STEP MODE >all
```

```
DEVICES UNDER PHYSICAL ADDRESS 4. - CA
```

```
-----  
CONFIRM MODE IS ON   TIMEOUT IS 5 SECOND(S)   SUPPRESS DTC DEVICES IS ON  
-----
```

```
Device Adapter(0) --- HPIB  
    Device(0) [ ldev /dev/diag/dsk/c1000d0 HP7935H DISK ]  
Terminal Mux(1)  
Device Adapter(2) --- HPIB  
Device Adapter(3) --- SCSI  
    Device(1) [ PSEUDO  ]  
        Device(0) [ HPC1502A TAPE ]  
Local Area Network(4) [ ***LAN DEV'S OUTPUT SUPPRESSED*** ]  
Device Adapter(5) --- HPFL  
-----
```

```
CURRENT POSITION---> 4.
```

```
IOMAP STEP MODE >
```

## FOR HP INTERNAL USE ONLY

### Help Facility

The help facility of SYSMAP has already been shown at all levels of user interaction with SYSMAP in the previous sections. At any prompt in SYSMAP, the user can enter `help<cr>`, and a list of the commands available at that user level will be displayed.

At any of the four user levels of SYSMAP, the user can also enter `help <command>` and an expanded explanation of the command will be displayed. The command syntax is displayed, along with the expanded command definition. The expansion of the commands by using `help` in this manner is also user level sensitive in SYSMAP: only commands at a given level will be expanded. This means expansion of an `iomap` user level command is not available at the STEP mode level; only STEP mode commands are available at that level. Example help command expansions at all four levels of user interaction with SYSMAP are:

ENTER MAP >help memmap

When the user responds to the ENTER MAP > prompt with this command, Sysmap will now display maps of the memory controller and memory array modules in the system.

SYNTAX: Enter Map > memmap

ENTER MAP >iomap

IOMAP >help suppress

The SUPPRESS ON/OFF command will cause SYSMAP to go into or out of the suppress LAN devices output mode. When suppressed, LAN devices are not output for any LAN's found in the iomap output. This is useful when using SYSMAP over a remote console.

SYNTAX: ENTER MAP > suppress on | off

IOMAP >class

IOMAP CLASS >help disk

By typing this command in response to the IOMAP CLASS > prompt will result in Sysmap displaying the location of every device class of this type in the system.

SYNTAX: IOMAP CLASS > DISK

IOMAP CLASS >exit

IOMAP >step

### 3-36 System Map

**FOR HP INTERNAL USE ONLY**

IOMAP STEP MODE >help previous

The PREVIOUS command will display a map of the level displayed before the current level.

SYNTAX: IOMAP STEP MODE > previous

-----  
CONFIRM MODE IS ON    TIMEOUT IS 5 SECOND(S)    SUPPRESS DTC DEVICES IS ON  
-----

Channel Adapter(4)

Device(8) [ GRAPHICS ]  
-----

CURRENT POSITION---> TOP

IOMAP STEP MODE >

Note that in STEP mode, the current step or I/O level is redisplayed after the help information.

---

## Error Messages and Warnings

This section gives a complete list of the error and warning messages that may be generated by SYSMAP along with brief explanations of the meaning of the messages. The messages will be listed in numerical order and are exactly as they appear in the message catalog. An 000 string indicates an error parameter is placed in the error message by sysmap.

Errors internal to SYSMAP all have the ACTION statement: "Collect data about problem and submit to STD ONLINE SUPPORT." They all result from internal checking that detects a problem with the system environment.

There is no action listed for warnings.

---

|             |                                                                                                                                      |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>5000</b> | <b>*** THIS COMMAND IS INVALID. TYPE HELP FOR ASSISTANCE. (SYSMAPERR 5000)</b>                                                       |
| CAUSE       | The command entered by the user is not a valid command recognized by Sysmap.                                                         |
| ACTION      | Make sure that the command that is being typed in is a valid command. If in doubt, type help to confirm the validity of the command. |

---

|             |                                                                                                                                                                                                                                                                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>5001</b> | <b>*** THIS PDEV IS NOT VALID FOR THE LEVEL BEING PROCESSED. (SYSMAPERR 5001)</b>                                                                                                                                                                                                                                                                          |
| CAUSE       | Indicates that while in the step mode the user entered an invalid physical address element.                                                                                                                                                                                                                                                                |
| ACTION      | When this happens the user should use the SAME command in step mode to determine the valid physical address elements available at the current level. At this point the user should pick one of these physical address elements and enter it for the next level to be traversed. Also at any time the user may elect to enter the TOP or PREVIOUS commands. |

---

|             |                                                                                   |
|-------------|-----------------------------------------------------------------------------------|
| <b>5002</b> | <b>*** THE ENTERED PDEV ENTRY IS TOO LONG. (SYSMAPERR 5002)</b>                   |
| CAUSE       | Indicates that the length of the entered pdev exceeds the length of a valid pdev. |
| ACTION      | Make sure that all pdev value do not exceed the maximum length of 30 characters.  |

---

|             |                                                                                      |
|-------------|--------------------------------------------------------------------------------------|
| <b>5003</b> | <b>*** SUPPRESS LAN DEVICES MODE ALREADY ON. (SYSMAPWARN 5003)</b>                   |
| CAUSE       | The user attempted to turn on suppress DTC devices when they are already suppressed. |
| ACTION      | None - warning only.                                                                 |

---

**FOR HP INTERNAL USE ONLY**

|             |                                                                                                                                                                 |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>5004</b> | <b>*** INFORMATION ABOUT DEVICES OF THIS CLASS TYPE IS NOT AVAILABLE.<br/>(SYSMAPERR 5004)</b>                                                                  |
| CAUSE       | This means that Sysmap was asked to give information about a device class type it has no knowledge of.                                                          |
| ACTION      | Type help while in the class map mode to determine all valid device classes. These will be the only devices that SYSMAP is capable of giving information about. |
| <hr/>       |                                                                                                                                                                 |
| <b>5005</b> | <b>*** SYSMAP COULD NOT FIND ANY INFORMATION OF THE SPECIFIED DEVICE<br/>CLASS IN THE I/O TABLE. (SYSMAPWARN 5005)</b>                                          |
| CAUSE       | This means that Sysmap searched the I/O configuration table and did not find any devices of the given class type.                                               |
| ACTION      | None - warning only                                                                                                                                             |
| <hr/>       |                                                                                                                                                                 |
| <b>5006</b> | <b>*** A NUMERIC INPUT IS EXPECTED IN RESPONSE TO THIS PROMPT.<br/>(SYSMAPERR 5006)</b>                                                                         |
| CAUSE       | The user entered a non-numeric character or other uninterpretable character string in response to the prompt in Sysmap's timeout command.                       |
| ACTION      | The user must enter a numeric input in response to the time out prompt.                                                                                         |
| <hr/>       |                                                                                                                                                                 |
| <b>5007</b> | <b>*** SYSMAP COULD NOT RETRIEVE MESSAGES FROM IT'S MESSAGE CATALOG.<br/>(SYSMAPERR 5007)</b>                                                                   |
| CAUSE       | Sysmap's initialization process was not successful due to the fact that for some reason Sysmap was not able to read it's messages from it's catalog.            |
| ACTION      | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                    |
| <hr/>       |                                                                                                                                                                 |
| <b>5008</b> | <b>*** CONFIRM MODE IS ALREADY INVOKED. (SYSMAPWARN 5008)</b>                                                                                                   |
| CAUSE       | The user attempted to go into confirm mode with confirm mode already on.                                                                                        |
| ACTION      | None - warning only                                                                                                                                             |
| <hr/>       |                                                                                                                                                                 |



#### FOR HP INTERNAL USE ONLY

|        |                                                                                                                                                                                                        |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5009   | *** NO LEVEL PREVIOUS TO THIS ONE. ALREADY AT THE TOP. (SYSMAPERR 5009)                                                                                                                                |
| CAUSE  | This happens when a user in Sysmap's step mode tries to go to a level of mapping previous to the top level.                                                                                            |
| ACTION | None - warning only                                                                                                                                                                                    |
| 5010   | *** SYSMAP ENCOUNTERED AN ERROR WHILE INTERPRETING A COMMAND (SYSMAPERR 5010)                                                                                                                          |
| CAUSE  | This could only happen if a user entered a valid command and Sysmap encountered an internal error of some kind that caused it not to recognize the command.                                            |
| ACTION | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                                           |
| 5011   | *** SYSMAP ENCOUNTERED AN ERROR WHILE TRYING TO CONFIRM THE PRESENCE OF HARDWARE MODULES. DEVICE WITH FOLLOWING PDEV WAS BEING PROCESSED (000) 000 COMMAND WAS ATTEMPTING TO EXECUTE. (SYSMAPERR 5011) |
| CAUSE  | Indicates that Sysmap encountered an error other than a timeout or unimplemented while trying to communicate with a device.                                                                            |
| ACTION | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                                           |
| 5012   | *** SYSMAP ENCOUNTERED AN ERROR WHILE READING AN INTERNAL DATA BUFFER. (SYSMAPERR 5012)                                                                                                                |
| CAUSE  | An internal error occurred while moving data into or out of a data buffer.                                                                                                                             |
| ACTION | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                                           |
| 5013   | *** SYSMAP ENCOUNTERED A TIMEOUT ERROR WHILE TRYING TO PERFORM A 000 COMMAND TO PDEV (000) (SYSMAPERR 5013)                                                                                            |
| CAUSE  | Indicates that a timeout error occurred while sysmap was trying to accomplish an identify or a roll call command to a device.                                                                          |
| ACTION | Be sure that the time out value given for the device is long enough or that device is powered on or that device is connected.                                                                          |

**FOR HP INTERNAL USE ONLY**

|             |                                                                                                                                                                                   |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>5014</b> | <b>*** USER LACKS THE CAPABILITY REQUIRED TO INVOKE THE CONFIRM MODE (SYSMAPERR 5014)</b>                                                                                         |
| CAUSE       | This means that a user with insufficient capabilities tried to invoke the confirm mode. A user with any capability greater than 2 may not invoke the confirm mode.                |
| ACTION      | Terminate sysmap and rerun with superuser (root) capabilities on an HP-UX system, or as manager.sys on an MPE XL system.                                                          |
| <b>5015</b> | <b>*** SYSMAP ENCOUNTERED AN ERROR WHILE PROCESSING A USER INTERRUPT. (SYSMAPERR 5015)</b>                                                                                        |
| CAUSE       | This will happen only if an internal error occurs when the user tries to suspend sysmap.                                                                                          |
| ACTION      | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                      |
| <b>5016</b> | <b>*** INCORRECT USE OF THIS COMMAND. TYPE HELP FOR ASSISTANCE. (SYSMAPERR 5016)</b>                                                                                              |
| CAUSE       | Indicates that the user typed in a valid command out of context; for example,<br><br>IOMAP > on                                                                                   |
| ACTION      | Although "on" is a valid command it only makes sense in conjunction with the confirm command, therefore make sure that sysmap's commands are used in proper context.              |
| <b>5017</b> | <b>*** SYSMAP ENCOUNTERED AN ERROR WHILE TRYING TO DECODE IDENTIFY DATA. (SYSMAPERR 5017)</b>                                                                                     |
| CAUSE       | Indicates an internal error occurred while sysmap was trying to decode identify data. This could be due to the presence of a third party device unknown to the diagnostic system. |
| ACTION      | If no third party devices are in the system, collect data about problem and submit to STD ONLINE SUPPORT.                                                                         |
| <b>5018</b> | <b>*** SYSMAP ENCOUNTERED AN ERROR WHILE OBTAINING A DATA BUFFER. (SYSMAPERR 5018)</b>                                                                                            |
| CAUSE       | Sysmap encountered an error trying to allocate memory space for a data buffer.                                                                                                    |
| ACTION      | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                      |

#### FOR HP INTERNAL USE ONLY

|             |                                                                                                                                                                                                                                                                         |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>5019</b> | <b>*** SYSMAP ENCOUNTERED AN ERROR WHILE RETURNING A DATA BUFFER. (SYSMAPERR 5019)</b>                                                                                                                                                                                  |
| CAUSE       | Sysmap encountered an error trying to deallocate memory space from a data buffer.                                                                                                                                                                                       |
| ACTION      | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                                                                                                            |
| <hr/>       |                                                                                                                                                                                                                                                                         |
| <b>5020</b> | <b>*** SYSMAP ENCOUNTERED AN ERROR WHILE TRYING TO GET THE LDEV OF DEVICE WITH THE FOLLOWING PDEV (000) (SYSMAPERR 5020)</b>                                                                                                                                            |
| CAUSE       | An error occurred while sysmap was attempting to get the ldev of the device with the given pdev.                                                                                                                                                                        |
| ACTION      | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                                                                                                            |
| <hr/>       |                                                                                                                                                                                                                                                                         |
| <b>5021</b> | <b>*** SYSMAP ENCOUNTERED AN ERROR WHILE TRYING TO RETRIEVE ALL OR SOME OF THE INFORMATION REGARDING DEVICE WITH THE FOLLOWING PDEV (000) (SYSMAPERR 5021).</b>                                                                                                         |
| CAUSE       | An error occurred while Sysmap was attempting to get information from the system tables about device with the given pdev.                                                                                                                                               |
| ACTION      | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                                                                                                            |
| <hr/>       |                                                                                                                                                                                                                                                                         |
| <b>5022</b> | <b>*** SYSMAP WAS UNABLE TO OBTAIN A PRODUCT NUMBER FOR DEVICE WITH THE FOLLOWING PDEV (000) (SYSMAPERR 5022).</b>                                                                                                                                                      |
| CAUSE       | Indicates that an error occurred while sysmap was attempting to get the product number of the device with the given pdev.                                                                                                                                               |
| ACTION      | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                                                                                                            |
| <hr/>       |                                                                                                                                                                                                                                                                         |
| <b>5023</b> | <b>*** WARNING, BE ADVISED THAT CONTROL_Y MAY NOT BE INVOKED AT THIS TIME. (SYSMAPWARN 5023).</b>                                                                                                                                                                       |
| CAUSE       | This can only happen if another diagnostic is suspended while sysmap is running and the user tries to stop a sysmap operation with control_y. In this situation control_y will not stop the sysmap operation until no other diagnostics are currently suspended by DUI. |
| ACTION      | None - warning only                                                                                                                                                                                                                                                     |
| <hr/>       |                                                                                                                                                                                                                                                                         |

#### FOR HP INTERNAL USE ONLY

|             |                                                                                                                                                                                           |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>5024</b> | <b>*** ALL COMMAND IS NOT VALID FROM THIS LEVEL. (SYSMAPWARN 5024).</b>                                                                                                                   |
| CAUSE       | This will happen if the user is in step mode of iomap and is at the lowest level of mapping possible. If at this level the user issues the all command, this warning message will appear. |
| ACTION      | None - warning only                                                                                                                                                                       |
| <hr/>       |                                                                                                                                                                                           |
| <b>5025</b> | <b>*** CONFIRM MODE IS ALREADY OFF. (SYSMAPWARN 5025).</b>                                                                                                                                |
| CAUSE       | User attempted to go out of confirm mode when confirm mode was already off.                                                                                                               |
| ACTION      | None - warning only                                                                                                                                                                       |
| <hr/>       |                                                                                                                                                                                           |
| <b>5026</b> | <b>*** SYSMAP RECEIVED MORE INPUT THAN EXPECTED. EXTRA IGNORED. (SYSMAPERR 5026).</b>                                                                                                     |
| CAUSE       | This happens when a user types in more than what is necessary to one of Sysmap's prompts.                                                                                                 |
| ACTION      | Re-enter command correctly.                                                                                                                                                               |
| <hr/>       |                                                                                                                                                                                           |
| <b>5027</b> | <b>*** LDEV NUMBERS ARE NOT REQUIRED AS RUNTIME PARAMETERS FOR SYSMAP (SYSMAPWARN 5027).</b>                                                                                              |
| CAUSE       | User tried to give sysmap a logical device number as a runtime parameter and sysmap does not have any runtime parameters.                                                                 |
| ACTION      | None - warning only                                                                                                                                                                       |
| <hr/>       |                                                                                                                                                                                           |
| <b>5028</b> | <b>*** PDEV NUMBERS ARE NOT REQUIRED AS RUNTIME PARAMETERS FOR SYSMAP (SYSMAPWARN 5028).</b>                                                                                              |
| CAUSE       | User tried to give sysmap a physical device number as a runtime parameter and sysmap does not have any runtime parameters.                                                                |
| ACTION      | None - warning only                                                                                                                                                                       |
| <hr/>       |                                                                                                                                                                                           |

#### FOR HP INTERNAL USE ONLY

|        |                                                                                                                          |
|--------|--------------------------------------------------------------------------------------------------------------------------|
| 5029   | *** SECTIONS ARE NOT REQUIRED AS RUNTIME PARAMETERS FOR SYSMAP (SYSMAPWARN 5029).                                        |
| CAUSE  | User tried to give sysmap a section number as a runtime parameter and sysmap does not have any runtime parameters.       |
| ACTION | None - warning only                                                                                                      |
| 5030   | *** STEPS ARE NOT REQUIRED AS RUNTIME PARAMETERS FOR SYSMAP (SYSMAPWARN 5030).                                           |
| CAUSE  | User tried to give sysmap a step number as a runtime parameter and sysmap does not have any runtime parameters.          |
| ACTION | None - warning only                                                                                                      |
| 5031   | *** LOOP COUNT IS NOT APPLICABLE AS A RUNTIME PARAMETER FOR SYSMAP (SYSMAPWARN 5031).                                    |
| CAUSE  | User tried to give sysmap a loop count as a runtime parameter and sysmap does not have any runtime parameters.           |
| ACTION | None - warning only                                                                                                      |
| 5032   | *** ERROR ONLY IS NOT APPLICABLE AS A RUNTIME PARAMETER FOR SYSMAP (SYSMAPWARN 5032).                                    |
| CAUSE  | User tried to give sysmap the error only command as a runtime parameter and sysmap does not have any runtime parameters. |
| ACTION | None - warning only                                                                                                      |
| 5033   | *** ERROR COUNT IS NOT APPLICABLE AS A RUNTIME PARAMETER FOR SYSMAP (SYSMAPWARN 5033).                                   |
| CAUSE  | User gave sysmap an error count as a runtime parameter and sysmap does not have any runtime parameters.                  |
| ACTION | None - warning only                                                                                                      |

#### FOR HP INTERNAL USE ONLY

|             |                                                                                                                                                                                                                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>5034</b> | <b>*** ERROR PAUSE IS NOT APPLICABLE AS A RUNTIME PARAMETER FOR SYSMAP (SYSMAPWARN 5034).</b>                                                                                                                                                                                                            |
| CAUSE       | User gave sysmap an error pause as a runtime parameter and sysmap does not have any runtime parameters.                                                                                                                                                                                                  |
| ACTION      | None - warning only                                                                                                                                                                                                                                                                                      |
| <hr/>       |                                                                                                                                                                                                                                                                                                          |
| <b>5035</b> | <b>*** TIMEOUT VALUE GIVEN NOT VALID. VALUE MUST BE AN INTEGER GREATER THAN ZERO AND LESS THAN 10000. (SYSMAPWARN 5035).</b>                                                                                                                                                                             |
| CAUSE       | User entered a timeout value outside the valid range.                                                                                                                                                                                                                                                    |
| ACTION      | Enter a time out value greater than zero and less than 10000.                                                                                                                                                                                                                                            |
| <hr/>       |                                                                                                                                                                                                                                                                                                          |
| <b>5036</b> | <b>*** UNEXPECTED ERROR OCCURRED WHILE READING THE SYSTEM CONFIGURATION TABLES (SYSMAPERR 5036).</b>                                                                                                                                                                                                     |
| CAUSE       | Internal error occurred while sysmap was reading the configuration table.                                                                                                                                                                                                                                |
| ACTION      | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                                                                                                                                             |
| <hr/>       |                                                                                                                                                                                                                                                                                                          |
| <b>5037</b> | <b>*** SORRY, NO SUCH TOPIC EXISTS. (SYSMAPWARN 5037).</b>                                                                                                                                                                                                                                               |
| CAUSE       | This error occurs when the user asks for help about a command that does not exist or makes an entry mistake.                                                                                                                                                                                             |
| ACTION      | None - warning only                                                                                                                                                                                                                                                                                      |
| <hr/>       |                                                                                                                                                                                                                                                                                                          |
| <b>5038</b> | <b>*** SYSMAP COULD NOT GAIN ACCESS TO DEVICE WITH THE FOLLOWING PDEV (0000) (SYSMAPERR 5038).</b>                                                                                                                                                                                                       |
| CAUSE       | This happens when a call to the program service OBTAIN_ACCESS is not successful. This means that sysmap did not gain access to a device it was trying to issue a roll call or identify command to.                                                                                                       |
| ACTION      | Read the error message that appears before this message. If the previous message describes a situation that may be corrected by the user, the user should proceed to do so or contact someone who can. It could be that another process in the system has locked the device sysmap was trying to access. |

#### FOR HP INTERNAL USE ONLY

|        |                                                                                                                                                                                                                                                                                                          |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5039   | *** SYSMAP COULD NOT DETERMINE THE PRESENCE OF THE DEVICES BENEATH THE DEVICE WITH THE FOLLOWING PDEV (000) (SYSMAPERR 5039)                                                                                                                                                                             |
| CAUSE  | This message will be displayed when Sysmap could not obtain access to a device that it was about to issue a roll call command to.                                                                                                                                                                        |
| ACTION | Read the error message that appears before this message. If the previous message describes a situation that may be corrected by the user, the user should proceed to do so or contact someone who can. It could be that another process in the system has locked the device sysmap was trying to access. |
| 5040   | *** SUPPRESS LAN DEVICES MODE ALREADY OFF. (SYSMAPWARN 5040)                                                                                                                                                                                                                                             |
| CAUSE  | The user attempted to turn off suppress DTC devices when they already were not suppressed.                                                                                                                                                                                                               |
| ACTION | None - warning only.                                                                                                                                                                                                                                                                                     |
| 5041   | *** AN UNEXPECTED ERROR OCCURRED, SYSMAP CANNOT CONSTRUCT A MAP OF THE I/O SYSTEM. (SYSMAPERR 5041)                                                                                                                                                                                                      |
| CAUSE  | This occurs when a call to OBTAIN_IO_MAP fails. This means that some internal error happened while reading the system configuration files.                                                                                                                                                               |
| ACTION | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                                                                                                                                             |
| 5042   | *** SYSMAP ENCOUNTERED AN ERROR WHILE PROCESSING A NUMERIC INPUT. (SYSMAPERR 5042)                                                                                                                                                                                                                       |
| CAUSE  | Sysmap encountered an internal system error while converting a number to a string. This would probably occur in sysmap's step mode where the user types in a number that is part of a pdev.                                                                                                              |
| ACTION | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                                                                                                                                             |
| 5043   | *** SYSMAP COULD NOT PREPARE INFORMATION ABOUT PDEV (000) FOR DISPLAY TO THE USER. (SYSMAPERR 5043)                                                                                                                                                                                                      |
| CAUSE  | This message will always be preceded with another error message indicating why sysmap could not display the information about the device to the user.                                                                                                                                                    |
| ACTION | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                                                                                                                                                             |

**FOR HP INTERNAL USE ONLY**

|             |                                                                                                                                                                    |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>5044</b> | <b>*** AN UNEXPECTED ERROR OCCURRED PREVENTING SYSMAP FROM DISPLAYING THE SYSTEM MODULE MAP. (SYSMAPERR 5044)</b>                                                  |
| CAUSE       | This occurs when a call to OBTAIN_BUS_MODULES was not successful. For some reason the system file containing system module entries could not be successfully read. |
| ACTION      | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                       |
| <hr/>       |                                                                                                                                                                    |
| <b>5045</b> | <b>*** AN UNEXPECTED ERROR OCCURRED PREVENTING SYSMAP FROM DISPLAYING THE SYSTEM CPUMAP. (SYSMAPERR 5045)</b>                                                      |
| CAUSE       | This occurs when a call to OBTAIN_CPU_MODULE was not successful. For some reason the system file containing system module entries could not be successfully read.  |
| ACTION      | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                       |
| <hr/>       |                                                                                                                                                                    |
| <b>5046</b> | <b>*** AN UNEXPECTED ERROR OCCURRED WHILE ACCESSING MEMORY (SYSMAPERR 5046)</b>                                                                                    |
| CAUSE       | A call to ACCESS_MEM was unsuccessful. This is an interval error that should not normally occur.                                                                   |
| ACTION      | Collect data about problem and submit to STD ONLINE SUPPORT.                                                                                                       |
| <hr/>       |                                                                                                                                                                    |







## Contents

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**FOR HP INTERNAL USE ONLY**

**EXIT command**

Exits the TERMDSM program and returns you to the DUI prompt.

Security level: 2.

**Syntax:**

`EXIT[ ]`

## FOR HP INTERNAL USE ONLY

### HELP

Lists information regarding TERMDISM and its commands.

Security level: 2.

#### Syntax:

H[ELP]

TERMDISM is a utility providing various terminal oriented functions to Customers and HP Service representatives. It is provided to help investigate and recover from problems associated with the HP DTS, Distributed Terminal Subsystem. The DTS is made up of one or more DTCs (Distributed Terminal Controllers), which are units providing terminal connections on one end, and are connected on the other to an HP mainframe via an IEEE 802.3 Local Area Network (LAN) connection. In addition to the DTCs, the subsystem includes the software from the mainframe downloaded to the DTC, and software in the mainframe itself.

One of the functions of TERMDISM is "Dump". This function allows the user to dump the mainframe and DTC software associated with one terminal ("port") on the DTC, or the entire DTC. The dump is written to disc.

TERMDISM may also be used to reset one port, a set of ports on the DTC (one SIC), or the entire DTC, and in each case the associated mainframe software.

TERMDISM may be used to obtain status information from the DTC, either for a particular port, or the entire DTC.

TERMDISM may be used to run hardware diagnostics on a particular port, or the entire DTC. These diagnostics also exercise the LAN between the DTC and mainframe, but are not a LAN diagnostic. Please use the LAN diagnostic for this purpose.

Finally, TERMDISM will provide the user with a list of the DTCs configured on that mainframe, their LAN address, and the user-specified name.

Some commands need you to type in the ldev, port, SIC (Serial Interface Card- a set of ports), or DTC number.

Ldevs are one number ("200" for example).

DTCs are also one number ("2"). For a list of all DTCs on this system, enter DTC in response to the main prompt.

SICs are identified by two numbers, the DTC number first, then the number of the SIC within that DTC. For example, "2,3" means DTC number 2, and SIC number 3 in that DTC.

SICs are numbered from 0, and SIC 0 is in the bottom of the DTC.

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Ports are identified with three numbers: the DTC, the SIC within the DTC that has that port, and the port number on that SIC. For example, "4,3,7" means DTC number 4, SIC number three and port 7 on that SIC.

Ports are numbered from 0, and as you face the BACK, port 0 is leftmost. Each prompt asks you for the particular entity (ldev, DTC, SIC, or port), and reminds you of how many parameters are necessary.

For example, the Reset prompt is:

(reset)

Ldev #  
Port #,#,#  
Sic #,# (multiplexer card in DTC)  
Dtc #

To specify ldev 200, enter "L 200".

To specify port 4 of SIC 3 of DTC 1, say "PO 1,3,4"; DTC, then  
SIC, and finally port.

To specify SIC 2 on DTC 1, say "SI 1,2".

To specify DTC 2, say "DT 2".

Not all commands have all choices. For example, the Status command only has port or DTC. As in all cases, the prompt reminds you which choices are available and how many parameters are necessary for that choice.

Reset and dump commands for a particular port or ldev act upon the ldev and its associated port, regardless of whether the "port" or "ldev" was specified. It is not necessary to specify both an ldev and its port; one or the other is sufficient.

Likewise, reset SIC resets all ldevs associated with that SIC, and reset/dump of a DTC resets all ldevs on that DTC.

After the above information is displayed, the major prompt will be printed and you may enter another TERMDSM command.

## FOR HP INTERNAL USE ONLY

### RESET

To clear hardware and software associated with a logical device number, physical port, serial interface card, or DTC so that a new session or job may be started on each port.

Security level: 0 for DTC; 1 for remaining functions.

#### Syntax:

R[ESET]

#### Output:

After the Reset command is entered, the following prompt is printed on your terminal screen:

```
(reset)

Ldev #
P0rt #,#,#
Sic #,# (multiplexer card in DTC)
DTC #

(carriage return to exit) ?
```

These are the subcommands that may then be entered. The following pages describe each of these options.

If you enter (Return) instead of one of the subcommands, you will be returned to the major prompt and may then enter another TERMDSM command.

Some port/ldev problems may not be fixed with ldev or port resets. If a port is still unusable after a reset, consider using reset SIC. Note that this will affect all users (up to 8) on that card. Finally, if the SIC reset is also unsuccessful, then the entire DTC should be reset. Note that this will affect all the users on the DTC (up to 48).

**Logical Device Number**

Clears the software associated with a particular logical device number (and its associated port) so that the associated device may be used again.

Security level: 1.

**Syntax:**

L[DEV] ldevnum

**Parameter:**

*ldevnum*                    The logical device number associated with the connection you want to reset.

This subcommand also resets the port associated with this ldev. Also, any session or job running on the device is aborted.

When it is complete, the reset prompt will be displayed and you may then enter another reset subcommand.

**Example:**

```
(reset)

Ldev #
POrt #,#,#
SIc #,# (multiplexer card in DTC)
DTc #

(carriage return to exit) ?l 41

(reset)

Ldev #
POrt #,#,#
SIc #,# (multiplexer card in DTC)
DTc #

(carriage return to exit) ?
```

In the above example, any information associated with the ldev 41 is reset. This includes the physical port (resetting the physical port is not required). Any associated session is aborted.



## FOR HP INTERNAL USE ONLY

### Port

Clears the software associated with a particular port and its associated ldev so that the associated device may be used again.

Security level: 1.

#### Syntax:

```
PO[RT] dtcnum,cardnum,portnum
```

#### Parameters:

|                |                                                                                                                                                                                                                           |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>dtcnum</i>  | The number TERMDASM associates with a particular DTC. The DTC command lists each DTC with its assigned number. This list is also printed when you make a mistake while typing in a DTC number.                            |
| <i>cardnum</i> | Number of the interface card within the DTC to which the device is connected. The cards are numbered from zero beginning at the bottom of the DTC.<br><br>Range: 0 - 5                                                    |
| <i>portnum</i> | Number of the port on the interface card. As you face the back of the DTC, the ports are numbered from zero beginning at the left of the board.<br><br>Range: 0 - 7 for direct connections<br>0 - 5 for modem connections |

This subcommand resets the ldev that is currently associated with the port. It also aborts any session or job that is running on the port.

When it is complete, the reset prompt will be displayed and you may then enter another reset subcommand.

#### Example:

```
(reset)

Ldev #
P0rt #,#,#
S1c #,# (multiplexer card in DTC)
DTc #

(carriage return to exit) ?PO 2,3,1
```

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(reset)

Ldev #  
Port #,#,#  
Sic #,# (multiplexer card in DTC)  
DTc #

(carriage return to exit) ?

The Port subcommand above resets the port with the physical address DTC 2, card 3, port 1. (Remember that ports and cards are numbered starting with zero.) The associated ldev is also reset (explicitly resetting the Ldev is not required). Any associated job or session is aborted.

## FOR HP INTERNAL USE ONLY

### SIC

Resets all ports of a specific Serial Interface Card in a specific DTC and the associated ldevs.

Security level: 1.

#### Syntax:

SI[C] dtcnum,cardnum

#### Parameters:

**dtcnum** Number of the DTC to which the device is connected. This is the number TERMDSM associates with this DTC.

**cardnum** Number of the interface card within the DTC to which the device is connected. The cards are numbered from zero beginning at the bottom of the DTC.

Range: 0 - 5.

When the subcommand is entered, all ports of the card are reset. When the reset completes, the following will be displayed:

| SIC | SIC type | SIC selftest status | Ports (Good or x:bad) |
|-----|----------|---------------------|-----------------------|
| --- | -----    | -----               | -----                 |
| n   | type     | status              | pppp pppp             |

Where:

**n** Number of the interface card within the DTC.

**type=** The type of card in the slot. These are the possible values and their meanings:

|                 |                              |
|-----------------|------------------------------|
| RS-232 Direct   | RS-232-C direct-connect card |
| RS-232 Modem    | modem card                   |
| RS-422 Direct   | RS-422 direct-connect card   |
| (not installed) | no card in the slot          |

**status** The results of the card selftest. These are the possible values and their meanings:

|                    |                                                         |
|--------------------|---------------------------------------------------------|
| OK                 | selftest passed                                         |
| MAIN CIRCUITRY BAD | card hardware failure                                   |
| ROM CRC BAD        | ROM CRC hardware error                                  |
| ALL PORTS BAD      | failure on all ports                                    |
| PORT 0 BAD         | failure on port zero (other ports may also have failed) |
| SOME PORTS BAD     | failure on more than                                    |

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one port but not all  
(port zero okay)

pppp pppp=

The number of ports on the card is shown by the number of characters in this string. Six characters represents a modem card. Eight characters represents a direct connect card. A G means the port is good; an x means that the port is bad.

The reset prompt will then be displayed and you may enter another reset subcommand.

This subcommand should also be used when resets of a particular port on an SIC have been unsuccessful. If the reset of the card is also unsuccessful, consider using the DTC subcommand to reset the entire DTC.

Example:

(reset)

Ldev #  
P0rt #, #, #  
Sic #, # (multiplexer card in DTC)  
DTc #

(carriage return to exit) ?si 3,2

| SIC | SIC type     | SIC selftest status | Ports (Good or x:bad) |
|-----|--------------|---------------------|-----------------------|
| 2   | RS-232 Modem | OK                  | GGGG GG               |

(reset)

Ldev #  
P0rt #, #, #  
Sic #, # (multiplexer card in DTC)  
DTc #

(carriage return to exit) ?

The SIC subcommand above resets all ports on the third card of DTC number three. (Remember that cards are numbered starting with zero.) The selftest of the card (a modem card) passed.

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### DTC

Resets the hardware of a particular DTC.

Security level: 0.

#### Syntax:

DT[C] dtcnum

#### Parameter:

**dtcnum**                      The DTC number TERMDSM associates with a particular DTC. The DTC command lists each DTC with its assigned number.  
  
Range: 1 - *n* , where *n* is the total number of DTCs configured on your system.

#### Output:

After entering the DTC subcommand, the following is printed on your terminal screen:

```
Warning: This will reset all users on that DTC. As many as
48 terminal users could be affected. (TDSM 44)
Do you want to continue (yes/no)?
```

If you answer no to this question, you will be returned to the reset prompt. If you answer yes, the reset continues and the following messages are displayed:

```
The reset operation can take as long as 7 minutes.
```

```
The reset operation causes a DTC selftest to occur.
```

The DTC subcommand causes a complete DTC selftest to be run. This selftest includes the selftests for each of the interface cards within the DTC. All jobs or sessions that are running on devices connected to the DTC are aborted.

---

#### Note



The Reset DTC subcommand is functionally identical to one Selftest DTC subcommand of the TERMDSM DIAG command. The inclusion of both commands is for your convenience.

---

If the selftest completes successfully, the results of each of the card selftests will be displayed. Refer to the SIC subcommand for the explanation of these results.

The DTC software is then downloaded to the DTC so that users may again use devices connected to the DTC. If you are running TERMDSM at the system console, you will receive informational messages relating to this download.

You will then be returned to the reset prompt and may enter another reset subcommand.

# FOR HP INTERNAL USE ONLY

Example:

(reset)

Ldev #  
P0rt #, #, #  
S1c #, # (multiplexer card in DTC)  
DTc #

(carriage return to exit) ?DT 2

Warning: This will reset all users on that DTC. As many as 48 terminal users could be affected. (TDSM 44) Do you want to continue (yes/no)? Y  
The reset operation can take as long as 7 minutes.  
The reset operation causes a DTC selftest to occur.

| SIC | SIC type        | SIC selftest status | Ports (Good or x:bad) |
|-----|-----------------|---------------------|-----------------------|
| 5   | (not installed) |                     |                       |
| 4   | (not installed) |                     |                       |
| 3   | (not installed) |                     |                       |
| 2   | RS-232 Direct   | OK                  | GGGG GGGG             |
| 1   | RS-232 Direct   | OK                  | GGGG GGGG             |
| 0   | RS-232 Modem    | OK                  | GGGG GG               |

(reset)

Ldev #  
P0rt #, #, #  
S1c #, # (multiplexer card in DTC)  
DTc #

(carriage return to exit) ?

In the above example, DTC number two is reset. The results of the card selftests show that there are three cards in the DTC (in the first three slots) and each of the three passes its selftest. The first and second cards are RS-232-C direct-connect cards and card number 2 is a modem card. Refer to the SIC subcommand for information on how to interpret the results of the card selftest.

## STATUS

Obtains information about DTC or port configuration and the state of the DTC or port.

Security level: 2.

### Syntax:

ST[ATUS]

### Output:

After the Status command is entered, the following prompt is printed on your terminal screen:

(status)

DTC #

Port #, #, #

(carriage return to exit) ?

These are the subcommands that can then be entered. The following pages describe these two options. Neither of the Status subcommands affect the operation of the system, DTCs, or ports.

If you enter Return instead of one of the subcommands, you will be returned to the major prompt and then may enter another TERMDSM command.

## FOR HP INTERNAL USE ONLY

### DTC

Obtains configuration and status information about a particular DTC.

Security level: 2.

#### Syntax:

DT[C] dtcnum

#### Parameter:

*dtcnum* This is the number TERMDSM associates with a particular DTC. The DTC command lists each DTC with its assigned number. This is also printed when you make a mistake while typing in a DTC number.

When this subcommand is entered, a large amount of information related to the DTC is printed on your terminal screen.

#### Example:

(status)

DTC #

Port #, #, #

(carriage return to exit) ?DT 1

Machine Type = HP2345

DTC Node Name = DTC888888888888

NOVRAM Value :

= 00.00

Nodal address = 88-88-88-88-88-88

Boot Multicast address = 09-00-09-00-00-04  
00-46

Host Node Address = 08-00-09-00-03-01

DTC Lan Multicast Addresses :

Probe Primary = 00-00-00-00-00-00

Probe Secondary = 00-00-00-00-00-00

LAN Analyst = 00-00-00-00-00-00



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| SIC | SIC type        | SIC selftest status | Ports (Good or x:bad) |
|-----|-----------------|---------------------|-----------------------|
| 5   | (not installed) |                     |                       |
| 4   | (not installed) |                     |                       |
| 3   | (not installed) |                     |                       |
| 2   | RS-232 Direct   | OK                  | GGGG GGGG             |
| 1   | RS-422 Direct   | OK                  | GGGG GGGG             |
| 0   | RS-232 Modem    | OK                  | GGGG GG               |

## Version Numbers :

Managment Version = X.00.01.004  
 Lan Version = X.00.02.004  
 AFCP Version = X.00.03.004  
 ADCP Version = X.00.04.004  
 CPU ROM Version = A.00.01.16  
 SIC 1 ROM Version = A.00.01.16  
 SIC 2 ROM Version = A.00.01.16  
 SIC 3 ROM Version = A.00.01.16  
 SIC 4 ROM Version = A.00.01.16  
 SIC 5 ROM Version = A.00.01.16  
 SIC 6 ROM Version = A.00.01.16

Enabled Severities = \$07F3

Severity : 2      Logged = 1      Lost = 0

Events Not Acked = 0  
 Event Total Retries = 0  
 MGR Pending MGR Requests = 1  
 MGR Pending Port Dumps = 0  
 MGR Cant Get Message = 0  
 MGR Unknown MP request = 0  
 MGR MP error Responses = 0  
 MGR Port Mux Busy = 0  
 RMP Total Retries = 0

## AFCP counters :

Active Connections = 4

## Receive Packets :

Data Packets = 115778  
 Acknowledgments = 256  
 Negative Acknowledgments = 0  
 Duplicate = 0  
 Out of Order = 0  
 Status Requests = 559

m 160

## Transmit Packets :

Data Packets = 113589  
 Acknowledgments = 2760

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Negative Acknowledgments = 0  
 Retransmit = 0  
 Window Probe = 0

LAN counters :

Receive :  
 All Frames = 0  
 To My Addr Frames = 0  
 CRC Errors = 0  
 No Resources = 0  
 Missed = 0

Transmit :  
 Total Sent = 116616  
 One Collision = 36  
 More Collisions = 23  
 Too Many Collisions = 0  
 Lost Carrier = 0  
 No Heart Beat = 0  
 No Ring Space = 0  
 Deferred = 1199  
 Late Collision = 0

Event Index 2

Reporting Task = AFCP  
 Severity = 2  
 Procedure Number = 0  
 Report Time = 450  
 Connection = 1

Event = 1536



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Where:

|                                    |                                                                                                                                                                                                                                                       |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Machine Type</b>                | The HP product number of the DTC.                                                                                                                                                                                                                     |
| <b>DTC Node Name</b>               | The user-assigned node name of the DTC.                                                                                                                                                                                                               |
| <b>NOVRAM Value</b>                | A code that indicates location of Nodal address and Boot Multicast address within DTC RAM.                                                                                                                                                            |
| <b>Nodal address</b>               | 802.3 station address of the DTC.                                                                                                                                                                                                                     |
| <b>Boot Multicast address</b>      | 802.3 multicast address which DTC uses when requesting its code file.                                                                                                                                                                                 |
| <b>Host Node Address</b>           | 802.3 address of MPE/XL system that downloaded the DTC.                                                                                                                                                                                               |
| <b>DTC Lan Multicast Addresses</b> | These fields will be used by DTC diagnostics in future releases.                                                                                                                                                                                      |
| <b>Selftest status readout</b>     | Provides results of most recent DTC selftest. The first two columns list and identify SIC cards. The next two columns show status of the SICs. For details on the DTC selftest readout, refer to the description of the DIAG Selftest DTC subcommand. |
| <b>Version Numbers</b>             | The version numbers of hardware and software modules on the DTC.                                                                                                                                                                                      |

The remaining fields provide a detailed record of DTC events. They tell what events are being logged (by MPE XL) and list event frequencies. This information can be used by HP support representatives for detailed diagnosis of DTC problems.

### Port

Obtains status information about a particular port.

Security level: 2.

### Syntax:

PO[RT] dtcnum,cardnum,portnum

### Parameters:

*dtcnum* The DTC number TERMDSM associates with a particular DTC. The DTC command lists each DTC with its assigned number.

Range: 1 - *n*, where *n* is the total number of DTCs configured on your system.

When this subcommand is entered, a large amount of information related to the port is printed on your terminal screen.

### Example:

(status)

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Port #, #, #

(carriage return to exit) ?PO 1,1,7

Revision Number :

Hardware = \$0000

Software = \$5025

Current Host Name = default Current Host Name = default

Port Type = RS-422 Direct

Connection State = Undefined

DIODAM State :

Idle

Driver State :

Normal

Maximum Read Length = 255

Current Write Length = 0

Number of Bytes Transferred From the SIC to the CPU = 0

SIC State :

Read Pending

Number of User Characters Received by SIC = 0

Last Special Character Received by SIC = \$00

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Modem State :

|                          |                          |
|--------------------------|--------------------------|
| Clear to Send = ON       | Request to Send = ON     |
| Data Set Ready = ON      | Data Terminal Ready = ON |
| Ring Indicator = OFF     | Data Rate Select = ON    |
| Data Carrier Detect = ON |                          |

|                       |                   |
|-----------------------|-------------------|
| Disconnect Timer = 50 | Open Timer = 1200 |
| DCD Timer = 300       | DCD Counter = 50  |

|                                |                                  |
|--------------------------------|----------------------------------|
| Backspace = \$08               | Line Delete = \$18               |
| EOR Character = \$0D           | Subsystem Break Character = \$19 |
| Alternate EOR Character = \$0A | Read Trigger Character = \$11    |
| Block Mode Signal Car. = \$12  |                                  |

|                                   |                          |
|-----------------------------------|--------------------------|
| Baud Rate = 9600bps               |                          |
| Parity = NONE ignore parity error |                          |
| Flow Control Timer = 0            | Read Limit Timeout = 200 |

Read Option:

|                          |                       |
|--------------------------|-----------------------|
| Send CRLF = ON           | 3000Edit Mode = ON    |
| Echo Mode = ON           | VPlus Block Mode = ON |
| Block Mode = ON          |                       |
| Read Trigger Option = ON |                       |

Device Handshake Option :

|                          |                      |
|--------------------------|----------------------|
| Binary Mode = OFF        | Echo !!!CR LF = ON   |
| Host XON/XOFF = ON       | Device XON/XOFF = ON |
| Enable Flow Control = ON |                      |

Asynchronous Event:

|                            |                       |
|----------------------------|-----------------------|
| Flow Control Timeout = OFF | Subsystem Break = OFF |
| Break = OFF                |                       |

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Where:

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Revision Number</b>   | Provides version number of SIC hardware and software.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Current Host Name</b> | If a connection is active, and it was initiated by the terminal, then this is the name of the host to which the port is connected. Otherwise, this field is blank.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Port Type</b>         | <p>The type of DTC connector card attached to the port. Possible values are:</p> <p>RS-232-C Direct<br/>RS-422 Direct<br/>Modem</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Connection State</b>  | <p>The status of the connection between the port and the MPE XL system. Possible values are:</p> <p><b>Disconnected</b>—Port is not in use; no MPE XL session is active on this port.</p> <p><b>Connect from AFCP Pending</b>—MPE XL has requested and is awaiting a connection to this port.</p> <p><b>Connect from DIODAM Pending</b> —Device has requested and is awaiting a connection to the MPE XL.</p> <p><b>Connected</b> —The port is connected to an MPE XL system.</p> <p><b>Disconnect from AFCP Pending</b> —MPE XL has requested and is awaiting disconnection from the port.</p> <p><b>Disconnect from DIODAM Pending</b> —Device has requested and is awaiting disconnection from MPE XL.</p> <p><b>Bad</b> —The port has failed its selftest, or this is a non-existent port on the SIC.</p> |

## Error Messages

The following is a list of error messages which may appear when using TERMDSM. Other error messages may occur which do not have the TDSM# trailer; these messages are generated by the Online Diagnostic Subsystem or the operating system. Consult the DUI section of this manual and the operating system manuals for these errors.

|        |                                                                                                                                                                     |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15     | You have entered an unknown or incorrect command. Please try again (TDSM 15)                                                                                        |
| CAUSE  | You have entered something that is not a TERMDSM command or a command that is not valid in this context.                                                            |
| ACTION | Commands that are valid at this time are listed in the prompt. Please try again. Type "HELP or refer to chapter 4 for more information.                             |
| 16     | TERMDSM has compiled without \$partial eval\$ in effect. It cannot continue. This problem must be fixed at the factory. (TDSM 16)                                   |
| CAUSE  | Internal error.                                                                                                                                                     |
| ACTION | Contact your HP support representative.                                                                                                                             |
| 17     | Your security level (3) is too low to use TERMDSM. Please log on with level 0, 1, or 2 security. (TDSM 17)                                                          |
| CAUSE  | For level 0, you need SM or DI capability.                                                                                                                          |
| ACTION | For Level 1, you need SM or DI or OP capability.                                                                                                                    |
| CAUSE  | For Level 2, you need SM or DI or OP or AM capability.                                                                                                              |
| ACTION | You do not have the correct user capabilities to use TERMDSM.                                                                                                       |
| ACTION | Logon as a user with the correct capabilities for the TERMDSM functions you wish to use. Refer to chapter 4 for the security levels of each command and subcommand. |
| 18     | You have entered a bad port number. Port numbers range from 0 to 7. (TDSM 18)                                                                                       |
| CAUSE  | The value you entered is not a number between 0 and 7.                                                                                                              |
| ACTION | Try again. Check the port number on the back of the DTC if necessary. (Note that modem ports range from 0 to 5 instead of 0 to 7.)                                  |
| 19     | The port number is missing or invalid. Port numbers range from 0 to 7. (TDSM 19)                                                                                    |
| CAUSE  | The port number was not entered or is unrecognizable.                                                                                                               |
| ACTION | Try again. Refer to the prompt or chapter 4 for syntax.                                                                                                             |
| 20     | You have entered a bad ldev number. Ldev numbers are positive integers. (TDSM 20)                                                                                   |
| CAUSE  | The value that you entered as a logical device number is not a number greater than zero.                                                                            |
| ACTION | Try again. Double check the ldev if necessary. Note that you may also use the port subcommand.                                                                      |

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|        |                                                                                                                                                                                                                                                                               |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 21     | The ldev number is missing or invalid. Ldev numbers are positive integers. (TDSM 21)                                                                                                                                                                                          |
| CAUSE  | The logical device number was not entered or is unrecognizable.                                                                                                                                                                                                               |
| ACTION | Try again. Refer to the prompt or chapter 4 for syntax.                                                                                                                                                                                                                       |
| 22     | You have entered an invalid SIC card number. SIC card numbers range from 0 to 5. (TDSM 22)                                                                                                                                                                                    |
| CAUSE  | The card number that you typed in is not the range 0 to 5.                                                                                                                                                                                                                    |
| ACTION | If you made an error in typing, try again. Otherwise, doublecheck the card numbers by looking at the back of the DTC and try again.                                                                                                                                           |
| 23     | The SIC card number is missing or invalid. SIC card numbers range from 0 to 5. (TDSM 23)                                                                                                                                                                                      |
| CAUSE  | The card number was not entered or is unrecognizable.                                                                                                                                                                                                                         |
| ACTION | Try again. Refer to the prompt or chapter 4 for syntax.                                                                                                                                                                                                                       |
| 24     | You have entered an incorrect DTC number. Please choose a "DTC number" from this list. (TDSM 24)                                                                                                                                                                              |
| CAUSE  | The value entered does not correspond with any DTC on your system.                                                                                                                                                                                                            |
| ACTION | The DTCs on your system will be listed out with their numbers. You will again be allowed to enter one of the numbers.                                                                                                                                                         |
| 25     | The DTC number is missing or invalid. Please choose a "DTC number" from this list. (TDSM 25)                                                                                                                                                                                  |
| CAUSE  | The DTC number was not entered or is unrecognizable.                                                                                                                                                                                                                          |
| ACTION | The DTCs on your system will be listed out with their numbers. Try again. Refer to the prompt for syntax.                                                                                                                                                                     |
| 27     | TERMDSM cannot do the dump because there are already too many dump files. Please purge some. Dump files are of the form TRMnnnaa.PUB.SYS. where nnn is a 3 digit number and aa is 2 alphabetic characters. (TDSM 27)                                                          |
| CAUSE  | The dump files TRMdddAA through TRMdddZZ already exist. (The sequence ddd is the current Julian date.)                                                                                                                                                                        |
| ACTION | Delete some files beginning with the file TRMdddAA since this is probably the oldest file. Note that if all files for this Julian date already exist on your system, there are over 600 dump files for today alone. You may wish to delete the large majority of these files. |



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| <b>32</b>     | <p>Your security level (2) is too low to take dumps. Please log on with Level 1 security to dump ports, or level 0 security to dump ports and DTCs. (TDSM 32)</p> <p>For level 0, you need SM or DI capability.</p> <p>For Level 1, you need SM or DI or OP capability.</p>                                                                                                                                                                                                                                                                               |
| <b>CAUSE</b>  | <p>You do not have the correct user capabilities to use this function of TERMDSM.</p> <p>Your security level (2) is too low to use TERMDSM. Please log on with Online Diagnostic System level 0 or 1 security.</p>                                                                                                                                                                                                                                                                                                                                        |
| <b>ACTION</b> | <p>You do not have the correct user capabilities to use this function of TERMDSM.</p> <p>Your security level (2) is too low to use TERMDSM. Please log on with Online Diagnostic System level 0, 1, or 2 security. Refer to chapter 4 for information on security requirements.</p>                                                                                                                                                                                                                                                                       |
| <b>34</b>     | <p>That ldev does not exist. Please check the ldev number, or dump the associated port instead. (TDSM 34)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>CAUSE</b>  | <p>Although you have entered a number in a range that could make it an ldev, that number is not configured on your system. Only DTC terminals may be referenced. TERMDSM cannot act upon the console or virtual terminals.</p>                                                                                                                                                                                                                                                                                                                            |
| <b>ACTION</b> | <p>Doublecheck the number by using the "SHOWJOB command and try again. You can also dump information associated with the device by using the port subcommand (which uses the physical address instead of the ldev).</p>                                                                                                                                                                                                                                                                                                                                   |
| <b>35</b>     | <p>That DTC is owned by another person running TERMDSM. You may override that user and continue. (WARNING This may have unpredictable results. It's safer to find the other user and exit that TERMDSM. (TDSM 35).</p> <p>Do you want to override the other user (yes or no)?</p>                                                                                                                                                                                                                                                                         |
| <b>CAUSE</b>  | <p>More than one person is using TERMDSM, and users are directing operations to the same DTC at the same time.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>ACTION</b> | <p>It is permissible for two or more users to run TERMDSM simultaneously as long as the users do not reference the same DTC. In this case, message 35 will not appear. If one TERMDSM user chooses to override another by continuing, it is likely that the overridden TERMDSM will produce error messages. This facility is provided primarily for the case where a terminal running TERMDSM is hung and therefore cannot exit TERMDSM. Note that if one TERMDSM user resets the port of another TERMDSM user, this may cause the system to go down.</p> |

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| 36     | No ldevs seem to be configured on your system. (TDSM 36)                                                                                                                                                                                                                                                           |  |
| CAUSE  | Necessary configuration information does not exist on your system.                                                                                                                                                                                                                                                 |  |
| ACTION | Make sure the file NMCONFIG.PUB.SYS exists. Bring the system down and back up again, making sure that the proper SYSGEN files are used. (The SYSGEN files used are determined by the boot path. The file NMCONFIG.PUB.SYS is used automatically.) If the problem persists, contact your HP support representative. |  |
| 37     | The dump process can't find out the length of the data area. (TDSM 37)                                                                                                                                                                                                                                             |  |
| CAUSE  | Internal error.                                                                                                                                                                                                                                                                                                    |  |
| ACTION | Contact your HP support representative.                                                                                                                                                                                                                                                                            |  |
| 38     | The data area is longer than TERMDASM's dump buffer. (TDSM 38)                                                                                                                                                                                                                                                     |  |
| CAUSE  | Internal error.                                                                                                                                                                                                                                                                                                    |  |
| ACTION | Contact your HP support representative.                                                                                                                                                                                                                                                                            |  |
| 39     | TERMDASM never received a reply to its dump data area request. (TDSM 39)                                                                                                                                                                                                                                           |  |
| CAUSE  | Internal error.                                                                                                                                                                                                                                                                                                    |  |
| ACTION | Contact your HP support representative.                                                                                                                                                                                                                                                                            |  |
| 42     | You must have high (0) security to perform this function. (TDSM 42)                                                                                                                                                                                                                                                |  |
| CAUSE  | For level 0, you need SM or DI capability.                                                                                                                                                                                                                                                                         |  |
| ACTION | You do not have the correct user capabilities to use TERMDASM. Logon as a user with the correct capabilities for the TERMDASM functions you wish to use. Refer to chapter 4 for the security levels of each command and subcommand.                                                                                |  |
| 43     | You can't do this from your own DTC. Please run TERMDASM from another DTC or from the console. (TDSM 43)                                                                                                                                                                                                           |  |
| CAUSE  | If you were permitted to selftest, dump or reset the DTC to which you are logged on, your session would be aborted and you would be unable to get the test results.                                                                                                                                                |  |
| ACTION | Move to a terminal on another DTC or the system console to run TERMDASM. If you intended to enter a different number, try again.                                                                                                                                                                                   |  |

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| 44     | Warning this will reset all users on that DTC. As many as 48 terminal users could be affected. (TDSM 44)                                                                                                                             |
| CAUSE  | If you continue, all user sessions on this DTC will be aborted.                                                                                                                                                                      |
| ACTION | If you want to continue, you may wish to alert all users of this DTC that their sessions will be aborted and possibly data lost.                                                                                                     |
| 56     | Your answer must be at least 1 and no more than 65535. (TDSM 56)                                                                                                                                                                     |
| CAUSE  | The value you entered is not in the range 1 through 65535.                                                                                                                                                                           |
| ACTION | Enter a value in the selected range. Diagnostic loop counts are limited to this range.                                                                                                                                               |
| 62     | Use the CCTL option (:FILE LIST;DEV=LP;CCTL) when printing this file. (TDSM 62)                                                                                                                                                      |
| CAUSE  | Informational message.                                                                                                                                                                                                               |
| ACTION | When printing the dump file, use the CCTL option in your print file equation. This will format the printed output in a more organized way. Printed output of dumpfiles will still be acceptable if not printed with the CCTL option. |
| 64     | The following two files make up the DTC dump. Please deliver both to your HP representative. (TDSM 64)                                                                                                                               |
| CAUSE  | Informational message.                                                                                                                                                                                                               |
| ACTION | Document the problem (the reason you took a dump), and deliver it to your HP support representative along with the dump files, preferably on magnetic tape.                                                                          |
| 70     | There are no DTCs configured on your system. (TDSM 70)                                                                                                                                                                               |
| CAUSE  | Necessary configuration information does not exist on your system.                                                                                                                                                                   |
| ACTION | Check the NMCONFIG.PUB.SYS file for proper DTC configuration (using :NMMGR). Bring the system down and back up again. If the problem persists, contact your HP support representative.                                               |
| 71     | There are more DTCs on your system than TERMDSM can reference. Here are the ones TERMDSM can reference. (TDSM 71)                                                                                                                    |
| CAUSE  | You are using more than 32 DTCs on your system. You will not be able to perform any TERMDSM functions on any DTCs that are not listed after this message.                                                                            |
| ACTION | Contact your HP support representative.                                                                                                                                                                                              |

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| 80     | You can't reset your own port or ldev. Please run TERMDASM from a different port or ldev to do this. (TDSM 80)                                                                                                           |  |
| CAUSE  | Doublecheck the numbers that you entered. If you want to reset a port you cannot be logged on to that port; the operation will abort your session.                                                                       |  |
| ACTION | If you made an error on typing, try again. If you want to reset the port you are using, move to another port or the system console to run TERMDASM.                                                                      |  |
| 81     | That ldev is unknown (not configured). Please check the ldev number, or use reset port. (TDSM 81)                                                                                                                        |  |
| CAUSE  | Although you have entered a number in a range that could make it an ldev, that number is not configured on your system. Only DTC terminals may be referenced. TERMDASM cannot act upon the console or virtual terminals. |  |
| ACTION | Doublecheck the number by using the "SHOWJOB command and try again. You can also reset the port by using the port subcommand (which uses the physical address instead of the ldev).                                      |  |
| 82     | You must have high (0) or medium (1) security to do resets, and high (0) security to reset DTCs. (TDSM 82)                                                                                                               |  |
|        | For level 0, you need SM or DI capability.                                                                                                                                                                               |  |
|        | For Level 1, you need SM or DI or OP capability.                                                                                                                                                                         |  |
| CAUSE  | You do not have the correct user capabilities to do this function.                                                                                                                                                       |  |
| ACTION | Logon as a user with the correct capabilities for the TERMDASM functions you wish to use. Refer to chapter 4 for the security level of each command and subcommand.                                                      |  |
| 86     | You must have high (0) or medium (1) security to test ports, and high (0) security to selftest DTCs. (TDSM 86)                                                                                                           |  |
|        | For level 0, you need SM or DI capability.                                                                                                                                                                               |  |
|        | For Level 1, you need SM or DI or OP capability.                                                                                                                                                                         |  |
| CAUSE  | You do not have the correct user capabilities to do this function.                                                                                                                                                       |  |
| ACTION | Logon as a user with the correct capabilities for the TERMDASM functions you wish to use. Refer to chapter 4 for the security level of each command and subcommand.                                                      |  |
| 93     | TERMDASM could not open the DTC manager, so the DTC dump could not be obtained. (TDSM 93)                                                                                                                                |  |
| CAUSE  | Internal error, unless another TERMDASM was being run against that same DTC and you chose not to override the other user. There is no error in this case.                                                                |  |
| ACTION | Contact your HP support representative (if it is an internal error).                                                                                                                                                     |  |

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| 110    | You can't test your own port. Please run TERMDSM from another port. (TDSM 110)                                                                                                                                                                        |
| CAUSE  | Doublecheck the numbers that you entered. If you wish to test a port, you cannot be logged on to that port; the operation will abort your session and you will be unable to obtain the results of the test.                                           |
| ACTION | If you made an error in typing, try again. If you want to test the port to which you are logged on, move to another port or the system console to run TERMDSM.                                                                                        |
| 113    | Please put a loopback hood on the port, before answering the "How many times?" question. (TDSM 113)                                                                                                                                                   |
| CAUSE  | Instruction to set up the right hardware as part of the diagnostic.                                                                                                                                                                                   |
| ACTION | Refer to chapter 4 for complete information on port loopback tests.                                                                                                                                                                                   |
| 114    | Please connect and make ready (power on, remote mode, etc.) a supported terminal, before answering the "How many times?" question. (TDSM 114)                                                                                                         |
| CAUSE  | Instructions to set up the right hardware as part of the diagnostic.                                                                                                                                                                                  |
| ACTION | Refer to chapter 4 for complete information on terminal loopback tests.                                                                                                                                                                               |
| 115    | Please connect and make ready (power on, remote mode, etc.) a supported printer (or terminal), before answering the "How many times?" message. (TDSM 115)                                                                                             |
| CAUSE  | Instructions to set up the right hardware as part of the diagnostic.                                                                                                                                                                                  |
| ACTION | Refer to chapter 4 for complete information on the port test.                                                                                                                                                                                         |
| 121    | Warning: the LDM dump is suspect. Consecutive dumps did not match. (TDSM 121)                                                                                                                                                                         |
| CAUSE  | This message is written to dump files and never appears as an error message to a user terminal. There was activity during the dump process, so part of the dump relating to the Logical Device Manager may be inconsistent with the rest of the dump. |
| ACTION | Submit the dump to your HP support representative anyway.                                                                                                                                                                                             |
| 122    | You can't reset your own SIC. Please run TERMDSM from another SIC or DTC, or from the console. (TDSM 122)                                                                                                                                             |
| CAUSE  | Your own session is on this SIC (serial interface card). If you wish to reset a SIC, you cannot be logged onto that card; the operation will abort your session and you will be unable to obtain the results.                                         |
| ACTION | If you made an error in typing, try again. Otherwise, move to a port on a different DTC or SIC, or to the system console, to run TERMDSM.                                                                                                             |

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| <b>170</b> | The Distributed Terminal Subsystem software does not exist. Please verify that the NMCONFIG.PUB.SYS file is correct and validated, and the system has booted up without errors. This situation prevents TERMDSM from continuing. (TDSM 170) |
| CAUSE      | The NMCONFIG.PUB.SYS file does not exist, or has no DTCs configured.                                                                                                                                                                        |
| ACTION     | Check the NMCONFIG.PUB.SYS file for proper DTC and terminal configurations (using NMMGR), then shutdown and restart the system.                                                                                                             |
| <hr/>      |                                                                                                                                                                                                                                             |
| <b>200</b> | DTC and mainframe software versions are incompatible. (TDSM 200)                                                                                                                                                                            |
| CAUSE      | Incompatibilities were found between subsystem software on the HP3000 and subsystem software on the DTC.                                                                                                                                    |
| ACTION     | Contact your HP support representative to check the DTCM and download file versions with NMMAINT. If this is not the problem, the cause is an internal error.                                                                               |
| <hr/>      |                                                                                                                                                                                                                                             |
| <b>201</b> | Bad message length. (TDSM 201)                                                                                                                                                                                                              |
| CAUSE      | Internal error.                                                                                                                                                                                                                             |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                     |
| <hr/>      |                                                                                                                                                                                                                                             |
| <b>203</b> | Invalid operation. (TDSM 203)                                                                                                                                                                                                               |
| CAUSE      | Internal error.                                                                                                                                                                                                                             |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                     |
| <hr/>      |                                                                                                                                                                                                                                             |
| <b>204</b> | Request not supported. (TDSM 204)                                                                                                                                                                                                           |
| CAUSE      | Internal error.                                                                                                                                                                                                                             |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                     |
| <hr/>      |                                                                                                                                                                                                                                             |
| <b>205</b> | Sub request not supported. (TDSM 205)                                                                                                                                                                                                       |
| CAUSE      | Internal error.                                                                                                                                                                                                                             |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                     |
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| <b>206</b> | <b>Entity not supported. (TDSM 206)</b>                                                                                                                                                                                  |
| CAUSE      | Internal error.                                                                                                                                                                                                          |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                  |
| <hr/>      |                                                                                                                                                                                                                          |
| <b>207</b> | <b>No such entity. (TDSM 207)</b>                                                                                                                                                                                        |
| CAUSE      | Internal error.                                                                                                                                                                                                          |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                  |
| <hr/>      |                                                                                                                                                                                                                          |
| <b>208</b> | <b>No parm for entity. (TDSM 208)</b>                                                                                                                                                                                    |
| CAUSE      | Internal error.                                                                                                                                                                                                          |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                  |
| <hr/>      |                                                                                                                                                                                                                          |
| <b>213</b> | <b>The DTC reported an error or failure. (TDSM 213)</b>                                                                                                                                                                  |
| CAUSE      | Internal error.                                                                                                                                                                                                          |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                  |
| <hr/>      |                                                                                                                                                                                                                          |
| <b>218</b> | <b>End of Record received. Time = xx msec. (TDSM 218)</b>                                                                                                                                                                |
| CAUSE      | Probable hardware failure.                                                                                                                                                                                               |
| ACTION     | Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics. |
| <hr/>      |                                                                                                                                                                                                                          |
| <b>219</b> | <b>Too many characters came back. Time = xx msec. (TDSM 219)</b>                                                                                                                                                         |
| CAUSE      | More characters were returned than were sent. Possibly someone pressed a key on the terminal under test, if this was a terminal loopback. It so, try again. Otherwise, probable hardware failure.                        |
| ACTION     | Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics. |
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| <b>220</b> | <b>Parity error. Time = xx msec. (TDSM 220)</b>                                                                                                                                                                          |
| CAUSE      | Probable hardware failure.                                                                                                                                                                                               |
| ACTION     | Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics. |
| <hr/>      |                                                                                                                                                                                                                          |
| <b>221</b> | <b>Hardware receive overrun. Time = xx msec. (TDSM 221)</b>                                                                                                                                                              |
| CAUSE      | Probable hardware failure.                                                                                                                                                                                               |
| ACTION     | Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics. |
| <hr/>      |                                                                                                                                                                                                                          |
| <b>222</b> | <b>Framing error. Time = xx msec. (TDSM 222)</b>                                                                                                                                                                         |
| CAUSE      | Probable hardware failure.                                                                                                                                                                                               |
| ACTION     | Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics. |
| <hr/>      |                                                                                                                                                                                                                          |
| <b>223</b> | <b>SIC Buffer overflow. Time = xx msec. (TDSM 223)</b>                                                                                                                                                                   |
| CAUSE      | Internal error.                                                                                                                                                                                                          |
| ACTION     | Contact you HP support representative.                                                                                                                                                                                   |
| <hr/>      |                                                                                                                                                                                                                          |
| <b>226</b> | <b>No record separator in Vplus. Time = xx msec. (TDSM 226)</b>                                                                                                                                                          |
| CAUSE      | Probable hardware failure.                                                                                                                                                                                               |
| ACTION     | Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics. |
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| 229 | CAUSE<br>ACTION | <p>Read timeout (no data came back). Time = xx msec. If external loopback, check loopback hood. If terminal loopback, check connections, terminal configuration, etc. (TDSM 229)</p> <p>No or too few characters came back from the loopback.</p> <p>If this is an internal loopback, this indicates hardware problem. Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics. If this is an external loopback, check the loopback hood to be sure it is securely connected and on the correct port. If this does not help, follow the steps in the "internal" case above. If this is a terminal loopback, check that a supported, powered on terminal is securely connected to the proper port. Check baud rate, parity, etc. Note that the terminal configuration must match the configuration file, not the state the terminal was in when it was last used. If this does not help, run internal, then external loopback to discriminate between a DTC problem and a terminal/cabling problem.</p> |
| 230 | CAUSE<br>ACTION | <p>Alternate end-of-record received. Time = xx msec. (TDSM 230)</p> <p>Probable hardware failure.</p> <p>Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 231 | CAUSE<br>ACTION | <p>Subsystem break. Time = xx msec. (TDSM 231)</p> <p>Probable hardware failure.</p> <p>Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 232 | CAUSE<br>ACTION | <p>No modem was connected during the operation. Time = xx msec. (TDSM 232)</p> <p>During the test, the modem on that port disconnected.</p> <p>Reconnect the modem and try again. If the failure continues, or there was no modem in use on that port, there is a probable hardware failure. Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

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| <b>234</b> | <b>Console attention. Time = xx msec. (TDSM 234)</b>                                                                                                                                                                     |
| CAUSE      | Probable hardware failure.                                                                                                                                                                                               |
| ACTION     | Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics. |
| <b>235</b> | <b>Operation aborted. (TDSM 235)</b>                                                                                                                                                                                     |
| CAUSE      | The operation was aborted by the DTC. Possibly, the download file is incorrect.                                                                                                                                          |
| ACTION     | Check the version and integrity of the download file. Contact your HP support representative. You may obtain additional information by running the DTC selftest DTC selftest or the DTC offline diagnostic.              |
| <b>236</b> | <b>End of dump file encountered. (TDSM 236)</b>                                                                                                                                                                          |
| CAUSE      | The end of the DTC upload (dump) file has been encountered when there is still more information to write to it.                                                                                                          |
| ACTION     | Check to see if there is sufficient disc space (approx. 2200 sectors are required). Otherwise, contact your HP support representative.                                                                                   |
| <b>238</b> | <b>Security invalid. (TDSM 238)</b>                                                                                                                                                                                      |
| CAUSE      | Internal error.                                                                                                                                                                                                          |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                  |
| <b>239</b> | <b>Bad packet. (TDSM 239)</b>                                                                                                                                                                                            |
| CAUSE      | Internal error.                                                                                                                                                                                                          |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                  |
| <b>240</b> | <b>During a DTC reset/dump request from the mainframe. (TDSM 240)</b>                                                                                                                                                    |
| CAUSE      | Informational message which may be printed after an error message. It describes which phase of an operation the error occurred.                                                                                          |
| ACTION     | Refer to the cause and action descriptions for the actual error message preceding message 240.                                                                                                                           |

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| <b>241</b> | During the DTC download operation. (TDSM 241)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| CAUSE      | Informational message which may be printed after an error message. It describes which phase of an operation the error occurred.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ACTION     | Refer to the cause and action descriptions for the actual error message preceding message 241.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>242</b> | During a DTC upload (dump) operation. (TDSM 242)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CAUSE      | Informational message which may be printed after an error message. It describes which phase of an operation the error occurred.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ACTION     | Refer to the cause and action descriptions for the actual error message preceding message 242.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>243</b> | Bad parameter from TERMDISM. (TDSM 243)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CAUSE      | Internal error.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>244</b> | Timeout waiting for the DTC to respond. The DTC may be powered off, malfunctioning, or misconfigured. (TDSM 244)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CAUSE      | Your TERMDISM command resulted in an instruction being sent to a DTC, and the DTC did not respond in any way.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ACTION     | Note that the DTC list printed by TERMDISM, when you first run TERMDISM, or response to the "DTC" command, is only a list of DTCs configured, not necessarily a list of installed, powered on, and working DTCs. If the DTC in question was working, and no changes were made to the configuration file, ensure that the DTC is powered on. If so, this error indicates a probable hardware error. Contact your HP support representative. If this is a new installation or DTC, which has never been run before, the above comments may still apply. However, if the configuration is incorrect, a functional DTC may still not respond. Check the configuration file, power to the DTC, connections, etc. If problems persist, contact your HP support representative. This error may also be the result of a LAN problem. If other DTC(s) are working on the same LAN, the problem is probably related to the DTC or its configuration. If there is only one DTC, or other DTCs on the same LAN are unresponsive, then the LAN hardware or software may be at fault. The LAN diagnostic LANDAD can be run to investigate LAN problems. |

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|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>245</b> | <b>Write to IEEE 802.3 DAM failed. (TDSM 245)</b>                                                                                                                                                                                                                      |
| CAUSE      | Internal error.                                                                                                                                                                                                                                                        |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                                                |
| <hr/>      |                                                                                                                                                                                                                                                                        |
| <b>247</b> | <b>Bad Network Management packet received from DTC. (TDSM 247)</b>                                                                                                                                                                                                     |
| CAUSE      | Internal error.                                                                                                                                                                                                                                                        |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                                                |
| <hr/>      |                                                                                                                                                                                                                                                                        |
| <b>248</b> | <b>The DTC requested to be downloaded during the operation. (TDSM 248)</b>                                                                                                                                                                                             |
| CAUSE      | The DTC was trying to power up at the same time you were trying to access it through TERMDSM (or the DTC detected an error).                                                                                                                                           |
| ACTION     | Wait for the download, or upload/download, to complete. (As shown by the console messages.) See then whether the DTC is now operational. If not, try your TERMDSM operation again. If this still does not resolve the problem, contact your HP support representative. |
| <hr/>      |                                                                                                                                                                                                                                                                        |
| <b>249</b> | <b>The DTC requested that it be dumped during the operation. (TDSM 249)</b>                                                                                                                                                                                            |
| CAUSE      | The DTC detected an internal error at the same time you were trying to access it through TERMDSM.                                                                                                                                                                      |
| ACTION     | Wait for the download, or upload/download, to complete. (As shown by the console messages.) Then see whether the DTC is now operational. If not, try your TERMDSM operation again. If this still does not resolve the problem, contact your HP support representative. |
| <hr/>      |                                                                                                                                                                                                                                                                        |
| <b>250</b> | <b>DTC and mainframe software versions are incompatible. (TDSM 250)</b>                                                                                                                                                                                                |
| CAUSE      | Incompatibilities were found between subsystem software on the HP3000 and subsystem software on the DTC.                                                                                                                                                               |
| ACTION     | Contact your HP support representative to check the DTCM and download file versions with NMMMAINT. If this is not the problem, the cause is an internal error.                                                                                                         |
| <hr/>      |                                                                                                                                                                                                                                                                        |
| <b>251</b> | <b>Bad RMP packet received from DTC. (TDSM 251)</b>                                                                                                                                                                                                                    |
| CAUSE      | Internal error.                                                                                                                                                                                                                                                        |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                                                |
| <hr/>      |                                                                                                                                                                                                                                                                        |

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|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 252    | Could not open the download or dump file. (TDSM 252)                                                                                                                                                                                                                       |
| CAUSE  | Files pertaining to this operation cannot be accessed.                                                                                                                                                                                                                     |
| ACTION | If this is a dump, check for sufficient disc space to create the dump file.<br>Approximately 2200 sectors of disc space are required. If enough disc space seems available (or if you were not trying to perform a dump operation) contact your HP support representative. |
| 253    | Unable to get a system timer. (TDSM 253)                                                                                                                                                                                                                                   |
| CAUSE  | Internal error.                                                                                                                                                                                                                                                            |
| ACTION | Contact your HP support representative.                                                                                                                                                                                                                                    |
| 254    | Software bug encountered. (TDSM 254)                                                                                                                                                                                                                                       |
| CAUSE  | Internal error.                                                                                                                                                                                                                                                            |
| ACTION | Contact your HP support representative.                                                                                                                                                                                                                                    |
| 255    | Dump overflow DTC sent more data than expected. (TDSM 255)                                                                                                                                                                                                                 |
| CAUSE  | Internal error.                                                                                                                                                                                                                                                            |
| ACTION | Contact your HP support representative.                                                                                                                                                                                                                                    |
| 256    | MPE/XL create_object failed. (TDSM 256)                                                                                                                                                                                                                                    |
| CAUSE  | Internal error.                                                                                                                                                                                                                                                            |
| ACTION | Contact your HP support representative.                                                                                                                                                                                                                                    |
| 257    | Unknown internal error. (TDSM 257)                                                                                                                                                                                                                                         |
| CAUSE  | Internal error.                                                                                                                                                                                                                                                            |
| ACTION | Contact your HP support representative.                                                                                                                                                                                                                                    |

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|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>258</b>    | <b>Application request timeout occurred . (TDSM 258)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>CAUSE</b>  | Internal error.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>ACTION</b> | This means two users of TERMDSM were directing TERMDSM commands to the same DTC at the same time, and the other TERMDSM user answered "yes" to the override question (see TERMDSM message 35). Other error messages are likely to be printed also, because your operations were interrupted. These error messages should be ignored. There is nothing wrong with multiple users of TERMDSM running at the same time, as long as they do not try to direct commands to the same DTC at the same time. The message and interlock system of message 35 was designed to prevent this conflict. Contact your HP support representative.                                                                        |
| <b>259</b>    | <b>DTC not opened by this TERMDSM. Possibly your TERMDSM was overridden by another TERMDSM. (TDSM 259)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>CAUSE</b>  | Another user of TERMDSM has explicitly overridden your use of TERMDSM. Locate and coordinate users of TERMDSM. This means two users of TERMDSM were directing TERMDSM commands to the same DTC at the same time, and the other TERMDSM user answered "yes" to the override question (see TERMDSM message 35). Other error messages are likely to be printed also, because your operations were interrupted. These error messages should be ignored. There is nothing wrong with multiple users of TERMDSM running at the same time, as long as they do not try to direct commands to the same DTC at the same time. The message and interlock system of message 35 was designed to prevent this conflict. |
| <b>260</b>    | <b>Bad NMP error code received. (TDSM 260)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>CAUSE</b>  | Unknown error reported by the Distributed Terminal Subsystem to TERMDSM.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>ACTION</b> | Contact your HP support representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>261</b>    | <b>Bad RMP error code received. (TDSM 261)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>CAUSE</b>  | Unknown error reported by the Distributed Terminal Subsystem to TERMDSM.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>ACTION</b> | Contact your HP support representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 262    | The DTC subsystem has reported that an error was detected. Here is the specific message. (TDSM 262)                                                                                                                                                                                                                                                                                           |
| CAUSE  | This is the standard message that precedes specific error messages.                                                                                                                                                                                                                                                                                                                           |
| ACTION | Follow the instructions for the error message that follows this message.                                                                                                                                                                                                                                                                                                                      |
| 263    | An error of unknown type was reported by the DTC subsystem. (TDSM 263)                                                                                                                                                                                                                                                                                                                        |
| CAUSE  | An error unknown to TERMDISM was reported by the Distributed Terminal Subsystem.                                                                                                                                                                                                                                                                                                              |
| ACTION | Contact your HP support representative.                                                                                                                                                                                                                                                                                                                                                       |
| 264    | The DTC reported an unknown status as a result of the loopback. Time taken=xx. (TDSM 264)                                                                                                                                                                                                                                                                                                     |
| CAUSE  | An error unknown to TERMDISM was reported by the Distributed Terminal Subsystem.                                                                                                                                                                                                                                                                                                              |
| ACTION | Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics.                                                                                                                                                                      |
| 270    | The port is malfunctioning, or not present on that SIC. Modem SICs have ports 0 through 5, and all other SICs have ports 0 through 7. (TDSM 270)                                                                                                                                                                                                                                              |
| CAUSE  | The DTC has reported that the port in question is bad or does not exist. Note the range of ports in the error message. If you are specifying a port that does not exist, check your information to determine the correct port. For reset and dump, you can specify an Ldev number instead, of the port to do the operation. If the port does exist, a hardware failure has probably occurred. |
| ACTION | Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics.                                                                                                                                                                      |
| 271    | That SIC is malfunctioning, or not installed. TERMDISM can not always tell the difference between "not installed" and a serious malfunction. (TDSM 271)                                                                                                                                                                                                                                       |
| CAUSE  | Possible hardware problem or no card is installed in that slot.                                                                                                                                                                                                                                                                                                                               |
| ACTION | Doublecheck that the SIC number you specified is correct. If it is, it is likely that the SIC is defective. Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDISM RESET command), the DTC selftest, and the DTC offline diagnostics.                                                          |

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|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 272    | The operation was aborted because it was reset. (TDSM 272)                                                                                                                                                                                                                                                                                                           |
| CAUSE  | Another TERMDSM user reset the operation while in progress.                                                                                                                                                                                                                                                                                                          |
| ACTION | See message 246 for a discussion of multiple TERMDSM operations directed against the same DTC. Try your operation again.                                                                                                                                                                                                                                             |
| 273    | The modem on that port disconnected. (TDSM 273)                                                                                                                                                                                                                                                                                                                      |
| CAUSE  | The modem on that port disconnected during the operation.                                                                                                                                                                                                                                                                                                            |
| ACTION | Reconnect the modem and try again. If there was in fact no modem, then this is indicative of an internal problem. Contact you HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDSM RESET command), the DTC selftest, and the DTC offline diagnostics.                            |
| 274    | The DTC reported that an unexpected event occurred. (TDSM 274)                                                                                                                                                                                                                                                                                                       |
| CAUSE  | A user on that terminal may have typed control-y or break (or there is an internal error).                                                                                                                                                                                                                                                                           |
| ACTION | Try the operation again without touching keys on the terminal under test. If no change, an internal error or hardware failure is indicated. Contact your HP support representative. You may obtain additional information by running the card selftest (through the SIC subcommand of the TERMDSM RESET command), the DTC selftest, and the DTC offline diagnostics. |
| 275    | The loopback data is too long. (TDSM 275)                                                                                                                                                                                                                                                                                                                            |
| CAUSE  | Internal error.                                                                                                                                                                                                                                                                                                                                                      |
| ACTION | Contact your HP support representative.                                                                                                                                                                                                                                                                                                                              |
| 280    | Dump failed: Open of DTCM failed, or DTC owned and not overridden (TDSM 280)                                                                                                                                                                                                                                                                                         |
| CAUSE  | This message is written to dump files, and never appears as an error message to a user terminal. If the user was informed the DTC was in use by another TERMDSM (see message 35), and the second user chose "NOT to override, then this message is normal and is not cause for alarm. Otherwise, it is indicative of an internal error.                              |
| ACTION | If the problem persists, take another dump. If you are sure another TERMDSM was not involved, contact your HP support representative.                                                                                                                                                                                                                                |



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|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>281</b> | <b>Dump failed: Send or Receive of dump request failed. (TDSM 281)</b>                                                                                                                                                                                                                                                                                                            |
| CAUSE      | Internal error. This message is written to dump files and never appears as an error message to a user terminal.                                                                                                                                                                                                                                                                   |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                                                                                                                                                           |
| <hr/>      |                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>282</b> | <b>Dump failed: Bad function in reply to dump request. (TDSM 282)</b>                                                                                                                                                                                                                                                                                                             |
| CAUSE      | Internal error. This message is written to dump files and never appears as an error message to a user terminal.                                                                                                                                                                                                                                                                   |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                                                                                                                                                           |
| <hr/>      |                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>283</b> | <b>Dump failed: Bad reply (llio) status from DTCM. (TDSM 283)</b>                                                                                                                                                                                                                                                                                                                 |
| CAUSE      | Internal error. This message is written to dump files and never appears as an error message to a user terminal.                                                                                                                                                                                                                                                                   |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                                                                                                                                                           |
| <hr/>      |                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>290</b> | <b>Sorry, TERMDSM does not provide services for the console. (TDSM 290)</b>                                                                                                                                                                                                                                                                                                       |
| CAUSE      | The user entered the ldev number of the physical console for a reset or dump. TERMDSM cannot act upon the physical console port because it is not on the DTC. Note that the discussion here is for the physical console, not a terminal which has taken control of the logical console via the "CONSOLE command. TERMDSM can only operate on ldevs and ports that are on the DTC. |
| ACTION     | Check the ldev number again. TERMDSM cannot be of help if there is a problem with the physical console. If the physical console has a problem, move the console to another port with the CONSOLE command, or reboot the system. If the problem persists, contact your HP support representative.                                                                                  |
| <hr/>      |                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>300</b> | <b>IPC message received in wrong subqueue. (TDSM 300)</b>                                                                                                                                                                                                                                                                                                                         |
| CAUSE      | Internal error.                                                                                                                                                                                                                                                                                                                                                                   |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                                                                                                                                                           |
| <hr/>      |                                                                                                                                                                                                                                                                                                                                                                                   |

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|------------|------------------------------------------------------------------|
| <b>301</b> | DTCM port data area not initialized. (TDSM 301)                  |
| CAUSE      | Internal error.                                                  |
| ACTION     | Contact your HP support representative.                          |
| <hr/>      |                                                                  |
| <b>302</b> | Bad machine type found in RMP packet. (TDSM 302)                 |
| CAUSE      | Internal error.                                                  |
| ACTION     | Contact your HP support representative.                          |
| <hr/>      |                                                                  |
| <b>303</b> | Non supported download file type found in RMP packet. (TDSM 303) |
| CAUSE      | Internal error.                                                  |
| ACTION     | Contact your HP support representative.                          |
| <hr/>      |                                                                  |
| <b>304</b> | Bad source IEEE 802.3 address found in RMP packet. (TDSM 304)    |
| CAUSE      | Internal error.                                                  |
| ACTION     | Contact your HP support representative.                          |
| <hr/>      |                                                                  |
| <b>305</b> | Bad session ID found in RMP packet. (TDSM 305)                   |
| CAUSE      | Internal error.                                                  |
| ACTION     | Contact your HP support representative.                          |
| <hr/>      |                                                                  |
| <b>306</b> | Bad path_id received from NDM. (TDSM 306)                        |
| CAUSE      | Internal error.                                                  |
| ACTION     | Contact your HP support representative.                          |
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|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>307</b> | Boot (download) complete message received before expected. (TDSM 307)                                                                                                                                 |
| CAUSE      | The DTC has reported that it has finished the download of its operating firmware before the DTCM expects it.                                                                                          |
| ACTION     | Often, this situation will recover by itself. Look on the console for a "boot complete" message. Otherwise, try the operation again. If the problem persists, contact your HP support representative. |
| <b>308</b> | IO-get-frame failed. (TDSM 308)                                                                                                                                                                       |
| CAUSE      | Internal error.                                                                                                                                                                                       |
| ACTION     | Contact your HP support representative.                                                                                                                                                               |
| <b>309</b> | Unimplemented action called. (TDSM 309)                                                                                                                                                               |
| CAUSE      | Internal error.                                                                                                                                                                                       |
| ACTION     | Contact your HP support representative.                                                                                                                                                               |
| <b>310</b> | Bad download file type. (TDSM 310)                                                                                                                                                                    |
| CAUSE      | Possible corrupt download file.                                                                                                                                                                       |
| ACTION     | Contact your HP support representative to check the integrity of the download file.                                                                                                                   |
| <b>311</b> | Bad reply from memory manager for Aux data area. (TDSM 311)                                                                                                                                           |
| CAUSE      | Internal error.                                                                                                                                                                                       |
| ACTION     | Contact your HP support representative.                                                                                                                                                               |
| <b>312</b> | DCC sent bad reply in response to config. data request. (TDSM 312)                                                                                                                                    |
| CAUSE      | Internal error.                                                                                                                                                                                       |
| ACTION     | Contact your IIP support representative.                                                                                                                                                              |

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|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>313</b> | DTC did not request the configuration to be download. (TDSM 313)                                                                                                                                                                                                      |
| CAUSE      | After a download, the DTC did not request its configuration.                                                                                                                                                                                                          |
| ACTION     | Sometimes this situation is self-correcting. Look at the console for a message saying "configuration complete". Otherwise, try the operation again. If the problem persists, contact your HP support representative.                                                  |
| <hr/>      |                                                                                                                                                                                                                                                                       |
| <b>314</b> | DCC did not reply to configuration data request. (TDSM 314)                                                                                                                                                                                                           |
| CAUSE      | Internal error.                                                                                                                                                                                                                                                       |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                                               |
| <hr/>      |                                                                                                                                                                                                                                                                       |
| <b>315</b> | Unexpected RMP packet received. (TDSM 315)                                                                                                                                                                                                                            |
| CAUSE      | Internal error.                                                                                                                                                                                                                                                       |
| ACTION     | Contact your HP support representative.                                                                                                                                                                                                                               |
| <hr/>      |                                                                                                                                                                                                                                                                       |
| <b>316</b> | DTC unexpectedly requested config. information to be downloaded. (TDSM 316)                                                                                                                                                                                           |
| CAUSE      | The DTC requested its configuration information at a time the DTCM did not expect it.                                                                                                                                                                                 |
| ACTION     | Sometimes this situation is self-correcting. Wait and see if the DTC becomes operational; monitor the console for messages saying the configuration is complete. Otherwise, try the operation again. If the problem persists, contact your HP support representative. |
| <hr/>      |                                                                                                                                                                                                                                                                       |





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## **I/O Test Tool**

---

### **Introduction**

The I/O Test Tool (IOTT) is a utility intended for diagnosis of I/O-related problems online from any system terminal. No restriction on terminals exists. This utility runs only with the MPE XL operating system on any HP Precision Architecture RISC computer system. The IOTT provides the user with a means to directly access the I/O system. Numerous commands, instructions, and program statements are available as inputs through I/O Test Tool. The user can also display data that was used for the I/O request. The HELP facility provides users with information on any of the I/O Test Tool inputs and input syntax. Part of this HELP facility can also be accessed through the Diagnostic User Interface (DUI). To access some devices, the user must have sole access to the system; this mode of operation is called Single User Mode (SUM). To initiate SUM, the user must return to the DUI. The IOTT does not have the capability of altering the operating mode of the diagnostic system.

---

### **Defects and Enhancements**

Submit defect reports and enhancement requests concerning this diagnostic through the STARS database referencing product number 30600-10020.

---

## Minimum Configuration

The minimum configuration required to run this utility consists of an HP Precision Architecture RISC computer system up and running on the MPE XL operating system.

---

## Operating Instructions

Before attempting to run the utility, ensure that the user has diagnostic level 0 security as described in the Online Diagnostics Overview under Security.

### RUN Command

To bring up the Online Diagnostic subsystem, enter the following command to the MPE XL system prompt:

**SYSDIAG**

The system responds with the following Diagnostic User Interface prompt:

DUI >

Typing **HELP** causes a summary of the DUI and its commands to be printed. Refer to the DUI chapter of this manual for details.

---

### Note



The device to be tested must be powered up and on line. Device physical locations (pdev) shown in the **RUN** commands are those of the devices on the "typical A1002A" system configuration described in the chapter on DUI. The pdev value entered must be correct for the system being tested.

---

To run the diagnostic, enter:

```
DUI >RUN IOTT
      |
      |  no parameters required to
      |  load test suite
```

## FOR HP INTERNAL USE ONLY

### Test Execution

If the LDEV or PDEV parameter is given, I/O Test Tool will perform a SETDEVICE instruction using the information from the LDEV and PDEV parameter, before prompting for input. The following message will be displayed to indicate that action was taken:

```
Performing SETDEVICE on LDEV = ! , please wait...
Performing SETDEVICE on PDEV = ! , please wait...
```

If the user entered the ERRPAUSE parameter, IOTT will perform an ERRPAUSE ON instruction, before prompting for input. The following message will be displayed to indicate that action was taken:

```
Performing ERRPAUSE ON instruction, please wait...
```

If any of the DUI RUN command parameters are not used, warning messages will be displayed to indicate that these parameters will be ignored.

The diagnostic displays the following header and welcome message:

```
*****
****
****          I/O TEST TOOL          ***
****
****  (C) Copyright Hewlett Packard Co. 1987  ***
****          All Rights Reserved.          ***
****          Version A.01.00                ***
****
**** Warning: Use of this utility by persons other ***
**** than Hewlett-Packard Support Personnel could ***
**** result in software support contract          ***
**** invalidation and loss of data.                ***
****
*****
```

```
Welcome, Today is MON, August 10, 1987 at 12:30 PM
```

```
I/O Test Tool initialization in progress, please wait...
```

Once the IOTT is invoked, the following prompt will be displayed to the user:

```
IOTT >
```

IOTT is now waiting for an input from the user. The three types of inputs available in I/O Test Tool are: commands, instructions, and program statements. The available inputs are listed in this section under command, instruction, program statement summary and descriptions, and predefined I/O requests. In addition selected script examples are listed at the end of this section ahead of the error message listing. To exit IOTT, the user simply types EXIT. Upon termination of the IOTT, the following message will be displayed and control will return to the diagnostic system:

```
IOTT Exiting...
IOTT (PIN #) has just terminated.
DUI >
```

---

## Program Mode

To increase control over the flow of instruction execution, inputs to I/O Test Tool can be presented in program form. Statements (such as GOTO) added to other I/O Test Tool instructions allow repeated execution of a particular sequence. The program can be saved into a disk file for later use.

Although program mode is available, I/O Test Tool is not intended to be used as a language for writing formal diagnostic programs. Rather, it is intended to increase user control capability by providing program statements that direct control to different parts of the program.

A program in I/O Test Tool is a sequence of instructions and program statements, each preceded by an integer line number. The program may be entered by typing each line on the terminal or reading each line from a disk file using the LOAD command. The integer line number, preceding each input, will indicate to the I/O Test Tool that the instruction is part of a program and is not to be executed immediately. In program mode, instructions and program statements will not be executed until the RUN command is issued. For this reason, each input line is stored in the Program Storage Area. Individual input lines can be overwritten by retyping the line. Program editing commands are also available to aid in any modifications that need to be performed on the program stored in the Program Storage Area.

The syntax of each line will be checked as it is entered. If any errors are detected, the line will not be stored in the Program Storage Area. References to line numbers in statements such as GOTO will be checked directly after RUN is entered. If any errors are detected, execution of the program will not begin. If any errors are detected during execution of the stored program, the line number of the statement will be displayed to the user, and the program will continue.

If the user wishes to perform some task after an error is detected during program execution, the PAUSE mode may be entered. PAUSE mode will allow execution of any instruction or command which will not alter the contents of the Program Storage Area. PAUSE mode can be entered in two ways. A PAUSE instruction is available, which will force I/O Test Tool into PAUSE mode when encountered. The second method involves the ERRPAUSE instruction. When ERRPAUSE is enabled, PAUSE mode will be entered whenever an error is encountered during the execution of a program.

---

## Command Summary

I/O Test Tool commands are inputs which are executed immediately after they are received and cannot, except for the LOAD command as described above, be used as part of a program. Commands which alter the contents of the program storage area will not be executed in PAUSE mode. There are four categories of input commands available to the user:

- Control Commands (CC),
- User Program File Commands (UPFC),
- Program Editing Commands (PEC),
- Miscellaneous Commands (MC).

## FOR HP INTERNAL USE ONLY

The following is a list and brief description of commands available in IOTT.

| Command  | Command  |                                                                                                             |
|----------|----------|-------------------------------------------------------------------------------------------------------------|
| Name     | Category | Description                                                                                                 |
| ABORT    | (CC)     | Terminates program currently in PAUSE mode.                                                                 |
| DELETE   | (PEC)    | Deletes the indicated line(s) from the Program Storage Area.                                                |
| EXIT     | (CC)     | Terminates I/O Test Tool and returns control to the Diagnostic User Interface (DUI).                        |
| HELP     | (MC)     | Accesses HELP facility for information about I/O Test Tool and its commands.                                |
| LIST     | (PEC)    | Lists the contents of the Program Storage Area.                                                             |
| LOAD     | (UPFC)   | Reads program statements from the file indicated and stores those statements into the Program Storage Area. |
| MODIFY   | (PEC)    | Allows user to edit one line stored in the Program Storage Area.                                            |
| MOVE     | (PEC)    | Allows the user to move line(s) in the Program Storage Area to another part of the program.                 |
| PURGE    | (UPFC)   | Removes a load file created by an I/O Test Tool.                                                            |
| REDO     | (MC)     | Displays (for command editing) and replays previous command.                                                |
| RENUMBER | (PEC)    | Renumbers the statements in the Program Storage Area.                                                       |
| RESUME   | (CC)     | Resumes processing of a PAUSED program stored in the Program Storage Area.                                  |
| RUN      | (CC)     | Executes the program stored in Program Storage Area.                                                        |
| SAVE     | (UPFC)   | Saves the program stored in the Program Storage Area into a disk file.                                      |
| SHOWFILE | (UPFC)   | Lists all of the files in the diagnostic group and account.                                                 |
| SUSPEND  | (CC)     | Temporarily suspends I/O Test Tool and returns control to the Diagnostic User Interface (DUI).              |

### Control Commands

The following commands are used to control the current execution mode of I/O Test Tool. These include commands for initiating execution of a program stored in the Program Storage Area, as well as resuming or terminating the program after it enters PAUSE mode. There is also a command to temporarily return control to the Diagnostic User Interface, and a command to exit I/O Test Tool.

## FOR HP INTERNAL USE ONLY

### ABORT

The **ABORT** command is used to abort the program stored in the Program Storage Area after the **PAUSE** instruction was encountered. This command is only accessed in **PAUSE** mode. The user may verify that **PAUSE** mode has been entered by the **IOTTPAUSE>** prompt. If the user entered **PAUSE** mode using **ERRPAUSE**, this command terminates **PAUSE** mode.

#### Syntax:

**ABORT**

#### Limitations:

The **ABORT** command will only be accessed in **PAUSE** mode.

#### Example:

```
IOTT>10 print "line 10"
IOTT>20 pause
IOTT>30 print "line 30"
IOTT>run
line 10
PAUSE Statement Encountered on Line Number 20
IOTTPAUSE>abort
```

**EXIT**

The **EXIT** command causes I/O Test Tool to terminate, and returns control to the Diagnostic User Interface. All I/O devices not released by the user are returned to the system. All outstanding unblocked I/O requests are aborted. If any problems are encountered while performing the above tasks, appropriate error messages are displayed to the user before I/O Test Tool terminates. The **EXIT** command is not accepted in **PAUSE** mode, leaving the user to enter the **ABORT** or **RESUME** command to leave **PAUSE** mode before entering the **EXIT** command.

**Syntax:**

**EXIT**

**Limitations:**

The **EXIT** command is not accepted in **PAUSE** mode.

**Example:**

```
IOTT>exit
IOTT Exiting...
IOTT (PIN 100) has just terminated.
DUI >
```



## FOR HP INTERNAL USE ONLY

### RESUME

The **RESUME** command resumes execution of the program stored in the Program Storage Area after the **PAUSE** program statement was encountered. This command is only accessed in **PAUSE** mode. The user is able to verify that **PAUSE** mode has been entered by the **IOTTPAUSE>** prompt. If the user entered **PAUSE** mode through **ERRPAUSE**, this command will terminate **PAUSE** mode.

#### Syntax:

**RESUME**

#### Limitations:

The **RESUME** command is only accessed in **PAUSE** mode.

#### Example:

```
IOTT>10 print "line 10"
IOTT>20 pause
IOTT>30 print "line 30"
IOTT>run
line 10
PAUSE Statement Encountered on Line Number 20
IOTTPAUSE>resume
IOTT>line 30
```

**RUN**

The **RUN** command begins execution of the program stored in the Program Storage Area. The user may optionally specify the number of times the program is to be executed. If no value is given, the program executes once.

After the **RUN** command is issued, the following checks are performed before the program is executed:

- Verify that all lines referenced in the program are present in the Program Storage Area.
- Verify that the DO-LOOP/TO program constructs are nested correctly.
- Verify, for an HP-IB DAP program, that all lines referenced are HP-IB instructions.
- If any DSJ or CASEJUMP instructions are used within the HP-IB DAP program, verify that lines given are forward reference.

If any of the errors described are detected, the user is notified of the error, as well as the line number of the statement, and the program is not executed.

During execution of the program, the user may abort the program by entering a user interrupt (**CTRL** /Y). When an error is detected during the execution of the program, the line number of the statement which produced the error is displayed to the user.

**Syntax:**

**RUN** [*count*]

**Optional Parameters:**

*count*                    Integer value greater than zero. Used to specify number of times operation is to be performed.

**Example:**

```
IOTT>10 print "line 10"
IOTT>20 print "line 20"
IOTT>30 print "line 30"
IOTT>run
line 10
line 20
line 30
IOTT>run 2
line 10 '
line 20
line 30
line 10
line 20
line 30
IOTT>
```

## **SUSPEND**

The **SUSPEND** command allows the user to temporarily suspend I/O Test Tool and return control to the Diagnostic User Interface. At this point, the user may execute any Diagnostic User Interface command. I/O Test Tool can be resumed by entering the Diagnostic User Interface **RESUME** command.

### **Syntax:**

**SUSPEND**

### **Example:**

```
IOTT>suspend
DUI>resume
IOTT>
```

## User Program File Commands

The following commands are available to utilize user program files. These commands give the user the flexibility of saving programs into a disk file for later use.

## FOR HP INTERNAL USE ONLY

### LOAD

The **LOAD** command reads program statements from the file indicated and stores those statements into the Program Storage Area. The Program Storage Area must be cleared before a program can be loaded from a file (use **DELETE ALL**). This prevents the user from accidentally overwriting a program that was to be saved. The syntax of each line is checked as each line is read. If any errors are detected, the user is notified of the error and that line will not be entered into the Program Storage Area. References to line numbers in statements, such as **GOTO**, are checked directly after the **RUN** command is entered. All files given are assumed to reside in the diagnostic group and account. This procedure assumes that the file was created by an I/O Test Tool session. Using the **LOAD** command with any files created differently may result in an error message. The user is also cautioned to inspect the Program Storage Area (use **LIST** command) if a user interrupt (**CTRL** /Y) termination was invoked.

#### Syntax:

**LOAD** {file name}

#### Optional Parameters:

*line number*      An integer value greater than zero but less than 9999. Used to specify program input and line number of program.

#### Limitations:

File must be in diagnostic group and account.

#### Example:

```
IOTT>load example
IOTT>list all
10 print "line 10"
20 print "line 20"
30 print "line 30"
IOTT>
```

## FOR HP INTERNAL USE ONLY

### PURGE

The **PURGE** command allows the user to purge a file created by an I/O Test Tool process. If the user tries to purge other files, an error message is displayed and the file remains untouched.

#### Syntax:

**PURGE** {file name}

#### Optional Parameters:

*line number*     An integer value greater than zero but less than 9999. Used to specify program input and line number of program.

#### Limitations:

File must be in diagnostic group and account.

#### Example:

```
IOTT>showfile example
EXAMPLE
IOTT>purge example
IOTT>showfile example
IOTT>
```

## FOR HP INTERNAL USE ONLY

### SAVE

The **SAVE** command allows the user to save the program stored in the Program Storage Area into a disk file. The parameter given is the file name which is created in the Diagnostic group and account. The file name is limited to 8 alphanumeric characters, and the first character must be an alpha. If the file already exists, the user is asked if the file is to be overwritten. A **YES** answer overwrites the file. The user can only overwrite files which were created by an I/O Test Tool process. If an attempt is made to overwrite any other file, an error message is displayed to the user, and the file is left untouched. Once the program has been saved, the number of lines written to the file is displayed.

#### Syntax:

**SAVE** {file name}

#### Optional Parameters:

*line number*      An integer value greater than zero but less than 9999. Used to specify program input and line number of program.

#### Limitations:

The file will be created and saved in the diagnostic group and account.

#### Example:

```
IOTT>10 print "line 10"
IOTT>20 print "line 20"
IOTT>30 print "line 30"
IOTT>save example
Purge Old File (YES/NO)? yes
3 Lines Were Saved In File example
IOTT>
```

## SHOWFILE

The **SHOWFILE** command displays all the files within the diagnostic group and account. The parameter for this command is a file specifier string, which can be a maximum of 8 characters. A wild card character of "@" can be used also. If a file specifier is not given by the user, all the files within the diagnostic group and account are displayed. This is the equivalent of a **SHOWFILE \*** command.

### Syntax:

**SHOWFILE** [file specifier string]

### Limitations:

File must be in diagnostic group and account.

### Example:

```
IOTT>showfile ex@
```

EXAMPLE

```
IOTT>
```



---

## Program Editing Commands

The following commands can be used to manipulate the contents of the Program Storage Area. Entering a program from the terminal requires that all program statements be preceded with an integer line number. This indicates to I/O Test Tool that the input is part of a program. Individual program lines can be overwritten by re-entering the line.

## FOR HP INTERNAL USE ONLY

### DELETE

The **DELETE** command deletes the indicated line(s) from the Program Storage Area. The parameter given indicates the line number of the statement to be deleted, or a range of statements to be deleted. For the range of statements to be deleted, the starting line given must be present in the Program Storage Area. All lines are displayed to the user as they are deleted. **DELETE ALL** clears the Program Storage Area, and in this case, the lines deleted are not be displayed.

#### Syntax:

```
DELETE {line number}
DELETE {line number}/{line number}
DELETE ALL
```

#### Optional Parameters:

*line number* An integer value greater than zero but less than 9999. Used to specify program input and line number of program.

#### Example:

```
IOTT>10 print "line 10"
IOTT>20 print "line 20"
IOTT>30 print "line 30"
IOTT>40 print "line 40"
IOTT>delete 20/30
20 print "line 20"
30 print "line 30"
IOTT>list all
10 print "line 10"
40 print "line 40"
IOTT>
```



**LIST**

The **LIST** command displays the contents of the Program Storage Area. The user specifies statements to be displayed by giving a line number or a range of line numbers. The user may also use the reserved word **ALL** to display the entire Program Storage Area and terminate the listing of the Program Storage Area by entering a user interrupt (**CTRL**) /Y.

**Syntax:**

```
LIST {line number}  
LIST {line number}/{line number}  
LIST ALL
```

**Optional Parameters:**

*line number*     An integer value greater than zero but less than 9999. Used to specify program input and line number of program.

**Example:**

```
IOTT>10 print "line 10"  
IOTT>20 print "line 20"  
IOTT>30 print "line 30"  
IOTT>list 10  
10 print "line 10"  
IOTT>list all  
10 print "line 10"  
20 print "line 20"  
30 print "line 30"  
IOTT>
```

**MODIFY**

The **MODIFY** command allows the user to modify one line stored within the Program Storage Area. This command deletes the indicated statement from the Program Storage Area, and permits the user to edit the statement before reinserting it into the Program Storage Area. This line editing process is similar in format to the **REDO** command. Please refer to the **REDO** command for editing characters used to modify the text. If the syntax of the resulting statement is not correct, an error message is displayed and the line will not be reinserted into the Program Storage Area.

**Syntax:**

**MODIFY** {line number}

**Optional Parameters:**

*line number*     An integer value greater than zero but less than 9999. Used to specify program input and line number of program.

**Example:**

```
IOTT>10 print "line to"
IOTT>modify 10
  > 10 print "line to"
  >
  > 10 print "line 10"
  >
IOTT>10 print "line 10"
IOTT>list all
10 print "line 10"
IOTT>
```

## FOR HP INTERNAL USE ONLY

### MOVE

The **MOVE** command allows the user to move line(s) in the Program Storage Area to another location of the program. The first parameter is the existing line number, or a range of line numbers for the statements to be moved. The parameter after the reserved word "TO" is the new line number, indicating where the statements are to be moved. For the range of line numbers, the starting line number must exist. If the new line number already exists, the move will not be performed. If there is not enough room at the destination, an error message is displayed and the move is not performed. In this case, the user must renumber the program and then try the move again.

#### Syntax:

```
MOVE {line number}/{line number} TO {line number}
MOVE {line number} TO {line number}
```

#### Optional Parameters:

*line number*     An integer value greater than zero but less than 9999. Used to specify program input and line number of program.

#### Example:

```
IOTT>10 print "line 10"
IOTT>20 print "line 20"
IOTT>30 print "line 30"
IOTT>40 print "line 40"
IOTT>50 print "line 50"
IOTT>move 30/40 to 15
IOTT>list all
10 print "line 10"
15 print "line 30"
16 print "line 40"
20 print "line 20"
50 print "line 50"
IOTT>
```

**RENUMBER**

The **RENUMBER** command allows the user to renumber the statements within the Program Storage Area. The optional parameter indicates the value by which the renumbering is performed. This value must be greater than zero. All references to line numbers are adjusted (i.e., **GOTO 30**). The maximum line number is 9999. If no value is given, the program stored in the Program Storage Area is renumbered by increments of 10.

**Syntax:**

**RENUMBER** [value]

**Optional Parameters:**

*value*                    An integer value used to specify a data value. This value can be preceded by a base identifier (\$=HEX, %=OCT, #=DEC).

**Example:**

```
IOTT>10 print "line 10"
IOTT>20 print "line 20"
IOTT>30 print "line 30"
IOTT>40 print "line 40"
IOTT>renumber 1000
IOTT>list all
1000 print "line 10"
2000 print "line 20"
3000 print "line 30"
4000 print "line 40"
IOTT>
```

### **Miscellaneous Commands**

The following commands are provided for the user to make I/O Test Tool easier to use.

**HELP**

The **HELP** command displays information from the I/O Test Tool help facility. By entering **HELP** alone with no parameters, the user accesses the general help facility. This is the same help facility which can be displayed at the Diagnostic User Interface level, but within I/O Test Tool, an additional message appears to request if the user wishes information on any of the following:

- Summary of I/O Test Tool Commands.
- Brief list of I/O Test Tool Commands.
- Summary of predefined identifiers for tape devices.
- Summary of predefined identifiers for CS80 devices.
- Summary of predefined identifiers for Epoc devices.
- Summary of predefined identifiers for CIPER devices.
- Summary of predefined identifiers for CIO Channel Adapters.
- Summary of predefined identifiers for HP-IB Device Adapters.
- Summary of predefined identifiers for Six-Channel Terminal Multiplexers.

After the requested information is displayed, I/O Test Tool will display the IOTT> prompt for further input.

The user may also request information on a specific I/O Test Tool command, instruction, or program statement. The first parameter for the **HELP** command is the input identifier. At this point, information concerning that input is displayed to the user, as well as the syntax for that input. If the option **SYNTAX** is given, only the input syntax information for that input will be displayed.

**Syntax:**

**HELP** [command, instruction, or statement name] [: **SYNTAX**]

**Example:**

```
IOTT>help help : syntax
```

Input Format:

```
IOTT>HELP [ Command, instruction, or statement name ] [ : SYNTAX ]
```

```
IOTT>
```



## FOR HP INTERNAL USE ONLY

### REDO

The **REDO** command allows the user to redo the last input given. When the **REDO** command is given, the last input is displayed to the user. The user may edit this input using any of the following editing characters:

- R** Text following this character overlays existing text starting at the location of the R. This character is also the default, if the first character is not one listed here, the replace function is assumed.
- I** Text following this character is inserted at the location just before the location of the I.
- D** Each D causes the corresponding character to be deleted.

Entering a carriage return alone indicates to the **REDO** command that the input is ready to be processed. If **REDO** is given as the first command, the text used is a blank line.

#### Syntax:

**REDO**

#### Example:

```
IOTT>d aall
~

*** UNRECOGNIZED COMMAND ( IOTTERR 6005 )
IOTT>redo
>d aall
>ielete
>delete aall
>      rl
>delete alll
>      d
>
IOTT>delete all
*** PROGRAM STORAGE AREA IS EMPTY ( IOTTERR 3000 )
IOTT>
```

---

## Instruction Summary

Instructions are inputs which can be used as single inputs, or as part of a program. As a single input, the instruction is executed immediately, similar to a command. As part of a program, the instruction executes when the program is initiated. All instructions can be given as program statements by prefixing each with an integer line number.

There are five categories of input Buffer Manipulation Instructions available to the user:

- Test Environment Instructions (TEI),
- Buffer Manipulation Instructions (BMI),
- Predefined I/O Request Instructions (PIORI),
- HP-IB Device Adapter Program Instructions (HPIBPI),
- HP-CIO DMA Chain Instructions (HPCIOI).

The following is a list and brief description of instructions available in IOTT.

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## Test Environment Instructions

The following instructions are used to set the environment in which to use I/O Test Tool. Tasks which must be performed before an I/O request can be issued include selection of an I/O device to be tested, and a timeout value to be used against each I/O request. There is also an instruction to enter PAUSE mode whenever an error is detected during execution of I/O Test Tool instruction.

**ERRPAUSE**

The **ERRPAUSE** instruction causes I/O Test Tool to enter PAUSE mode after an error is detected during execution of any instruction. The only parameters for this instruction are the reserved words **ON** or **OFF**. Initially the error pause is disabled. The **RESUME** command can be used to continue execution. If the user is executing a program, the **RESUME** command causes the program to continue.

**Syntax:**

```
ERRPAUSE ON
ERRPAUSE OFF
```

**Example:**

```
IOTT>errpause on
IOTT>defbuff buff,3000,word
IOTT>defbuff buff2,4000,word
IOTT>altbuff buff1(0),0,0,0
IOTT>altbuff buff2(0),1,2,3
IOTT>compbuff buff1(0),buff2(0),1
BUFF1(0) = 0
BUFF2(0) = 1
IOTT>resume
IOTT>
```

**RELDEVICE**

The RELDEVICE instruction releases control of the device to the system. If the device to be released is the current device, all pending unblocked I/O requests are aborted. In this case, the user must perform another SETDEVICE instruction before requesting an I/O to be performed.

**Syntax:**

```
RELDEVICE LDEV={ldev number}
RELDEVICE PDEV={CA#} [.DA#[.Device#]]
```

**Example:**

```
IOTT>setdevice ldev=9
IOTT>setdevice ldev=3
IOTT>showdev
LDEV      PDEV      PRODUCT
  3        1.6.2    HP7978
  9        1.2.3    HP7933

Current device
LDEV      PDEV      PRODUCT
  3        1.6.2    HP7978
IOTT>reldevice ldev=9
IOTT>showdev

LDEV      PDEV      PRODUCT
  3        1.6.2    HP7978

Current device
LDEV      PDEV      PRODUCT
  3        1.6.2    HP7978
IOTT>
```

## FOR HP INTERNAL USE ONLY

### SETDEVICE

The **SETDEVICE** instruction allows the user to specify the device to be tested. The parameter given is used to identify the device. This parameter can be given as a logical device number (LDEV), which is specified by the operating system. Logical device numbers are available for peripheral devices only. Intermediate hardware is not allocated a logical device number. Therefore, to access an intermediate hardware device, the user must give a physical path identifier (PDEV). The physical path identifier describes the path to the intermediate device by specifying as appropriate, the channel adapter number, device adapter number, and device number. The user only needs to give enough information to locate the device.

When this instruction is executed, I/O Test Tool requests exclusive access to the device. This means that the current session of I/O Test Tool is the only process accessing that device. If the device is currently being tested by another diagnostic, an error message is displayed and the instruction will not be executed. There are situations where exclusive access to the device cannot be obtained, for example, devices on the cold load path. For these devices, exclusive access will not be granted. Therefore, only non-data destructive I/O requests can be performed. If any of the above situations occur, a warning message is shown to the user.

#### Syntax:

```
SETDEVICE LDEV={ldev number}
SETDEVICE PDEV={CA#} [.DA# [.Device#]]
```

#### Limitations:

Exclusive access to cold load path devices and system disks cannot be obtained.

#### Example:

```
IOTT>setdevice pdev=1.2.3
IOTT>setdevice ldev=3
IOTT>showdev
LDEV          PDEV          PRODUCT
3             1.6.2        hp79780
9             1.2.3        hp7933

Current device
LDEV          PDEV          PRODUCT
3             1.6.2        hp7978
IOTT>
```

**SETTIMER**

The **SETTIMER** instruction allows the user to specify the maximum length of time in seconds that I/O Test Tool waits for an I/O request to complete. If an I/O completion message has not been received from the I/O system within the specified length, I/O Test Tool aborts the request and displays an error message. The initial timeout value is 60 seconds. The instruction **SHOWPARM** displays the current value of the timeout.

**Syntax:**

**SETTIMER** {value}

**Optional Parameters:**

*value*            An integer value is used to specify a data value. This value can be preceded by a base, identifier (\$=HEX, %=OCT, #=DEC).

**Example:**

```
IOTT>settimer 30
IOTT>showparm
Buffer Name      : No Buffer has been specified
Auxiliary Buffer : No Buffer has been specified
Option1         : No Option has been specified
Current Address  : Reserved area will be accessed
Status Buffer    : No Status Buffer has been specified
Timeout         : 30 seconds
Einc value      : 0
IOTT>
```

## FOR HP INTERNAL USE ONLY

### SHOWDEV

The **SHOWDEV** instruction displays all devices which have been allocated to I/O Test Tool. The current device being accessed is also indicated. The data displayed are the Logical device number (LDEV), if applicable, and Physical path number (PDEV) along with the product number of the device. A "\*" mark will appear in front of the LDEV number, if exclusive access was not granted for that device.

#### Syntax:

**SHOWDEV**

#### Example:

```
IOTT>setdevice ldev=9
IOTT>setdevice ldev=3
IOTT>showdev
LDEV      PDEV      PRODUCT
3         1.6.2      hp7978
9         1.2.3      hp7933

Current device
LDEV      PDEV      PRODUCT
3         1.6.2      hp7978
IOTT>
```

---

## Buffer Manipulation Instructions

There are two types of I/O buffers available to the user: integer buffer and byte buffers. Integer buffers contain 32-bit entities, which can span from -2147483648 to 2147483647. Byte buffers contain 8-bit entities which can span 0 to 255. The user declares the I/O buffers and the length by the instruction **DEFBUFF**. Each buffer must be defined before it can be referenced by other instructions. The buffer name has a maximum of eight alphanumeric characters and must start with an alpha character. The I/O buffers can be deallocated using the **RELBUFF** instruction.

Buffer function instructions give the user the ability to fill, modify, and display data which was used for the I/O request. For functions which involve two buffers, both buffers must be of the same type.



## FOR HP INTERNAL USE ONLY

### ADJBUFF

The ADJBUFF instruction allows the user to adjust values within the specified I/O buffer. The first parameter of this instruction is the buffer name and index when the buffer adjustment is to begin. The second parameter will be the value by which the contents of each element within the buffer is to be adjusted. This value is added to the contents of the buffer, and the result replaces the original value. Positive and negative values are allowed. The third parameter specifies the number of buffer elements to be altered. If this parameter is not given, only one buffer element will be altered.

#### Syntax:

ADJBUFF {buffer name}({index}},{value},{count]

#### Optional Parameters:

*count*                      An integer value greater than zero. Used to specify number of times operation is to be performed.

#### Example:

```
IOTT>debuff buff,300 word
IOTT>altbuff (0),1,2,3,4,5
IOTT>dbuff buff 0/4
BUFF(0):      1      2      3      4      5
IOTT>adjbuff buff(0),2,3
IOTT>dbuff buff 0/4
BUFF(0):      3      4      5      4      5
IOTT>adjbuff buff(2),-1
IOTT>dbuff buff 0/4
BUFF(0):      3      4      4      4      5
IOTT>
```

**ALTBUFF**

The **ALTBUFF** instruction allows the user to modify individual elements in an I/O buffer. The first parameter for this instruction is the name of the buffer to be accessed and the index where the alteration is to start. The values following are the new values to be written into the I/O buffer. These values must be within the span of the buffer type. These values can be given as literal values, or expressions containing literal values. The alteration of buffer elements occurs sequentially for all values given. For a **BYTE** buffer, the list of values can be given in the form of ASCII text. At least one value must be given. All values are range checked before the buffer is altered. If any errors are detected, the buffer remains untouched.

**Syntax:**

```
ALTBUFF {buffer name}({index}},{value},[value]
ALTBUFF {buffer name}({index}),"ascii text"
```

**Optional Parameters:**

*value*                    An integer value is used to specify a data value. This value can be preceded by a base, identifier (\$=HEX, %=OCT, #=DEC).

**Example:**

```
IOTT>defbuff buff,300,word
IOTT>altbuff buff(0),1,2,3,4,5
IOTT>dbuff buff 0/4
BUFF(0)            1            2            3            4            5
IOTT>altbuff buff(0),20,40,60,80
IOTT>dbuff buff 0/4
BUFF(0)            20          40          60          80          5
IOTT>
```

**COMPBUFF**

The **COMPBUFF** instruction allows the user to compare the contents of two buffers. The first two parameters specify the buffers involved in the comparison and the indices within each buffer where the comparison is to begin. Both buffers must be of the same type. The next parameter specifies the length of the comparison. This value is in units of the buffer type. The optional count specifies the maximum number of mis-comparisons to be shown. If the optional value is not given, all mis-comparisons found are shown. An optional value of zero disables the displaying of information. The next optional parameter can be the reserved word **DIFF** or **SIMILAR**. If the **DIFF** reserved word is given, the buffers are compared for differences. Any values which do not match are displayed. If the **SIMILAR** reserved word is given, the buffers are compared for similarities. Any values which match are displayed. If no option is given, the **DIFF** option is assumed. This instruction also accepts a display mode to specify the base of which the values are to be displayed. The input format of **COMPBUFF** requires that each command statement consist of only one line.

**Syntax:**

```
COMPBUFF {buffer}({index}},{buffer}({index}},{length},{count}

[,diff  ]:[display mode]
[ similar]
```

**Optional Parameters:**

*count*            An integer value greater than zero. Used to specify number of times operation is to be performed.

*display mode*    A mode in which values are to be displayed: HEX, OCT or DEC.

**Example:**

```
IOTT>defbuff buff1,256,word
IOTT>defbuff buff2,200,word
IOTT>altbuff buff1(0),0,0,0,0,0
IOTT>altbuff buff2(0),1,2,3,4,5
IOTT>compbuff buff1(0),buff2(0),5,2    {Show first 2 mismatch}
buff1(0) = 0
buff2(0) = 1
buff1(1) = 0
buff2(1) = 2
IOTT>altbuff buff2(0),0,0,0,0,0
IOTT>compbuff buff1(0),buff2(0),5       {Identical buffers}
IOTT>
```

## FOR HP INTERNAL USE ONLY

### COPYBUFF

The COPYBUFF instruction allows the user to copy the contents of one buffer to another buffer. The contents of the first buffer, starting at the index given, is copied into the second buffer starting at the specified index. The LENGTH parameter specifies the number of elements to be copied. This parameter is in buffer element units. If the optional count is given, the copying process will repeat starting from the end of the last copy, for the count given. Both buffers must be of the same type. If the count parameter is not given, the copy operation will be performed once. The input format of COPYBUFF requires that each complete command statement consist of only one line.

#### Syntax:

COPYBUFF {buffer}({index}},{buffer}({index}},{length},{count]

#### Optional Parameters:

*count*                      An integer value greater than zero. Used to specify number of times operation is to be performed.

#### Example:

```
IOTT>defbuff buff,256,word
IOTT>defbuff another,200,word
IOTT>altbuff buff(0),1,2,3,4,5
IOTT>altbuff another(0),0,0,0,0,0
IOTT>copybuff buff(0),another(0),3,1 {Copy pattern once}
IOTT>dbuff another 0/4
ANOTHER(0):    1    2    3    0    0
IOTT>
```

## FOR HP INTERNAL USE ONLY

### DBUFF

The **DBUFF** instruction allows the user to display the contents of the specified I/O buffer. The first parameter of this instruction is the name of the buffer to be displayed. The following optional parameters are an index number or a range of index numbers. This specifies what part of the buffer is to be displayed. If this parameter is not given, the entire buffer is displayed. The user may also optionally specify the base in which the data values are to be displayed. The reserved words **HEX**, **DEC**, and **OCT** should be used when specifying a base. If a base is not specified, a byte buffer is displayed in **ASCII**, and an integer buffer is displayed as decimal values. The user may enter a user interrupt (**CTRL**) / **Y** to terminate this instruction.

#### Syntax:

```
DBUFF {buffer name} [:display mode]
DBUFF {buffer name} [index] [:display mode]
DBUFF {buffer name} [index/index] [:display mode]
```

#### Optional Parameters:

*display mode* A mode in which values are to be displayed: **HEX**, **OCT** or **DEC**.

*index* A number or range of numbers that specifies what part of the buffer is to be displayed.

#### Example:

```
IOTT>defbuff bbuff,30,byte
IOTT>defbuff wbuff,30,word
IOTT>altbuff wbuff(0),0,1,2,3,4,5,0
IOTT>dbuff wbuff 0/6
WBUFF(0):    0    1    2    3    4
WBUFF(5):    5    0
IOTT>altbuff bbuff(0),0,1,2,3,4,5,0
IOTT>dbuff dbuff 0/6: hex
BBUFF(0)    $0    $1    $2    $3    $4
BBUFF(5)    $5    $0
IOTT>
```

## FOR HP INTERNAL USE ONLY

### DEFBUFF

The DEFBUFF instruction allows the user to define an I/O buffer. The first parameter is the buffer name, which must be a maximum of eight alphanumeric characters, starting with an alpha character. The second parameter is the length of the buffer. For a byte buffer, the length is specified in the number of bytes (8-bit). For an integer buffer, the length is specified in the number of words (32-bit elements). The third parameter specifies the type of buffer to be allocated by giving the reserved word BYTE or WORD. The I/O buffer itself is not initialized to any specific value. If the user redefines the buffer, there is no guarantee that the old data will remain.

The user can use the STATUS option to specify that this particular buffer is to be used to store the last hardware status returned from the I/O request. Only one buffer can have this option at any one time. The status buffer is altered only if the I/O request fails. If the size of the buffer is smaller than the minimum length of a hardware status, the length will be modified to the minimum length.

#### Syntax:

```
DEFBUFF {buffer name},{length},{BYTE} [:STATUS]
DEFBUFF {buffer name},{length},{WORD} [:STATUS]
```

#### Example:

```
IOTT>defbuff buff,4000,byte
IOTT>defbuff status,20,byte;status
IOTT>defbuff name,1000,word
IOTT>showbuff
BUFFER NAME      TYPE      LENGTH
  BUFF           BYTE      4000
  STATUS         BYTE       32
  NAME           WORD      1000
IOTT>
```

## FOR HP INTERNAL USE ONLY

### FILLBUFF

The FILLBUFF instruction allows the user to fill an I/O buffer with a specific value. The first parameter specifies the buffer name and index where the filling is to start. The VALUE parameter is the value to be inserted into the buffer. This value must be within the span of the buffer type. If an option COUNT parameter is given, the filling occurs for the indicated count. If the count is not given, the entire buffer is filled.

#### Syntax:

FILLBUFF {buffer}({index}},{value},{count}]

#### Optional Parameters:

*count*                      An integer value greater than zero. Used to specify number of times operation is to be performed.

#### Example:

```
IOTT>defbuff buff,256,word
IOTT>altbuff buff(0),256,256,256,256,256
IOTT>fillbuff buff(0),1,3
IOTT>dbuff buff 0/4
BUFF(0):   1   1   1   256   256
IOTT>
```

## FOR HP INTERNAL USE ONLY

### FINCBUFF

The **FINCBUFF** instruction incrementally fills the specified buffer. The first parameter is the name of the buffer and the index where the filling is to begin. The **START** parameter specifies the starting value, and the **END** parameter specifies the ending value for the buffer filling. The starting value increments in values of the **INC** parameter. If the **INC** parameter is not given, an increment value of 1 is used. The resulting pattern repeats until the entire buffer is filled. For byte buffers, starting and ending values can be an ASCII character enclosed in quotes (" ").

#### Syntax:

**FINCBUFF** {buffer name}({index}},{start},{end}[,inc]

#### Example:

```
IOTT>defbuff buff,40,word
IOTT>fincbuff buff(0),1,9,3
IOTT>dbuff buff 0/10
BUFF( 0):    1    3    6    9    1
BUFF( 5):    3    6    9    1    3
BUFF(10):    9
IOTT>
```



## FOR HP INTERNAL USE ONLY

### RELBUFF

The RELBUFF instruction will release and purge the buffer specified. The only parameter for this instruction is the buffer name.

#### Syntax:

RELBUFF {buffer name}

#### Example:

```
IOTT>defbuff buff,20,byte
IOTT>defbuff status,30,word : status
IOTT>showbuff
BUFFER NAME      TYPE      LENGTH
  BUFF           BYTE        20
  STATUS         WORD        30
IOTT>relbuff buff
IOTT>showbuff
BUFFER NAME      TYPE      LENGTH
  STATUS         WORD        30
IOTT>
```

**SHOWBUFF**

The **SHOWBUFF** instruction lists the name, length, and type of all buffers declared. The length of the buffer will be in the units of the buffer element.

**Syntax:**

**SHOWBUFF**

**Example:**

```
IOTT>defbuff buff,4000,word
IOTT>defbuff status,6000,byte
IOTT>showbuff
BUFFER NAME      TYPE      LENGTH
  BUFF           WORD       4000
  STATUS         BYTE       6000
IOTT>
```

---

## Predefined I/O Request Instructions

The following instructions will allow the user to specify all information necessary for predefined I/O request, as well as an instruction for issuing the request itself. Before issuing the I/O request, the user can use any of the following instructions to give all information needed for the request.

|                  |                                                                                          |
|------------------|------------------------------------------------------------------------------------------|
| <b>SETADDR</b>   | Indicates the location by address on the device where the I/O is to occur.               |
| <b>SETDATA</b>   | Indicates the I/O buffer and length to be used for the I/O request.                      |
| <b>SETOPTION</b> | Indicates any additional options needed for the I/O request.                             |
| <b>EINCADDR</b>  | Indicates that the address given by SETADDR is to be incremented after each I/O request. |

Refer to predefined I/O Requests in this section for further information required for each type of predefined I/O requests. The information setting functions are separated into many instructions, so that the user will not need to retype each parameter for each request.

After all the information has been given, the I/O request is initiated with the **EXECUTE** instruction. If the I/O request fails, the hardware status is stored in the user defined status buffer. The instruction **DSTATUS** is available to decode the hardware status into text.

## ABORTIO

The **ABORTIO** instruction aborts all pending unblocked I/O requests for the current device. This instruction aborts those requests issued by I/O Test Tool.

### Syntax:

**ABORTIO**

### Example:

```
IOTT>setdevice ldev=7
IOTT>defbuff status,32,byte:status
IOTT>defbuff buffer,256,byte
IOTT>setdata buffer,256
IOTT>execute read,21:unblock
IOTT>execute ioreult
I/O HAS NOT YET COMPLETED (DSSERR 510)
IOTT>abortio
```

## FOR HP INTERNAL USE ONLY

### EINCADDR

The **EINCADDR** instruction increments the address given by **SETADDR** each time the **EXECUTE** instruction issues an I/O request. The value by which the address increments can be positive or negative. The incremental function is always performed, even if the **SETADDR** value is not needed for the I/O requested. This instruction can be disabled by giving an increment value of zero. If an **INCADDR** instruction has not been performed previously, a **DESCRIBE I/O** request is issued to obtain the maximum address for that device. The **DESCRIBE** is performed after the **EXECUTE** instruction has completed. An error message is displayed if the **INCADDR** instruction is requested with the **SETADDR** instruction indicating the reserved area on the disk.

#### Syntax:

**EINCADDR** {value}

#### Example:

```
IOTT>setdevice ldev=3 {CS80 disk}
IOTT>defbuff buff,256,byte
IOTT>defbuff status,20,byte:status
IOTT>setdata buff,256
IOTT>setaddr 2000
IOTT>eincaddr 1
IOTT>execute read      {Read sector 2000}
IOTT>showparm
Buffer Name           : BUFF
Transfer Length       : 256
Auxiliary Buffer       : No Buffer has been specified
Option1               : No Option has been given
Current Address       : 2001
Status Buffer          : STATUS
Timeout               : 60 seconds
Einc Value            : 1
Error Pause           : OFF
IOTT>execute read      {Read the next sector}
IOTT>showparm
Buffer Name           : BUFF
Transfer length       : 256
Auxiliary Buffer       : No Buffer has been specified
Option1               : No Option has been given
Current Address       : 2002
Status Buffer          : STATUS
Timeout               : 60 seconds
Einc Value            : 1
Error Pause           : OFF
IOTT>
```

**EXECUTE**

The **EXECUTE** instruction initiates a predefined I/O request. The first parameter can be a reserved word to indicate the type of I/O to be performed. If any necessary information is not given, an appropriate error message is displayed, and the I/O request is not issued. An optional count parameter can be given to indicate the number of times the I/O request is to be issued. If this count parameter is not given, the I/O request is issued once. All I/O requests issued are performed in **BLOCK** mode, indicating that I/O Test Tool waits until the I/O request completes before processing the next input. The user may issue unblocked I/O requests before processing the next input. The **UNBLOCK** option is not available for all devices.

If an I/O error is encountered, the **EXECUTE** instruction terminates immediately. A description of the error is displayed to the user, and the hardware status returned can be found in the user-defined status buffer. If the status buffer defined by the user is not large enough to hold the hardware status, the status buffer is redefined to the correct length. If appropriate, the I/O transfer count and the number of hardware status bytes obtained are displayed.

**Syntax:**

**EXECUTE** {function}[,count][: **UNBLOCK**]

**Optional Parameters:**

*count*                    An integer value greater than zero used to specify the number of times an operation is to be performed.

**Example:**

```
IOTT>setdevice ldev=3    {CS80 disk}
IOTT>defbuff status,20,byte:status
IOTT>execute reqstat     {Request status}
IOTT>
```



## FOR HP INTERNAL USE ONLY

### DSTATUS

The DSTATUS instruction allows the user to display the hardware status stored within the user defined status buffer in text. I/O Test Tool assumes that the decoding format to be used is that of the current device selected. The display of the status information is identical to that produced by the device diagnostic program. The diagnostic program will be performing that actual translation on behalf of I/O Test Tool. If the diagnostic program is not present on the system, an error message is displayed to the user, and this instruction will terminate.

#### Syntax:

DSTATUS

#### Example:

```
IOTT>setdevice ldev=3      {CS80 disk}
IOTT>defbuff status,20,byte:status
IOTT>fillbuff status(0),0
IOTT>execute reqstat      {Request status}
IOTT>dbuff status 0/9 : hex

STATUS( 0):$F $FF $0 $0 $0 $0 $0 $0 $0 $0 $0 $0 $0 $0
STATUS(15):$0 $0 $0 $0 $0 $1
IOTT>dstatus

      Status =

      Unit = 15   Volume = 0

      No units with status pending

      New target address is :
        Blocked address = 1
IOTT>
```

**INCADDR**

The **INCADDR** instruction increments the address given by **SETADDR** by the value specified. This value can be a positive or negative value. The first time **INCADDR** is entered, I/O Test Tool issues a **DESCRIBE I/O** request to the device to obtain the maximum address for the device. If the incremental shift exceeds the maximum address, an error message is displayed to the user, and the original value remains. An error message is displayed if the **INCADDR** instruction is requested with the **SETADDR** instruction indicating the reserved area on the disk.

**Syntax:**

**INCADDR** {value}

**Example:**

```
IOTT>setdevice ldev=3 {CS80 disk}
IOTT>setaddr 0          {set logical address 0}
IOTT>incaddr 20         {set logical address 0+20}
IOTT>showparm
Buffer Name      : No Buffer has been specified
Auxiliary Buffer : No Buffer has been specified
Option1         : No Option has been specified
Current Address  : 20
Status Buffer     : No Status Buffer has been specified
Timeout         : 60
Einc value       : 0
Error Pause      : OFF
IOTT>
```



## RESETIO

The RESETIO instruction resets the I/O software and hardware to power-on state for the current device. Any pending I/O request is aborted. If exclusive access to the current device was not obtained, this instruction will fail.

### Syntax:

RESETIO

### Example:

```
IOTT>setdevice ldev=7 {A tape device}
IOTT>debuff status,32,byte:status
IOTT>debuff buffer,256,byte
IOTT>setdata buffer,256
IOTT>execute read,21:unblock
IOTT>execute ioreult
I/O HAS NOT YET COMPLETED (DSSERR 510)
IOTT>resetio
```

## FOR HP INTERNAL USE ONLY

### PROTECT

The PROTECT instruction will allow the user to enable or disable the protection system within I/O Test Tool, which requires the user to have exclusive access to the current device before issuing a data destructive request. Initially, I/O Test Tool will have the protection system enabled (ON). The PROTECT OFF instruction will have no effect on the I/O requests using the RDI, WDI, RFSI, LOCVERI, HPIB, and IPCIO predefined identifiers. To use these particular I/O requests successfully, the user must have exclusive access to the device.

---

#### Note



The user is advised to take the proper precautions before issuing any data destructive I/O request, and to perform the PROTECT ON instruction at the earliest opportunity.

---

#### Input

```
IOTT> PROTECT ON  
IOTT> PROTECT OFF
```

#### Example

```
IOTT> EXECUTE WRITE  
EXCLUSIVE ACCESS TO THE DEVICE REQUESTED (IOTTERR 5578)  
IOTT> PROTECT OFF  
IOTT> EXECUTE WRITE  
IOTT>
```

## FOR HP INTERNAL USE ONLY

### SETADDR

The SETADDR instruction allows the user to specify the location on the device where the function is to be performed. This instruction is only be used by devices which understand the concept of an address. The optional parameter can be either a literal value or an expression of literal values which are evaluated to the 32-bit logical address. This address can also be given in cylinder-head-sector format (i.e. for a disk, the address is a sector number). If no parameter is given, the reserved area on the disk is used. This instruction will not perform any bounds checking of the address given.

#### Syntax:

```
SETADDR CLY={cylinder};HEAD={head};SECT={sect}  
SETADDR [value]
```

#### Optional Parameters:

*value*            An integer value is used to specify a data value. This value can be preceded by a base, identifier (\$=HEX, %=OCT, #=DEC).

#### Example:

```
IOTT>setaddr cyl=0;head=0;sect=0  
IOTT>showparms  
Buffer Name       : No data buffer has been specified  
Auxiliary Buffer: No buffer has been specified  
Option1           : No option has been specified  
Current Address : cyl = 0; head = 0; sect = 0  
Status Buffer     : No Status Buffer has been defined  
Timeout          : 60 seconds  
Einc value       : 0  
Error Pause      : OFF  
IOTT>
```

**SETDATA**

The **SETDATA** instruction allows the user to specify the I/O buffer and transfer length that is to be used for the I/O request. The first parameter is the name of the buffer involved in the I/O. The transfer always starts at the first element, and continues for the length specified. The length is assumed to be given in buffer units. If a word buffer is given, the length is assumed to be a word count. An auxiliary buffer can be given for I/O requests which require two I/O buffers.

**Syntax:**

**SETDATA** {buffer},{length}[,aux buffer, length]

**Example:**

```
IOTT>debuff buff,3000,word
IOTT>setdata buff,300      {use only 300 words}
IOTT>showparms
Buffer Name      : BUFF
Transfer Length  : 300
Auxiliary Buffer  : No Buffer has been specified
Option1          : No options has been given
Current Address  : Reserved area will be accessed
Status Buffer     : No Status Buffer has been specified
Timeout         : 60 seconds
Einc value       : 0
Error Pause      : OFF
IOTT>
```

## FOR HP INTERNAL USE ONLY

### SETOPTION

The **SETOPTION** instruction allows the user to specify the options necessary to execute some of the predefined I/O requests. The user can specify up to two options separated by a comma. The user can specify an option as a literal value, or as a reserved word option. Please refer to predefined I/O Requests in this section for a list of acceptable reserved words for various predefined I/O requests.

#### Syntax:

**SETOPTION** {option}[,option]

#### Example:

```
IOTT>setdevice ldev=3          {CS80 disk}
IOTT>defbuff status,30,byte:status
IOTT>setoption 0
IOTT>showparm
Buffer Name      : No data buffer has been specified
Auxiliary Buffer : No Buffer has been specified
Option 1         : 0
Option 2         : No option has been specified
Current Address  : Reserved area will be accessed
Status buffer    : STATUS
Timeout         : 60 seconds
Einc value       : 0
Error Pause      : OFF
IOTT>execute selftest          {Initiate selftest zero}
IOTT>
```

**SHOWPARM**

The **SHOWPARM** instruction displays all the information which are presently set to be used for the next predefined I/O request. The instructions which indicated the displayed information are **SETDATA**, **SETADDR**, **SETOPTION**, **SETTIMER**, and **EINCADDR**. The name of the I/O buffer which is used to store the I/O hardware status information is also given.

**Syntax:****SHOWPARM****Example:**

```
IOTT>defbuff buff,3000,word
IOTT>defbuff status,20,byte:status
IOTT>setdata buff,300
IOTT>setaddr 0
IOTT>setoption read
IOTT>showparm
Buffer Name      : BUFF
Transfer Length  : 300
Auxiliary Buffer  : No buffer has been specified
Option 1         : READ
Option 2         : No Option has been specified
Current Address  : 0
Status Buffer     : STATUS
Timeout          : 60 seconds
Einc value       : 0
Error Pause      : OFF
IOTT>
```



---

## HP-IB Device Adapter Program Instructions

I/O Test Tool provides instructions for the user to create unique HP-IB device adapter programs (DAP). This will give the user more control over the protocol between the HP-IB Device Adapter and a peripheral device. The format used to create the HP-IB Device Adapter program is:

**SETHPIB:** Indicates the start of HP-IB program  
**HP-IB:** Device Adapter Program Instructions  
**ENDHPIB:** Indicates the end of the HP-IB program Declaration.

Each HP-IB DAP program must start with a **SETHPIB** instruction, and end with an **ENDHPIB** instruction. Any instruction can be placed between these instructions, except another **SETHPIB** instruction. It is recommended that the DAP instructions be entered in program mode. Instructions which require relative offsets, such as **DSJ** and **JUMP**, must be given in program mode, since I/O Test Tool will be calculating these values. The instruction **SHOWHPIB** can be used to monitor the progression of the DAP build.

The user can execute the HP-IB program by using an **EXECUTE** instruction with an "HP-IB" function identifier. Values set by **SETADDR** and **SETDATA** will not be used during the execution of the HP-IB program. The device specified by the **SETDEVICE** instruction must point to a peripheral. After the I/O request has completed, a software **RESET** function will be issued to the I/O software associated with the peripheral device selected. This will permit the I/O software to re-download its DAP program onto the HP-IB device adapter.

The status values returned from the I/O request will be stored in the user defined status buffer. The first byte of this buffer is reserved for the **HSTAT** value. The remainder of the status information is user defined. The user will not be able to redefine the first byte of the status buffer.

For further information on HP-IB Device Adapter Programs, refer to the HP 27110B Software External Reference Manual. Since unique HP-IB Device Adapter Programs have the potential of forcing the device into an abnormal state, such program usage will be available **ONLY IN SINGLE USER MODE**.

## FOR HP INTERNAL USE ONLY

### CASEJUMP

The CASEJUMP instruction will append the case\_jump DAP command to the DAP currently being built. The first value parameter given will be appended to the "PB" buffer at the next available space. This will be the value which will be used by the DAP to evaluate the case\_jump. The following parameters specify the destinations for the jump, which will be performed depending on the value given. A value of zero will cause a jump to the first line number parameter given. A value of one will cause a jump to the second line number parameter. The user must specify at least one jump location. The line number parameters used to specify the jump location must point to an IIP-IB instruction. The actual relative offset values will be filled in by the ENDPHPIB instruction. Until then zeros will be placed into the DAP as place holders. The case\_jump causes a transfer of control to a place in the DAP indicated by a value in the parameter block.

#### Syntax:

```
{line number} CASEJUMP {value},{line number}[,{line number}]
```

#### Optional Parameters:

*line number*                      An integer value greater than zero but less than 9999. Used to specify program input and line number of program.

#### Example:

```
IOTT>10 sethpiib
IOTT>20 casejump 2,30,40,50
IOTT>30 halt 3,3
IOTT>40 halt 3,4
IOTT>50 halt 3,5
IOTT>run
IOTT>showhpiib
```

Device Adapter Program Build in Progress

Device Adapter Program. Current length = 15 bytes, maximum = 512 bytes

```
DAP( 0): 10  1  3  0  0  0 64  3  3 64  3  4
DAP(12): 64  3  5
```

Parameter Block. Current length = 1 bytes, maximum = 62 bytes.

```
PB(0):      2
```

Status Buffer. Required length = 3 bytes, maximum = 62 bytes.



**FOR HP INTERNAL USE ONLY**

WARNING: Status Buffer has not been defined.  
IOTT>endhpb  
IOTT>showhpb

Device Adapter Program has been Built.

Device Adapter Program. Current length = 15 bytes, maximum = 512 bytes

DAP( 0): 10 1 3 0 3 6 64 3 3 64 3 4  
DAP(12): 64 3 5

Parameter Block. Current length = 1 bytes, maximum = 62 bytes.

WARNING: Status Buffer has not been defined.  
IOTT>

**CLEAR**

The **CLEAR** instruction will append the clear DAP command to the HP-IB DAP currently being built. The **VALUE** parameter must be between the values of 0 to 255.

Clear causes the AMIGO clear command and the HP-IB selected device clear command to be sent to the device. This causes the device to reset itself per value given.

**Syntax:**

**CLEAR {value}**

**Example:**

```
IOTT>sethpb  
IOTT>clear 0  
IOTT>  
showhpb : hex
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 2 bytes, maximum = 512 bytes

DAP(0): \$3C \$0

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

IOTT>

## FOR HP INTERNAL USE ONLY

### CRCOMP

The **CRCOMP** instruction will append the `crc_compare` command to the DAP currently being built. The **LINE NUMBER** parameter indicates the jump destination to be used if CRC does not match. This parameter must point to an HP-IB instruction. The relative offset needed by this instruction will be filled in by the **ENDHPIB** instruction. Until then, zeros will be placed into the DAP as place holders. The crc is read by the device adapter from the device and the device adapter and compared. If they match, the transaction continues. Otherwise, transaction will jump to relative offset given.

#### Syntax:

```
{line number} CRCOMP {line number}
```

#### Example:

```
IOTT>10sethpb  
IOTT>20 crccomp 30  
IOTT>30 halt 3,3  
IOTT>40 endhpb  
IOTT>run  
IOTT>showhpb : hex
```

Device Adapter Program has been Built.

Device Adapter Program. Current length = 5 bytes, maximum = 512 bytes

DAP(0): \$36 \$0 \$40 \$3 \$3

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 3 bytes, maximum = 62 bytes.

WARNING: Status Buffer has not been defined.

IOTT>

## CRCINIT

The **CRCINIT** instruction will append the `Crc_initiate` command to the DAP currently being built. `Crc_initiate` causes the CRC in both the device adapter's and device's ABI's to be reset. No error check is done.

### Syntax:

**CRCINIT**

### Example:

```
IOTT>sethpb  
IOTT>crcinit  
IOTT>showhpb
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 1 bytes, maximum = 512 bytes

DAP(0): 52

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

IOTT>

## CRCWRITE

The **CRCWRITE** instruction will append the **Crc\_write** command to the DAP currently being built. **Crc\_write** command causes the device adapter's and device's CRC bytes to be sent to the device.

### Syntax:

**CRCWRITE**

### Example:

```
IOTT>sethpiB
IOTT>crcwrite
IOTT>showhpiB: hex
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 1 bytes, maximum = 512 bytes.

DAP(0): \$38

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

```
IOTT>
```

## FOR HP INTERNAL USE ONLY

### DSJ

The DSJ instruction will append the DSJ command to the DAP currently being built. Instruction will allow conditional jump to another part of the program depending on the value of the one byte of status returned from the device. The SINDEK parameter specifies the index within the user defined status buffer where the one byte of status is to be stored. The following parameters specify the destinations for the jump, which will be performed depending on the value returned. A status value of zero will cause a jump to the first line number parameter given. A status value of one will cause a jump to the second line number parameter. The user must specify at least one jump location. The line number parameters used to specify the jump location must point to a HP-IB program instruction. The actual relative offset values will be filled in by the ENHPIB instruction. Until then zeros will be placed into the DAP as place holders. The DSJ command reads one byte of status from the device and puts it into the status buffer. A case jump is performed using the value of status. The input of this command must be entered as one line.

#### Syntax:

{line number} DSJ {sindex},{line number},[line number],[line number]

#### Optional Parameters:

*line number*                      An integer value greater than zero but less than 9999. Used to specify program input and line number of program.

#### Example:

```
IOTT>10 sethpiB
IOTT>20 dsj 1,30,40,50
IOTT>30 halt 2,1
IOTT>50 halt 2,3
IOTT>run
IOTT>showhpiB : hex
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 15 bytes, maximum = 512 bytes

```
DAP( 0):  $3E  $1  $3  $0  $0  $0  $40  $2  $1  $40  $2  $2
DAP(12):  $40  $2  $3
```

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 2 bytes, maximum = 62 bytes.

**FOR HP INTERNAL USE ONLY**

WARNING: Status Buffer has not been defined.

IOTT>endhpbib

IOTT>showhpbib : hex

Device Adapter Program has been Built.

Device Adapter Program. Current length = 15 bytes, maximum = 512 bytes

DAP( 0): \$3E \$1 \$3 \$6 \$40 \$2 \$1 \$40 \$2 \$1 \$40 \$2 \$2

DAP(12): \$40 \$2 \$3

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 2 bytes, maximum = 62 bytes.

WARNING: Status Buffer has not been defined.

IOTT>

## FOR HP INTERNAL USE ONLY

### ENDHPIB

The **ENDHPIB** instruction indicates that the building of a HP-IB Device Adapter Program (DAP) has completed. If the DAP contains any instructions which utilize relative or absolute offsets, such as DSJ or JUMP, this instruction will calculate these values and fill in the reserved areas within the DAP. If any problems are encountered, appropriate error message will be displayed and this instruction will terminate.

#### Syntax:

**ENDHPIB**

#### Example:

```
IOTT>defbuff status,62,byte:status
IOTT>fillbuff status(0),0
IOTT>sethpb
IOTT>clear 0
IOTT>halt 3,1
IOTT>endhpb
IOTT>showhpb : hex
```

Device Adapter Program has been Built.

Device Adapter Program. Current length = 5 bytes, maximum = 512 bytes

DAP(0):   \$3C   \$0   \$40   \$3   \$1

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 3 bytes, maximum = 62 bytes.

```
STATUS(0) $0   $0   $0
IOTT>
```



## FOR HP INTERNAL USE ONLY

### HALT

The **HALT** instruction will append the **HALT** command to the DAP currently being built. The **STATUS LENGTH** parameter will specify the number of bytes to be returned when the transaction terminates. These bytes will be stored in the user defined status buffer. The **HSTAT** parameter is the halt status value required by the DAP instruction. Both of these parameters must be within the range of 0 to 255.

**HALT** causes the transaction to be terminated without error. There may be more than one **HALT** within a program, but there should be at least one. The **HSTAT** value specified will be stored within the status buffer after the device adapter program completion, to indicate which **HALT** statement was executed.

#### Syntax:

**HALT** {status length},{hstat}

#### Example:

```
IOTT>defbuff status,62,byte:status
IOTT>fillbuff status(0),0
IOTT>sethplib
IOTT>halt 2,1
IOTT>endhplib
IOTT>showhplib : hex
```

Device Adapter Program has been Built.

Device Adapter Program. Current length = 3 bytes, maximum = 512 bytes

DAP(0):   \$40   \$3E   \$1

Parameter Block. Current length = 0 bytes, maximum = 62 bytes

Status Buffer. Required length = 2 bytes, maximum = 62 bytes

```
STATUS ( 0):   $0   $0
IOTT>
```

## FOR HP INTERNAL USE ONLY

### IDENTIFY

The IDENTIFY instruction will append the IDENTIFY command to the DAP currently being built. The SINDEK parameter indicates the index within the user defined status buffer where the returned data is to be stored. The identify DAP command will return two (2) bytes of data; this causes the identify bytes to be read from the device and send to the status buffer.

#### Syntax:

IDENTIFY {sindex}

#### Example:

```
IOTT>sethpb  
IOTT>identify 1  
IOTT>showhpb
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 2 bytes, maximum = 512 bytes

DAP(0): 58 1

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 3 bytes, maximum = 62 bytes.

WARNING: Status Buffer has not been defined.

IOTT>

## FOR HP INTERNAL USE ONLY

### JUMP

The **JUMP** instruction will append the `jump_a` command to the DAP currently being built. The **LINE NUMBER** parameter will specify the destination of the jump. The absolute address needed for this command within the device adapter program will be calculated by the **ENDHPIB** instruction. Until the **ENDHPIB** instruction is given, zeros will be inserted as place holders. The line number must reference an HP-IB device adapter program instruction, if any other statement is referenced an error message will be displayed and the instruction will not be appended to the current DAP.

#### Syntax:

```
{line number} JUMP {line number}
```

#### Example:

```
IOTT>10 sethplib
IOTT>20 jump 50
IOTT>30 halt 2,0
IOTT>40 halt 2,1
IOTT>50 jump 30
IOTT>run
IOTT>defbuff status,2,byte:status
IOTT>showhplib : hex
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 12 bytes, maximum = 512 byte

DAP( 0):   \$2   \$0   \$0   \$40   \$2   \$0   \$40   \$2   \$1   \$2   \$0   \$

Parameter Block. Current length = 0 bytes, maximum = 512 bytes.

Status Buffer. Required length = 2 bytes, maximum = 62 bytes.

STATUS(0): \$0   \$0

```
IOTT>endhplib
IOTT>showhplib : hex
```

Device Adapter Program has been Built.

Device Adapter Program. Current length = 12 bytes, maximum = 512 byte

DAP( 0):   \$2   \$0   \$9   \$40   \$2   \$0   \$40   \$2   \$1   \$2   \$0   \$

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 2 bytes, maximum = 62 bytes.

```
STATUS(0): $0   $0
IOTT>
```

## FOR HP INTERNAL USE ONLY

### ONTIMEOUT

The **ONTIMEOUT** instruction will append the `on_timeout` command to the DAP currently being built. The **TIMEOUT** parameter will be loaded into the device's timer. This is a 16-bit number in 10's of milliseconds. The **SINDEX** will specify the index into the user defined status buffer where the 2-byte PC value is to be stored if a timeout occurred. The **LINE NUMBER** parameter indicates which HP-IB instruction to jump to when the timeout occurs. `On_timeout` causes the device timer to be loaded with the time value and the address to be set up as a place to transfer when a device takes an excessive amount of time transferring data or responding to a parallel poll.

#### Input:

```
IOTT> {line number} ONTIMEOUT {timeout},{sindex},{line number}
```

#### Example:

```
IOTT>10 sethpb  
IOTT>20 ontimeout 60,1,30  
IOTT>30 halt 3,2  
IOTT>40 endhpb  
IOTT>run  
IOTT>showhpb : hex
```

Device Adapter Program has been Built.

Device Adapter Program. Current length = 8 bytes, maximum = 512 bytes.

DAP(0):   \$44   \$0   \$3C   \$1   \$0   \$40   \$3   \$2

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 3 bytes, maximum = 62 bytes.

WARNING: Status Buffer has not been defined.

## FOR HP INTERNAL USE ONLY

### PINDEX

The **PINDEX** instruction will set the parameter block index to point to the value specified. The value given will be used as the index of the next available space in the "PB" buffer. This instruction is provided for those users who require control over the **PINDEX** entries required for some DAP instructions. If this instruction is used, the user is responsible for verifying that the contents of the "PB" buffer is correct. Use of this instruction may cause the values in the "PB" buffer to be overwritten.

#### Syntax:

**PINDEX {value}**

#### Example:

```
IOTT>debuff buff1,10,byte
IOTT>fillbuff buff1 (0),2
IOTT>debuff buff2,10,byte
IOTT>fillbuff buff2(0),4
IOTT>sethpib
IOTT>winterf buff1,5
IOTT>pindex3
IOTT>winterf buff2,6
IOTT>showhpib
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 6 bytes, maximum = 512 bytes.

DAP(0): 40, 5 1 40 6 4

Parameter Block. Current length = 9 bytes, maximum = 62 bytes.

PB(0): 2 2 2 4 4 4 4 4 4

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

**RBURST**

The **RBURST** instruction will append the read\_burst command to the DAP currently being built. The **SECONDARY** parameter is device dependent and will be used as the secondary command on the HP-IB. The **BUFFER NAME** parameter specifies the I/O buffer to which the data is to be stored. The length of the transfer is given by the **LENGTH** parameter, which is assumed to be given in buffer units. The **#BURST** parameter indicates the number of burst involved in the transfer. The **BURSTLEN** parameter indicates the length of each burst in bytes ( 8-bits). Read\_burst causes a sequence of data buffers to be sent from the device to the user with a break between each buffer.

**Syntax:**

**RBURST** {secondary},{buffer name},{length},{#burst},{burstlen}

**Example:**

```
IOTT>debuff buff,30,byte
IOTT>sethpi
IOTT>rburstm 3,buff,30,2,15
IOTT>showhpi
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 4 bytes, maximum = 512 bytes.

DAP(0): 32 3 2 15

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

DMA Buffer Name = BUFF DMA Transfer Length = 30 bytes.

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

## FOR HP INTERNAL USE ONLY

### RDATA

The RDATA instruction will append the read command to the current DAP being built. The SECONDARY parameter is device dependent and will be used as the secondary command on the HP-IB. The SINDEK specifies where in the user defined status buffer the data transfer is to begin for the length, in bytes (8-bits), given by the LENGTH parameter. Read causes the device to be addressed and a buffer of data to be sent from the device to the status buffer.

#### Syntax:

RDATA {secondary},{sindex},{length}

#### Example:

```
IOTT>sethpb  
IOTT>rdata $5,1,5  
IOTT>showhpb : hex
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 4 bytes, maximum = 512 bytes.

DAP(0): \$22 \$5 \$5 \$1

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 7 bytes, maximum = 62 bytes.

WARNING: Status Buffer has not been defined.

**RDMA**

The RDMA instruction will append the read\_dma command to the DAP currently being built. The SECONDARY parameter is device dependent and will be used as the secondary command on the IIP-IB. The data sent to the device will be obtained from the buffer specified by the BUFFER NAME parameter, for the length specified. The LENGTH parameter is assumed to be given in the buffer defined units. Read\_dma causes the device to be addressed and a buffer of data to be obtained from the device. The data will be terminated by an EOI.

**Syntax:**

RDMA {secondary},{buffer name},{length}

**Example:**

```
IOTT>debuff buff,4000,byte
IOTT>sethpib
IOTT>rdma 15,buff,4000
IOTT>showhpib : hex
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 2 bytes, maximum = 512 bytes.

DAP(0): \$16 \$F

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

DMA Buffer Name = BUFF DMA Transfer Length = 4000 bytes.

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.



## FOR HP INTERNAL USE ONLY

### SETHPIB

The **SETHPIB** instruction will indicate to I/O Test Tool that a building of HP-IB device adapter program (DAP) is to begin. The DAP which may have been built previously will be destroyed. Also, if a DAP was previously being built, a warning message will be displayed to indicate that the pending IIP-IB DAP will be destroyed.

Among the tasks performed by this instruction is the allocation of two I/O buffers. One buffer, which has the buffer name "DAP", will hold the device adapter program while it is being built. The second buffer, which has the buffer name "PB", will hold the parameter block while the DAP is being built. These I/O buffers will be allocated as BYTE buffers of the maximum length acceptable by the IIP-IB device adapter. These two buffers will be redefined if the user has created these buffers prior to executing these instructions. Since "DAP" and "PB" are I/O buffers, the **ALTBUFF** instruction may be used to alter any part of these buffers. This will allow the user to access IIP-IB DAP commands which may not be available through I/O Test Tool.

#### Syntax:

**SETHPIB**

#### Example:

```
IOTT>sethpi
IOTT>showbuff
BUFFER NAME      TYPE      LENGTH
PB               BYTE      62
DAP              BYTE      512
IOTT>showhpi
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 0 bytes, maximum = 512 bytes

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

## FOR HP INTERNAL USE ONLY

### SHOWHPIB

The SHOWHPIB instruction will display the contents of the HP-IB device adapter program built through the HP-IB DAP instructions. The information displayed is the I/O buffer "DAP" which contains the device adapter program, the I/O Buffer "PB" which contains the parameter block for the I/O request, and the user-defined status buffer. The length of each buffer is also displayed, as well as the I/O buffer involved in the DMA transfer. Only the portions of the buffers with valid data will be displayed. The user may request the values be displayed in HEX, OCT, or DEC by specifying the appropriate option. If a display option is not given, decimal will be used.

#### Syntax:

SHOWHPIB [:display mode]

#### Optional Parameters:

*display mode*                      A mode in which values are to be displayed in HEX, OCT, or DEC.

#### Example:

```
IOTT>sethpb  
IOTT>showhpb
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 0 bytes, maximum = 512 bytes

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

## FOR HP INTERNAL USE ONLY

### TIMEOUTOFF

The TIMEOUTOFF instruction will append the timeout\_off command to the DAP currently being built. The timeout\_off causes the device's timeout address to be set false, thus preventing a transfer of control if the device's timer runs down.

#### Syntax:

TIMEOUTOFF

#### Example:

```
IOTT>sethpiB
IOTT>timeoutoff
IOTT>showhpiB
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 1 bytes, maximum = 512 bytes.

DAP(0): 68

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

## **TIMESTAMP**

The **TIMESTAMP** instruction will append the `time_stamp` command to be DAP currently being built. The **SINDEX** parameter specifies the index within the user defined status buffer where the card's timer 2-byte value is to be placed; this causes the card's timer to be placed into the specified location in the status buffer. When the timer rolls over it goes from 65536 to 0.

### **Syntax:**

**TIMESTAMP** {sindex}

### **Example:**

```
IOTT>sethpb  
IOTT timestamp 3  
IOTT>showhpb : hex
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 2 bytes, maximum = 512 bytes.

DAP(0): \$46 \$3

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 5 bytes, maximum = 62 bytes.

WARNING: Status Buffer has not been defined.

## FOR HP INTERNAL USE ONLY

### UNLOCK

The **UNLOCK** instruction will append the unlock instruction to the DAP currently being built. **UNLOCK** command causes the lock flag to be reset to permit commands other than **case\_jump**, **timeout**, and **jump** to be interpreted.

#### Syntax:

**UNLOCK**

#### Example:

```
IOTT>sethpi  
IOTT>unlock  
IOTT>showhpi
```

Device Adapter Program in Progress.

Device Adapter Program. Current length = 1 bytes, maximum = 512 bytes.

DAP(0): 14

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

## FOR HP INTERNAL USE ONLY

### WAITPOLL

The WAITPOLL instruction will append a wait\_ppoll or wait\_ppoll\_nb command to the DAP currently being built. If the NOBREAK option is given, the wait\_ppoll\_nb command will be appended, otherwise the wait\_ppoll command will be used. The wait\_ppoll command indicates that the device adapter should suspend execution of the device adapter control program until the device responds with an affirmative response to an HP-IB parallel poll operation.

#### Syntax:

WAITPOLL [:nobreak]

#### Example:

```
IOTT>sethpb  
IOTT>waitpoll  
IOTT>waitpoll : nobreak  
IOTT>showhpb
```

Device Adapter Program Build in Progress

Device Adapter Program. Current length = 2 bytes, maximum = 512 bytes

DAP(0): 18 20

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

## FOR HP INTERNAL USE ONLY

### WBURST

The **WBURST** instruction will append the `write_burst` or the `write_burst_e` command to the DAP currently being built. The **SECONDARY** parameter is device dependent and will be used as the secondary command on the HP-IB. The **BUFFER NAME** parameter will specify the I/O buffer from which the data is to be transferred. The **LENGTH** parameter, which is assumed to be given the buffer units, specifies the length of the transfer. The **#BURST** parameter specifies the number of bursts required by the transfer. If the **EOI** option is given, the `write_burst_e` command will be appended instead of the `write_burst` command. `Write_burst` command causes the device to be addressed and a sequence of data buffers from the host to be sent to the device with a break.

#### Syntax:

**WBURST** {secondary},{buffer name},{length},{#burst}[:eoi]

#### Example:

```
IOTT>sethpb  
IOTT>defbuff buff,512,byte  
IOTT>wburst $15,buff,512,2:eoi  
IOTT>showhpb
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 3 bytes, maximum = 512 bytes.

DAP(0): 30 21 2

Parameter Block. Current length = 0 bytes, maximum = 62 bytes.

DMA Buffer Name = BUFF DMA Transfer length = 512 bytes.

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

## FOR HP INTERNAL USE ONLY

### WDATA

The **WDATA** instruction will append the write or write\_e command to the DAP currently being built. The **SECONDARY** parameter is device dependent and will be used as the secondary command on the HP-IB. The **BUFFER NAME** parameter gives the name of the buffer containing the data to be sent to the device. This data will be copied into the buffer "PB" at the next available space. The "PB" buffer is the parameter block for the I/O request. The amount of data copied is determined by the **LENGTH** parameter. If the **EOI** option is given the write\_e command will be appended instead of the write command. The write command causes the device to be addressed and data from the request buffer to be sent to it.

#### Syntax:

**WDATA** {secondary},{buffer name},{length} [:eoi]

#### Example:

```
IOTT>defbuff buff,2,byte
IOTT>altbuff buff(0),3,5
IOTT>sethpib
IOTT>wdata $5,buff,2:eoi
IOTT>showhpib : hex
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 4 bytes, maximum = 512 bytes.

DAP(0): \$26 \$5 \$2 \$1

Parameter Block. Current length = 2 bytes, maximum = 62 bytes.

PB( 0): \$3 \$5

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.



## FOR HP INTERNAL USE ONLY

### WDMA

The **WDMA** instruction will append the **Write\_dma** or **Write\_dma\_e** command to the DAP currently being built. The **SECONDARY** parameter is device dependent and will be used as the secondary command on the HP-IB. The data sent to the device will be obtained from the buffer specified by the **BUFFER NAME** parameter, for the length specified. The **LENGTH** parameter is assumed to be given in buffer defined units. The **Write\_dma\_e** command will be appended if the **EOI** option is given. **Write\_dma** command causes the device to be addressed and a buffer of data from the host to be sent to the device. The data will be terminated with an **EOI**.

#### Syntax:

**WDMA** {secondary},{buffer name},{length} [:eoi]

#### Example:

```
IOTT>defbuff buffer,256,byte
IOTT>fillbuff buffer(0),"a"
IOTT>sethpb
IOTT>wdma $5,buffer,256:eoi
IOTT>showhpb
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 2 bytes, maximum = 512 bytes.

DAP(0): 26 5

Parameter Block. Current length = 2 bytes, maximum = 62 bytes.

DMA Buffer Name = BUFF DMA transfer length = 256 bytes.

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

## FOR HP INTERNAL USE ONLY

### WINTERF

The **WINTERF** instruction will append the write\_interface command to the DAP currently being built. The data to be sent to the device is given by the BUFFER NAME parameter. The data within the buffer will be copied to the buffer "PB" at the next available space. The "PB" buffer is the parameter block for the request. The length of the copy is given by the LENGTH parameter, which is assumed to be given in buffer defined units. Write\_interface command causes an interface message to be sent from the request buffer to the device. This is used to send a command which has no data message part or has interface message bytes not in the Write command interface message to the device.

#### Syntax:

**WINTERF** {buffer name},{length}

#### Example:

```
IOTT>defbuff buff,5,bytes
IOTT>altbuff buff(0),1,2,3,4,5
IOTT>sethpb
IOTT>winterf buff,5
IOTT>showhpb : hex
```

Device Adapter Program Build in Progress.

Device Adapter Program. Current length = 3 bytes, maximum = 512 bytes.

DAP(0):   \$28   \$5   \$1

Parameter Block. Current length = 5 bytes, maximum = 62 bytes.

PB( 0):   \$1   \$2   \$3   \$4   \$5

Status Buffer. Required length = 0 bytes, maximum = 62 bytes.

## HP-CIO DMA Chain Instructions

I/O Test Tool provides instructions for the user to create unique HP-CIO DMA chains, which can be used to control the protocol across the HP-CIO. The format of creating the HP-CIO chain is similar to that of the HP-IB device adapter programs. The chain building must begin with a **SETHPCIO** instruction and must end with an **ENDHPCIO** instruction. Since the user will probably wish to modify the HP-CIO chain, it is recommended that the HP-CIO chain instructions be given in program mode. The **SHOWHPCIO** instruction may be used to monitor the progress of the HP-CIO DMA chain build.

The I/O request can be issued by using the **EXECUTE** instruction with the "HPCIO" function identifier. Information specified by the Predefined I/O request instructions (**SETDATA** and others) will be ignored when "EXECUTE HPCIO" is issued. The desired device adapter must be specified by the **SETDEVICE** instruction (i.e., **SETDEVICE PDEV=1.2 [CA 1, DA 2]**). If an error is encountered, the residue count for the DMA transfers will be displayed to the user. Since unique HP-CIO DMA chains have the potential of forcing the device into an abnormal state, such program usage will be available **ONLY IN SINGLE USER MODE**.

**ADDQUAD**

The ADDQUAD instruction will append a quad with the information given by the user, to the current DMA chain being built. The first parameter given can be a ORDER ID which will specify the HP-CIO order to be used. The list of the ORDER ID is given below. The second parameter is the name of the buffer to be used for that I/O transfer. The LENGTH parameter specifies the length of the transfer which is assumed to be given in buffer units. The user also has the flexibility of specifying a command word in place of an ORDER ID. This will allow the user to give a full 32-bit command word. No alterations will be performed on this value, and all IIP-CIO options given will be ignored.

```
RDORDER - Read Data Order
RSORDER - Read Status Order
WCORDER - Write Control Order
WDORDER - Write Data Order
CLCORDER - Connect Logical Channel Order
IDYORDER - Identify Order
```

**Syntax:**

```
ADDQUAD {order ID},{buffer name},{length}[:hpcio options]
ADDQUAD {cmd value},{buffer name},{length}
```

**Optional Parameters:****HPCIO options:**

|                   |                                                                                                                                |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <i>BYTE</i>       | Indicates that a byte mode transfer is requested (bit 3 of order).                                                             |
| <i>BREAK</i>      | Indicates that a logical break is to be performed after this quad (bit 10 of commands word).                                   |
| <i>DISCONNECT</i> | Indicates that a disconnect of the subchannel or logchannel is to be performed following the transfer (bit 7 of command word). |
| <i>CONTINUE</i>   | Indicates that the next quad is a continuation of the same DMA transfer (bit 30 of command word).                              |
| <i>EXACT</i>      | Indicates that if DMA terminates before count is exhausted, an interrupt will be issued to the CPU (bit 31 of command word).   |

**Example:**

```
IOTT>sethpcio
IOTT>defbuff buff,9,byte
IOTT>addquad idyorder,buff,9
IOTT>endhpcio
IOTT>showhpcio : hex
```

**FOR HP INTERNAL USE ONLY**

HPCIO DMA Chain has been Built. Program Length = 1

HPCIO Statement Number 1

Command word = \$8010000  
Count Word = 9 bytes I/O Buffer Name = BUFF  
Residue Count = 0 bytes

**FOR HP INTERNAL USE ONLY**

**ENDHPCIO**

The **ENDHPCIO** instruction will indicate to I/O Test Tool that the building of the HP-CIO DMA chain has completed. The user may now execute the HP-CIO DMA chain by using the **EXECUTE** instruction.

**Syntax:**

**ENDHPCIO**

**Example:**

```
IOTT>endhpcio
IOTT>defbuff idydata,9,byte
IOTT>addquad idyorder,idydata,9
IOTT>endhpcio
IOTT>showhpcio
```

HPCIO DMA Chain has been Built.      Program Length = 1

HPCIO Statement Number 1

```
Command word =      134283264
Count Word    =            9 bytes    I/O Buffer Name = IDYDATA
Residue Count =            0 bytes
```

## FOR HP INTERNAL USE ONLY

### SETHPCIO

The SETHPCIO instruction will indicate to I/O Test Tool that the building of an HP-CIO DMA chain is to begin. Any DMA chains which were created previously will be destroyed. If a chain was in the process of being built when this instruction is given, a warning message will be displayed, and the previous chain will be destroyed.

#### Syntax:

SETHPCIO

#### Example:

```
IOTT>sethpcio
IOTT>showhpcio
*** NO HPCIO INSTRUCTIONS HAVE BEEN GIVEN ( IOTERR 4752 )
```

## FOR HP INTERNAL USE ONLY

### SHOWHPCIO

The **SHOWHPCIO** instruction will display the contents of the HP-CIO DMA chain. All information given in the **ADDQUAD** instruction will be displayed. The command word will display the bit pattern which will be the command word of the DMA quad. This is a translation of the **ORDER ID** and the **HPCIO** options of the **ADDQUAD** instruction. The count word indicates the number of bytes requested to be transferred. The **I/O buffer name** field indicates the name of the buffer involved in the transfer. The residue field will be filled in after the **EXECUTE** command has been given. The residue field displays the number of bytes not transferred. If a display mode option is given, the command word will be displayed in the given **RADIX**.

#### Syntax:

**SHOWHPCIO** [:display mode]

#### Optional Parameters:

*display mode*                      A mode in which values are to be displayed in HEX, OCT or DEC.

#### Example:

```
IOTT>sethpcio
IOTT>defbuff buff,9,byte
IOTT>addquad idyorder,buff,9
IOTT>endhpcio
IOTT>showhpcio : hex
```

HPCIO DMA Chain has been Built.      Program Length = 1

HPCIO Statement Number 1

```
Command word =      $8010000
Count Word    =            9 bytes    I/O Buffer Name = BUFF
Residue Count =            0 bytes
```



---

## Program Statement Summary

Program statements are inputs which can only be used as part of a program; these include statements such as GOTO and PRINT. The following is a list and brief description of program statements available in IOTT.

| Command Name     | Description                                                                             |
|------------------|-----------------------------------------------------------------------------------------|
| COMMENT          | Allows user to document the programs created.                                           |
| DO-LOOP TO       | Allows user to loop a group of program statements for a specified number of iterations. |
| GOTO             | Allows user to jump unconditionally to another statement within the program.            |
| IF-THEN/IFN-THEN | Allows user to conditionally jump to another statement within the program.              |
| PAUSE            | Allows user to enter PAUSE mode during the execution of a program.                      |
| PRINT            | Displays specified ASCII text to the user.                                              |
| STOP             | Terminates the execution of the program stored in the Program Storage Area.             |

## Program Descriptions

The following pages provide a detailed description of each of the available I/O Test Tool program statements. The description includes information about syntax, options available for each program statement, limitations of each program statement and examples.

---

## Program Statements

The following statements will be available in program mode only. Each of these statements must be preceded by an integer line number. Comments must be enclosed with braces ({ }) if the text is within the input. A left brace ( { ) alone specifies that the text following is a comment.

## COMMENT

The **COMMENT** program statement will allow the user to document the programs created. This statement will be ignored during program execution.

### Syntax:

```
{line number} COMMENT [ascii text]
```

### Example:

```
IOTT>10 comment {this is an example of the comment statement}  
IOTT>20 comment {so is this}  
IOTT>30 comment {and this too}  
IOTT>run      {Nothing will happen}  
IOTT>
```

**DO-LOOPTO**

The DO-LOOPTO program statements will allow the user to loop a group of program statements for the specified number of iterations. The count parameter of the DO statement indicates the number of iterations to be performed. The line number parameter of the LOOPTO statement must match the line number of the corresponding DO statement. The program statements between the DO and the LOOPTO statements will be executed for the specified iterations.

Currently, the user can nest DO-LOOPTO constructs for a depth of 10. When entering the RUN command, each DO-LOOPTO construct will be checked to verify that the LOOPTO parameter matches the last unmatched DO statements in the program. If a conflict is encountered, an error message will be displayed to the user and the program will not be executed.

During the execution of the program, any statements which permit jumps, such as GOTO and IF-THEN, will be allowed to reference lines within a DO-LOOPTO construct. But an error message will be displayed during the LOOPTO statement execution indicating that a LOOPTO statement was encountered without executing the corresponding DO statement. The program will continue to the statement following the LOOPTO after the error message has been displayed.

**Syntax:**

```
{line number} DO {count}
    {group of program statements}
{line number} LOOPTO {line number}
```

**Example:**

```
IOTT>10 do 3      {Repeat 3 times}
IOTT>20 print "line 20"
IOTT>30 loopto 10
IOTT>40 print "end execution"
IOTT>run
line 20
line 20
line 20
end execution
IOTT>
```

## FOR HP INTERNAL USE ONLY

### GOTO

The GOTO program statement will allow the user to jump unconditionally to another statement within the program. The parameter given indicates the statement which is the destination of the jump.

When entering the RUN command, each GOTO program statement will be checked to verify that the destination line is present in the Program Storage Area. If not, an error message will be displayed to the user, and the program will not be executed.

#### Syntax:

{line number} GOTO {line number}

#### Example:

```
IOTT>10 print "line 10"
IOTT>20 print "line 20"
IOTT>30 goto 50           {Skip line 40}
IOTT>40 print "line 40"
IOTT>50 print "line 50"
IOTT>run
line 10
line 20
line 50
IOTT>
```

**IF-THEN or IFN-THEN**

The IF-THEN and IFN-THEN program statements will allow the user to conditionally jump to another statement within the program. The first parameter of the statement is the expression, which will be used to determine whether the jump should be performed. For the IF statement, if the expression results in a non-zero, the jump will be performed. For the IFN statement, if the expression results in a zero value, the jump will be performed. The parameter after the reserved word "THEN" will specify the line number of the statement which is the destination of the jump. If the expression indicates that the jump is not to be performed, the statement following the IF will be executed.

The expression parameter for the IF statement can be given in either of two formats. The first format will allow the user to compare two operands, which can be a single buffer element or a literal value. The literal values can be specified in HEX(\$), OCTAL(%), decimal or ASCII(' '). ASCII can only be used with byte buffers, and in cases where two buffer elements are involved, both buffers must be of the same type. The two operands must be separated by an operator symbol.

Operators available are:

|     |                  |
|-----|------------------|
| =   | Equal            |
| <>  | Not equal to     |
| AND | Logical Operator |
| OR  | Logical Operator |

For the "=" and "<>" operators, if the two operands are equal, the result will be interpreted as a non-zero value. For the "AND" and "OR" operators, the indicated logical functions will be performed, and the result of the function will determine if the jump should be performed.

The second expression format will determine whether the jump is to be performed depending on the success of the last statement executed. In this case, the "=" operand is given and the last statement executed successfully, then the jump will be performed. If the "<>" operand is given, the jump will be performed if the last statement encountered an error.

When entering the RUN command, each IF and IFN statement will be checked to verify that the destination line exists. If the line is not within the Program Storage Area, an error message will be displayed to the user, and the program will not be executed.

**Syntax:**

```
{line number} IF {opand}{opor}{opand} THEN {line number}
{line number} IF = THEN {line number}
{line number} IF <> THEN {line number}
```

FOR HP INTERNAL USE ONLY

Example:

```
IOTT>10 defbuff sample1,30,word
IOTT>20 defbuff sample2,40,word
IOTT>30 fillbuff sample1,0      {Fill buffer with zeros}
IOTT>40 altbuff sample1,0,1,2,3,4
IOTT>50 if sample1(0) = sample2(0) then 80
IOTT>60 print "buffers do not match"
IOTT>70 stop
IOTT>80 print "Sample1(0) <> $A"
IOTT>90 if sample1(0) <> $A then 110
IOTT>100 goto 60
IOTT>110 print "Sample1(0) <> $A"
IOTT>120 compbuff sample1(0),sample2(0),3 {Compare 3 values}
IOTT>130 if = then 160
IOTT>140 print "comparison was successful"
IOTT>150 stop
IOTT>160 print "comparison was not successful"
IOTT>run
Sample1(0) = Sample2(0)
Sample1(0) <> $A
SAMPLE1 ( 1 ) = 0
SAMPLE2 ( 1 ) = 1
SAMPLE1 ( 2 ) = 0
SAMPLE2 ( 2 ) = 2
comparison was not successful
IOTT>
```

**PAUSE**

The **PAUSE** program statement will allow the user to enter **PAUSE** mode during the execution of a program. In **PAUSE** mode, the user will be permitted to execute any instruction or command which will not alter the contents of the Program Storage Area. This will give the user a chance to suspend the execution of the program to perform some other task before resuming or aborting the program. Upon entering **PAUSE** mode, the line number of the **PAUSE** statement will be displayed to the user, and the prompt **IOTTPAUSE>** will be used until the user leaves **PAUSE** mode. The program can be continued by issuing a **RESUME** command, or can be terminated by entering the **ABORT** command. After the program has completed, or the **ABORT** command is entered, the prompt will return to the normal **IOTT>**.

**Syntax:**

```
{line number} PAUSE
```

**Example:**

```
IOTT>10 print "line 10"
IOTT>20 print "line 20"
IOTT>30 pause
IOTT>40 print "line 40"
IOTT>run
line 10
line 20
PAUSE Statement encountered on Line Number 30
IOTTPAUSE>list all
10 print "line 10"
20 print "line 20"
30 pause
40 print "line 40"
IOTTPAUSE>resume
line 40
IOTT>
```



## PRINT

The **PRINT** program statement will display the specified ASCII text to the user. If the user specifies a null string (), a carriage return will be performed.

### Syntax:

```
{line number} PRINT "[ascii text]"
```

### Example:

```
IOTT>10 print "line 10"  
IOTT>20 print "line 20"  
IOTT>30 print "line 30"  
IOTT>run  
line 10  
line 20  
line 30  
IOTT>
```

## FOR HP INTERNAL USE ONLY

### STOP

The STOP program statement will terminate the execution of the program stored in the Program Storage Area. All statements after the STOP statement will not be executed. If a STOP program statement is not present in a program, execution will terminate after the last statement found in the Program Storage Area. The line number of the STOP statement will be displayed to the user when the statement is encountered.

#### Syntax:

{line number} STOP

#### Example:

```
IOTT>10 print "line 10"
IOTT>20 print "line 20"
IOTT>30 stop
IOTT>40 print "line 40"
IOTT>run
line 10
line 20
STOP Statement Encountered on Line Number 30
IOTT>
```

## Predefined I/O Requests

Predefined I/O requests are categorized by device type:

- Tape drive
- Page printer
- CIPER device
- HP-IB Device Adapter
- CIO Channel Adapter
- Six-Channel Terminal Multiplexer

The device commands are listed in alphabetical order. The following pages provide quick reference summary lists (Tables 5-1./5-6.) and descriptions of each of the available I/O requests, along with information needed to issue them successfully. Each description is followed by five categories of tabular information:

|                   |                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MNEMONIC</b>   | Indicates the identifier which must be given in the Execute instruction to initiate a particular I/O request.                                                                                                                                                                                                                                                         |
| <b>SETADDR</b>    | The word "required" found in this column indicates that a Setaddr instruction must be performed to request the I/O. If not, the reserved disk area will be used.                                                                                                                                                                                                      |
| <b>SETDATA</b>    | The symbol "<data1>" found in this column indicates that a Setdata instruction must be performed to request the I/O. The length of the data to be used can be chosen by the user. Special requirements may be specified in the explanation. If the symbol "<data2>" is found in this column, an auxiliary buffer and length must be given in the Setdata instruction. |
| <b>SETOPTION1</b> | Indicates that a Setoption instruction with at least one parameter must be performed. If the parameter is to be a reserved word, the possible reserved words will be listed. If a literal value is expected, the possible values will be listed.                                                                                                                      |
| <b>SETOPTION2</b> | Indicates that a Setoption instruction with at least two parameters must be performed. The presentation of this column is identical to that of Setoption1.                                                                                                                                                                                                            |

Those entries noted with dashes (-&—) are not used by that particular I/O request. If the instruction is entered, the information given will be ignored.

FOR HP INTERNAL USE ONLY

Table 5-1. Tape Drive Device

| REQUEST    | SETADDR | SETDATA | SETOPTION1     | SETOPTION2 |
|------------|---------|---------|----------------|------------|
| BSF        | ---     | ---     | ---            | ---        |
| BSR        | ---     | ---     | ---            | ---        |
| CLEAR      | ---     | ---     | ---            | ---        |
| REQSTAT    | ---     | ---     | ---            | ---        |
| REPORTMODE | ---     | ---     | enable/disable | ---        |
| FSF        | ---     | ---     | ---            | ---        |
| FSR        | ---     | ---     | ---            | ---        |
| GAP        | ---     | ---     | ---            | ---        |
| IDENTIFY   | ---     | <data1> | ---            | ---        |
| IORESULT   | ---     | ---     | ---            | ---        |
| LOOPBACK   | ---     | <data>  | ---            | ---        |
| READ       | ---     | <data>  | ---            | ---        |
| REWIND     | ---     | ---     | ---            | ---        |
| REWINDOFF  | ---     | ---     | ---            | ---        |
| SELFTTEST  | ---     | <data>  | <selftest #>   | ---        |
| SELSPEED   | ---     | ---     | 100            | ---        |
|            |         |         | 50             |            |
| DENSITY    | ---     | ---     | 800            | ---        |
|            |         |         | 1600           |            |
|            |         |         | 6250           |            |
| WRITE      | ---     | <data>  | ---            | ---        |
| WFM        | ---     | ---     | ---            | ---        |

FOR HP INTERNAL USE ONLY

Table 5-2. Disk Drive

| REQUEST  | SETADDR  | SETDATA | SETOPTION1   | SETOPTION2   |
|----------|----------|---------|--------------|--------------|
| CANCEL   | ---      | ---     | ---          | ---          |
| MC       | ---      | ---     | ---          | ---          |
| DESCRIBE | ---      | <data>  | ---          | ---          |
| PCHECK   | ---      | ---     | parityon     | srqon        |
|          | ---      | ---     | parityoff    | srqoff       |
| IDENTIFY | ---      | <data>  | ---          | ---          |
| SELFTEST | ---      | ---     | <loop #>     | <selftest #> |
| READ     | required | <data>  | ---          | ---          |
| RFS      | required | <data>  | ---          | ---          |
| RFSI     | ---      | <data>  | ---          | ---          |
| RDI      | ---      | <data>  | ---          | ---          |
| LOCVER   | required | ---     | <length #>   | ---          |
| LOCVERI  | ---      | ---     | <length #>   | ---          |
| WRITE    | required | <data>  | ---          | ---          |
| WDI      | ---      | <data>  | ---          | ---          |
| LOOPBACK | ---      | <data>  | <read/write> | ---          |
| MOP      | ---      | ---     | ---          | ---          |
| RELEASE  | ---      | ---     | ---          | ---          |
| RELDEN   | ---      | ---     | ---          | ---          |
| REQSTAT  | ---      | ---     | ---          | ---          |
| CLEAR    | ---      | ---     | ---          | ---          |
| ADDRESS  | required | ---     | ---          | ---          |
| SBLKDISP | ---      | <data>  | ---          | ---          |
| BURST    | ---      | ---     | last         | <block #>    |
|          | ---      | ---     | all          | ---          |
| LENGTH   | ---      | ---     | <length #>   | ---          |
| SETOPTS  | ---      | ---     | <option #>   | ---          |
| SETREL   | ---      | ---     | timeon       | autoon       |
|          | ---      | ---     | timeoff      | autooff      |
| SETRETIM | ---      | ---     | <time>       | ---          |
| RETAMOD  | ---      | ---     | vector 1     | ---          |
|          | ---      | ---     | vector 3     | ---          |
| RPS      | ---      | ---     | <time 1>     | ---          |
| MASKSTAT | ---      | <data1> | ---          | <time 2>     |
| VOLUME   | ---      | ---     | <volume #>   | ---          |
| UNIT     | ---      | ---     | <unit #>     | ---          |
| WFM      | ---      | ---     | ---          | ---          |

FOR HP INTERNAL USE ONLY

Table 5-3. Page Printer Devices

| REQUEST   | SETADDR | SETDATA | SETOPTION1    | SETOPTION2 |
|-----------|---------|---------|---------------|------------|
| CLEAR     | ---     | ---     | hard<br>soft  | ---        |
| IDENTIFY  | ---     | <data>  | ---           | ---        |
| LOOPBACK  | ---     | <data>  | read<br>write | ---        |
| ENVSTAT   | ---     | ---     | ---           | ---        |
| REQSTAT   | ---     | ---     | ---           | ---        |
| SELFTTEST | ---     | <data>  | read<br>write | ---        |
| WRITE     | ---     | <data>  | ---           | ---        |

Table 5-4. CIPER Devices

| REQUEST  | SETADDR | SETDATA | SETOPTION1 | SETOPTION2 |
|----------|---------|---------|------------|------------|
| CLEAR    | ---     | <data>  | ---        | ---        |
| IDENTIFY | ---     | <data>  | ---        | ---        |
| READ     | ---     | <data>  | ---        | ---        |
| WRITE    | ---     | <data>  | ---        | ---        |

Table 5-5. HP-IB Device Adapter

| REQUEST   | SETADDR | SETDATA | SETOPTION1 | SETOPTION2 |
|-----------|---------|---------|------------|------------|
| IDENTIFY  | ---     | <data>  | ---        | ---        |
| LOOPBACK  | ---     | <data>  | ---        | ---        |
| REQSTAT   | ---     | ---     | ---        | ---        |
| SELFTTEST | ---     | <data>  | ---        | ---        |

**FOR HP INTERNAL USE ONLY**

**Table 5-6. CIO Channel Adapter**

| REQUEST  | SETADDR | SETDATA | SETOPTION1 | SETOPTION2 |
|----------|---------|---------|------------|------------|
| IDENTIFY | ---     | <data>  | ---        | ---        |
| REQSTAT  | ---     | ---     | ---        | ---        |
| SELFTEST | ---     | ---     | ---        | ---        |

**Table 5-7. TMUX Device Adapters**

| REQUEST  | SETADDR | SETDATA | SETOPTION1 | SETOPTION2 |
|----------|---------|---------|------------|------------|
| IDENTIFY | ---     | <data>  | ---        | ---        |
| LOOPBACK | ---     | <data>  | ---        | ---        |
| REQSTAT  | ---     | ---     | ---        | ---        |
| SELFTEST | ---     | ---     | ---        | ---        |

## Examples

### Example 1: Read and Write to a CS80 Disk.

This example will write 256 words of data from I/O Buffer SOURCE to the disk, and will then read this data back into I/O Buffer RETURN. The contents of these two buffers are then compared. If the buffers are identical, a message will be displayed to the user indicating that fact.

```

IOTT>setdevice ldev=3
IOTT>showdev
      LDEV      PDEV      PRODUCT
      3          5.5.0      hp 7935

Current Device is the following:
      3          5.5.0      hp 7935
IOTT>defbuff status,20,byte:status      {Define user status buffer}
IOTT>defbuff source,256,word             {Define I/O buffers needed}
IOTT>defbuff return,256,word
IOTT>fincbuff source(0),0,255            {Pattern is data from 0..255}
IOTT>30 setdata source,256
IOTT>40 setaddr 2000                     {Use logical sector 2000}
IOTT>45 print "executing write"
IOTT>50 execute write                    {Write data to disk}
IOTT>60 setdata return,256
IOTT>65 print "executing read"
IOTT>70 execute read                     {Read data to RETURN buffer}
IOTT>75 print "start comparison"
IOTT>80 compbuff source(0),return(0),256,10 {Compare buffers}
IOTT>90 if <> then 110                   {Are the buffers identical?}
IOTT>100 print "comparison successful"
IOTT>110 stop
IOTT run
executing write
executing read
start comparison
comparison successful
STOP Statement Encountered on Line Number 110
IOTT>

```



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**Example 2: Limited Disk Pattern Search**

This example will search the disk for a particular data pattern. In this example, the data pattern to be found is stored in buffer SEARCH. The buffer RETURN will hold the data from the disk. To make sure that the pattern can be found in this example, the search pattern is written to address 2000 (single vectored), and the search process will start at address 1998 (single vectored).

```
IOTT>setdevice ldev=3
IOTT>20 defbuff return,256,byte
IOTT>30 defbuff hardstat,20,byte:status
IOTT>31 defbuff search,20,byte
IOTT>32 altbuff search(0),"search string"
IOTT>33 setaddr 2000
IOTT>34 setdata search,13
IOTT>35 execute write
IOTT>40 setaddr 1998
IOTT>50 eincaddr 1
IOTT>60 setdata return,256
IOTT>70 execute read
IOTT>80 if = then 105
IOTT>90 dstatus
IOTT>100 pause
IOTT>105 do 250
IOTT>111 compbuff search(0),return(0),10,1,diff
IOTT>120 if = then 140
IOTT>130 pause
IOTT>140 copybuff return(1),return(0),255
IOTT>143 loopto 105
IOTT>145 goto 60
IOTT>run
SEARCH ( 0 ) = s
RETURN ( 0 ) = s
***ERROR DETECTED AT LINE NUMBER 111 ( IOTTERR 5999 )
IOTTPAUSE>abort
```

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**Example 3: Forcing a Protocol Error on a CS80 Disk**

This example will force a protocol error (receive a message of the wrong length) to be returned from a CS80 disk. This example also demonstrates how the write data immediate I/O request can be used. The write data immediate I/O request will not send any CS80 complimentary commands with the write request. This means that the user must perform a SET LENGTH and a SET ADDRESS command before issuing the write. The protocol error is generated by issuing a SET LENGTH command specifying a data transfer length of 20 bytes, and then issuing the write request with a data transfer of 1024 bytes.

```
IOTT>setdevice ldev=3
IOTT>showdev
      LDEV      PDEV      PRODUCT
      3          5.5.0      hp 7935

Current Device is the following:
      3          5.5.0      hp 7935
IOTT>defbuff status,20,byte:status
IOTT>defbuff source,256,word
IOTT>setdata source,256      {Data to be used for write request}
IOTT>setaddr 2000            {Write data to logical sector 2000}
IOTT>execute address        {Execute Set Address command}
IOTT>setoption 20            {Data transfer will be 20 bytes}
IOTT>execute length         {Execute Set Length command}
IOTT>execute wdi            {Write data immediate of 256 words}
TRANSFER COUNT = 1024 BYTES : HARDWARE STATUS COUNT = 20 BYTES
***I/O FAILED DUE TO DEVICE ERROR - CHECK HARDWARE STATUS
      (DSSERR 501)
IOTT>dstatus                {Decode hardware status returned}

Status =

Unit = 0 Volume = 0

No units with status pending

>>>>>>>>> REJECT ERRORS <<<<<<<<<
Received a message of the wrong length

New target address is:
Block address = 2001
IOTT>
```

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### Example 4: Locate and Read Full Sector for a CS80 Disk

This example will perform a locate and read full sector at logical sector 2000. The data will be shifted six (6) bytes to the left, and then written back to sector 2000. This process is used very often by field people to recover data. Remember, read full sector will return a header of 6 bytes, followed by 256 bytes of data, and then a trailer of 7 bytes.

```
IOTT>setdevice ldev=3
IOTT>defbuff buff,269,byte
IOTT>defbuff status,20,byte:status
IOTT>setaddr 2000 {Use logical sector 2000}
IOTT>setdata buff,269 {Specify read buffer}
IOTT>execute rfs {Read full sector immediate}
IOTT>db buff {Display data read}
0-----1-----2-----3-----4-----5-----6-----
me="ijkl";mf="abcd";mg="stuv";mh="opqr";mj="ghij";mk="yzab"
BUFF( 0):....abcdefghijklmnopqrstuvwxyzabcdefghijklm
BUFF( 70):mnopqrstuvwxyzabcdefghijklmnpqrstuvwxyz
BUFF(140):efghijklmnopqrstuvwxyzabcdefghijklmnpqr
BUFF(210):wxyzabcdefghijklmnpqrstuvwxyzabcdefghijklmnpqrstuvQgxga).

IOTT>copy buff(6),buff(0),256 {Shift data left by 6 bytes}
IOTT>db buff {Confirm data movement}
0-----1-----2-----3-----4-----5-----6-----
BUFF( 0):abcdefghijklmnopqrstuvwxyzabcdefghijklm
BUFF( 70):stuvwxyzabcdefghijklmnpqrstuvwxyzabcdef
BUFF(140):klmnopqrstuvwxyzabcdefghijklmnpqrstuvwxyzabcdefghijklmnpqrstuvwx
BUFF(210):cdefghijklmnopqrstuvwxyzabcdefghijklmnpqrstuvqrstuvQgxga).

IOTT>setdata buff,256 {Change transfer count to 256}
IOTT>execute write {Write data to disk}
IOTT>
```

**Example 5: Unblocked Write to a Streaming Tape**

This example will write 16 blocks of data, and will verify the data by reading the blocks. The sequence for the reads will be read one block, rewind, read 2 blocks, rewind, until all 16 blocks are read. If any READ requests fail, the program will stop.

```

IOTT>10 setdevice ldev=7 {Device must be a tape}
IOTT>20 defbuff status,6,byte:status
IOTT>30 defbuff pattern,256,word
IOTT>40 fincbuff pattern(0),0,256
IOTT>50 setdata pattern,256
IOTT>60 execute write,16:unblock {Write data in streaming mode}
IOTT>65 execute ioresult
IOTT>66 if <> then 65
IOTT>70 defbuff index,1,word
IOTT>80 defbuff counter,1,word
IOTT>90 altbuff index(0),0
IOTT>100 defbuff return,256,word
IOTT>110 setdata return,256
IOTT>120 altbuff counter(0),0
IOTT>130 adjbuff index (0),1
IOTT>140 execute rewind
IOTT>150 adjbuff counter(0),1
IOTT>160 execute read
IOTT>170 if = then 210
IOTT>180 print "read failed"
IOTT>190 dstatus
IOTT>200 stop
IOTT>210 if index(0) <> counter(0) then 150
IOTT>220 compbuff pattern(0),return(0),256,10
IOTT>230 if = then 120
IOTT>240 pause
IOTT>250 if index(0) <> 16 then 120
IOTT>260 execute rewind
IOTT>270 stop
IOTT>execute rewind
IOTT>run
TRANSFER COUNT = 0 BYTES : HARDWARE STATUS COUNT = 0 BYTES
***I/O HAS NOT YET COMPLETED (DSSERR 510)
***ERROR DETECTED AT LINE NUMBER 65 ( IOTTERR 5999 )

STOP Statement Encountered on Line Number 270
IOTT>

```

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### Example 6: Write Lines of Text to EPOC

This example will write 80 lines of text to the EPOC printer. Before the text can be sent to the device, a job open record must be sent to the device. After this record is sent, the text itself is sent. The job is terminated by a clear environment record, and a job close. All records sent to the printer must be 1024 bytes long.

```

IOTT>10 setdevice ldev=14 {Device must be PP}
IOTT> 20 defbuff buff,1024,byte
IOTT> 30 defbuff status,32,byte:status {Store device status}
IOTT> 40 comment -- build job open record
IOTT> 50 altbuff buff(0),0,8 {Length of record}
IOTT> 60 altbuff buff(2),0,0 {No data transfer}
IOTT> 70 altbuff buff(4),0,142 {Function code: job open}
IOTT>80 altbuff buff(6),0,0,0,0 {P1 and P2 not used}
IOTT>90 altbuff buff(10),255,255 {Mark end of data}
IOTT>100 setdata buff,1024 {Issue job open}
IOTT>110 execute write
IOTT>120 comment -- build data record
IOTT>130 altbuff buff(0),0,88 {Length of record}
IOTT>140 altbuff buff(2),0,80 {Transfer 80 bytes}
IOTT>150 altbuff buff(4),0,1 {Function code: write}
IOTT>160 altbuff buff(6),0,32 {P1 - single space}
IOTT>170 altbuff buff(8),0,0 {P2 - not used}
IOTT>180 fillbuff buff(10),"",80 {Fill pattern}
IOTT>190 altbuff buff(40),"I/O Test Tool"
IOTT>200 altbuff buff(90),255,255 {Mark end of data}
IOTT>210 setdata buff,1024
IOTT>220 execute write,80 {Write 80 lines of data}
IOTT>230 comment -- format print environment
IOTT>240 altbuff buff(0),0,8 {Length of record}
IOTT>250 altbuff buff(2),0,0 {No data transfer}
IOTT>260 altbuff buff(4),0,141 {Clear environment}
IOTT>270 altbuff buff(6),0,0,0,0 {P1 and P2 not used}
IOTT>280 altbuff buff(10),255,255 {Mark end of data}
IOTT>290 setdata buff,1024
IOTT>300 execute write
IOTT>310 setoption soft {Job close}
IOTT>320 execute clear
IOTT>330 execute envstat

```

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**Example 7: Ripple Print of Test to a CIPER Printer**

The example will initiate 80 lines of ripple print on a CIPER line printer. This is performed by sending an ESC z pattern to the printer. Before this is done, the user must synchronize with the printer by performing a device clear, and receiving appropriate receive ready messages from the printer.

```
IOTT>5  comment - Format clear record
IOTT>10 debuff clear,9,byte           {Will hold clear device request}
IOTT>20 altbuff clear(0),4,1,0,0      {Packet header}
IOTT>30 altbuff clear(4),4,1,0,0      {Record header}
IOTT>40 altbuff clear(8),1            {Data: purge internal buffer}
IOTT>45 comment -- Format data record
IOTT>50 debuff data,1024,byte
IOTT>60 altbuff data(0),4,1,0,0        {Packet header}
IOTT>70 altbuff data(4),4,0,16,96     {Record header}
IOTT>80 altbuff data(8),6,0,0,0,0,0    {Block header:necessary for write}
IOTT>90 altbuff data(14),27,38,112,49,51,50,88{Enable display functions}
IOTT>100 fincbuff data(21),0,127,132   {Fill 132 bytes of data pattern}
IOTT>110 altbuff data(154),10,13      {Append CR and LF}
IOTT>115 comment -- define buffer for reply from printer
IOTT>120 debuff return,32,byte         {Will hold replies from the printer}
IOTT>130 fillbuff return(0),0          {zero out buffer}
IOTT>132 comment -- issue clear request
IOTT>135 debuff counter,1,byte
IOTT>150 setdata clear,9
IOTT>152 execute write                 {Issue device clear}
IOTT>151 comment -- obtain clear response record from printer
IOTT>154 setdata return,32
IOTT>156 execute read                 {Obtain reply}
IOTT>158 if then 500                  {If I/O was not successful, stop}
```



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```
I0TT>160 if return(6) 1 then 156      {Look for clear response}
I0TT>162 if return(8) 100 then 156    {Clear response match request}
I0TT>164 print "clear response obtained"
I0TT>166 fillbuff return(0),0
I0TT>167 altbuff counter(0),0
I0TT>170 do 80                        {Print 80 lines}
I0TT>171   if return(8) 0 then 182    {Get next receive ready response}
I0TT>172     setdata return,32
I0TT>174     execute read              {Obtain receive ready response}
I0TT>176     if then 500
I0TT>178     if return(6) 0 then 172  {Loop for receive ready}
I0TT>180     print "receive ready obtained"
I0TT>182     setdata data,156
I0TT>184     execute write             {Send data to printer}
I0TT>186     adjbuff return(8),-1
I0TT>190     adjbuff data(5),1         {Update record number}
I0TT>200     adjbuff data(13),1        {Update block number}
I0TT>201     copybuff data(22),data(21),132 {Shift data one char over}
I0TT>202     copybuff counter(0),data(253),1
I0TT>203     adjbuff counter(0),-1
I0TT>204 loopto 170
I0TT>205 stop
I0TT>500 print "I/O failed"
I0TT>501 stop
```

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**Example 8: Initiating Selftest on a CIPER Printer**

The example will initiate power-on selftest on a CIPER line printer. This is performed by sending an ESC z pattern to the printer. Before this is done, the user must synchronize with the printer by performing a device clear, and receiving appropriate receive ready messages from the printer.

```
IOTT>5  comment - Format clear record
IOTT>10 defbuff clear,9,byte           {Will hold clear device request}
IOTT>20 altbuff clear(0),4,1,0,0       {Packet header}
IOTT>30 altbuff clear(4),4,100,1,96    {Record header}
IOTT>40 altbuff clear(8),1             {Data: purge internal buffer}
IOTT>45 comment -- Format data record
IOTT>50 defbuff data,1024,byte
IOTT>60 altbuff data(0),4,1,0,0        {Packet header}
IOTT>70 altbuff data(4),4,0,16,96      {Record header}
IOTT>80 altbuff data(8),6,0,0,0,0,0    {Block header: necessary for write}
IOTT>90 altbuff data(14),27,122        {Characters (esc) z}
IOTT>115 comment -- define buffer for reply from printer
IOTT>120 defbuff return,32,byte        {Will hold replies from the printer}
IOTT>130 fillbuff return(0),0          {Zero out buffer}
IOTT>132 comment -- issue clear request
IOTT>150 setdata clear,9
IOTT>152 execute write                 {Issue device clear}
IOTT>151 comment -- obtain clear response record from printer
IOTT>154 setdata return,32
IOTT>156 execute read                  {Obtain reply}
```



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```
IOTT>158 if <> then 500           {If I/O was not successful, stop}
IOTT>160 if return(6) <> 1 then 156 {Look for clear response}
IOTT>162 if return(8) <> 100 then 156 {Clear response match request}
IOTT>164 print "clear response obtained"
IOTT>166 fillbuff return(0),0
IOTT>171 if return(8) <> 0 then 182 {Get next receive ready response}
IOTT>172   setdata return,32
IOTT>174   execute read           {Obtain receive ready response}
IOTT>176   if <> then 500
IOTT>178   if return(6) <> 0 then 172 {Loop for receive ready}
IOTT>180   print "receive ready obtained"
IOTT>182 setdata data,16         {Send selftest record}
IOTT>184 execute write           {Send data to printer}
IOTT>185 settimer 25             {Reduce timeout from 60 to 25 seconds}
IOTT>186 setdata return,32
IOTT>187 execute read
IOTT>188 if <> then 200           {Timeout error}
IOTT>189   print "device request timeout: assume selftest successful"
IOTT>190   stop
IOTT>200 if return(6) <> 2 then 186 {Find device status}
IOTT>201   copybuff data(8),data(0),6 {Shift device status over headers}
IOTT>202   dstatus                   {Decode device status}
IOTT>205 stop
IOTT>500 print "I/O failed"
IOTT>501 stop
```

## Error and Warning Messages

This section gives a complete list of the error messages that may be generated by I/O Test Tool, listed in numerical order. Other diagnostic messages may appear at any time. Messages that appear without the ( IOTERR # ) trailer are generated by the Online Diagnostic Subsystem or the operating system. Listed below each message are a probable cause and a recommended action statement. The actual cause and action may differ from this list, depending upon the particular situation. The "!" indicates that a parameter of some sort will replace the exclamation point when the message is displayed.

|               |                                                                                                                                                                                                                                                                                                                                                          |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1000</b>   | <b>BUFFER ! HAS NOT BEEN ALLOCATED ( IOTERR 1000 )</b>                                                                                                                                                                                                                                                                                                   |
| <b>CAUSE</b>  | The user issued an instruction requiring an I/O buffer, but the user has not performed a DEFBUFF instruction to allocate the I/O buffer.                                                                                                                                                                                                                 |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for further information on the DEFBUFF instruction.                                                                                                                                                                                                                                                       |
| <b>1001</b>   | <b>INDEX VALUE OF ! WILL ACCESS BEYOND THE BOUNDARY OF BUFFER ! ( IOTERR 1001 )</b>                                                                                                                                                                                                                                                                      |
| <b>CAUSE</b>  | The user has issued an instruction where the buffer index value given is larger than the buffer size.                                                                                                                                                                                                                                                    |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for further information on the instruction issued. The SHOWBUFF instruction will display the size and type of all buffers defined. All buffer index values start with value zero.                                                                                                                         |
| <b>1002</b>   | <b>PERFORMING FUNCTION WILL EXCEED THE MAXIMUM LENGTH OF THE DATA BUFFER ( IOTERR 1002 )</b>                                                                                                                                                                                                                                                             |
| <b>CAUSE</b>  | The user issued an instruction where the buffer length parameter and buffer index given will force the instruction to access beyond the limit of the buffer.                                                                                                                                                                                             |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for further information on the instruction issued. The SHOWBUFF instruction will display the size and type of all buffers defined. All buffer index values start with value zero.                                                                                                                         |
| <b>1003</b>   | <b>INTERNAL ERROR: TABLE ACCESS PROCEDURE !. ( IOTERR 1003 )</b>                                                                                                                                                                                                                                                                                         |
| <b>CAUSE</b>  | I/O Test Tool encountered an error that it could not recover from. This is a software error.                                                                                                                                                                                                                                                             |
| <b>ACTION</b> | Please submit a service request indicating the following: a) The exact text of the above error message including the parameter. b) Any other error messages displayed with this error message. c) The sequence of IOTT commands which were being performed when this error message was encountered. d) The version (A.nn.nn) of the IOTT being executed. |
| <b>1004</b>   | <b>UNABLE TO OBTAIN DATA OBJECT FOR INTERNAL WORK AREA I/O TEST TOOL CANNOT CONTINUE EXECUTING (IOTERR 1004)</b>                                                                                                                                                                                                                                         |
| <b>CAUSE</b>  | I/O Test Tool was not able to obtain data space from the operating system to store internal information. I/O Test Tool cannot continue execution. MPE XL Operating System error information will be displayed with this message.                                                                                                                         |
| <b>ACTION</b> | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DUI command line, and file a service request with the trace information generated when performing the IOTT command again.                                                                                                                                            |

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|             |                                                                                                                                                                                |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>2000</b> | <b>WARNING: SECTION NUMBERS ARE NOT USED BY I/O TEST TOOL</b>                                                                                                                  |
| CAUSE       | The user gave the SECTION parameter when initiating I/O Test Tool through the Diagnostic User Interface. I/O Test Tool does not use this parameter.                            |
| ACTION      | I/O Test Tool will ignore the SECTION parameter and will continue execution.                                                                                                   |
| <hr/>       |                                                                                                                                                                                |
| <b>2001</b> | <b>WARNING: STEP NUMBERS ARE NOT USED BY I/O TEST TOOL</b>                                                                                                                     |
| CAUSE       | The user gave the STEP parameter when initiating I/O Test Tool through the Diagnostic User Interface. I/O Test Tool does not use this parameter.                               |
| ACTION      | I/O Test Tool will ignore the STEP parameter and will continue execution.                                                                                                      |
| <hr/>       |                                                                                                                                                                                |
| <b>2002</b> | <b>WARNING: LOOP COUNT IS NOT USED BY I/O TEST TOOL</b>                                                                                                                        |
| CAUSE       | The user gave the LOOPCOUNT parameter when initiating I/O Test Tool through the Diagnostic User Interface. I/O Test Tool does not use this parameter.                          |
| ACTION      | I/O Test Tool will ignore the LOOPCOUNT parameter and will continue execution.                                                                                                 |
| <hr/>       |                                                                                                                                                                                |
| <b>2003</b> | <b>WARNING:ERRONLY PARAMETER IS NOT USED BY I/O TEST TOOL</b>                                                                                                                  |
| CAUSE       | The user gave the ERRONLY parameter when initiating I/O Test Tool through the Diagnostic User Interface. I/O Test Tool does not use this parameter.                            |
| ACTION      | I/O Test Tool will ignore the ERRONLY parameter and will continue execution.                                                                                                   |
| <hr/>       |                                                                                                                                                                                |
| <b>2004</b> | <b>WARNING: ERRCOUNT PARAMETER IS NOT USED BY I/O TEST TOOL</b>                                                                                                                |
| CAUSE       | The user gave the ERRCOUNT parameter when initiating I/O Test Tool through the Diagnostic User Interface. I/O Test Tool does not use this parameter.                           |
| ACTION      | I/O Test Tool will ignore the ERRCOUNT parameter and will continue execution.                                                                                                  |
| <hr/>       |                                                                                                                                                                                |
| <b>2007</b> | <b>WARNING: CONTROL-Y MAY NOT WORK: INITIALIZATION ERROR ENCOUNTERED</b>                                                                                                       |
| CAUSE       | I/O Test Tool could not enable control-Y during initialization. I/O Test Tool will continue execution, but control-Y will be ignored.                                          |
| ACTION      | User can still use I/O Test Tool, but please report all error messages displayed to support personnel.                                                                         |
| <hr/>       |                                                                                                                                                                                |
| <b>2008</b> | <b>I/O TEST TOOL INITIALIZATION CANNOT BE COMPLETED ERROR ENCOUNTERED WHILE PROCESSING MESSAGE NUMBER ! MESSAGE CATALOG CONTAINS INCORRECT COMMAND FORMAT ( IOTTERR 2008 )</b> |
| CAUSE       | I/O Test Tool was not able to initialize because the command strings read from the diagnostic message catalog were not in the correct format.                                  |
| ACTION      | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DUI command line, and file a service request with the trace information generated.         |

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|             |                                                                                                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>2009</b> | <b>I/O TEST TOOL INITIALIZATION CANNOT BE COMPLETED INTERNAL DATA BUFFER COULD NOT BE ALLOCATED ( IOTERR 2009 )</b>                                                   |
| CAUSE       | I/O Test Tool could not complete initialization because it was not able to obtain data space for internal data buffers.                                               |
| ACTION      | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause of those error messages for further information. |
| <b>3000</b> | <b>PROGRAM STORAGE AREA IS EMPTY ( IOTERR 3000 )</b>                                                                                                                  |
| CAUSE       | User tried to perform a command which required a program to exist in the Program Storage Area, but the area was empty.                                                |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the command issued.                                                                         |
| <b>3001</b> | <b>STARTING LINE COULD NOT BE FOUND ( IOTERR 3001 )</b>                                                                                                               |
| CAUSE       | User has issued a command to access the Program Storage Area, but the starting line number given does not exist.                                                      |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the command issued.                                                                         |
| <b>3002</b> | <b>DESTINATION LINE NUMBER ALREADY EXISTS ( IOTERR 3002 )</b>                                                                                                         |
| CAUSE       | User has issued a command which will access the Program Storage Area, but the destination line is already occupied.                                                   |
| ACTION      | Please delete the destination line and repeat the command.                                                                                                            |
| <b>3003</b> | <b>TOO MANY LINES TO MOVE, PLEASE RENUMBER PROGRAM ( IOTERR 3003 )</b>                                                                                                |
| CAUSE       | The destination area is too small to move the requested number of lines.                                                                                              |
| ACTION      | Renumber the program using an increment factor large enough to hold the number of lines to be moved. Then issue the MOVE command again.                               |
| <b>3004</b> | <b>EXCEEDED MAXIMUM LINE NUMBER, RENUMBERING NOT PERFORMED ( IOTERR 3004 )</b>                                                                                        |
| CAUSE       | Performing the RENUMBER command would have exceeded the maximum line number of 9999.                                                                                  |
| ACTION      | Please select an smaller increment factor and repeat the RENUMBER command.                                                                                            |
| <b>3005</b> | <b>I/O TEST TOOL IS NOT IN PAUSE MODE ( IOTERR 3005 )</b>                                                                                                             |
| CAUSE       | User tried to perform an instruction in normal I/O Test Tool mode which requires the user to be in PAUSE mode.                                                        |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction given.                                                                      |

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|               |                                                                                                                                                                                                                           |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>3006</b>   | <b>PROGRAM STORAGE AREA MUST BE EMPTY BEFORE LOAD CAN BE PERFORMED ( IOTERR 3006 )</b>                                                                                                                                    |
| <b>CAUSE</b>  | The LOAD command can only be performed when the Program Storage Area is empty. This is a precautionary requirement to guarantee that the user does not accidentally overwrite the current program.                        |
| <b>ACTION</b> | Perform a DELETE ALL to empty the Program Storage Area, and issue the LOAD command again.                                                                                                                                 |
| <b>3007</b>   | <b>DO-LOOP TO NESTING LIMIT (10) HAS BEEN EXCEEDED ( IOTERR 3007 )</b>                                                                                                                                                    |
| <b>CAUSE</b>  | User has created a program which contains many nested DO-LOOP TO statements. The user has exceeded the nesting limit for the DO-LOOP TO construct.                                                                        |
| <b>ACTION</b> | If deeper nesting is required, please report enhancement request to support personnel.                                                                                                                                    |
| <b>3008</b>   | <b>LOOP TO STATEMENT WAS ENCOUNTERED BUT NO DO STATEMENT WAS FOUND PREVIOUSLY ( IOTERR 3008 )</b>                                                                                                                         |
| <b>CAUSE</b>  | While I/O Test Tool was performing program verification, a LOOP TO statement was encountered before a DO statement. The program will not be executed.                                                                     |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for further information on the LOOP TO statement.                                                                                                                          |
| <b>3009</b>   | <b>LOOP TO STATEMENT DOES NOT MATCH THE LAST DO STATEMENT ENCOUNTERED ( IOTERR 3009 )</b>                                                                                                                                 |
| <b>CAUSE</b>  | While I/O Test Tool was performing program verification, a LOOP TO statement parameter indicating a line number which did not match the line number of the last DO statement was found. The program will not be executed. |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for further information on the LOOP TO statement.                                                                                                                          |
| <b>3010</b>   | <b>THE GOTO DESTINATION LINE COULD NOT BE FOUND ( IOTERR 3010 )</b>                                                                                                                                                       |
| <b>CAUSE</b>  | While I/O Test Tool was performing program verification, a GOTO statement with a non-existent line number was encountered. Program will not be executed.                                                                  |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for further information on the GOTO statement.                                                                                                                             |
| <b>3011</b>   | <b>THE IF DESTINATION LINE COULD NOT BE FOUND ( IOTERR 3011 )</b>                                                                                                                                                         |
| <b>CAUSE</b>  | While I/O Test Tool was performing program verification, an IF or IFN statement with a non-existent destination line number was found. Program will not be executed.                                                      |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for further information on the IF or IFN statement.                                                                                                                        |

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| <b>3013</b> | <b>THE JUMP DESTINATION LINE COULD NOT BE FOUND ( IOTERR 3013 )</b>                                                                                                                                                                                                                                                                                      |
| CAUSE       | While I/O Test Tool was performing program verification, a JUMP instruction with a non-existent destination line number was found. Program will not be executed.                                                                                                                                                                                         |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the JUMP instruction.                                                                                                                                                                                                                                                          |
| <hr/>       |                                                                                                                                                                                                                                                                                                                                                          |
| <b>3014</b> | <b>THE DESTINATION LINE IS NOT AN HP-IB INSTRUCTION ( IOTERR 3014 )</b>                                                                                                                                                                                                                                                                                  |
| CAUSE       | While I/O Test Tool was performing program verification, an HP-IB instruction which had a destination line number to an instruction which was not HP-IB was found. Program was not executed.                                                                                                                                                             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                                                                                                                                                                        |
| <hr/>       |                                                                                                                                                                                                                                                                                                                                                          |
| <b>3015</b> | <b>DESTINATION LINE NUMBER ! COULD NOT BE FOUND ( IOTERR 3015 )</b>                                                                                                                                                                                                                                                                                      |
| CAUSE       | While I/O Test Tool was performing program verification, a HP-IB instruction with a non-existent destination line number was found. Program was not executed.                                                                                                                                                                                            |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                                                                                                                                                                        |
| <hr/>       |                                                                                                                                                                                                                                                                                                                                                          |
| <b>3016</b> | <b>INTERNAL ERROR OCCURRED: COMMAND MODULE ! ( IOTERR 3016 )</b>                                                                                                                                                                                                                                                                                         |
| CAUSE       | I/O Test Tool encountered an error it could not recover from. This is a software error.                                                                                                                                                                                                                                                                  |
| ACTION      | Please submit a service request indicating the following: a) The exact text of the above error message including the parameter. b) Any other error messages displayed with this error message. c) The sequence of IOTT commands which were being performed when this error message was encountered. d) The version (A.nn.nn) of the IOTT being executed. |
| <hr/>       |                                                                                                                                                                                                                                                                                                                                                          |
| <b>3017</b> | <b>WARNING: LINE WAS TRUNCATED, PLEASE RE-ENTER THIS LINE ( IOTERR 3017 )</b>                                                                                                                                                                                                                                                                            |
| CAUSE       | The RENUMBER or MOVE command caused the input line to be extended beyond the limit of the input line text. The line number at the beginning of the line has been extended by one or more characters.                                                                                                                                                     |
| ACTION      | Please shorten the comments on the input line. I/O Test Tool limits user input to 80 characters.                                                                                                                                                                                                                                                         |
| <hr/>       |                                                                                                                                                                                                                                                                                                                                                          |
| <b>3018</b> | <b>LINE REFERENCED COULD NOT BE FOUND, LINE SET TO 9999 ( IOTERR 3018 )</b>                                                                                                                                                                                                                                                                              |
| CAUSE       | During the MOVE or RENUMBER command, I/O Test Tool encountered line references to lines which do not exist. These line references have been changed to reference line 9999.                                                                                                                                                                              |
| ACTION      | Please modify all lines referencing line 9999 to the correct line numbers.                                                                                                                                                                                                                                                                               |
| <hr/>       |                                                                                                                                                                                                                                                                                                                                                          |
| <b>3021</b> | <b>PROGRAM EXECUTION WAS NOT INITIATED ( IOTERR 3021 )</b>                                                                                                                                                                                                                                                                                               |
| CAUSE       | Execution of the program in the program storage area was not initiated due to errors.                                                                                                                                                                                                                                                                    |
| ACTION      | Error messages indicating why the program was not initiated will be displayed with this error message. Please consult the ACTION clause for those error messages for further information.                                                                                                                                                                |

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|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>3022</b> | <b>BACKWARD REFERENCE TO LINE ! IS ILLEGAL FOR THIS HP-IB INSTRUCTION ( IOTERR 3022 )</b>                                                                                                                                                     |
| CAUSE       | While I/O Test Tool was performing program verification, an HP-IB instruction with backward references to other HP-IB instruction, was found. Backward references are not allowed in HP-IB device adapter programs. Program was not executed. |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the HP-IB instruction issued.                                                                                                                                       |
| <b>3023</b> | <b>ERROR OCCURRED DURING SUSPEND, BUT EXECUTION WILL RESUME ( IOTERR 3023 )</b>                                                                                                                                                               |
| CAUSE       | I/O Test Tool encountered an error while processing a SUSPEND command.                                                                                                                                                                        |
| ACTION      | I/O Test Tool will continue execution. Please report all error messages displayed to support personnel.                                                                                                                                       |
| <b>3024</b> | <b>NO LOOP TO FOUND FOR DO STATEMENT ( IOTERR 3024 )</b>                                                                                                                                                                                      |
| CAUSE       | While performing program verification, I/O Test Tool was not able to locate the LOOP TO statement which corresponds to the DO statement displayed.                                                                                            |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the DO statement.                                                                                                                                                   |
| <b>3025</b> | <b>MODIFIED INPUT TOO LONG, PLEASE TRY AGAIN ( IOTERR 3025 )</b>                                                                                                                                                                              |
| CAUSE       | The resulting line from the MODIFY command will exceed the line limit in I/O Test Tool.                                                                                                                                                       |
| ACTION      | Please modify the line, but the limit for I/O Test Tool is 80 characters.                                                                                                                                                                     |
| <b>3026</b> | <b>CATALOG CANNOT BE ACCESSED, LOAD CANNOT BE PERFORMED ( IOTERR 3026 )</b>                                                                                                                                                                   |
| CAUSE       | The I/O Test Tool file header text could not be obtained from the diagnostic message catalog. I/O Test Tool will not be able to load the file.                                                                                                |
| ACTION      | I/O Test Tool will continue execution, but please report all error messages displayed to support personnel.                                                                                                                                   |
| <b>3027</b> | <b>FILE IS NOT AN I/O TEST TOOL LOAD FILE ( IOTERR 3027 )</b>                                                                                                                                                                                 |
| CAUSE       | The file given in the load command was not created by I/O Test Tool.                                                                                                                                                                          |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the LOAD command.                                                                                                                                                   |
| <b>3028</b> | <b>DESTINATION LINE NUMBER IS WITHIN THE RANGE OF THE LINES TO BE MOVED ( IOTERR 3028 )</b>                                                                                                                                                   |
| CAUSE       | The user tried to move lines where the source lines and destination lines are the within the same range.                                                                                                                                      |
| ACTION      | Please verify that the line numbers specified in the MOVE command are correct.                                                                                                                                                                |

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| <b>3029</b>   | <b>REDO LINE WAS TRUNCATED ( IOTERR 3029 )</b>                                                                                                                                                                           |
| <b>CAUSE</b>  | The resulting line from the REDO command exceeds 80 characters. The line was truncated to 80 characters.                                                                                                                 |
| <b>ACTION</b> | Please issue the line with shorter comments.                                                                                                                                                                             |
| <b>3030</b>   | <b>UNABLE TO READ IOTT HEADER ( IOTERR 3030 )</b>                                                                                                                                                                        |
| <b>CAUSE</b>  | I/O Test Tool was not able to read the I/O Test Tool header from the load file specified by the user.                                                                                                                    |
| <b>ACTION</b> | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause for those error messages for further information.                                                   |
| <b>3031</b>   | <b>UNABLE TO CLOSE LOAD FILE ( IOTERR 3031 )</b>                                                                                                                                                                         |
| <b>CAUSE</b>  | I/O Test Tool was not able to close the load file specified by the user.                                                                                                                                                 |
| <b>ACTION</b> | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause for those error messages for further information.                                                   |
| <b>3032</b>   | <b>UNABLE TO OPEN LOAD FILE ( IOTERR 3032 )</b>                                                                                                                                                                          |
| <b>CAUSE</b>  | I/O Test Tool was not able to open the load file specified by the user.                                                                                                                                                  |
| <b>ACTION</b> | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause for those error messages for further information.                                                   |
| <b>3033</b>   | <b>UNABLE TO COMPLETE FILE NAME ( IOTERR 3033 )</b>                                                                                                                                                                      |
| <b>CAUSE</b>  | I/O Test Tool was not able to fully qualify the load file name given by the user.                                                                                                                                        |
| <b>ACTION</b> | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause for those error messages for further information.                                                   |
| <b>3034</b>   | <b>UNABLE TO OPEN OLD SAVE FILE ( IOTERR 3034 )</b>                                                                                                                                                                      |
| <b>CAUSE</b>  | I/O Test Tool was not able to open the old copy of the save file given by the user. I/O Test Tool must verify that the old file was created by I/O Test Tool before purging that file, and replacing it with a new file. |
| <b>ACTION</b> | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause for those error messages for further information.                                                   |
| <b>3035</b>   | <b>UNABLE TO CLOSE OLD SAVE FILE ( IOTERR 3035 )</b>                                                                                                                                                                     |
| <b>CAUSE</b>  | I/O Test Tool was not able to close the old copy of the save file given by the user. I/O Test Tool must verify that the old file was created by I/O Test Tool before purging the file, and replacing it with a new file. |
| <b>ACTION</b> | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause for those error messages for further information.                                                   |
| <b>3036</b>   | <b>UNABLE TO WRITE IOTT HEADER TO SAVE FILE ( IOTERR 3036 )</b>                                                                                                                                                          |
| <b>CAUSE</b>  | I/O Test Tool was not able to write the I/O Test Tool file header to the save file.                                                                                                                                      |
| <b>ACTION</b> | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause for those error messages for further information.                                                   |



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| <b>3037</b> | <b>UNABLE TO OPEN NEW SAVE FILE ( IOTERR 3037 )</b>                                                                                                                       |
| CAUSE       | I/O Test Tool was not able to open the new save file created for the user.                                                                                                |
| ACTION      | Error messages containing further information will be displayed with this message.<br>Please refer to the ACTION clause for those error messages for further information. |
| <hr/>       |                                                                                                                                                                           |
| <b>3038</b> | <b>UNABLE TO CLOSE NEW SAVE FILE ( IOTERR 3038 )</b>                                                                                                                      |
| CAUSE       | I/O Test Tool was not able to close the save file specified by the user.                                                                                                  |
| ACTION      | Error messages containing further information will be displayed with this message.<br>Please refer to the ACTION clause for those error messages for further information. |
| <hr/>       |                                                                                                                                                                           |
| <b>3039</b> | <b>UNABLE TO WRITE TO SAVE FILE ( IOTERR 3039 )</b>                                                                                                                       |
| CAUSE       | I/O Test Tool was not able to write the contents of the program storage area to the save file specified by the user.                                                      |
| ACTION      | Error messages containing further information will be displayed with this message.<br>Please refer to the ACTION clause for those error messages for further information. |
| <hr/>       |                                                                                                                                                                           |
| <b>4000</b> | <b>DEFBUFF INSTRUCTION UNABLE TO ALLOCATE DATA BUFFER ( IOTERR 4000 )</b>                                                                                                 |
| CAUSE       | I/O Test Tool was not able to allocate a data buffer. Therefore, the DEFBUFF instruction was not performed.                                                               |
| ACTION      | Error messages containing further information will be displayed with this message.<br>Please refer to the ACTION clause of those error messages for further information.  |
| <hr/>       |                                                                                                                                                                           |
| <b>4001</b> | <b>RELBUFF INSTRUCTION UNABLE TO DEALLOCATE DATA BUFFER ( IOTERR 4001 )</b>                                                                                               |
| CAUSE       | I/O Test Tool was not able to deallocate a data buffer. Therefore, the RELBUFF instruction was not performed.                                                             |
| ACTION      | Error messages containing further information will be displayed with this message.<br>Please refer to the ACTION clause of those error messages for further information.  |
| <hr/>       |                                                                                                                                                                           |
| <b>4003</b> | <b>THE START PARAMETER IS NOT COMPATIBLE WITH A BYTE BUFFER ( IOTERR 4003 )</b>                                                                                           |
| CAUSE       | The user has issued a buffer instruction involving a byte buffer, but the starting value is beyond the limits of a byte (0 - 255).                                        |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                         |
| <hr/>       |                                                                                                                                                                           |
| <b>4004</b> | <b>THE END PARAMETER IS NOT COMPATIBLE WITH A BYTE BUFFER ( IOTERR 4004 )</b>                                                                                             |
| CAUSE       | The user has issued a buffer instruction involving a byte buffer, but the ending value is beyond the limits of a byte (0 - 255).                                          |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                         |
| <hr/>       |                                                                                                                                                                           |

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| <b>4005</b>   | <b>INC PARAMETER INCOMPATIBLE WITH START AND STOP VALUES GIVEN ( IOTERR 4005 )</b>                                                                                                   |
| <b>CAUSE</b>  | The user has issued a buffer instruction where the increment parameter plus the starting buffer index will be greater than the stop index value.                                     |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                    |
| <b>4007</b>   | <b>BUFFERS MUST BE OF THE SAME TYPE ( IOTERR 4007 )</b>                                                                                                                              |
| <b>CAUSE</b>  | User has issued an instruction involving two data buffers, but the type of buffers given were not identical.                                                                         |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                    |
| <b>4008</b>   | <b>PARAMETER NUMBER ! IS NOT A VALID DATA VALUE FOR A BYTE BUFFER ( IOTERR 4008 )</b>                                                                                                |
| <b>CAUSE</b>  | The <i>n</i> th data value given is outside the limits of a byte buffer ( 0 - 255 ).                                                                                                 |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                    |
| <b>4011</b>   | <b>DATA VALUE IS NOT COMPATIBLE WITH A BYTE BUFFER ( IOTERR 4011 )</b>                                                                                                               |
| <b>CAUSE</b>  | The data value given is either too large or too small to be stored into the buffer of type byte.                                                                                     |
| <b>ACTION</b> | Please limit the data value to between 0 and 255.                                                                                                                                    |
| <b>4012</b>   | <b>VALUE EXCEEDED SPAN OF THE BYTE BUFFER ( IOTERR 4012 )</b>                                                                                                                        |
| <b>CAUSE</b>  | The value given is outside the limits of a byte buffer.                                                                                                                              |
| <b>ACTION</b> | Please limit data values to between 0 and 255.                                                                                                                                       |
| <b>4250</b>   | <b>SETADDR WAS NOT PERFORMED ( IOTERR 4250 )</b>                                                                                                                                     |
| <b>CAUSE</b>  | The user requested an I/O function which requires the information supplied by the SETADDR instruction.                                                                               |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for a list of items needed to perform the requested I/O.                                                                              |
| <b>4251</b>   | <b>ADDRESS INCREMENTATION EXCEEDS MAXIMUM FOR DEVICE ( IOTERR 4251 )</b>                                                                                                             |
| <b>CAUSE</b>  | The address given through the SETADDR instruction was larger than the maximum address for the device, or the address incrementation function has reached the maximum for the device. |
| <b>ACTION</b> | Please consult the SHOWPARM instruction for maximum address for the device.                                                                                                          |

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| <b>4252</b> | <b>UNEXPECTED INTERNAL ERROR IN PREDEFINED I/O MODULE PROCEDURE ! ( IOTERR 4252 )</b>                                                                                                                                                                                                                                                                    |
| CAUSE       | I/O Test Tool encountered an error that it could not recover from. I/O Test Tool cannot continue execution.                                                                                                                                                                                                                                              |
| ACTION      | Please submit a service request indicating the following: a) The exact text of the above error message including the parameter. b) Any other error messages displayed with this error message. c) The sequence of IOTT commands which were being performed when this error message was encountered. d) The version (A.nn.nn) of the IOTT being executed. |
| <b>4254</b> | <b>SETDEVICE HAS NOT BEEN PERFORMED, INSTRUCTION NOT PERFORMED ( IOTERR 4254 )</b>                                                                                                                                                                                                                                                                       |
| CAUSE       | User tried to perform an instruction which requires that a current device be defined.                                                                                                                                                                                                                                                                    |
| ACTION      | Please perform a SETDEVICE instruction to define a current device.                                                                                                                                                                                                                                                                                       |
| <b>4255</b> | <b>CURRENT DEVICE DOES NOT USE ADDRESSES ( IOTERR 4255 )</b>                                                                                                                                                                                                                                                                                             |
| CAUSE       | User has tried to perform an INCADDR instruction for a device which does not use addresses.                                                                                                                                                                                                                                                              |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the INCADDR instruction.                                                                                                                                                                                                                                                       |
| <b>4256</b> | <b>DEVICE HAS NO I/O REQUESTS PENDING ( IOTERR 4256 )</b>                                                                                                                                                                                                                                                                                                |
| CAUSE       | User requested abortio for a device which cannot perform unblocked I/O requests or has no pending unblock I/O requests.                                                                                                                                                                                                                                  |
| ACTION      | Please consult the I/O Test Tool help facility for further information on I/O requests.                                                                                                                                                                                                                                                                  |
| <b>4257</b> | <b>"PROTECT ON" ALREADY PERFORMED (IOTERR 4257)</b>                                                                                                                                                                                                                                                                                                      |
| CAUSE       | User has tried to execute the PROTECT ON instruction twice.                                                                                                                                                                                                                                                                                              |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the PROTECT command.                                                                                                                                                                                                                                                           |
| <b>4258</b> | <b>"PROTECT OFF" ALREADY PERFORMED (IOTERR 4258)</b>                                                                                                                                                                                                                                                                                                     |
| CAUSE       | User has tried to execute the PROTECT OFF instruction twice.                                                                                                                                                                                                                                                                                             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the PROTECT command.                                                                                                                                                                                                                                                           |
| <b>4500</b> | <b>WARNING: Previous HP-IB DAP has been deleted.</b>                                                                                                                                                                                                                                                                                                     |
| CAUSE       | The user has issued a SETHPIB instruction after creating an HP-IB device adapter program. At this point, the old HP-IB device adapter program will be deleted.                                                                                                                                                                                           |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the SETHPIB instruction.                                                                                                                                                                                                                                                       |
| <b>4501</b> | <b>PREVIOUS HP-CIO PROGRAM HAS NOT BEEN COMPLETED ( IOTERR 4501 )</b>                                                                                                                                                                                                                                                                                    |
| CAUSE       | The user has issued an EXECUTE HPCIO before completing the HPCIO DMA CHAIN.                                                                                                                                                                                                                                                                              |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the ENDHPCIO instruction.                                                                                                                                                                                                                                                      |

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| <b>4502</b> | <b>DATA AREA FOR COMMAND BLOCK COULD NOT BE ALLOCATED ( IOTTERR 4502 )</b>                                                                                            |
| CAUSE       | I/O Test Tool was not able to obtain data space to use in building a HP-IB device adapter program.                                                                    |
| ACTION      | Error messages containing further information will be displayed with this message. Please consult the ACTION clause for those error messages for further information. |
| <b>4503</b> | <b>SETHPIB INSTRUCTION HAS NOT BEEN ISSUED ( IOTTERR 4503 )</b>                                                                                                       |
| CAUSE       | User has issued HP-IB device adapter program instructions before performing a SETHPIB instruction.                                                                    |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the SETHPIB instruction.                                                                    |
| <b>4504</b> | <b>HP-IB DEVICE ADAPTER PROGRAM IS TOO LARGE TO APPEND INSTRUCTION GIVEN ( IOTTERR 4504 )</b>                                                                         |
| CAUSE       | User is trying to build a HP-IB device adapter program which will be larger than the limits set by hardware.                                                          |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of an HP-IB DAP program.                                                             |
| <b>4506</b> | <b>PARAMETER BLOCK LIMIT HAS BEEN EXCEEDED ( IOTTERR 4506 )</b>                                                                                                       |
| CAUSE       | User has tried to create an HP-IB device adapter program which will result in a parameter block exceeding the limit set by hardware.                                  |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of a HP-IB device adapter program.                                                   |
| <b>4507</b> | <b>UNEXPECTED INTERNAL ERROR: !</b>                                                                                                                                   |
| CAUSE       | I/O Test Tool encountered an error it could not recover from. This is a software error.                                                                               |
| ACTION      | Please report all error message displayed to support personnel.                                                                                                       |
| <b>4508</b> | <b>PREVIOUS DMA BUFFER WILL BE IGNORED ( IOTTWARN 4508 )</b>                                                                                                          |
| CAUSE       | The user has issued an HP-IB instruction which requires a DMA buffer. Therefore, the DMA buffer specified previously will be ignored.                                 |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of an HP-IB device adapter program.                                                  |
| <b>4509</b> | <b>LINE NUMBER ! WAS REFERENCED BUT NOT EXECUTED ( IOTTERR 4509 )</b>                                                                                                 |
| CAUSE       | I/O Test Tool has encountered an HP-IB instruction which references another HP-IB instruction, but that instruction has not been executed.                            |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of a HP-IB device adapter program.                                                   |



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| <b>4510</b> | <b>DSJ JUMP LOCATIONS EXCEED LIMIT ( IOTERR 4510 )</b>                                                                                                                |
| CAUSE       | The user has exceed the limit of DSJ values allowed.                                                                                                                  |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the DSJ instruction.                                                                        |
| <b>4512</b> | <b>HP-IB DEVICE ADAPTER PROGRAM HAS NOT BEEN BUILT ( IOTERR 4512 )</b>                                                                                                |
| CAUSE       | The user has tried to issue an EXECUTE HPIB instruction without building an HP-IB device adapter program.                                                             |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of a HP-IB device adapter program.                                                   |
| <b>4513</b> | <b>WARNING: Status Buffer has not been defined.</b>                                                                                                                   |
| CAUSE       | The user has issued the SHOWHPIB instruction, but has not designated a status buffer.                                                                                 |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the DEFBUFF instruction.                                                                    |
| <b>4514</b> | <b>PARAMETER BLOCK COULD NOT BE ALLOCATED ( IOTERR 4514 )</b>                                                                                                         |
| CAUSE       | I/O Test Tool was not able to obtain data space to be used as the parameter block of the HP-IB device adapter program.                                                |
| ACTION      | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause for those error message for further information. |
| <b>4515</b> | <b>FIRST BYTE OF THE STATUS BUFFER IS RESERVED FOR HSTAT ( IOTERR 4515 )</b>                                                                                          |
| CAUSE       | The first byte of the status buffer is reserved for return of HSTAT from the HP-IB device adapter. This byte cannot be used for any other purpose.                    |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of a HP-IB Device adapter program.                                                   |
| <b>4516</b> | <b>WARNING: DAP BUFFER HAS BEEN REDEFINED ( IOTERR 4516 )</b>                                                                                                         |
| CAUSE       | I/O Test Tool has redefined the buffer named DAP. This buffer is required for an HP-IB device adapter program.                                                        |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the SETHPIB instruction.                                                                    |
| <b>4517</b> | <b>EXCEEDED MAXIMUM LENGTH OF HP-IB STATUS BUFFER ( IOTERR 4517 )</b>                                                                                                 |
| CAUSE       | User has tried to build a HP-IB device adapter program with a SINDEXT parameter larger than the hardware will allow.                                                  |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of a HP-IB device adapter program.                                                   |

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| <b>4518</b> | <b>WARNING: Status buffer is too small for DAP execution.</b>                                                                                                                                                 |
| CAUSE       | User is trying to build a HP-IB device adapter program which contains a SINDEK larger than the size of the status buffer.                                                                                     |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of a HP-IB device adapter program.                                                                                           |
| <b>4519</b> | <b>WARNING: Non-language localized buffer names will be used.</b>                                                                                                                                             |
| CAUSE       | I/O Test Tool was not able to obtain the buffer names for the buffer used in HP-IB device adapter programs. I/O Test Tool will continue execution using non-language localized buffer names.                  |
| ACTION      | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DUI command line, and file a service request with the trace information generated when performing the IOTT command again. |
| <b>4520</b> | <b>PINDEX PARAMETER IS OUT OF RANGE ( IOTERR 4520 )</b>                                                                                                                                                       |
| CAUSE       | User has tried to build an HP-IB device adapter program containing PINDEK parameter larger than allowed.                                                                                                      |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of an HP-IB device adapter program.                                                                                          |
| <b>4521</b> | <b>CALCULATED RELATIVE OFFSET IS OUT OF RANGE ( IOTERR 4521 )</b>                                                                                                                                             |
| CAUSE       | User has tried to create a HP-IB device adapter program where the relative offset was beyond the range of a byte.                                                                                             |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of a HP-IB device adapter program.                                                                                           |
| <b>4750</b> | <b>SETHPCIO INSTRUCTION HAS NOT BEEN PERFORMED ( IOTERR 4750 )</b>                                                                                                                                            |
| CAUSE       | The user has tried to issue an HPCIO instruction before a SETHPCIO instruction was given.                                                                                                                     |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the SETHPCIO command.                                                                                                               |
| <b>4752</b> | <b>NO HP-CIO INSTRUCTIONS HAVE BEEN GIVEN ( IOTERR 4752 )</b>                                                                                                                                                 |
| CAUSE       | User has issued a ENDHPCIO instruction but there were no HPCIO instructions given.                                                                                                                            |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of a HPCIO DMA chain.                                                                                                        |
| <b>4753</b> | <b>QUADS COULD NOT RELEASED ( IOTERR 4753 )</b>                                                                                                                                                               |
| CAUSE       | I/O Test Tool was not able to return data space to the operating system.                                                                                                                                      |
| ACTION      | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause of those error messages for further information.                                         |

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| 4754   | COULD NOT OBTAIN QUAD. SYSTEM ERROR = ! ( IOTERR 4754 )                                                                                                                                                                                                                                                                                                  |
| CAUSE  | I/O Test Tool could not obtain data space for an HPCIO quad.                                                                                                                                                                                                                                                                                             |
| ACTION | The system error returned from the operating system will be displayed with this message. Please report all error messages displayed to support personnel.                                                                                                                                                                                                |
| 4755   | INVALID HP-CIO ORDER WAS GIVEN. ( IOTERR 4755 )                                                                                                                                                                                                                                                                                                          |
| CAUSE  | User issued an ADDQUAD instruction with an unknown order identifier.                                                                                                                                                                                                                                                                                     |
| ACTION | Please consult the I/O Test Tool help facility for further information on the ADDQUAD instruction.                                                                                                                                                                                                                                                       |
| 4756   | HP-CIO DMA CHAIN WILL BE OVERWRITTEN ( IOTERR 4756 )                                                                                                                                                                                                                                                                                                     |
| CAUSE  | The user has issued a SETHPCIO instruction after a ENDHPCIO instruction has been processed. The current IIP-CIO DMA chain will be deleted.                                                                                                                                                                                                               |
| ACTION | Please consult the I/O Test Tool help facility for further information on the SETHPCIO instruction.                                                                                                                                                                                                                                                      |
| 4757   | INTERNAL ERROR IEMHPIO : ! ( IOTERR 4757 )                                                                                                                                                                                                                                                                                                               |
| CAUSE  | I/O Test Tool has encountered an error it could not recover from. I/O Test Tool cannot continue execution.                                                                                                                                                                                                                                               |
| ACTION | Please submit a service request indicating the following: a) The exact text of the above error message including the parameter. b) Any other error messages displayed with this error message. c) The sequence of IOTT commands which were being performed when this error message was encountered. d) The version (A.nn.nn) of the IOTT being executed. |
| 4758   | HP-CIO OPTIONS NOT ALLOWED HERE ( IOTERR 4758 )                                                                                                                                                                                                                                                                                                          |
| CAUSE  | The HP-CIO options given are not allowed with the HP-CIO order given.                                                                                                                                                                                                                                                                                    |
| ACTION | Please consult the I/O Test Tool help facility for further information on the ADDQUAD instruction.                                                                                                                                                                                                                                                       |
| 4759   | UNABLE TO OBTAIN HPCIO DATA OBJECT ( IOTERR 4759 )                                                                                                                                                                                                                                                                                                       |
| CAUSE  | An error status was returned when I/O Test Tool tried to obtain a data object to store state information for the DMA chain being built.                                                                                                                                                                                                                  |
| ACTION | Error messages containing further information will be displayed with this message. Please consult the ACTION clause for those error messages for further information.                                                                                                                                                                                    |
| 4760   | UNABLE TO RELEASE HPCIO OBJECT ( IOTERR 4760 )                                                                                                                                                                                                                                                                                                           |
| CAUSE  | An error status was returned when I/O Test Tool tried to return a data object used to store state information for the DMA chain being built.                                                                                                                                                                                                             |
| ACTION | Error messages containing further information will be displayed with this message. Please consult the ACTION clause for those error messages for further information.                                                                                                                                                                                    |
| 5250   | SETDEVICE INSTRUCTION HAS NOT BEEN PERFORMED ( IOTERR 5250 )                                                                                                                                                                                                                                                                                             |
| CAUSE  | The user has requested a function which requires a device to be allocated.                                                                                                                                                                                                                                                                               |
| ACTION | Please consult the I/O Test Tool help facility for further information on the SETDEVICE instruction.                                                                                                                                                                                                                                                     |

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| <b>5253</b> | <b>I/O DEVICE UNKNOWN TO THIS UTILITY ( IOTERR 5253 )</b>                                                                                                                                                                             |
| CAUSE       | The device given is unknown to the utility and therefore cannot be accessed.                                                                                                                                                          |
| ACTION      | Please consult the I/O Test Tool manual for further information on the I/O devices supported by I/O Test Tool.                                                                                                                        |
| <b>5258</b> | <b>WARNING: EXCLUSIVE ACCESS COULD NOT BE OBTAINED, BUT DEVICE WAS ALLOCATED TO I/O TEST TOOL ( IOTTWARN 5258 )</b>                                                                                                                   |
| CAUSE       | The diagnostic monitor was unable to lock the device. The user was allocated the device, but can perform non-destructive functions only.                                                                                              |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the SETDEVICE instruction.                                                                                                                                  |
| <b>5259</b> | <b>WARNING: TERMINATION CONDITION SETTING IGNORED ( IOTTWARN 5259 )</b>                                                                                                                                                               |
| CAUSE       | A request to set the termination condition for the current device resulted in an error. Therefore, when the user exits or releases the device, no re-initialization of the device will be performed.                                  |
| ACTION      | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DUI command line, and file a service request with the trace information generated when performing the IOTT command again.                         |
| <b>5260</b> | <b>NO STATUS BUFFER HAS BEEN DEFINED ( IOTERR 5260 )</b>                                                                                                                                                                              |
| CAUSE       | The user requested an I/O to be performed without specifying a status buffer. The status buffer is used to store the hardware status when an error is encountered.                                                                    |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the DEFBUFF instruction.                                                                                                                                    |
| <b>5261</b> | <b>CURRENT DEVICE NOT DEFINED ( IOTERR 5261 )</b>                                                                                                                                                                                     |
| CAUSE       | The user requested an I/O to be performed before a device was specified.                                                                                                                                                              |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the SETDEVICE instruction.                                                                                                                                  |
| <b>5262</b> | <b>WARNING: DEVICE IS ON THE COLD LOAD PATH. EXCLUSIVE ACCESS WILL BE OBTAINED WHEN A DATA DESTRUCTIVE I/O IS REQUESTED. ( IOTTWARN 5262 )</b>                                                                                        |
| CAUSE       | The user has selected a device on the load path. The device will not be placed into a locked state until an I/O request is issued through the EXECUTE command. This means each I/O to this device will be bounded with a lock/unlock. |
| ACTION      | Please consult the I/O Test Tool manual for further information on accessing devices on the load path.                                                                                                                                |



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| <b>5263</b>   | <b>ABORTIO OF UNBLOCKED I/O'S FAILED. BUT SETDEVICE WILL CONTINUE ( IOTERR 5263 )</b>                                                                                                                                                |
| <b>CAUSE</b>  | I/O Test Tool encountered an error while trying to abort any unblocked I/O requests before processing the SETDEVICE instruction for a new device.                                                                                    |
| <b>ACTION</b> | SETDEVICE will still be performed.                                                                                                                                                                                                   |
| <hr/>         |                                                                                                                                                                                                                                      |
| <b>5264</b>   | <b>WARNING: EXCLUSIVE ACCESS CANNOT BE OBTAINED IN MULTI-USER MODE, BUT DEVICE WAS ALLOCATED TO I/O TEST TOOL. ( IOTTWARN 5264 )</b>                                                                                                 |
| <b>CAUSE</b>  | The diagnostic system was not able to allocate the device to I/O Test Tool. I/O Test Tool will allow the user to access the device, but the user will not be able to perform data destructive functions.                             |
| <b>ACTION</b> | To perform data destructive functions the user will need to enter single user mode, or single disk mode.                                                                                                                             |
| <hr/>         |                                                                                                                                                                                                                                      |
| <b>5500</b>   | <b>I/O REQUEST INVALID FOR DEVICE ( IOTERR 5500 )</b>                                                                                                                                                                                |
| <b>CAUSE</b>  | The device is incapable of performing the function requested.                                                                                                                                                                        |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for a list of all I/O requests appropriate for the desired device.                                                                                                                    |
| <hr/>         |                                                                                                                                                                                                                                      |
| <b>5501</b>   | <b>I/O REQUEST CAN ONLY BE PERFORMED IF DEVICE WAS LOCKED ( IOTERR 5501 )</b>                                                                                                                                                        |
| <b>CAUSE</b>  | The device must be in a locked state before I/O Test Tool can issue the type of I/O requested.                                                                                                                                       |
| <b>ACTION</b> | To perform data destructive functions the user will need to enter single user mode, or single disk mode.                                                                                                                             |
| <hr/>         |                                                                                                                                                                                                                                      |
| <b>5502</b>   | <b>SETOPTION OF OPTION 2 IS REQUIRED ( IOTERR 5502 )</b>                                                                                                                                                                             |
| <b>CAUSE</b>  | The user has issued an EXECUTE instruction for a I/O request which requires a SETOPTION instruction with two parameters. The user has either not given the SETOPTION command, or has given SETOPTION instruction with one parameter. |
| <b>ACTION</b> | The SHOWPARM instruction will display the current settings from the SETOPTION instruction. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O.      |
| <hr/>         |                                                                                                                                                                                                                                      |
| <b>5503</b>   | <b>SETOPTION OF OPTION 1 IS REQUIRED ( IOTERR 5503 )</b>                                                                                                                                                                             |
| <b>CAUSE</b>  | The user has issued an EXECUTE instruction for a I/O request which requires a SETOPTION instruction with one parameter. The user has not given the SETOPTION instruction.                                                            |
| <b>ACTION</b> | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O.                      |

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| <b>5504</b> | <b>SETDATA REQUIRED FOR I/O REQUEST ( IOTERR 5504 )</b>                                                                                                                                                                                                                                                                                                  |
| CAUSE       | The I/O requested by the user requires that a SETDATA instruction to be performed.                                                                                                                                                                                                                                                                       |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the SETDATA instruction.                                                                                                                                                                                                                                                       |
| <b>5505</b> | <b>WARNING: SETADDR not performed, reserved disc area will be used</b>                                                                                                                                                                                                                                                                                   |
| CAUSE       | The user has issued an I/O request which requires an address, but the user did not issue the SETADDR instruction. Therefore, the reserved disk area will be used.                                                                                                                                                                                        |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the SETADDR instruction.                                                                                                                                                                                                                                                       |
| <b>5506</b> | <b>HARDWARE STATUS COULD NOT BE OBTAINED ( IOTERR 5506 )</b>                                                                                                                                                                                                                                                                                             |
| CAUSE       | The user has issued an I/O request, but the request failed and I/O Test Tool was not able to obtain hardware status information from the device.                                                                                                                                                                                                         |
| ACTION      | Error messages containing further information will be displayed with this message. Please consult the ACTION clause of those error messages for further information.                                                                                                                                                                                     |
| <b>5509</b> | <b>REQUEST CAN ONLY BE PERFORMED IN SINGLE USER MODE ( IOTERR 5509 )</b>                                                                                                                                                                                                                                                                                 |
| CAUSE       | The I/O requested by the user can only be executed in single user mode.                                                                                                                                                                                                                                                                                  |
| ACTION      | Please return to the diagnostic user interface and enter single user mode before issuing the request again.                                                                                                                                                                                                                                              |
| <b>5510</b> | <b>STATUS BUFFER HAS NOT BEEN DEFINED ( IOTERR 5510 )</b>                                                                                                                                                                                                                                                                                                |
| CAUSE       | The user has issued an I/O request, but there is no status buffer defined.                                                                                                                                                                                                                                                                               |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the DEFBUFF instruction.                                                                                                                                                                                                                                                       |
| <b>5511</b> | <b>INTERNAL ERROR: - EXECUTE ! ( IOTERR 5511 )</b>                                                                                                                                                                                                                                                                                                       |
| CAUSE       | I/O Test Tool has encountered an error it cannot recover from. This is a software error.                                                                                                                                                                                                                                                                 |
| ACTION      | Please submit a service request indicating the following: a) The exact text of the above error message including the parameter. b) Any other error messages displayed with this error message. c) The sequence of IOTT commands which were being performed when this error message was encountered. d) The version (A.nn.nn) of the IOTT being executed. |
| <b>5512</b> | <b>A SETDEVICE INSTRUCTION WAS NOT EXECUTED ( IOTERR 5512 )</b>                                                                                                                                                                                                                                                                                          |
| CAUSE       | The user has issued an I/O request, but the SETDEVICE instruction was not given.                                                                                                                                                                                                                                                                         |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the SETDEVICE instruction.                                                                                                                                                                                                                                                     |
| <b>5513</b> | <b>EXPECTING SELFTEST NUMBER IN SETOPTION 1 ( IOTERR 5513 )</b>                                                                                                                                                                                                                                                                                          |
| CAUSE       | The user has issued an I/O request, but the I/O requires that a selftest number be given in the first parameter of the SETOPTION instruction.                                                                                                                                                                                                            |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O.                                                                                                                                          |

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| <b>5514</b> | <b>EXPECTING LOOP COUNT IN SETOPTION 2 ( IOTERR 5514 )</b>                                                                                                                                                         |
| CAUSE       | The user has issued an I/O request, but that request requires that a loop count be given as the second parameter of the SETOPTION instruction.                                                                     |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION.<br>Please consult the I/O Test Tool help facility for further information on what instructions need to be issued for a particular I/O.  |
| <b>5515</b> | <b>EXPECTING "READ" OR "WRITE" OPTION IN SETOPTION 1 ( IOTERR 5515 )</b>                                                                                                                                           |
| CAUSE       | The user has issued an I/O request, but that request requires that the reserved word READ or WRITE be given as the first parameter of the SETOPTION instruction.                                                   |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION.<br>Please consult the I/O Test Tool help facility for further information on what instructions need to be issued for a particular I/O.  |
| <b>5516</b> | <b>EXPECTING UNIT NUMBER IN SETOPTION 1 ( IOTERR 5516 )</b>                                                                                                                                                        |
| CAUSE       | The user has issued an I/O request, but that request requires that the first parameter of the SETOPTION instruction be the unit number of the device.                                                              |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION.<br>Please consult the I/O Test Tool help facility for further information on what instructions need to be issued for a particular I/O.  |
| <b>5517</b> | <b>EXPECTING BURST NUMBER IN SETOPTION 1 ( IOTERR 5517 )</b>                                                                                                                                                       |
| CAUSE       | The user has issued an I/O request, but that request requires that the first parameter of the SETOPTION instruction be the number of bursts.                                                                       |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION.<br>Please consult the I/O Test Tool help facility for further information on what instructions need to be issued for a particular I/O.  |
| <b>5518</b> | <b>EXPECTING LENGTH COUNT IN SETOPTION 1 ( IOTERR 5518 )</b>                                                                                                                                                       |
| CAUSE       | The user has issued an I/O request, but that request requires that the first parameter of the SETOPTION instruction to specify a length.                                                                           |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION.<br>Please consult the I/O Test Tool help facility for further information on what instructions need to be issued for a particular I/O.  |
| <b>5519</b> | <b>EXPECTING "TIMEON" OR "TIMEOFF" OPTION IN SETOPTION 1 ( IOTERR 5519 )</b>                                                                                                                                       |
| CAUSE       | The user has issued an I/O request, but that request requires that the first parameter of the SETOPTION instruction to be the reserved word TIMEON or TIMEOFF.                                                     |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION.<br>Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |

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| <b>5520</b>   | <b>EXPECTING "AUTOON" OR "AUTOOFF" OPTION IN SETOPTION 2 ( IOTERR 5520 )</b>                                                                                                                                    |
| <b>CAUSE</b>  | The user has issued an I/O request, but that request requires that the second parameter of the SETOPTION instruction be the reserved word AUTOON or AUTOOFF.                                                    |
| <b>ACTION</b> | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |
| <b>5521</b>   | <b>EXPECTING "VECTOR1" OR "VECTOR2" OPTION IN SETOPTION 1 ( IOTERR 5521 )</b>                                                                                                                                   |
| <b>CAUSE</b>  | The user has issued an I/O request, but that request requires that the first parameter of the SETOPTION instruction be the reserved word VECTOR1 or VECTOR2.                                                    |
| <b>ACTION</b> | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |
| <b>5522</b>   | <b>EXPECTING RETRY COUNT IN OPTION 1 ( IOTERR 5522 )</b>                                                                                                                                                        |
| <b>CAUSE</b>  | The user has issued an I/O request, but that request requires that the first parameter of the SETOPTION instruction be set to the retry count.                                                                  |
| <b>ACTION</b> | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |
| <b>5523</b>   | <b>EXPECTING VOLUME NUMBER IN OPTION 1 ( IOTERR 5523 )</b>                                                                                                                                                      |
| <b>CAUSE</b>  | The user has issued an I/O request, but that request requires that the first parameter of the SETOPTION instruction be set to the volume number.                                                                |
| <b>ACTION</b> | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |
| <b>5524</b>   | <b>EXPECTING "LAST" OR "ALL" OPTION IN OPTION 1 ( IOTERR 5524 )</b>                                                                                                                                             |
| <b>CAUSE</b>  | The user has issued an I/O request, but that request requires that the first parameter of the SETOPTION instruction be set to the reserved words LAST or ALL.                                                   |
| <b>ACTION</b> | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |
| <b>5525</b>   | <b>EXPECTING OPTION NUMBER IN OPTION 1 ( IOTERR 5525 )</b>                                                                                                                                                      |
| <b>CAUSE</b>  | The user issued an I/O request, but that request requires that the first parameter of the SETOPTION instruction be the option number.                                                                           |
| <b>ACTION</b> | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |

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| <b>5526</b>   | <b>INTERNAL ERROR - INSTRUCTION EXECUTION MODULE : CS80 ( IOTERR 5526 )</b>                                                                                                                                                                                                        |
| <b>CAUSE</b>  | I/O Test Tool has encountered as an error it cannot recover from. This is a software error.                                                                                                                                                                                        |
| <b>ACTION</b> | Please submit a service request indicating the following: a) Any other error messages displayed with this error message. b) The sequence of IOTT commands which were being performed when this error message was encountered. c) The version (A.nn.nn) of the IOTT being executed. |
| <b>5527</b>   | <b>EXPECTING "PARITYON" OR "PARITYOFF" IN SETOPTION 1 ( IOTERR 5527 )</b>                                                                                                                                                                                                          |
| <b>CAUSE</b>  | I/O Test Tool was expecting either the reserved words PARITYON or PARITYOFF as the first parameter of the SETOPTION instruction.                                                                                                                                                   |
| <b>ACTION</b> | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O.                                                                    |
| <b>5528</b>   | <b>EXPECTING "SRQON" OR "SRQOFF" SETOPTION 2 ( IOTERR 5528 )</b>                                                                                                                                                                                                                   |
| <b>CAUSE</b>  | I/O Test Tool was expecting either the reserved words SRQON or SRQOFF as the second parameter of the SETOPTION instruction.                                                                                                                                                        |
| <b>ACTION</b> | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O.                                                                    |
| <b>5529</b>   | <b>TO EXECUTE SELFTEST - USE WRITE WITH ESCAPE - Z ( IOTERR 5529 )</b>                                                                                                                                                                                                             |
| <b>CAUSE</b>  | I/O Test Tool cannot initiate selftest on a line printer.                                                                                                                                                                                                                          |
| <b>ACTION</b> | Issue a write I/O request with a data buffer containing a CIPER data packet with ESCAPE z as data. Please consult the I/O Test Tool manual for further information on protocol to a line printer.                                                                                  |
| <b>5530</b>   | <b>DATA BUFFER TOO SMALL TO PERFORM FUNCTION ( IOTERR 5530 )</b>                                                                                                                                                                                                                   |
| <b>CAUSE</b>  | The user has specified a data buffer too small to perform the I/O requested.                                                                                                                                                                                                       |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for any special size requirements for the I/O requested.                                                                                                                                                                            |
| <b>5531</b>   | <b>EXPECTING TIME1 PARAMETER IN OPTION 1 ( IOTERR 5531 )</b>                                                                                                                                                                                                                       |
| <b>CAUSE</b>  | I/O Test Tool was expecting the first parameter of the SETOPTION instruction to contain a time value.                                                                                                                                                                              |
| <b>ACTION</b> | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O.                                                                    |

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| <b>5532</b> | <b>EXPECTING TIME2 PARAMETER IN OPTION 2 ( IOTERR 5532 )</b>                                                                                                                                                    |
| CAUSE       | I/O Test Tool was expecting the second parameter of the SETOPTION instruction to contain a time value.                                                                                                          |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |
| <b>5533</b> | <b>UNBLOCK OPTION IGNORED, I/O PERFORMED IN BLOCK MODE ( IOTERR 5533 ) .</b>                                                                                                                                    |
| CAUSE       | The I/O device the user has selected does not handle unblocked I/O requests.                                                                                                                                    |
| ACTION      | Please issue the I/O request again without the UNBLOCK option.                                                                                                                                                  |
| <b>5534</b> | <b>EXPECTING VERIFY LENGTH IN OPTION 1 ( IOTERR 5534 )</b>                                                                                                                                                      |
| CAUSE       | I/O Test Tool was expecting the first parameter of the SETOPTION instruction to contain the length of transfer.                                                                                                 |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |
| <b>5535</b> | <b>INTERNAL ERROR: PDEV WAS NOT OF VALID FORMAT ( IOTERR 5535 )</b>                                                                                                                                             |
| CAUSE       | I/O Test Tool encountered an error it could not recover from. This is a software error.                                                                                                                         |
| ACTION      | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DU1 command line, and file a service request with the trace information generated when performing the IOTT command again.   |
| <b>5539</b> | <b>DEVICE ADAPTER IS NOT HP-IB ( IOTERR 5539 )</b>                                                                                                                                                              |
| CAUSE       | The user tried to issue an EXECUTE HPIB instruction against a device adapter which is not IPIB.                                                                                                                 |
| ACTION      | Please select a device which is connected to an HP-IB device adapter.                                                                                                                                           |
| <b>5542</b> | <b>RELEASE OF HP-IB DEVICE ADAPTER MANAGER FAILED ( IOTERR 5542 )</b>                                                                                                                                           |
| CAUSE       | I/O Test Tool was not able to release the HP-IB device adapter manager. Additional error messages containing further information will be displayed with this message.                                           |
| ACTION      | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DU1 command line, and file a service request with the trace information generated when performing the IOTT command again.   |
| <b>5543</b> | <b>BUILDING OF HP-IB DAP HAS NOT BEEN COMPLETED ( IOTERR 5543 )</b>                                                                                                                                             |
| CAUSE       | The user has tried to issue a EXECUTE HPIB instruction before the building of the IIP-IB device adapter program has been completed.                                                                             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the ENDIPIB instruction.                                                                                                              |

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| <b>5553</b> | <b>HP-CIO DMA CHAIN HAS NOT BEEN BUILT ( IOTERR 5553 )</b>                                                                                                                                                                                                                         |
| CAUSE       | The user has tried to issue an EXECUTE HPCIO instruction but a HP-CIO DMA chain has not been built.                                                                                                                                                                                |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of a HP-CIO DMA chain.                                                                                                                                                                            |
| <b>5557</b> | <b>STATUS BUFFER NOT LARGE ENOUGH TO EXECUTE HP-IB DEVICE ADAPTER PROGRAM ( IOTERR 5557 )</b>                                                                                                                                                                                      |
| CAUSE       | One instruction within the HP-IB device adapter program has specified a SINDEK larger than the status buffer length.                                                                                                                                                               |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of an HP-IB device adapter program.                                                                                                                                                               |
| <b>5558</b> | <b>I/O TEST TOOL GENERATED IORESULT REQUEST FAILED ( IOTERR 5558 )</b>                                                                                                                                                                                                             |
| CAUSE       | I/O Test Tool encountered a failure while processing the result of an unblocked I/O.                                                                                                                                                                                               |
| ACTION      | Error messages containing further information will be displayed with this message. Please consult the ACTION clause of those error messages for further information.                                                                                                               |
| <b>5559</b> | <b>! INSTRUCTIONS WERE EXECUTED ( IOTERR 5559 )</b>                                                                                                                                                                                                                                |
| CAUSE       | Indicates the number of I/O requests which were executed before a failure was detected.                                                                                                                                                                                            |
| ACTION      | Error messages containing further information on the failure will be displayed with this message. Please consult the ACTION clause of those error messages for further information.                                                                                                |
| <b>5560</b> | <b>BLOCKED I/O REQUEST WAS NOT ISSUED ( IOTERR 5560 )</b>                                                                                                                                                                                                                          |
| CAUSE       | I/O Test Tool has not obtained all the information it needs to perform the I/O request.                                                                                                                                                                                            |
| ACTION      | Error messages indicating the information lacking will be displayed with this message. Please refer to the ACTION clause for those error messages for further information.                                                                                                         |
| <b>5561</b> | <b>HP-IB ADDRESS IS OUT OF RANGE ( IOTERR 5561 )</b>                                                                                                                                                                                                                               |
| CAUSE       | I/O Test Tool has encountered a HP-IB address which is beyond the range of 0 to 7. This is a software error.                                                                                                                                                                       |
| ACTION      | Please submit a service request indicating the following: a) Any other error messages displayed with this error message. b) The sequence of IOTT commands which were being performed when this error message was encountered. c) The version (A.nn.nn) of the IOTT being executed. |
| <b>5566</b> | <b>EXPECTING TAPE DENSITY IN OPTION 1 ( IOTERR 5566 )</b>                                                                                                                                                                                                                          |
| CAUSE       | I/O Test Tool was expecting the first parameter of the SETOPTION instruction to be a tape density value.                                                                                                                                                                           |
| ACTION      | The SHOWFARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O.                                                                    |

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| <b>5567</b> | <b>INVALID TAPE DENSITY VALUE GIVEN ( IOTERR 5567 )</b>                                                                                                                                                         |
| CAUSE       | The tape density value given by the user through the SETOPTION instruction is invalid. Tape density values must be 800 or 1600 or 6250.                                                                         |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |
| <b>5568</b> | <b>EXPECTING TAPE SPEED SELECT IN OPTION 1 ( IOTERR 5568 )</b>                                                                                                                                                  |
| CAUSE       | I/O Test Tool is expecting the first parameter of the SETOPTION instruction to be the tape speed select value.                                                                                                  |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |
| <b>5569</b> | <b>INVALID TAPE SPEED SELECT GIVEN ( IOTERR 5569 )</b>                                                                                                                                                          |
| CAUSE       | The tape speed parameter given in the SETOPTION instruction is invalid. Tape speed values can be 100 or 50.                                                                                                     |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |
| <b>5570</b> | <b>EXPECTING "ENABLE" OR "DISABLE" IN OPTION 1 ( IOTERR 5570 )</b>                                                                                                                                              |
| CAUSE       | I/O Test Tool was expecting the first parameter of the SETOPTION instruction to be either of the reserved words ENABLE or DISABLE.                                                                              |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |
| <b>5571</b> | <b>EXPECTING "HARD" OR "SOFT" IN OPTION 1 ( IOTERR 5571 )</b>                                                                                                                                                   |
| CAUSE       | I/O Test Tool was expecting the first parameter of the SETOPTION instruction to contain either of the reserved words HARD or SOFT.                                                                              |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O. |
| <b>5572</b> | <b>UNABLE TO LOCK NEXT LEVEL I/O MANAGER ( IOTERR 5572 )</b>                                                                                                                                                    |
| CAUSE       | I/O Test Tool was not able to lock the next level I/O manager to perform the EXECUTE instruction.                                                                                                               |
| ACTION      | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause of those error messages for further information.                                           |



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| <b>5573</b> | <b>ORIGINAL DEVICE IS WAS NOT LOCKED ( IOTERR 5573 )</b>                                                                                                                                                                                                                                                                                                 |
| CAUSE       | I/O Test Tool cannot perform an EXECUTE HPIB or an EXECUTE HPCIO unless the device is in a locked state.                                                                                                                                                                                                                                                 |
| ACTION      | It may be necessary to enter single user mode to perform this request.                                                                                                                                                                                                                                                                                   |
| <b>5574</b> | <b>INVALID OPTION 1 FOR GENERIC I/O REQUEST ( IOTERR 5574 )</b>                                                                                                                                                                                                                                                                                          |
| CAUSE       | I/O Test Tool was expecting the first parameter of the SETOPTION instruction to be a literal value.                                                                                                                                                                                                                                                      |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O.                                                                                                                                          |
| <b>5575</b> | <b>INVALID OPTION 2 FOR GENERIC I/O REQUEST ( IOTERR 5575 )</b>                                                                                                                                                                                                                                                                                          |
| CAUSE       | I/O Test Tool was expecting the second parameter of the SETOPTION instruction to be a literal value.                                                                                                                                                                                                                                                     |
| ACTION      | The SHOWPARM instruction will display the current settings from SETOPTION. Please consult the I/O Test Tool help facility for further information on what instructions needs to be issued for a particular I/O.                                                                                                                                          |
| <b>5576</b> | <b>UNABLE TO DOWNLOAD DEVICE ADAPTER PROGRAM ( IOTERR 5576 )</b>                                                                                                                                                                                                                                                                                         |
| CAUSE       | I/O Test Tool was not able to download the user's device adapter program onto the HP-IB device adapter.                                                                                                                                                                                                                                                  |
| ACTION      | Error messages containing further information will be displayed with this message. Please consult the ACTION clause of those error messages for further information.                                                                                                                                                                                     |
| <b>5577</b> | <b>! STATUS BYTES EXCEED MAXIMUM ! BYTES ALLOCATED BY I/O TEST TOOL. STATUS BUFFER ALTERATION NOT PERFORMED ( IOTERR 5577 )</b>                                                                                                                                                                                                                          |
| CAUSE       | The status buffer allocated by I/O Test Tool is too small for the hardware status which will be returned by the device. This is a software error.                                                                                                                                                                                                        |
| ACTION      | Please submit a service request indicating the following: a) The exact text of the above error message including the parameter. b) Any other error messages displayed with this error message. c) The sequence of IOTT commands which were being performed when this error message was encountered. d) The version (A.nn.nn) of the IOTT being executed. |
| <b>5578</b> | <b>SETADDR REQUIRED FOR I/O REQUEST (IOTERR 5578)</b>                                                                                                                                                                                                                                                                                                    |
| CAUSE       | User trying to request an I/O, but did not issue a SETADDR instruction to specify an address. An address is required to perform the I/O request.                                                                                                                                                                                                         |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the SETADDR instruction.                                                                                                                                                                                                                                                       |
| <b>5579</b> | <b>IOTT GENERATED SET ADDRESS COMMAND FAILED (IOTERR 5579)</b>                                                                                                                                                                                                                                                                                           |
| CAUSE       | I/O Test Tool issued a CS/80 set address command to the current device, and that I/O failed.                                                                                                                                                                                                                                                             |
| ACTION      | Error messages containing further information will be displayed with this message. Please consult the ACTION clause of those error messages for further information.                                                                                                                                                                                     |

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| 5750   | BUFFER TYPES MUST BE IDENTICAL FOR IF STATEMENTS ( IOTERR 5750 )                                                                                                                                                                                                                                                                                         |
| CAUSE  | For the IF and IFN program statements, buffer elements used as operands must be of the same type.                                                                                                                                                                                                                                                        |
| ACTION | Please consult the I/O Test Tool help facility for further information on the IF or IFN program statement.                                                                                                                                                                                                                                               |
| 5751   | BUFFER GIVEN IS OF TYPE BYTE AND THE VALUE GIVEN IS INTEGER ( IOTERR 5751 )                                                                                                                                                                                                                                                                              |
| CAUSE  | The user has tried to perform integer functions with a buffer of type BYTE.                                                                                                                                                                                                                                                                              |
| ACTION | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                                                                                                                                                                        |
| 5752   | LOOP TO STATEMENT ENCOUNTERED BEFORE DO STATEMENT WAS EXECUTED ( IOTERR 5752 )                                                                                                                                                                                                                                                                           |
| CAUSE  | During execution of the program, a LOOP TO program statement was encountered before a DO program statement.                                                                                                                                                                                                                                              |
| ACTION | Please consult the I/O Test Tool help facility for further information on the DO-LOOP TO program statements.                                                                                                                                                                                                                                             |
| 5753   | INTERNAL ERROR IEMPGM : ! ( IOTERR 5753 )                                                                                                                                                                                                                                                                                                                |
| CAUSE  | I/O Test Tool encountered an error it could not recover from. I/O Test Tool cannot continue execution.                                                                                                                                                                                                                                                   |
| ACTION | Please submit a service request indicating the following: a) The exact text of the above error message including the parameter. b) Any other error messages displayed with this error message. c) The sequence of IOTT commands which were being performed when this error message was encountered. d) The version (A.nn.nn) of the IOTT being executed. |
| 5998   | INTERNAL ERROR: ! ( IOTERR 5998 )                                                                                                                                                                                                                                                                                                                        |
| CAUSE  | I/O Test Tool encountered an error it could not recover from. This is a software error.                                                                                                                                                                                                                                                                  |
| ACTION | Please submit a service request indicating the following: a) The exact text of the above error message including the parameter. b) Any other error messages displayed with this error message. c) The sequence of IOTT commands which were being performed when this error message was encountered. d) The version (A.nn.nn) of the IOTT being executed. |
| 5999   | ERROR DETECTED AT LINE NUMBER ! ( IOTERR 5999 )                                                                                                                                                                                                                                                                                                          |
| CAUSE  | Indicates which line within a program produced an error. When displayed, the ! symbol will be replaced with the actual line number.                                                                                                                                                                                                                      |
| ACTION | Error messages indicating the instruction error will be displayed with this message. Please consult the ACTION clause of those error messages for further information.                                                                                                                                                                                   |
| 6000   | COMMANDS CANNOT BE USED WITH A LOAD FILE ( IOTERR 6000 )                                                                                                                                                                                                                                                                                                 |
| CAUSE  | The user tried to load a file through the LOAD command which contained commands. Only instructions and program statements can be loaded from a file.                                                                                                                                                                                                     |
| ACTION | Please consult the I/O Test Tool help facility for further information on the LOAD command.                                                                                                                                                                                                                                                              |

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| <b>6001</b> | <b>COMMANDS CANNOT BE PRECEDED BY A LINE NUMBER ( IOTERR 6001 )</b>                                                                                                                                |
| CAUSE       | The user gave a command preceded by a line number. Only instructions and program statements can be stored into the Program Storage Area.                                                           |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of a program.                                                                                                     |
| <b>6002</b> | <b>ALL INPUT FROM THE LOAD FILE MUST BE PRECEDED BY A LINE NUMBER ( IOTERR 6002 )</b>                                                                                                              |
| CAUSE       | The file designated by the LOAD command contained instructions or program statements which were not preceded by a line number.                                                                     |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the LOAD command.                                                                                                        |
| <b>6003</b> | <b>PROGRAM STATEMENTS MUST BE PRECEDED BY LINE NUMBERS ( IOTERR 6003 )</b>                                                                                                                         |
| CAUSE       | The user has given a program statement without a leading line number. Since program statements must be inserted into the Program Storage Area, these statements must be preceded by a line number. |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of a program.                                                                                                     |
| <b>6004</b> | <b>INVALID LINE NUMBER ENCOUNTERED ( IOTERR 6004 )</b>                                                                                                                                             |
| CAUSE       | The line number given was outside the range of a valid line number. A valid line number is between 1 and 9999.                                                                                     |
| ACTION      | Please consult the I/O Test Tool manual for further information on the structure of a program.                                                                                                     |
| <b>6005</b> | <b>UNRECOGNIZED COMMAND ( IOTERR 6005 )</b>                                                                                                                                                        |
| CAUSE       | The input given by the user is not recognized as an I/O Test Tool command, instruction, or program statement.                                                                                      |
| ACTION      | Please consult the I/O Test Tool help facility for a list of all commands available within I/O Test Tool.                                                                                          |
| <b>6006</b> | <b>EXPECTING COMMA HERE ( IOTERR 6006 )</b>                                                                                                                                                        |
| CAUSE       | A mandatory comma was not found during syntax checking. The caret ( ^ ) will indicate the location where the comma was expected.                                                                   |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                  |
| <b>6007</b> | <b>EXPECTING COLON HERE ( IOTERR 6007 )</b>                                                                                                                                                        |
| CAUSE       | A mandatory colon was not found during syntax checking. The caret ( ^ ) will indicate the location where the colon was expected.                                                                   |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                  |

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| <b>6008</b> | <b>UNEXPECTED INPUT ( IOTERR 6008 )</b>                                                                                                                  |
| CAUSE       | Extra text was found after a syntactically correct input was found.                                                                                      |
| ACTION      | Please enter all extra text as comments. To do this, enclose text within brackets.                                                                       |
| <hr/>       |                                                                                                                                                          |
| <b>6009</b> | <b>EXPECTING OPTION HERE ( IOTERR 6009 )</b>                                                                                                             |
| CAUSE       | A mandatory option parameter was not given. Consult the HELP facility for information concerning the correct option for the input requested.             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                        |
| <hr/>       |                                                                                                                                                          |
| <b>6010</b> | <b>EXPECTING BUFFER NAME HERE ( IOTERR 6010 )</b>                                                                                                        |
| CAUSE       | A mandatory buffer name was not given. The caret ( ^ ) will indicate where the buffer name was expected.                                                 |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                        |
| <hr/>       |                                                                                                                                                          |
| <b>6011</b> | <b>BUFFER NAME EXCEEDS CHARACTER LIMIT OF 8 ( IOTERR 6011 )</b>                                                                                          |
| CAUSE       | The user gave a buffer name which exceeded the length of eight characters.                                                                               |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                        |
| <hr/>       |                                                                                                                                                          |
| <b>6012</b> | <b>EXPECTING LEFT PARENTHESIS FOR BUFFER INDEX HERE ( IOTERR 6012 )</b>                                                                                  |
| CAUSE       | A mandatory left parenthesis was not given. The caret ( ^ ) will indicate the location where the parenthesis was expected.                               |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                        |
| <hr/>       |                                                                                                                                                          |
| <b>6013</b> | <b>EXPECTING BUFFER INDEX HERE ( IOTERR 6013 )</b>                                                                                                       |
| CAUSE       | A mandatory buffer index was not given. A buffer index must be a number. The caret ( ^ ) will indicate the location where the buffer index was expected. |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                        |
| <hr/>       |                                                                                                                                                          |
| <b>6014</b> | <b>EXPECTING RIGHT PARENTHESIS FOR BUFFER INDEX HERE ( IOTERR 6014 )</b>                                                                                 |
| CAUSE       | A mandatory right parenthesis was not given. The caret ( ^ ) will indicate the location where the parenthesis was expected.                              |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                        |
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| <b>6015</b> | <b>EXPECTING DATA VALUES ( IOTERR 6015 )</b>                                                                                  |
| CAUSE       | The input found was not a legal data value. Legal data values are numbers, constant expressions, and single ASCII characters. |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                             |
| <b>6016</b> | <b>LINE NUMBERED INPUT CANNOT BE GIVEN IN PAUSE MODE ( IOTERR 6016 )</b>                                                      |
| CAUSE       | The user tried to enter new lines into the Program Storage Area while in PAUSE mode. This is illegal.                         |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the PAUSE instruction.                              |
| <b>6017</b> | <b>DESTINATION NUMBER IN RANGE ( IOTERR 6017 )</b>                                                                            |
| CAUSE       | The user has specified a destination line number which is within the range to be moved.                                       |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the MOVE command.                                   |
| <b>6018</b> | <b>STARTING NUMBER IS GREATER THAN ENDING NUMBER ( IOTERR 6018 )</b>                                                          |
| CAUSE       | The user has given a line number range where the second value given is less than the first value.                             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the command issued.                                 |
| <b>6019</b> | <b>EXPECTING "SYNTAX" OPTION HERE ( IOTERR 6019 )</b>                                                                         |
| CAUSE       | The user has given an illegal option for the HELP command.                                                                    |
| ACTION      | Please consult the I/O Test Tool manual for further information on the help facility.                                         |
| <b>6021</b> | <b>EXPECTING LINE RANGE OR ALL OPTION ( IOTERR 6021 )</b>                                                                     |
| CAUSE       | An input other than a line range or the reserved word ALL has been given.                                                     |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the command issued.                                 |
| <b>6022</b> | <b>EXPECTING DESTINATION LINE NUMBER ( IOTERR 6022 )</b>                                                                      |
| CAUSE       | The user tried to perform a MOVE command without specifying where the lines are to be moved.                                  |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the command issued.                                 |

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| <b>6023</b> | <b>EXPECTING DISPLAY OPTIONS HERE ( IOTERR 6023 )</b>                                                                                                                                                                                                                                                                                                    |
| CAUSE       | The user gave a colon without the option identifier. In this case, only display options are valid. The options are HEX, DEC, or OCT.                                                                                                                                                                                                                     |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                                                                                                                                                                        |
| <b>6024</b> | <b>EXPECTING INDEX FOR THE BUFFER GIVEN ( IOTERR 6024 )</b>                                                                                                                                                                                                                                                                                              |
| CAUSE       | I/O Test Tool was expecting the next token to be a buffer index value. The caret ( ^ ) will indicate the location where the buffer index value was expected.                                                                                                                                                                                             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                                                                                                                                                                        |
| <b>6027</b> | <b>EXPECTING DESTINATION LINE NUMBER ( IOTERR 6027 )</b>                                                                                                                                                                                                                                                                                                 |
| CAUSE       | I/O Test Tool was expecting the next token to be a destination line number. The caret ( ^ ) will indicate the location where the line number was expected.                                                                                                                                                                                               |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the command issued.                                                                                                                                                                                                                                                            |
| <b>6028</b> | <b>LENGTH PARAMETER GIVEN MUST BE GREATER THAN ZERO ( IOTERR 6028 )</b>                                                                                                                                                                                                                                                                                  |
| CAUSE       | The length parameter given was less than or equal to zero.                                                                                                                                                                                                                                                                                               |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction given.                                                                                                                                                                                                                                                         |
| <b>6029</b> | <b>EXPECTING LENGTH PARAMETER HERE ( IOTERR 6029 )</b>                                                                                                                                                                                                                                                                                                   |
| CAUSE       | A mandatory length parameter was not given. The caret ( ^ ) indicates where the length parameter was expected.                                                                                                                                                                                                                                           |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                                                                                                                                                                        |
| <b>6030</b> | <b>COUNT PARAMETER MUST BE GREATER THAN ZERO ( IOTERR 6030 )</b>                                                                                                                                                                                                                                                                                         |
| CAUSE       | The user gave a count parameter which was less than zero.                                                                                                                                                                                                                                                                                                |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                                                                                                                                                                        |
| <b>6031</b> | <b>ILLEGAL COUNT PARAMETER WAS GIVEN ( IOTERR 6031 )</b>                                                                                                                                                                                                                                                                                                 |
| CAUSE       | I/O Test Tool was expecting the next token to be a count parameter. The caret ( ^ ) will indicate the location where the count parameter was expected.                                                                                                                                                                                                   |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                                                                                                                                                                        |
| <b>6032</b> | <b>UNEXPECTED INTERNAL ERROR - GET INPUT MODULE ! ( IOTERR 6032 )</b>                                                                                                                                                                                                                                                                                    |
| CAUSE       | I/O Test Tool encountered an error it could not recover from. This is a software error.                                                                                                                                                                                                                                                                  |
| ACTION      | Please submit a service request indicating the following: a) The exact text of the above error message including the parameter. b) Any other error messages displayed with this error message. c) The sequence of IOTT commands which were being performed when this error message was encountered. d) The version (A.nn.nn) of the IOTT being executed. |

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| <b>6033</b> | <b>EXPECTING "TO" RESERVED WORD ( IOTERR 6033 )</b>                                                                                                |
| CAUSE       | The caret (^) will indicate where the reserved word should be located.                                                                             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                  |
| <hr/>       |                                                                                                                                                    |
| <b>6034</b> | <b>EXPECTING "ALL" RESERVED WORD ( IOTERR 6034 )</b>                                                                                               |
| CAUSE       | The caret (^) will indicate where the reserved word should be located.                                                                             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the requirements for the I/O request issued.                             |
| <hr/>       |                                                                                                                                                    |
| <b>6035</b> | <b>EXPECTING "OFF" RESERVED WORD ( IOTERR 6035 )</b>                                                                                               |
| CAUSE       | The caret (^) will indicate where the reserved word should be located.                                                                             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the requirements for the I/O request issued.                             |
| <hr/>       |                                                                                                                                                    |
| <b>6036</b> | <b>EXPECTING "ON" RESERVED WORD ( IOTERR 6036 )</b>                                                                                                |
| CAUSE       | The caret (^) will indicate where the reserved word should be located.                                                                             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the requirements for the I/O request issued.                             |
| <hr/>       |                                                                                                                                                    |
| <b>6037</b> | <b>EXPECTING A RESERVED WORD ( IOTERR 6037 )</b>                                                                                                   |
| CAUSE       | A mandatory reserved word was not given by the user.                                                                                               |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the requirements for the I/O request issued.                             |
| <hr/>       |                                                                                                                                                    |
| <b>6038</b> | <b>EXPECTING "THEN" RESERVED WORD ( IOTERR 6038 )</b>                                                                                              |
| CAUSE       | The caret (^) will indicate where the reserved word should be located.                                                                             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the requirements for the I/O request issued.                             |
| <hr/>       |                                                                                                                                                    |
| <b>6039</b> | <b>EXPECTING FILE NAME ( IOTERR 6039 )</b>                                                                                                         |
| CAUSE       | I/O Test Tool was expecting the next token to be a file name. The caret (^) will indicate the location where the file name was expected.           |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                  |
| <hr/>       |                                                                                                                                                    |
| <b>6040</b> | <b>DISPLAY OPTION ALREADY GIVEN ( IOTERR 6040 )</b>                                                                                                |
| CAUSE       | I/O Test Tool was expecting the next token to be a display option. The caret (^) will indicate the location where the display option was expected. |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                  |
| <hr/>       |                                                                                                                                                    |

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|             |                                                                                                                                                                                                  |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6041</b> | <b>EXPECTING LINE NUMBER RANGE ( IOTERR 6041 )</b>                                                                                                                                               |
| CAUSE       | I/O Test Tool was expecting the next token to be a line number range. The caret ( ^ ) will indicate the location where the line number range was expected.                                       |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                |
| <hr/>       |                                                                                                                                                                                                  |
| <b>6042</b> | <b>EXPECTING "BYTE" OR "WORD" BUFFER TYPE ( IOTERR 6042 )</b>                                                                                                                                    |
| CAUSE       | I/O Test Tool was expecting the next token to be either of the reserved word BYTE or WORD. The caret ( ^ ) will indicate the location where the reserved word was expected.                      |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                |
| <hr/>       |                                                                                                                                                                                                  |
| <b>6043</b> | <b>EXPECTING RESERVED WORD "STATUS" ( IOTERR 6043 )</b>                                                                                                                                          |
| CAUSE       | I/O Test Tool was expecting the next token to be the reserved word STATUS. The caret ( ^ ) will indicate the location where the reserved word was expected.                                      |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the DEFBUFF instruction.                                                                                               |
| <hr/>       |                                                                                                                                                                                                  |
| <b>6044</b> | <b>EXPECTING OPERATOR FOR IF STATEMENT ( IOTERR 6044 )</b>                                                                                                                                       |
| CAUSE       | I/O Test Tool was expecting the next token to be an operator symbol. Legal symbols are "=" or "<>" or "AND" or "OR". The caret ( ^ ) will indicate the location where the operator was expected. |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the IF or IFN program statement.                                                                                       |
| <hr/>       |                                                                                                                                                                                                  |
| <b>6045</b> | <b>EXPECTING PRINT TEXT ( IOTERR 6045 )</b>                                                                                                                                                      |
| CAUSE       | Mandatory display text was not found.                                                                                                                                                            |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the PRINT program statement.                                                                                           |
| <hr/>       |                                                                                                                                                                                                  |
| <b>6046</b> | <b>"CYL" PARAMETER ALREADY GIVEN ( IOTERR 6046 )</b>                                                                                                                                             |
| CAUSE       | The user has specified the CYL= key parameter twice. The caret ( ^ ) will indicate the location where the second occurrence of the parameter was found.                                          |
| ACTION      | Please consult the I/O Test Tool help facility for further information.                                                                                                                          |
| <hr/>       |                                                                                                                                                                                                  |
| <b>6047</b> | <b>"CYL" PARAMETER EXPECTED ( IOTERR 6047 )</b>                                                                                                                                                  |
| CAUSE       | I/O Test Tool was expecting the CYL= key parameter.                                                                                                                                              |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                                                                |
| <hr/>       |                                                                                                                                                                                                  |
| <b>6048</b> | <b>"HEAD" PARAMETER ALREADY GIVEN ( IOTERR 6048 )</b>                                                                                                                                            |
| CAUSE       | The user has specified the HEAD= key parameter twice. The caret ( ^ ) will indicate the location where the second occurrence of the parameter was found.                                         |
| ACTION      | Please consult the I/O Test Tool help facility for                                                                                                                                               |



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|             |                                                                                                                                                        |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6049</b> | <b>"HEAD" PARAMETER EXPECTED ( IOTERR 6049 )</b>                                                                                                       |
| CAUSE       | I/O Test Tool was expecting the HEAD= key parameter.                                                                                                   |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                      |
| <b>6050</b> | <b>"SECT" PARAMETER ALREADY GIVEN ( IOTERR 6050 )</b>                                                                                                  |
| CAUSE       | The user has specified the SECT= key parameter twice. The caret (^) will indicate the location where the second occurrence of the parameter was found. |
| ACTION      | Please consult the I/O Test Tool help facility for                                                                                                     |
| <b>6051</b> | <b>"SECT" PARAMETER EXPECTED ( IOTERR 6051 )</b>                                                                                                       |
| CAUSE       | I/O Test Tool was expecting the SECT= key parameter.                                                                                                   |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                      |
| <b>6052</b> | <b>TIMEOUT VALUE ( IN SECONDS ) EXPECTED ( IOTERR 6052 )</b>                                                                                           |
| CAUSE       | I/O Test Tool was expecting the next token to be a timeout value. The caret (^) will indicate the location where the timeout value was expected.       |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                      |
| <b>6053</b> | <b>IMPROPER OPTION GIVEN ( IOTERR 6053 )</b>                                                                                                           |
| CAUSE       | I/O Test Tool has encountered an unknown option reserved word. The caret (^) will indicate the location where the unknown reserved word was found.     |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                      |
| <b>6054</b> | <b>INCREMENT VALUE EXPECTED ( IOTERR 6054 )</b>                                                                                                        |
| CAUSE       | I/O Test Tool was expecting the next token to be a increment value. The caret (^) will indicate the location where the increment value was expected.   |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                      |
| <b>6055</b> | <b>INCREMENT MUST BE POSITIVE ( IOTERR 6055 )</b>                                                                                                      |
| CAUSE       | User has given a increment value which was less than or equal to zero. All increment values must be positive.                                          |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                      |
| <b>6056</b> | <b>TIME VALUE MUST BE POSITIVE ( IOTERR 6056 )</b>                                                                                                     |
| CAUSE       | The time value given must be greater than zero.                                                                                                        |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the SETTIMER instruction.                                                    |

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|-------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6057</b> | <b>INCREMENT CANNOT BE ZERO ( IOTERR 6057 )</b>                                                                                           |
| CAUSE       | All increment values must be a value other than zero.                                                                                     |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                         |
| <b>6058</b> | <b>COMMAND CANNOT BE ISSUED IN PAUSE MODE ( IOTERR 6058 )</b>                                                                             |
| CAUSE       | Users can issue instructions in pause mode. Commands are not allowed.                                                                     |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the command issued.                                             |
| <b>6059</b> | <b>BUFFER INDEX MUST NOT BE NEGATIVE ( IOTERR 6059 )</b>                                                                                  |
| CAUSE       | The user has given a negative buffer index. All buffer index values start at zero.                                                        |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                         |
| <b>6060</b> | <b>EXPECTING "UNBLOCK" OPTION ( IOTERR 6060 )</b>                                                                                         |
| CAUSE       | I/O Test Tool was expecting the next token to be the reserved word UNBLOCK.                                                               |
| ACTION      | Please consult the I/O Test Tool help facility for further information for the EXECUTE instruction.                                       |
| <b>6061</b> | <b>INVALID PREDEFINED I/O IDENTIFIER ( IOTERR 6061 )</b>                                                                                  |
| CAUSE       | This I/O identifier is unknown to the program.                                                                                            |
| ACTION      | Please consult the I/O Test Tool help facility for a list of valid I/O identifiers.                                                       |
| <b>6062</b> | <b>EXPECTING A DEVICE SPECIFIER ( IOTERR 6062 )</b>                                                                                       |
| CAUSE       | I/O Test Tool was expecting a LDEV= or PDEV= parameter. The caret (^) will indicate the location where the device specifier was expected. |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                         |
| <b>6063</b> | <b>EXPECTING A PHYSICAL DEVICE NUMBER ( PDEV ) ( IOTERR 6063 )</b>                                                                        |
| CAUSE       | I/O Test Tool was expecting a physical device number after the PDEV= key word.                                                            |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                         |
| <b>6064</b> | <b>EXPECTING A LOGICAL DEVICE NUMBER ( LDEV ) ( IOTERR 6064 )</b>                                                                         |
| CAUSE       | I/O Test Tool was expecting a logical device number after the LDEV= key word.                                                             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                         |

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|-------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6065</b> | <b>NOT ALL ADDRESS PARAMETERS WERE GIVEN ( IOTERR 6065 )</b>                                                                                 |
| CAUSE       | The user has given an incomplete address parameter. The address consists of a CYL=, HEAD=, and SECT= key parameters.                         |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                            |
| <b>6066</b> | <b>EXPECTING "ON" OR "OFF" OPTION ( IOTERR 6066 )</b>                                                                                        |
| CAUSE       | I/O Test Tool was expecting the reserved word ON or OFF. The caret (^) will indicate the location where the reserved word was expected.      |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                            |
| <b>6067</b> | <b>EXPECTING LINE NUMBER HERE ( IOTERR 6067 )</b>                                                                                            |
| CAUSE       | I/O Test Tool was expecting the next token to be a line number. The caret (^) will indicate the location where the line number was expected. |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                            |
| <b>6068</b> | <b>VALUE CANNOT BE NEGATIVE ( IOTERR 6068 )</b>                                                                                              |
| CAUSE       | The user has given a negative value parameter, but the instruction will only access positive values.                                         |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                            |
| <b>6070</b> | <b>ILLEGAL KEY WORD ( IOTERR 6070 )</b>                                                                                                      |
| CAUSE       | The key word given is unknown to this program.                                                                                               |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                            |
| <b>6071</b> | <b>FILE NAME TOO LONG (IOTERR 6071)</b>                                                                                                      |
| CAUSE       | The file name given exceeded the maximum character length. Remember the file must reside in the diagnostic group and and account.            |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the command issued.                                                |
| <b>6072</b> | <b>FILE SELECTOR ID CONTAINS INVALID CHARACTERS OR IS TOO LONG ( IOTERR 6072 )</b>                                                           |
| CAUSE       | The file selector parameter given to the SHOWFILE command was too long.                                                                      |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                            |

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|             |                                                                                                                                                          |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6073</b> | <b>EXPECTING VALUE PARAMETER ( IOTERR 6073 )</b>                                                                                                         |
| CAUSE       | The required parameter for a HP-IB device adapter program instruction was not given.                                                                     |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                        |
| <b>6074</b> | <b>VALUE MUST BE WITHIN THE RANGE OF 0 to 255 ( IOTERR 6074 )</b>                                                                                        |
| CAUSE       | All HP-IB device adapter program parameters must be contained within 8-bits.                                                                             |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                        |
| <b>6075</b> | <b>EXPECTING "EOI" OPTION ( IOTERR 6075 )</b>                                                                                                            |
| CAUSE       | I/O Test Tool was expecting the reserved word EOI as an option. The caret (^) will indicate the location where the reserved word was expected.           |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                        |
| <b>6076</b> | <b>EXPECTING "BREAK" OPTION ( IOTERR 6076 )</b>                                                                                                          |
| CAUSE       | I/O Test Tool was expecting the next token to be the reserved word BREAK. The caret (^) will indicate the location where the reserved word was expected. |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the instruction issued.                                                        |
| <b>6077</b> | <b>HP-CIO OPTION ALREADY GIVEN ( IOTERR 6077 )</b>                                                                                                       |
| CAUSE       | User has already specified the HP-CIO option in the list. The caret (^) will indicate the location where the duplicate option was found.                 |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the ADDQUAD instruction.                                                       |
| <b>6078</b> | <b>EXPECTING HP-CIO OPTION ( IOTERR 6078 )</b>                                                                                                           |
| CAUSE       | I/O Test Tool was expecting a HP-CIO option list. The caret (^) will indicate the location where the HP-CIO option list was expected.                    |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the ADDQUAD instruction.                                                       |
| <b>6079</b> | <b>EXPECTING HP-CIO ORDER ( IOTERR 6079 )</b>                                                                                                            |
| CAUSE       | I/O Test Tool was expecting a HP-CIO order identifier. The caret (^) will indicate the location where the HP-CIO order identifier was expected.          |
| ACTION      | Please consult the I/O Test Tool help facility for further information on the ADDQUAD instruction.                                                       |

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|               |                                                                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6080</b>   | <b>EXPECTING "DIFF" OR "SIMILAR" WORD ( IOTERR 6080 )</b>                                                                                                                                                     |
| <b>CAUSE</b>  | I/O Test Tool was expecting the reserved word DIFF or SIMILAR. The caret ( ` ) will indicate the location where the reserved word was expected.                                                               |
| <b>ACTION</b> | Please consult the I/O Test Tool help facility for further information on the COMPBUFF command.                                                                                                               |
| <hr/>         |                                                                                                                                                                                                               |
| <b>8000</b>   | <b>OBTAINED UNEXPECTED MESSAGE DURING STATUS DECODING ( IOTERR 8000 )</b>                                                                                                                                     |
| <b>CAUSE</b>  | I/O Test Tool obtained an unexpected inter-process communication message from the diagnostic program decoding status.                                                                                         |
| <b>ACTION</b> | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DUI command line, and file a service request with the trace information generated when performing the IOTT command again. |
| <hr/>         |                                                                                                                                                                                                               |
| <b>8001</b>   | <b>DIAGNOSTIC MONITOR WAS NOT ABLE TO TERMINATE DECODING PROCESS ( IOTERR 8001 )</b>                                                                                                                          |
| <b>CAUSE</b>  | I/O Test Tool encountered an error while trying to terminate a diagnostic program which was launched for decode hardware status.                                                                              |
| <b>ACTION</b> | Error messages containing further information will be displayed with this message. Please consult the ACTION clause for those error messages for further information.                                         |
| <hr/>         |                                                                                                                                                                                                               |
| <b>8002</b>   | <b>BUFFER DISPLAY TERMINATED DUE TO NUMBER CONVERSION PROBLEMS ( IOTERR 8002 )</b>                                                                                                                            |
| <b>CAUSE</b>  | I/O Test Tool was not able to convert an integer to a string.                                                                                                                                                 |
| <b>ACTION</b> | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DUI command line, and file a service request with the trace information generated when performing the IOTT command again. |
| <hr/>         |                                                                                                                                                                                                               |
| <b>8003</b>   | <b>UNABLE TO OBTAIN MESSAGE FROM CATALOG I/O TEST TOOL CANNOT CONTINUE EXECUTION ( IOTERR 8003 )</b>                                                                                                          |
| <b>CAUSE</b>  | I/O Test Tool was not able to obtain a message from the message catalog.                                                                                                                                      |
| <b>ACTION</b> | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DUI command line, and file a service request with the trace information generated when performing the IOTT command again. |
| <hr/>         |                                                                                                                                                                                                               |
| <b>8004</b>   | <b>UNABLE TO DISPLAY ASCII HEADER ( IOTERR 8004 )</b>                                                                                                                                                         |
| <b>CAUSE</b>  | I/O Test Tool was not able to display the header when a DBUFF instruction is given for a byte buffer.                                                                                                         |
| <b>ACTION</b> | Enable error tracing by rerunning the program with the TRACE=ERROR parameter at the DUI command line, and file a service request with the trace information generated when performing the IOTT command again. |
| <hr/>         |                                                                                                                                                                                                               |
| <b>8005</b>   | <b>MAXIMUM ADDRESS COULD NOT BE OBTAINED. INCREMENTATION NOT PERFORMED (IOTERR 8005)</b>                                                                                                                      |
| <b>CAUSE</b>  | I/O Test Tool will issue a DESCRIBE command to the CS80 disk to obtain the maximum address possible for the particular disk. In this instance, the DESCRIBE request failed.                                   |
| <b>ACTION</b> | Error messages containing further information will be displayed with this message. Please refer to the ACTION clause of those error messages for further information.                                         |
| <hr/>         |                                                                                                                                                                                                               |



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## MPE XL Online Diagnostic Installer

---

### Introduction

The Online Diagnostic Installer is part of the MPE XL Online Diagnostic Subsystem. It allows the user to add, remove, and correct program information entries in the directory, and add, remove, and replace message sets in the message catalog (including those for the Diagnostic User Interface - DUI, System Monitor, and diagnostic system services). Updatable directory information includes:

- Security clearance
- Single user mode (SUM)
- Device requirements
- Type of program
- Program source code
- Autodiagnostic/decode ability of diagnosable devices.

The Installer updates and maintains other structures in the directory which are transparent to the system user but which are needed by the DUI and the system monitor. The Installer is written in menu driven form for simple operation. This utility will serve both as a remote and on-site support tool.

Updating the Online Diagnostic Subsystem requires the user to be logged onto the SYS account. Diagnostic security level 0 is also required. Since the Installer modifies core system files, actual installation will not occur (disallowed by the subsystem monitor) unless all other diagnostic users, including auto-diagnostics, are logged off the system.

The above restrictions do not apply in those instances where the installer is not being used to update the actual Online Diagnostic Subsystem files. Such a situation exists when the user either logs onto an account other than SYS and/or specifies a group other than DIAG in the RUN command "info" string when invoking the installer. The user is responsible for ensuring that the necessary diagnostic files are copied to an alternate group. Since the installer creates a number of working files, the integrity of non-diagnostic files in this alternate group cannot be guaranteed.

---

### Defects and Enhancements

Submit defect reports and enhancement requests for this diagnostic through the STARS database referencing product number 30600-10023.



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## Minimum Configuration

The MPE XL Online Diagnostic Installer will run on any HP Precision Architecture Computer system using the MPE XL operating system. The MPE XL Online Diagnostic Subsystem must be supported.

---

## Operating Instructions

The user runs the installer as a stand-alone utility and must have diagnostic level 0 capability (see the Online Diagnostics Overview). The Installer is not invoked from the DUI. It is a separate utility which interfaces with the diagnostic monitor but is run from the MPE XL operating system. The installer will prompt the user for the data it needs. All prompts will end with the ">" character.

Entry of the specific data will always terminate with a carriage return (Return). File names and file name qualification follow standard MPE XL rules. All characters are converted to upper case, making case selection unnecessary and impossible. Only as many characters as are necessary to differentiate one command from others need be entered. Normally this is two or three. If too few characters are entered, an "unrecognized command" error message is displayed.

Selection of tasks will be accomplished by entering the command name corresponding to a desired menu function. A null entry (Return) at program menu prompts will simply result in a reprompt for a valid selection. Other data items will have an explanatory prompt which will usually include a range of acceptable responses enclosed in parentheses "(" and a default value enclosed in brackets "[" to be assumed if the user simply enters a carriage return. Normally, this default will be the current value of the item as it presently resides in the directory. The installer makes each major change (program addition, deletion, or correction) permanent before allowing another change. This will normally involve reconstruction of the diagnostic system message catalog as well as the installer's work files.

Assistance on the use of this program is available by entering HELP at any prompt. Also available are:

- HELP GENERAL
- HELP COMMANDS
- HELP HELP
- HELP RECOVERY

The remainder of this manual explains the function corresponding to each main menu command. Explanations will include a brief overview of the purpose, an explanation of each step within the function, and an example of the expected output. The error messages listed in the last section of this manual are installer-specific. However, other error messages may also be printed.

## RUN Command

To run the Installer, enter the following to the MPE XL prompt (The "info" string will be mandatory if the user is logged onto an account other than SYS):

```
:run diaginst.diag.sys;lib=g [;info="<group name>"]
```

### 6-2 MPE XL Online Diagnostic Installer

**Test Execution**

The following introductory message will be displayed:

```
*****
****                                     ***
****      MPE XL ONLINE DIAGNOSTIC INSTALLER      ***
****                                     ***
****      (C) Copyright Hewlett Packard Co. 1987      ***
****              All Rights Reserved.              ***
****              Version A.00.00                    ***
****                                     ***
*****
```

Initializing .....

```
-----
Type "HELP HELP" at any prompt for instructions
concerning the Installer's help facility.
-----
```

After a short wait for initialization, the main menu will be displayed:

Available Commands:

```
ADD      - Add a new program to the subsystem
CORRECT  - Correct an existing program entry
EXIT     - Return control to the operating system
LIST     - Display info for all programs in the subsystem
REMOVE   - Remove a program from the subsystem
SHOWMSG  - Display messages from the subsystem catalog
SYSTEM   - Update diagnostic subsystem core files
XCHECK   - Cross-check subsystem files for synchronization
```

INSTALLATION TASK (select by command name) >

If the program being installed will auto-diagnose a device and/or decode status for it, one or both of the following messages will appear after the device name is entered. A YES answer makes the current program the designated autodiagnostic/decoder. A NO answer leaves the previous designation intact:

```
"(device name)" is already auto-diagnosed.
That service is currently provided by "(module name)"
OVERRIDE? (YES/NO) ☒ NO >
```

```
"(device name)" is already decoded.
That service is currently provided by "(module name)"
OVERRIDE? (YES/NO) ☒ NO >
```

Since catalog manipulations take a considerable amount of time, creation of a working copy of the catalog is put off until actually needed.

Generating working catalog (roughly ! min.)....

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The installer will be capable of recovering from a variety of errors. This recovery will be indicated by:

Recovery in progress....

If the installer cannot recover the directory, the user will be given the opportunity to create a new directory from scratch (though in most cases will probably prefer to replace it from backup via NEWDIR):

```
*** WARNING - The Diagnostic Subsystem directory is missing...
                                                    (INSTWARN 05514)
Installer found a working directory left over from the last attempt
to install. Attempting to use that directory.....
```

or

```
*** WARNING - The Diagnostic Subsystem directory is missing...
                                                    (INSTWARN 05514)
Do you wish to build a catalog from scratch (YES/NO) ☒ NO >
Building new directory from scratch...
A new directory has been created...
```

The installer must on occasion communicate with the diagnostic system monitor. When this communication process breaks down, one or more of the following messages will be issued. When a timeout has occurred, the installer will usually give the user the option to wait longer or to try again. This will normally occur when there is a process other than the installer (and system monitor) running in the diagnostic system. The user should ensure other users are logged off before retrying an installation.

The following advisories and prompts are issued along with explanatory error/warning messages:

```
There are currently ! other users on the diagnostic subsystem.
Wait another ! seconds?          (YES/NO) ☒ YES >
Do you wish to try again?        (YES/NO) ☒ YES >
```

When the installer detects an error in user-entered data, one of the following explanatory advisories will accompany an "invalid response" error message prior to reprompting for that item:

```
--Something other than a number was entered.
--Your choice must fall between ! and !.
--Only commands from the current menu are now valid.
To see the current menu, type "REFRESH".
```

One or more of the following messages will follow errors issued by GENCAT when attempting to update the subsystem catalog:

```
--The above error is often the result of a missing message
continuation symbol ("% or "&") before an unnumbered line.
--For more details, consult the Diagnostic Program Development Guide.
```

## Command Summary

The following commands are available in the Online Diagnostic Installer:

|         |                                                                                                                                                                  |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ADD     | Adds a program to the Online Diagnostic Subsystem.                                                                                                               |
| CORRECT | Updates user supplied data.                                                                                                                                      |
| EXIT    | Terminates the installer.                                                                                                                                        |
| LIST    | Displays user correctable data for all diagnostic programs in the subsystem.                                                                                     |
| REMOVE  | Purges a module from the diagnostic system.                                                                                                                      |
| SHOWMSG | Displays a particular subsystem message catalog.                                                                                                                 |
| SYSTEM  | Replaces core message sets and restores entire subsystem directory, or message catalog while the system is up and running.                                       |
| XCHECK  | Displays the contents of the directory, subsystem catalog, and diagnostic account files against one another to check for inconsistencies and/or file corruption. |

The Online Diagnostic Subsystem has reserved the following file names for its exclusive use. These names are therefore unavailable to the user for programming purposes.

|          |          |          |
|----------|----------|----------|
| CDUICAT  | LAYOUTF  | WORKCAT  |
| CINSTCAT | LOGGERL  | WORKDIR  |
| DIAGINST | MEMLOGP  | WORKGEN  |
| DIAGLIST | NL       | WORKLIST |
| DUI      | TESTPROC | WORKNCAT |
| DUIDIR   | WORKADD  | WORKPRG  |
| LAYMSG   | WORKDEL  | WORKSRC  |

## FOR HP INTERNAL USE ONLY

### ADD

This function will add a program to the Online Diagnostic Subsystem. A new entry will be added to the directory, a new message set added to the catalog, and a new program file copied into the diagnostic subsystem account. The following information will be needed for diagnostic module to be added:

- Name of file containing the executable code for the program
- Name of file containing the messages for the program
- Module name (<= 8 characters, first must be alphabetic)
- Module version number (normally in the form xx.xx)
- Module Type (diagnostic, exerciser, verifier, utility)
- Name/number of each product to be diagnosed by the program
- Whether program is an auto-diagnostic
- Whether program will decode device status
- Required User Mode (single or multi-user)
- Minimum security level required to run program

### Output:

```
ADD A NEW DIAGNOSTIC...

Program VERSION          (v.uu.ff) [?.??.??] >
Program NAME             [<cr> = abort] >
  Program Type Options:
    DIAGNOSTIC
    EXERCISER
    UTILITY
    VERIFIER
Program TYPE              [DIAGNOSTIC]>
SINGLE USER MODE required? (YES/NO) [NO] >
Program access SECURITY LEVEL (0..!) [ ! ] >
Does program always REQUIRE DEVICE (YES/NO) [NO] >
Is program AUTO-DIAGNOSTIC? (YES/NO) [NO] >
Does program DECODE device status? (YES/NO) [NO] >
Enter new DEVICES NOW SERVICED by this program:
    DEVICE NAME [<cr> = quit] >
    DEVICE NAME [<cr> = quit] >
    DEVICE NAME [<cr> = quit] >
    :
    :
    :

Need file containing executable PROGRAM code....
    FILE NAME [<cr> = abort] >
Copying program file....
Need file containing program MESSAGES....
    FILE NAME [<cr> = abort] >
Updating message catalog. (roughly ! min.)....
```

**FOR HP INTERNAL USE ONLY**

The following program module is about to be ADDED  
to the Online Diagnostic Subsystem:

| Name      | Versn   | Auto  | Dcode | Securty | SUM   | Funcn | Dev-Req'd | Devices   |
|-----------|---------|-------|-------|---------|-------|-------|-----------|-----------|
| =====     | =====   | ===== | ===== | =====   | ===== | ===== | =====     | =====     |
| xxxxxxxxx | x.xx.xx | xxx   | xxx   | x       | xxx   | xxxx  | xxx       | xxxxxxxxx |
|           |         |       |       |         |       |       |           | xxxxxxxxx |
|           |         |       |       |         |       |       |           | :         |
|           |         |       |       |         |       |       |           | :         |

Formatting message catalog (roughly ! min.)....

Updating main subsystem files....

Your last installation request completed successfully and is now finalized.

Generating working file(s)....



## FOR HP INTERNAL USE ONLY

### CORRECT

The correction function allows updates on any of the user-supplied data. Any or all of the following options may be selected in any order. Any subfunction may be selected more than once for correction of a correction (excepting, of course, the CANCEL option).

#### Example:

```
CORRECT AN EXISTING DIAGNOSTIC...

Correction Subcommands:

CANCEL - Countermand all pending corrections
CODE    - Replace program code
DEVICES - Change diagnosed devices
DONE    - Done with corrections
DR      - Change device needed requirement
LIST    - Display program information
MESSAGES - Replace program messages
SECURITY - Change program access security level
SUM     - Change Single User Mode requirement
TYPE    - Change type of program

CORRECTION TASK >

CANCEL subcommand:

    OK to cancel pending corrections? (YES/NO) (NO) >

CODE subcommand:

    Need file containing executable PROGRAM code....
                                FILE NAME    [<cr> = abort] >
    Copying program file....
    Program VERSION             (v.uu.ff) [?.?.?.?] >

DEVICES subcommand:

    Is program AUTO-DIAGNOSTIC?      (YES/NO) [ ! ] >
    Does program DECODE device status? (YES/NO) [ ! ] >
    Enter new DEVICES NOW SERVICED by this program:
                                DEVICE NAME  [<cr> = quit] >
                                DEVICE NAME  [<cr> = quit] >
```

:

FOR HP INTERNAL USE ONLY

:  
Verifying remaining devices....  
No devices are now currently listed for this program.

(or)

- device x  
- device y  
- :  
- :

Enter DEVICES NO LONGER SERVICED by this program:  
DEVICE NAME [<cr> = quit] >  
DEVICE NAME [<cr> = quit] >  
:  
:

DONE subcommand:

The following CORRECTION is about to be made  
to the Online Diagnostic Subsystem:

| Name     | Versn   | Auto | Dcode | Securty | SUM | Funcn | Dev-Req'd | Devices  |
|----------|---------|------|-------|---------|-----|-------|-----------|----------|
| xxxxxxxx | x.xx.xx | xxx  | xxx   | x       | xxx | xxxx  | xxx       | xxxxxxxx |
|          |         |      |       |         |     |       |           | xxxxxxxx |
|          |         |      |       |         |     |       |           | :        |
|          |         |      |       |         |     |       |           | :        |

Formatting message catalog (roughly ! min.).... {if applicable}  
Updating main subsystem files....

Your last installation request completed successfully and is now finalized.

DR subcommand:

Does program always REQUIRE DEVICE (YES/NO)[ ! ] >

LIST subcommand:

| Name     | Versn | Auto | Dcode | Securty | SUM | Funcn | Dev-Req'd | Devices  |
|----------|-------|------|-------|---------|-----|-------|-----------|----------|
| xxxxxxxx | xx.xx | xxx  | xxx   | x       | xxx | xxxx  | xxx       | xxxxxxxx |
|          |       |      |       |         |     |       |           | xxxxxxxx |

:



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```
:  
MESSAGES subcommand:  
  
  Need file containing program MESSAGES....  
    FILE NAME [<cr> = abort] >  
  
  Updating message catalog. Please be patient (roughly ! min.)....  
  
SECURITY subcommand:  
  
  Program access SECURITY LEVEL      (0..!) [ ! ] >  
  
SUM subcommand:  
  
  SINGLE USER MODE required?        (YES/NO) [ ! ] >  
  
TYPE subcommand:  
  
  Program Type Options:  
    DIAGNOSTIC  
    EXERCISER  
    UTILITY  
    VERIFIER  
  Program TYPE                        [ ! ] >
```

**FOR HP INTERNAL USE ONLY**

**EXIT**

Selection of the EXIT command will cause the installer to terminate.

**Output:**

LEAVING ONLINE DIAGNOSTIC INSTALLER.....

:

## FOR HP INTERNAL USE ONLY

### LIST

This function will display, on the terminal screen the user, correctable data for all diagnostic programs in the subsystem. This is slightly different from LIST in CORRECT mode, which lists only a single program module.

#### Output:

##### DIRECTORY CONTENTS:

| Name     | Versn   | Auto  | Dcode | Securty | SUM   | Funcn | Dev-Req'd | Devices  |
|----------|---------|-------|-------|---------|-------|-------|-----------|----------|
| =====    | =====   | ===== | ===== | =====   | ===== | ===== | =====     | =====    |
| xxxxxxxx | x.xx.xx | xxx   | xxx   | x       | xxx   | xxxx  | xxx       | xxxxxxxx |
|          |         |       |       |         |       |       |           | xxxxxxxx |
|          |         |       |       |         |       |       |           | :        |
|          |         |       |       |         |       |       |           | :        |
| yyyyyyyy | y.yy.yy | yyy   | yyy   | y       | yyy   | yyyy  | yyy       | yyyyyyyy |
|          |         |       |       |         |       |       |           | yyyyyyyy |
|          |         |       |       |         |       |       |           | :        |
|          |         |       |       |         |       |       |           | :        |
| zzzzzzzz | .....   |       |       |         |       |       |           |          |
|          |         |       |       |         |       |       |           | :        |
|          |         |       |       |         |       |       |           | :        |
| =====    | =====   | ===== | ===== | =====   | ===== | ===== | =====     | =====    |

FOR HP INTERNAL USE ONLY

**REMOVE**

This function will purge a module, including its directory entry, program file, and message set, from the diagnostic system. The user will be requested for verification just before the actual removal is done.

**Output:**

REMOVE AN EXISTING DIAGNOSTIC...

Program NAME [ <cr> = abort ] >

The following program module is about to be REMOVED  
from the Online Diagnostic Subsystem:

| Name     | Versn   | Auto | Dcode | Securty | SUM | Funcn | Dev-Req'd | Devices  |
|----------|---------|------|-------|---------|-----|-------|-----------|----------|
| xxxxxxxx | x.xx.xx | xxx  | xxx   | x       | xxx | xxxx  | xxx       | xxxxxxxx |
|          |         |      |       |         |     |       |           | xxxxxxxx |
|          |         |      |       |         |     |       |           | :        |
|          |         |      |       |         |     |       |           | :        |

OK to purge this program module? (YES/NO) [NO] >

Updating message catalog. Please be patient (roughly ! min.)....  
Formatting message catalog (roughly ! min.)....  
Updating main subsystem files....

Your last installation request completed successfully and is now finalized.



## FOR HP INTERNAL USE ONLY

### SHOWMSG

This function enables the user to verify the contents of the subsystem message catalog by displaying any message. The user is required to supply both a set number and the number of that message within that set. Since the installer automatically allocates set numbers to programs, a program name may be entered in place of the set number (this does not apply to the core system programs, i.e., message sets 1-6).

#### Output:

```
Program NAME/SET #      [<cr> = quit] >
MESSAGE #               [<cr> = quit] >

Message #! from Set #!:
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
```

## SYSTEM

Selection of this function allows replacement of core message sets or restoration of the entire subsystem directory and/or message catalog while the system is up and running.

**Note** The installer's message catalog CANNOT be replaced in this way.



### Output:

Available Commands:

```
DIAGMON - Change Diagnostic Monitor messages
DUI      - Change Diagnostic User Interface msgs
SERVICES - Change System Services messages
NEWCAT   - Replace entire message catalog from backup
NEWDIR   - Replace entire directory from backup
EXIT     - Return to main menu
```

MESSAGE SET selection>

DIAGMON, DUI, SERVICES subcommands:

```
Need file containing program MESSAGES....
      FILE NAME [<cr> = abort] >
Updating message catalog. Please be patient (roughly ! min.)....
Formatting message catalog (roughly ! min.)....
Updating main subsystem files....
```

Your last installation request completed successfully and is now finalized.  
Generating working file(s)....

NEWCAT subcommand:

```
Need file containing replacement(backup) SUBSYSTEM MESSAGE CATALOG...
      FILE NAME [<cr> = abort] >
Updating message catalog. Please be patient (roughly ! min.)....
Formatting message catalog (roughly ! min.)....
Updating main subsystem files....
```

Your last installation request completed successfully and is now finalized.

NEWDIR subcommand:

```
Need file containing replacement(backup) SUBSYSTEM DIRECTORY...
      FILE NAME [<cr> = abort] >
Updating main subsystem files....
```

Your last installation request completed successfully and is now finalized.

## FOR HP INTERNAL USE ONLY

### XCHECK

This function will enable the user to cross-check the contents of the directory, subsystem catalog, and diagnostic account files against one another to search for inconsistencies and/or file corruptions as a means of determining the functional state of the diagnostic subsystem. It is intended to be used in conjunction with the LIST and SHOWMSG commands. Suggestions on the use of these commands as well as interpretation of XCHECK results and recommended recovery procedures will be provided in the appropriate help message(s).

#### Output:

The status table is built according to the following criteria:

|               |                                                                                                      |
|---------------|------------------------------------------------------------------------------------------------------|
| ok            | -No problems were detected.                                                                          |
| dir           | -The name index refers to a directory module whose name does not match this program.                 |
| corrupt       | The directory must be considered corrupted.                                                          |
| msgset        | -The message set used by this program is also used by one or more of the previously listed programs. |
| conflict      | This is probably a directory corruption.                                                             |
| missing       | -The diagnostic message catalog does not contain the message set for this program.                   |
| missing       | -A file matching the program name was not found in the diagnostic group/account.                     |
| not shippable | -The program name was not found in the list of diagnostic subsystem files.                           |

|         |         | STATUS |         |          |         |         |           |  |
|---------|---------|--------|---------|----------|---------|---------|-----------|--|
| PROGRAM | MESSAGE | -----  |         |          |         |         |           |  |
| NAME    | SET     | ok     | dir     | msgset   | missing | missing | not       |  |
|         |         |        | corrupt | conflict | msgset  | program | shippable |  |
| =====   | =====   | =====  | =====   | =====    | =====   | =====   | =====     |  |
| xxxxxx  | xx      | X      |         |          |         |         |           |  |
| yyyyyy  | yy      |        |         | X        |         |         | X         |  |
| zzzzzz  | zz      |        | X       |          |         |         |           |  |
| etc.    | .       |        |         |          |         |         |           |  |
| .       | .       |        |         |          |         |         |           |  |
| .       | .       |        |         |          |         |         |           |  |

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The following files reside in the diagnostic subsystem account but are not reserved files and are not known to the diagnostic directory:

|         |         |         |         |
|---------|---------|---------|---------|
| aaaaaaa | bbbbbbb | ccccccc | ddddddd |
| eeeeeee | fffffff | .       | .       |
| .       | .       | .       | .       |
| .       | .       | .       | .       |

The checking done above has the following limitations:

1. Message sets are only guaranteed to exist, not to contain applicable messages. Use SHOWMSG to verify that the message set is the correct one.
2. Program files are verified by name only.

There are several additional errors/warnings which are displayed to pinpoint other problems with the subsystem.



---

## Warning Messages

The following is a list of warning messages that may appear when using INSTALL. Other messages may appear at any time. All warning messages without the (INSTWARN #) trailer are generated by the Online Diagnostic Subsystem or MPE XL. The "!" indicates that a parameter of some sort replaces the exclamation point when the message is displayed. Listed below each message are a probable cause and recommended action statement. The following warnings are issued for potential problems or for residual problems after other errors.

|        |                                                                                                                                                                                                                             |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 05501  | WARNING - The subsystem message catalog may be missing, invalid or corrupted. (INSTWARN 05501)                                                                                                                              |
| CAUSE  |                                                                                                                                                                                                                             |
| ACTION |                                                                                                                                                                                                                             |
| 05502  | WARNING - List of directory empty space has probably been corrupted. This may result in directory corruption and/or inefficient directory utilization. Notify a Diagnostic Subsystem maintenance engineer. (INSTWARN 05502) |
| CAUSE  |                                                                                                                                                                                                                             |
| ACTION |                                                                                                                                                                                                                             |
| 05503  | WARNING - The diagnostic subsystem is in essentially good condition, but the installer was not able to cause the diagnostic monitor to recognize either the message catalog or the directory. (INSTWARN 05503)              |
| CAUSE  | The installer has functioned correctly, but the remainder of the diagnostic subsystem may fail soon.                                                                                                                        |
| ACTION |                                                                                                                                                                                                                             |
| 05504  | WARNING - Your request has been cancelled. (INSTWARN 05504)                                                                                                                                                                 |
| CAUSE  |                                                                                                                                                                                                                             |
| ACTION |                                                                                                                                                                                                                             |
| 05505  | WARNING - This product is already listed for this diagnostic. Replacing previous reference.... (INSTWARN 05505)                                                                                                             |
| CAUSE  | Whenever the user attempts to add a duplicate product to the list of products diagnosable by the program at hand, the previous reference will be replaced by the one new one.                                               |
| ACTION |                                                                                                                                                                                                                             |

---

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|               |                                                                                                                                                                                                                                                         |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>05506</b>  | <b>WARNING - "!" is not currently diagnosed by this program. (INSTWARN 05506)</b>                                                                                                                                                                       |
| <b>CAUSE</b>  | This message occurs when the user has attempted to remove a device from a program's device list when that device was not originally listed.                                                                                                             |
| <b>ACTION</b> |                                                                                                                                                                                                                                                         |
| <hr/>         |                                                                                                                                                                                                                                                         |
| <b>05507</b>  | <b>WARNING - "!" will no longer have a designated AUTO-DIAGNOSTIC or DECODING PROGRAM. (INSTWARN 05507)</b>                                                                                                                                             |
| <b>CAUSE</b>  | Issued when removing a diagnostic or revising the decoding or autodiagnostic capabilities of a diagnostic.                                                                                                                                              |
| <b>ACTION</b> |                                                                                                                                                                                                                                                         |
| <hr/>         |                                                                                                                                                                                                                                                         |
| <b>05508</b>  | <b>WARNING - "!" will no longer have a designated AUTO-DIAGNOSTIC. (INSTWARN 05508)</b>                                                                                                                                                                 |
| <b>CAUSE</b>  | Issued when removing a diagnostic or revising the autodiagnostic capabilities of a diagnostic.                                                                                                                                                          |
| <b>ACTION</b> |                                                                                                                                                                                                                                                         |
| <hr/>         |                                                                                                                                                                                                                                                         |
| <b>05509</b>  | <b>WARNING - No change made. (INSTWARN 05509)</b>                                                                                                                                                                                                       |
| <b>CAUSE</b>  |                                                                                                                                                                                                                                                         |
| <b>ACTION</b> |                                                                                                                                                                                                                                                         |
| <hr/>         |                                                                                                                                                                                                                                                         |
| <b>05510</b>  | <b>WARNING - "!" will no longer have a designated DECODING PROGRAM (INSTWARN 05510)</b>                                                                                                                                                                 |
| <b>CAUSE</b>  | Issued when removing a diagnostic or revising the decoding capabilities of a diagnostic.                                                                                                                                                                |
| <b>ACTION</b> |                                                                                                                                                                                                                                                         |
| <hr/>         |                                                                                                                                                                                                                                                         |
| <b>05511</b>  | <b>WARNING - Changes made since the last successful update could not be finalized. (INSTWARN 05511)</b>                                                                                                                                                 |
| <b>CAUSE</b>  | All changes in this session prior to and including the last "finalized" request are still good.                                                                                                                                                         |
| <b>ACTION</b> |                                                                                                                                                                                                                                                         |
| <hr/>         |                                                                                                                                                                                                                                                         |
| <b>05512</b>  | <b>WARNING - File could not be restricted to the system disk. Therefore, this file cannot be considered a shippable part of the diagnostic subsystem, even if the current installation task is successful on this computer system. (INSTWARN 05512)</b> |
| <b>CAUSE</b>  |                                                                                                                                                                                                                                                         |
| <b>ACTION</b> |                                                                                                                                                                                                                                                         |
| <hr/>         |                                                                                                                                                                                                                                                         |

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|               |                                                                                                                                                                                                                                                                  |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>05513</b>  | <b>WARNING</b> - Changes were made according to your request to the subsystem catalog and directory. However, the program file for your request remains unchanged. (INSTWARN 05513)                                                                              |
| <b>CAUSE</b>  | Issued when the installer is not able to recover from a partial installation.                                                                                                                                                                                    |
| <b>ACTION</b> |                                                                                                                                                                                                                                                                  |
| <b>05514</b>  | <b>WARNING</b> - The Diagnostic Subsystem directory is missing ... (INSTWARN 05514)                                                                                                                                                                              |
| <b>CAUSE</b>  |                                                                                                                                                                                                                                                                  |
| <b>ACTION</b> | Upon issuing this message, the installer will attempt to recover the directory if a previous installation attempt was the cause of its disappearance. Otherwise, the user will be given the opportunity to create a new one from scratch.                        |
| <b>05515</b>  | <b>WARNING</b> - All other Diagnostic Subsystem users must be logged off for any installation to ultimately succeed. (INSTWARN 05515)                                                                                                                            |
| <b>CAUSE</b>  | This warning could be printed if an autodiagnostic is running, even though the user has taken care to log off all other users.                                                                                                                                   |
| <b>ACTION</b> | Terminate any currently running autodiagnostic programs and make certain that all users are logged off of the system.                                                                                                                                            |
| <b>05516</b>  | <b>WARNING</b> - No corrections were requested, therefore no changes were made. (INSTWARN 05516)                                                                                                                                                                 |
| <b>CAUSE</b>  |                                                                                                                                                                                                                                                                  |
| <b>ACTION</b> |                                                                                                                                                                                                                                                                  |
| <b>05518</b>  | <b>WARNING</b> - The installer was unable to recover the original catalog. You now have new catalog but an old directory. After the above problem has been corrected, your system can be resynchronized by redoing your last installation task. (INSTWARN 05518) |
| <b>CAUSE</b>  | Issued when the installer is not able to recover from a partial installation.                                                                                                                                                                                    |
| <b>ACTION</b> | Redo the last installation task.                                                                                                                                                                                                                                 |
| <b>05519</b>  | <b>WARNING</b> - This procedure causes a wholesale replacement of the diagnostic subsystem directory or message catalog. It is intended primarily for restoring these files from backup in the event of subsystem corruption. (INSTWARN 05519)                   |
| <b>CAUSE</b>  | Issued upon any request to restore files from backup.                                                                                                                                                                                                            |
| <b>ACTION</b> |                                                                                                                                                                                                                                                                  |

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|               |                                                                                                                                                                                                                                                      |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>05520</b>  | <b>WARNING - If the previous error is an attempt to read past the end file, the diagnostic directory is probably corrupted. (INSTWARN 05520)</b>                                                                                                     |
| <b>CAUSE</b>  | Issued upon failure to obtain an expected record from the directory. Any error other than an EOF problem probably indicates a file system problem and not a diagnostic subsystem problem.                                                            |
| <b>ACTION</b> | Verify correct file system operation.                                                                                                                                                                                                                |
| <hr/>         |                                                                                                                                                                                                                                                      |
| <b>05521</b>  | <b>WARNING - Message set ! is in the subsystem catalog, but unknown to the subsystem directory. (INSTWARN 05521)</b>                                                                                                                                 |
| <b>CAUSE</b>  | Issued when no program file in the subsystem directory references a message set found in the subsystem catalog.                                                                                                                                      |
| <b>ACTION</b> | Correct discrepancy between subsystem directory and catalog.                                                                                                                                                                                         |
| <hr/>         |                                                                                                                                                                                                                                                      |
| <b>05522</b>  | <b>WARNING - To insure correct operation of the diagnostic subsystem, ! should be purged. (INSTWARN 05522)</b>                                                                                                                                       |
| <b>CAUSE</b>  | Issued when the installer has finalized changes in the directory and catalog, but is unable to update the program file.                                                                                                                              |
| <b>ACTION</b> | Purge the indicated program file.                                                                                                                                                                                                                    |
| <hr/>         |                                                                                                                                                                                                                                                      |
| <b>05523</b>  | <b>WARNING - To insure correct operation of the diagnostic subsystem, fix the source of the above problem and then reinstall the code for this program using the correct mode. NOTE - Copying the program file into the system. (INSTWARN 05523)</b> |
| <b>CAUSE</b>  |                                                                                                                                                                                                                                                      |
| <b>ACTION</b> |                                                                                                                                                                                                                                                      |
| <hr/>         |                                                                                                                                                                                                                                                      |

## Error Messages

The following is a list of error messages that may appear when using INSTALL. Other error messages may appear at any time. All error messages without the (INSTERR #) trailer are generated by the Online Diagnostic subsystem or MPE XL. The "!" indicates that a parameter of some sort replaces the exclamation point when the message is displayed. Listed below each error message are a probable cause and recommended action statement. There are several errors resulting from unsuccessful attempts to extract messages from a message catalog. Out of necessity, these are hardcoded into the program and for NLS reasons are included in this section even though they are not accessed through the catalog.

SYSTEM SERVICE "OUTPUT\_ERROR" RETURNED STATUS OF xxx (INSTERR 05010)

INSTALLER COULD NOT CAUSE DISPLAY OF SYSTEM SERVICE ERROR MESSAGES.  
(INSTERR 05051)

INSTALLER COULD NOT RETRIEVE A MESSAGE FROM ITS OWN CATALOG

Set # : xxx  
Message # : yyy (INSTERR 05057)

INSTALLER UNABLE TO OPEN ITS OWN MESSAGE CATALOG. (INSTERR 05025)  
The installer's message catalog is probably missing.

INSTALLER UNABLE TO OPEN THE DIAGNOSTIC SUBSYSTEM CATALOG. (INSTERR 05026)  
The installer's message catalog is probably missing.

INSTALLER ABORTING DUE TO FATAL ERROR... (INSTERR 05008)

Other errors are as follows:

|               |                                                                                                                                                                                                |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>05001</b>  | USER HAS INSUFFICIENT SECURITY CLEARANCE TO RUN INSTALLER. (INSTERR 05001)                                                                                                                     |
| <b>CAUSE</b>  | The ability to run the diagnostic installer requires system manager level (0) security.                                                                                                        |
| <b>ACTION</b> | User must obtain the specified security clearance.                                                                                                                                             |
| <hr/>         |                                                                                                                                                                                                |
| <b>05002</b>  | THE NEW MESSAGE SET HAS EXTRA OR MISPLACED SET IDENTIFIERS. (INSTERR 05002)                                                                                                                    |
| <b>CAUSE</b>  | This condition occurs when the installer finds a set declaration error in the users message set file. The installer allows only one message set per program.                                   |
| <b>ACTION</b> | The user should verify that only one (or none) \$SET declaration is made, that any set declaration is placed before the first message in the file, and that no \$DELSET declarations are made. |

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| 05003  | INSTALLER WAS UNABLE TO FIND OR CREATE MORE SPACE IN THE DIAGNOSTIC DIRECTORY. (INSTERR 05003)                                                                                                                                |
| CAUSE  | Either the size limit for the directory has been reached or an internal program error has corrupted the list of available space.                                                                                              |
| ACTION | This will normally require correction by a Diagnostic Subsystem maintenance engineer.                                                                                                                                         |
| 05004  | INSTALLER IS UNABLE TO RECOVER FROM ERROR. (INSTERR 05004)                                                                                                                                                                    |
| CAUSE  |                                                                                                                                                                                                                               |
| ACTION |                                                                                                                                                                                                                               |
| 05005  | INSTALLER COULD NOT COPY FILE ! TO FILE ! (INSTERR 05005)                                                                                                                                                                     |
| CAUSE  |                                                                                                                                                                                                                               |
| ACTION |                                                                                                                                                                                                                               |
| 05006  | THE CURRENT CAPACITY OF THE DIAGNOSTIC SUBSYSTEM HAS BEEN EXCEEDED. NOTIFY SUPPORT ENGINEER. (INSTERR 05006)                                                                                                                  |
| CAUSE  | The size limit for the directory has been reached. This should normally occur only when the number of diagnostic programs or number of diagnosed devices exceeds 200.                                                         |
| ACTION | This probably requires correction by a Diagnostic Subsystem maintenance engineer.                                                                                                                                             |
| 05007  | INSTALLER WAS UNABLE TO PURGE !. (INSTERR 05007)                                                                                                                                                                              |
| CAUSE  |                                                                                                                                                                                                                               |
| ACTION |                                                                                                                                                                                                                               |
| 05008  | INSTALLER ABORTING DUE TO FATAL ERROR.... (INSTERR 05008)                                                                                                                                                                     |
| CAUSE  | A non-recoverable error as occurred. This message will often be accompanied by others indicating what must be fixed before attempting to re-run the installer.                                                                |
| ACTION | After all the other errors are fixed, re-run the installer.                                                                                                                                                                   |
| 05009  | FILE "!" NOT FOUND. (INSTERR 05009)                                                                                                                                                                                           |
| CAUSE  | This could result from an internal system error, but will more likely result from the user entering the name of a non-existent file. This, of course, may be due to misspelling or incomplete qualification of the file name. |
| ACTION | Verify correct data entry.                                                                                                                                                                                                    |
| 05010  | SYSTEM SERVICE "OUTPUT_ERROR" RETURNED STATUS OF !. (INSTERR 05010)                                                                                                                                                           |
| CAUSE  |                                                                                                                                                                                                                               |
| ACTION |                                                                                                                                                                                                                               |
| 05011  | INSTALLER IS UNABLE TO INITIALIZE ITSELF. (INSTERR 05011)                                                                                                                                                                     |
| CAUSE  |                                                                                                                                                                                                                               |
| ACTION |                                                                                                                                                                                                                               |

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| <b>05012</b>  | <b>PERMISSION TO INSTALL YOUR MOST RECENT CHANGES HAS BEEN DENIED BY THE DIAGNOSTIC MONITOR. (INSTERR 05012)</b>                                                                                                              |
| <b>CAUSE</b>  | This condition should most frequently result from other diagnostic system users being logged on or from the system running an autodiagnostic at the time the request is made. The user will be given the chance to try again. |
| <b>ACTION</b> | Terminate any currently running autodiagnostic programs and make certain that all users are logged off the system.                                                                                                            |
| <b>05013</b>  | <b>INTERNAL INSTALLER PROGRAM ERROR OR INTERNAL DIAGNOSTIC SYSTEM ERROR. NOTIFY THE INSTALLER'S MAINTENANCE ENGINEER. (INSTERR 05013)</b>                                                                                     |
| <b>CAUSE</b>  |                                                                                                                                                                                                                               |
| <b>ACTION</b> | This requires correction by a Diagnostic Subsystem maintenance engineer.                                                                                                                                                      |
| <b>05014</b>  | <b>INSTALLER RECEIVED EITHER AN INVALID IPC MESSAGE OR ONE INTENDED FOR ANOTHER PROCESS. (INSTERR 05014)</b>                                                                                                                  |
| <b>CAUSE</b>  | This is indicative of a failure in the interprocess communications routines and is not user fixable.                                                                                                                          |
| <b>ACTION</b> | This requires correction by a Diagnostic Subsystem maintenance engineer.                                                                                                                                                      |
| <b>05015</b>  | <b>INSTALLER COULD NOT RETRIEVE RECORD #! FROM THE DIAGNOSTIC DIRECTORY. (INSTERR 05015)</b>                                                                                                                                  |
| <b>CAUSE</b>  | This is indicative of IO system failure or of a corrupted directory.                                                                                                                                                          |
| <b>ACTION</b> | If the latter, the directory may have to be restored.                                                                                                                                                                         |
| <b>05016</b>  | <b>INSTALLER COULD NOT MODIFY ITS WORKING COPY OF THE DIAGNOSTIC DIRECTORY. (INSTERR 05016)</b>                                                                                                                               |
| <b>CAUSE</b>  | The installer was not able to write information into its working directory. This may be indicative of IO system failure.                                                                                                      |
| <b>ACTION</b> |                                                                                                                                                                                                                               |
| <b>05017</b>  | <b>INSTALLER WAS UNABLE TO ERASE THE CONTENTS OF ! (INSTERR 05017)</b>                                                                                                                                                        |
| <b>CAUSE</b>  |                                                                                                                                                                                                                               |
| <b>ACTION</b> |                                                                                                                                                                                                                               |
| <b>05018</b>  | <b>INSTALLER COULD NOT LOCATE DIAGNOSTIC MONITOR'S IPC PORT. (INSTERR 05018)</b>                                                                                                                                              |
| <b>CAUSE</b>  | This is indicative of either the diagnostic system monitor not running or of a failure in the interprocess communications routines.                                                                                           |
| <b>ACTION</b> | Start-up procedures for the diagnostic monitor should be consulted.                                                                                                                                                           |

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| <b>05019</b> | <b>INSTALLER FAILED TO RECEIVE A VALID MESSAGE FROM THE DIAGNOSTIC MONITOR. (INSTERR 05019)</b>                                                                                                                                                                                                                |
| CAUSE        | The monitor may have been overloaded and therefore failed to return a message in time. This is not expected to occur if the installer is the only process logged onto the diagnostic system (which should of course be the case). It may also represent a failure in the interprocess communications routines. |
| ACTION       | The user will usually be given the option to wait longer.                                                                                                                                                                                                                                                      |
| <b>05020</b> | <b>INSTALLER COULD NOT ESTABLISH AN IPC PORT. (INSTERR 05020)</b>                                                                                                                                                                                                                                              |
| CAUSE        | This is indicative of a failure in the interprocess communications routines and is not user fixable.                                                                                                                                                                                                           |
| ACTION       | This requires correction by a Diagnostic Subsystem maintenance engineer.                                                                                                                                                                                                                                       |
| <b>05021</b> | <b>INSTALLER WAS UNABLE TO MODIFY CONTENTS OF THE DIAGNOSTIC MESSAGE CATALOG. (INSTERR 05021)</b>                                                                                                                                                                                                              |
| CAUSE        | This error will normally occur as the result of a malformed message set file. The installer will point out set declaration (\$SET) problems. Otherwise, it will display GENCAT errors (GCERR) returned to it. The installer does not know where in the file the error occurred.                                |
| ACTION       | The Diagnostic Program Development Guide should be consulted for correct catalog formation.                                                                                                                                                                                                                    |
| <b>05022</b> | <b>INSTALLER WAS UNABLE TO UPDATE THE DIAGNOSTIC DIRECTORY'S INDEX TO PROGRAM NAMES. (INSTERR 05022)</b>                                                                                                                                                                                                       |
| CAUSE        |                                                                                                                                                                                                                                                                                                                |
| ACTION       |                                                                                                                                                                                                                                                                                                                |
| <b>05023</b> | <b>INSTALLER IS UNABLE TO SALVAGE THE SUBSYSTEM MESSAGE CATALOG. YOU MUST RESTORE IT FROM BACKUP. (INSTERR 05023)</b>                                                                                                                                                                                          |
| CAUSE        |                                                                                                                                                                                                                                                                                                                |
| ACTION       |                                                                                                                                                                                                                                                                                                                |
| <b>05024</b> | <b>A BRAND NEW DIAGNOSTIC DIRECTORY COULD NOT BE STARTED. (INSTERR 05024)</b>                                                                                                                                                                                                                                  |
| CAUSE        |                                                                                                                                                                                                                                                                                                                |
| ACTION       |                                                                                                                                                                                                                                                                                                                |
| <b>05025</b> | <b>INSTALLER IS UNABLE TO ACCESS ITS OWN MESSAGE CATALOG. (INSTERR 05025)</b>                                                                                                                                                                                                                                  |
| CAUSE        | The installer's message catalog is probably missing.                                                                                                                                                                                                                                                           |
| ACTION       |                                                                                                                                                                                                                                                                                                                |



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| <b>05026</b>  | <b>INSTALLER IS UNABLE TO OPEN THE DIAGNOSTIC SUBSYSTEM MESSAGE CATALOG. (INSTERR 05026)</b>                                                                                                                           |
| <b>CAUSE</b>  | The diagnostic system message catalog is probably missing.                                                                                                                                                             |
| <b>ACTION</b> |                                                                                                                                                                                                                        |
| <b>05027</b>  | <b>INSTALLER WAS UNABLE TO UPDATE THE DIAGNOSTIC DIRECTORY'S INDEX TO DEVICE/PRODUCT NAMES. (INSTERR 05027)</b>                                                                                                        |
| <b>CAUSE</b>  |                                                                                                                                                                                                                        |
| <b>ACTION</b> |                                                                                                                                                                                                                        |
| <b>05028</b>  | <b>INSTALLER IS UNABLE TO SEND A REQUEST TO DIAGNOSTIC MONITOR. (INSTERR 05028)</b>                                                                                                                                    |
| <b>CAUSE</b>  | This is indicative of a failure in the interprocess communications routines and is not user fixable.                                                                                                                   |
| <b>ACTION</b> | This requires correction by a Diagnostic Subsystem maintenance engineer.                                                                                                                                               |
| <b>05029</b>  | <b>INSTALLER WAS UNABLE TO VERIFY THE VALIDITY OF YOUR NEW MESSAGE SET. (INSTERR 05029)</b>                                                                                                                            |
| <b>CAUSE</b>  | A problem occurred in the installer's message set checker. This may result from a failure of the installer to insert a set number into its working copy of the message set to be inserted. Not generally user fixable. |
| <b>ACTION</b> | This requires correction by a Diagnostic Subsystem maintenance engineer.                                                                                                                                               |
| <b>05030</b>  | <b>INSTALLER WAS UNABLE TO REPLACE ! WITH ! (INSTERR 05030)</b>                                                                                                                                                        |
| <b>CAUSE</b>  | The installer failed to change the name of the second file to the first. This may have resulted from the failure to purge the existing first file or from the non-existence of the second file.                        |
| <b>ACTION</b> | Verify that the first file has been purged or that the second file does exist.                                                                                                                                         |
| <b>05031</b>  | <b>INSTALLER IS UNABLE TO IDENTIFY USER. (INSTERR 05031)</b>                                                                                                                                                           |
| <b>CAUSE</b>  |                                                                                                                                                                                                                        |
| <b>ACTION</b> |                                                                                                                                                                                                                        |
| <b>05032</b>  | <b>INSTALLER WAS UNABLE TO DETERMINE EXISTENCE OF FILE !. (INSTERR 05032)</b>                                                                                                                                          |
| <b>CAUSE</b>  |                                                                                                                                                                                                                        |
| <b>ACTION</b> |                                                                                                                                                                                                                        |
| <b>05033</b>  | <b>INSTALLER UNEXPECTEDLY RECEIVED AN IPC MESSAGE FROM A SOURCE OTHER THAN THE DIAGNOSTIC MONITOR. (INSTERR 05033)</b>                                                                                                 |
| <b>CAUSE</b>  | Indicative of either a failure in the IPC processes or an internal error in the diagnostic system.                                                                                                                     |
| <b>ACTION</b> | This requires correction by a Diagnostic Subsystem maintenance engineer.                                                                                                                                               |

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|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>05034</b> | <b>THE INSTALLER HAS LOST TRACK OF A PORTION OF THE DIRECTORY. (INSTERR 05034)</b>                                                                                                             |
| CAUSE        | The directory has been corrupted.                                                                                                                                                              |
| ACTION       | This will require restoration of the directory and the attention of a Diagnostic Subsystem maintenance engineer.                                                                               |
| <b>05035</b> | <b>INSTALLER COULD NOT INTERPRET A NUMERICAL DATA ENTRY. (INSTERR 05035)</b>                                                                                                                   |
| CAUSE        | The installer was not able to either determine the validity of a data entry or convert that data into a simple number.                                                                         |
| ACTION       |                                                                                                                                                                                                |
| <b>05036</b> | <b>THE DIAGNOSTIC DIRECTORY IS FULL. NOTIFY A DIAGNOSTIC SUBSYSTEM SUPPORT ENGINEER. (INSTERR 05036)</b>                                                                                       |
| CAUSE        | The limit of 250 diagnostic programs in the directory has been reached.                                                                                                                        |
| ACTION       | Notify a Diagnostic Subsystem Support engineer.                                                                                                                                                |
| <b>05037</b> | <b>YOU HAVE EXCEEDED THE NUMBER OF DEVICES WHICH THE DIAGNOSTIC SUBSYSTEM CURRENTLY ALLOWS TO BE DIAGNOSED BY ONE PROGRAM. NOTIFY A DIAGNOSTIC SUBSYSTEM SUPPORT ENGINEER. (INSTERR 05037)</b> |
| CAUSE        | The user has tried to list more devices than allowed for a diagnostic.                                                                                                                         |
| ACTION       | This requires correction/enhancement by a Diagnostic Subsystem maintenance engineer.                                                                                                           |
| <b>05038</b> | <b>INSTALLER RECEIVED A VALID, BUT UNEXPECTED, REPLY FROM THE MONITOR. (INSTERR 05038)</b>                                                                                                     |
| CAUSE        | This is indicative of miscommunication or asynchronous communication between the installer and the monitor.                                                                                    |
| ACTION       | Requires attention of a Diagnostic Subsystem maintenance engineer.                                                                                                                             |
| <b>05039</b> | <b>INVALID RESPONSE. TYPE "HELP" FOR ASSISTANCE. (INSTERR 05039)</b>                                                                                                                           |
| CAUSE        | This message will normally be accompanied by an advisory message which explains the nature of the problem.                                                                                     |
| ACTION       | Type "HELP" for assistance.                                                                                                                                                                    |
| <b>05040</b> | <b>THE SPECIFIED PROGRAM ALREADY RESIDES IN THE DIAGNOSTIC SUBSYSTEM. SELECT "CORRECT" OR "REMOVE" INSTEAD. (INSTERR 05040)</b>                                                                |
| CAUSE        |                                                                                                                                                                                                |
| ACTION       |                                                                                                                                                                                                |
| <b>05041</b> | <b>THE SPECIFIED PROGRAM WAS NOT FOUND IN THE DIAGNOSTIC SUBSYSTEM AND THEREFORE COULD NOT BE "REMOVED" OR "CORRECTED". (INSTERR 05041)</b>                                                    |
| CAUSE        |                                                                                                                                                                                                |
| ACTION       |                                                                                                                                                                                                |

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| 05042  | INSTALLER IS UNABLE TO GET ESSENTIAL MESSAGE THROUGH TO SUBSYSTEM MONITOR. (INSTERR 05042)                                                                                                                                                                                                                             |
| CAUSE  | This message results either when interprocess communication procedures fail or when the monitor is so busy it is unable to receive messages.                                                                                                                                                                           |
| ACTION | If the latter case is possible, the user is offered the opportunity to retry, though this should not normally be necessary since the installer should be run after all other Diagnostic Subsystem users have logged off. In most cases, a Diagnostic Subsystem maintenance engineer should be consulted.               |
| 05043  | EXPECTED ESSENTIAL MESSAGE FROM SYSTEM MONITOR BY NOW. (INSTERR 05043)                                                                                                                                                                                                                                                 |
| CAUSE  | This should normally occur only when the system is very busy, something which should not normally happen when the installer is being run.                                                                                                                                                                              |
| ACTION | The user will have the option to wait longer.                                                                                                                                                                                                                                                                          |
| 05044  | INSTALLER'S MESSAGE PORT IS UNEXPECTEDLY OVERLOADED. UNABLE TO RECEIVE A MESSAGE. (INSTERR 05044)                                                                                                                                                                                                                      |
| CAUSE  | This condition is never expected to arise.                                                                                                                                                                                                                                                                             |
| ACTION | You must contact a Diagnostic Subsystem maintenance engineer.                                                                                                                                                                                                                                                          |
| 05045  | INSTALLER FOUND THE DIRECTORY'S LIST OF MESSAGE SET NUMBERS IN A CORRUPTED STATE. THIS IS NOT FATAL TO THE OPERATION OF THE DIAGNOSTIC SUBSYSTEM, BUT THE DIRECTORY SHOULD BE RESTORED FROM BACKUP PRIOR TO INSTALLING ANY MORE CHANGES TO THE SYSTEM. NOTIFY A DIAGNOSTIC SUBSYSTEM SUPPORT ENGINEER. (INSTERR 05045) |
| CAUSE  | This condition is never expected to arise.                                                                                                                                                                                                                                                                             |
| ACTION | You must contact a Diagnostic Subsystem maintenance engineer.                                                                                                                                                                                                                                                          |
| 05046  | THE NAME YOU HAVE CHOSEN IS RESERVED FOR EXCLUSIVE USE OF THE DIAGNOSTIC SUBSYSTEM. PLEASE SELECT ANOTHER. TYPE "HELP" FOR A LIST OF RESERVED NAMES. (INSTERR 05046)                                                                                                                                                   |
| CAUSE  |                                                                                                                                                                                                                                                                                                                        |
| ACTION |                                                                                                                                                                                                                                                                                                                        |
| 05047  | PROGRAM COULD NOT BE RENAMED AS REQUESTED. (INSTERR 05047)                                                                                                                                                                                                                                                             |
| CAUSE  |                                                                                                                                                                                                                                                                                                                        |
| ACTION |                                                                                                                                                                                                                                                                                                                        |
| 05048  | INSTALLER IS UNABLE TO GENERATE NEEDED WORKING FILES. (INSTERR 05048)                                                                                                                                                                                                                                                  |
| CAUSE  | The installer sets up several working files, primarily safety copies of the diagnostic system directory and message catalog. Installation cannot take place without these files.                                                                                                                                       |
| ACTION | This will normally require correction by a Diagnostic Subsystem maintenance engineer.                                                                                                                                                                                                                                  |

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| 05050  | INVALID NAME. TYPE "HELP" FOR FURTHER ASSISTANCE. (INSTERR 05050)                                                                                                                                                |
| CAUSE  |                                                                                                                                                                                                                  |
| ACTION |                                                                                                                                                                                                                  |
| <hr/>  |                                                                                                                                                                                                                  |
| 05051  | INSTALLER COULD NOT CAUSE DISPLAY OF DIAGNOSTIC SUBSYSTEM SERVICE ERROR MESSAGES. (INSTERR 05051)                                                                                                                |
| CAUSE  |                                                                                                                                                                                                                  |
| ACTION |                                                                                                                                                                                                                  |
| <hr/>  |                                                                                                                                                                                                                  |
| 05052  | INVALID RESPONSE. EXPECTED A COMMAND OR COMMAND QUALIFIER. CHECK SPELLING OR TYPE "HELP", "HELP COMMANDS", OR "REFRESH". (INSTERR 05052)                                                                         |
| CAUSE  |                                                                                                                                                                                                                  |
| ACTION |                                                                                                                                                                                                                  |
| <hr/>  |                                                                                                                                                                                                                  |
| 05053  | INSTALLER FOUND A DEVICE RELATED LIST(S) IN A CORRUPTED STATE. DIAGNOSTIC DIRECTORY MAY NEED TO BE RESTORED FROM BACKUP OR REBUILT FROM SCRATCH. NOTIFY A DIAGNOSTIC SUBSYSTEM SUPPORT ENGINEER. (INSTERR 05053) |
| CAUSE  |                                                                                                                                                                                                                  |
| ACTION |                                                                                                                                                                                                                  |
| <hr/>  |                                                                                                                                                                                                                  |
| 05054  | INSTALLER COULD NOT RETRIEVE A MESSAGE FROM THE DIAGNOSTIC CATALOG (INSTERR 05054) SET #: ! MESSAGE #: !                                                                                                         |
| CAUSE  |                                                                                                                                                                                                                  |
| ACTION |                                                                                                                                                                                                                  |
| <hr/>  |                                                                                                                                                                                                                  |
| 05055  | INSTALLER COULD NOT RETRIEVE A MESSAGE FROM ITS OWN CATALOG (INSTERR 05055) SET #: ! MESSAGE #: !                                                                                                                |
| CAUSE  |                                                                                                                                                                                                                  |
| ACTION |                                                                                                                                                                                                                  |
| <hr/>  |                                                                                                                                                                                                                  |
| 05056  | CONTINUATION OF EXTRA MESSAGE SET LISTING NOT POSSIBLE OR IMPRACTICAL. (INSTERR 05056)                                                                                                                           |
| CAUSE  | The error(s) immediately previous to this one have negated the need to go on.                                                                                                                                    |
| ACTION |                                                                                                                                                                                                                  |
| <hr/>  |                                                                                                                                                                                                                  |
| 05057  | CONTINUATION OF CROSS CHECK NOT POSSIBLE OR IMPRACTICAL. (INSTERR 05057)                                                                                                                                         |
| CAUSE  | The error(s) immediately previous to this one have negated the need to go on.                                                                                                                                    |
| ACTION |                                                                                                                                                                                                                  |
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| 05058  | THE INSTALLER IS UNABLE TO VERIFY THE EXISTENCE OF MESSAGE SET !.<br>(INSTERR 05058)                                                                                                                                   |
| CAUSE  |                                                                                                                                                                                                                        |
| ACTION |                                                                                                                                                                                                                        |
| 05059  | INSTALLER FOUND THE DIAGNOSTIC MESSAGE CATALOG IN A CORRUPTED STATE.<br>(INSTERR 05059)                                                                                                                                |
| CAUSE  |                                                                                                                                                                                                                        |
| ACTION | This will normally require restoring the catalog from scratch using the installer's<br>SYSTEM command, NEWCAT option.                                                                                                  |
| 05060  | INSTALLER WAS UNABLE TO OBTAIN A LIST OF FILES IN THE DIAGNOSTIC<br>SUBSYSTEM ACCOUNT. (INSTERR 05060)                                                                                                                 |
| CAUSE  |                                                                                                                                                                                                                        |
| ACTION |                                                                                                                                                                                                                        |
| 05061  | THERE IS ANOTHER DIAGNOSTIC INSTALLER ALREADY RUNNING. PERMISSION TO<br>START THIS ONE IS THEREFORE DENIED. (INSTERR 05061)                                                                                            |
| CAUSE  | For obvious reasons two users cannot be allowed to modify the same files at the same<br>time.                                                                                                                          |
| ACTION |                                                                                                                                                                                                                        |
| 05062  | REQUESTED PROGRAM IS NOT INSTALLED IN THE DIAGNOSTIC SUBSYSTEM. (INSTERR<br>05062).                                                                                                                                    |
| CAUSE  |                                                                                                                                                                                                                        |
| ACTION |                                                                                                                                                                                                                        |
| 05063  | INSTALLER ATTEMPTED TO CHECK THE VALUE OF A JOB CONTROL WORD WHICH DOES<br>NOT EXIST OR IS INVALID. THIS COULD IN TURN GENERATE FALSE ERRORS<br>BELOW. NOTIFY A DIAGNOSTIC SUBSYSTEM SUPPORT ENGINEER. (INSTERR 05063) |
| CAUSE  |                                                                                                                                                                                                                        |
| ACTION |                                                                                                                                                                                                                        |
| 05064  | NONSPECIFIC FILE SYSTEM ERROR RETURNED FROM GENCAT. (INSTERR 05064)                                                                                                                                                    |
| CAUSE  |                                                                                                                                                                                                                        |
| ACTION |                                                                                                                                                                                                                        |

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|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 05065  | UNABLE TO EXPAND CATALOG ! INTO TEXT READABLE FORM. (INSTERR 05065)                                                                                                                                                             |
| CAUSE  |                                                                                                                                                                                                                                 |
| ACTION |                                                                                                                                                                                                                                 |
| 05066  | GENCAT TERMINATED ABNORMALLY. GENCAT'S MESSAGE CATALOG,<br>GCMSCAT.PUB.SYS IS PROBABLY MISSING. (INSTERR 05066)                                                                                                                 |
| CAUSE  |                                                                                                                                                                                                                                 |
| ACTION |                                                                                                                                                                                                                                 |
| 05067  | THE INSTALLER WAS ENVKED FROM AN ACCOUNT OTHER THAN "SYS" BUT A GROUP<br>NAME WAS NOT SPECIFIED IN AN INFO STRING. (INSTERR 05067)                                                                                              |
| CAUSE  |                                                                                                                                                                                                                                 |
| ACTION |                                                                                                                                                                                                                                 |
| 05068  | INSTALLER WAS UNABLE TO UPDATE THE LIST OF DIAGNOSTIC SUBSYSTEM FILES.<br>(INTERR 05068)                                                                                                                                        |
| CAUSE  |                                                                                                                                                                                                                                 |
| ACTION |                                                                                                                                                                                                                                 |
| 05069  | INSTALLER WAS UNABLE TO CHECK THE LIST OF DIAGNOSTIC SUBSYSTEM FILES FOR<br>THE POSITION AND OR PRESENCE OF A PROGRAM FILE. (INSTERR 05069)                                                                                     |
| CAUSE  |                                                                                                                                                                                                                                 |
| ACTION |                                                                                                                                                                                                                                 |
| 05070  | ALTHOUGH THIS LAST INSTALLATION TASK WAS SUCCESSFUL FOR THIS SYSTEM,<br>THE DIAGNOSTIC SUBSYSTEM MAY NOT NOW BE SHIPPABLE SINCE CHANGES TO THE<br>LIST OF DIAGNOSTIC SUBSYSTEM FILES COULD NOT BE FINALIZED. (INSTERR<br>05070) |
| CAUSE  |                                                                                                                                                                                                                                 |
| ACTION |                                                                                                                                                                                                                                 |
| 05071  | INVALID FILENAME FOUND IN THE LIST OF DIAGNOSTIC SUBSYSTEM FILES.<br>(INSTERR 005071)                                                                                                                                           |
| CAUSE  |                                                                                                                                                                                                                                 |
| ACTION |                                                                                                                                                                                                                                 |
| 05072  | NAME LENGTH MAY NOT EXCEED ! CHARACTERS ON THIS SYSTEM. (INSTERR 05072)                                                                                                                                                         |
| CAUSE  |                                                                                                                                                                                                                                 |
| ACTION |                                                                                                                                                                                                                                 |
| 05099  | THERE IS NO HELP AVAILABLE FOR THAT SPECIFIC TOPIC. FOR A LIST OF<br>TOPICS, TYPE "HELP HELP". (INSTERR 05099)                                                                                                                  |
| CAUSE  | Issued when an unrecognized "HELP" option is specified.                                                                                                                                                                         |
| ACTION | Type "HELP HELP".                                                                                                                                                                                                               |





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## Disk-Tape-Disk Utility

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### Introduction

The Disk-Tape-Disk Utility (DTDUTIL) is a utility program designed for use by Hewlett Packard Response Center personnel to aid in the repair of disk media on CS/80 and FLEX disk drives. This program is designed to run under the online diagnostics subsystem. Thus, the program and its message catalog file must be installed under the online diagnostics subsystem via the DUI install command (if it is not already there), and run via the DUI run command. The program name is DTDUTIL and the catalog name is CDTDUTIL.

The primary goal of DTDUTIL is to enable support personnel to dump the raw contents of a disk drive to tape, reporting any read errors that occur, and to reload the data once the drive has been repaired. In order to provide extra insurance that the data that was dumped is correct, a verification facility is provided to compare the contents of a set of dump tapes to the data on a disk drive.

The dump operation will dump the entire contents of the disk, regardless of how many read errors may occur. When an unrecoverable read error is hit on a sector, the best guess of the sector data, as returned from the drive, will be dumped. Following a load operation, the data that was unrecoverable on the dump will now appear to be good data, even though it is likely that it is corrupt. Therefore, it is very important that appropriate action be taken following a load to ensure that corrupt data is not allowed to remain on the disk.

DTDUTIL dump tapes are each written with a header that contains a string identifying the tape as a DTDUTIL dump tape, the date and time of the dump, the `ldev` and `pdev` number of the disk drive being dumped, the type of disk drive being dumped, the mechanism number of the disk drive being dumped (for multiple mechanism drives such as the HPC2204A), and the volume number of the tape. When a load or verify operation is initiated, all of the header information will be examined and compared with data relative to the disk drive to be loaded. If the device type, `ldev`, `pdev`, or mechanism number differ from what was dumped, the user will be warned and given the choice of whether or not to continue. If the volume number of the tape is not the correct one in sequence, or the DTDUTIL identifier is not found, the user will be asked to mount another tape or abort the operation. This series of checks should be more than adequate to protect the user from making a serious mistake.

---

## Defects and Enhancements

Submit defect reports and enhancement requests concerning this utility through the STARS database referencing product number 30600-10051.

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## Supported Hardware

DTDUTIL supports all HP CS/80 and FLEX disk drives, as well as all HP7978/80 and HPC1501A tape drives. If an HP7980 tape is being used which has data compression capability, DTDUTIL will enable data compression. Otherwise, the dump/load operations will use 6250 bpi.

---

## User Interface

DTDUTIL is fully interactive. In general, it will prompt for any information that it needs that was not already provided on the command line. Whenever a numeric response to a prompt is required, a numerical input may be input in either hex (by prepending a \$), octal (by prepending a %), or decimal (the default if no prepended character is present). Display of numeric data is always in decimal unless preceded by a % (for octal) or a \$ (for hex).

---

## Detailed Command Descriptions

The commands in the list below, discussed in more detail on the following pages, are available in DTDUTIL:

|                  |                                                                                    |
|------------------|------------------------------------------------------------------------------------|
| <b>CI</b>        | - suspends DTDUTIL and returns to DUI.                                             |
| <b>DEBUG</b>     | - invokes NMDEBUG.                                                                 |
| <b>DUMP</b>      | - dumps contents of the disk to a tape.                                            |
| <b>EXIT</b>      | - exits the program.                                                               |
| <b>LDEV</b>      | - selects an ldev.                                                                 |
| <b>LOAD</b>      | - copies contents of a tape to the disk.                                           |
| <b>OUTPUTDIS</b> | - output disclaimer to system LP.                                                  |
| <b>PDEV</b>      | - selects a pdev.                                                                  |
| <b>VERIFY</b>    | - verifies the data on tapes dumped by DTDUTIL matches data on the selected drive. |

## FOR HP INTERNAL USE ONLY

### CI

This command will suspend execution of DTDUTIL and return control to the DUI. The DUI **resume** command can be used to return to DTDUTIL.

Example:

```
DTDUTIL >ci
```

```
DUI >resume
```

```
DTDUTIL has been resumed
```

```
DTDUTIL >
```

**FOR HP INTERNAL USE ONLY**

**DEBUG**

This command will invoke the Native Mode Debugger on MPE XL. This is currently unimplemented on HP-UX systems.

**Example:**

```
DTDUTIL >debug  
  
$1 ($31) nmdebug > exit  
  
DTDUTIL>
```

## FOR HP INTERNAL USE ONLY

### DUMP

This command will dump the contents of the selected disk drive to the tape drive of the user's choice. Any read errors that occur will be reported to the user and the best guess of the data, as returned from the disk, will be dumped.

On MPE XL, once a tape drive has been selected, a console request will be generated to which the operator must reply before the dump operation can continue. Although the message displayed by DTDUTIL tells the user to reply Y, it doesn't matter whether a Y or N is supplied because DTDUTIL will continue either way. Thus, one cannot use the reply as a mechanism to abort the dump operation. However, the user will be given sufficient opportunities to abort the operation before the dump actually begins.

#### Example:

```
DTDUTIL >dump

What tape drive do you want to dump to -
(LDEV nn or PDEV nn/nn.nn.nn ) [<CR> to exit] >>ldev 7

You will now need to reply "Y" to the console request for "DTDUTIL".

The contents of disk ldev 50 (pdev 8.0.6) will be dumped
to tape ldev 7 (pdev 8.2.3).

Do you wish to continue (Yes/No)[Yes]?y
Mount tape volume number 1.
Enter "YES" to continue, "NO" to abort >>y

Errors will be logged to the file "DTDERR01.DIAG.SYS".

10% complete.
20% complete.
.
.
.
90% complete.

DTDUTIL >
```

In this example, the user had already selected ldev 50 via the ldev or pdev command. The physical path to the disk is 8.0.6 and the path to the tape is 8.2.3. If any errors are detected while reading data from the disk, they will be reported in the following format:

```
ERROR ON DISK READ AT LOCATION:
BLOCK    1000    %1750    $3E8,   CYL    0  HEAD 10  SECTOR  80
BLOCK    1010    %1762    $3F2,   CYL    0  HEAD 10  SECTOR  90
```

The error addresses will also be logged to a file. The file name in this example is DTDERR01.DIAG.SYS.

## 7-6 Disk-Tape-Disk Utility

## EXIT

This command will terminate execution of DTDUTIL.

### Example:

```
DTDUTIL > Exit
```

```
DUI>
```



## FOR HP INTERNAL USE ONLY

### HELP

This command will display a list of commands along with a brief description of each.

#### Example:

```
DTDUTIL > Help
```

The following commands are available:

|                    |                                                                                       |
|--------------------|---------------------------------------------------------------------------------------|
| Ci                 | - suspends DTDUTIL and returns to DUI.                                                |
| Debug              | - invokes NMDEBUG.                                                                    |
| Dump               | - dumps contents of the disk to a tape.                                               |
| Exit               | - exits the program.                                                                  |
| Ldev [nn]          | - selects an ldev.                                                                    |
| Load               | - copies contents of a tape to the disk.                                              |
| Outputdis          | - output disclaimer to system LP.                                                     |
| Pdev [nn/nn.nn.nn] | - selects a pdev.                                                                     |
| Verify             | - verifies the data on tapes dumped by DTDUTIL<br>matches data on the selected drive. |

**FOR HP INTERNAL USE ONLY**

**LDEV**

This command will prompt the user for the ldev of a disk drive to be used. Subsequent operations will be performed on the selected drive. If the selected ldev is not a Hewlett Packard disk, an error will be generated and DTDUTIL will abort.

**Example:**

```
DTDUTIL > LDEV 50
```

The selected device is an HPNNNN disk.

The maximum available address is cylinder nn, head nn, sector nn.

The current sector size is nn.

The current LDEV is now nn (pdev nn/nn.nn.nn).

If the selected drive has multiple mechanisms (e.g., HPC2204A), the following message and prompt will be displayed:

The selected drive has multiple mechanisms. You may choose to:

- 0 - load/dump/verify both mechs
- 1 - load/dump/verify mech 1
- 2 - load/dump/verify mech 2

Which mech would you like to operate on [<cr> = both mechs] >

The ldev to be selected may be specified on the command line, if desired. If no number follows the ldev command, the following prompt will be generated:

```
Ldev [nn] >
```

[nn] will display the current ldev. That value will be retained if the input is defaulted (by inputting only a <CR>).

## FOR HP INTERNAL USE ONLY

### LOAD

This command will load the contents of a set of dump tapes generated by DTDUTIL onto the selected disk from the tape drive of the user's choice. If any errors occur reading from the tape or writing to the disk, the load operation will be aborted.

#### Note



Any sectors that were unrecoverable on the dump will now be readable even though the data is most likely corrupt. Such sectors should be dealt with appropriately prior to returning the disk to customer use.

On MPE XL, once a tape drive has been selected, a console request will be generated to which the operator must reply Y before the load operation can continue. Although the message displayed by DTDUTIL tells the user to reply Y, it doesn't matter whether a Y or N is supplied because DTDUTIL will continue either way. Thus, one cannot use the reply as a mechanism to abort the load operation. However, the user will be given sufficient opportunities to abort the operation before the load actually begins.

Prior to beginning the load operation from each tape volume, DTDUTIL will check the header that was written at dump time. If a DTDUTIL header is not found, or the volume number in the header does not match the expected volume number, an error will be generated and the user will be asked to mount another volume. In addition, on the first volume, the header information on the tape will be cross-checked with information pertaining to the currently selected disk drive. If discrepancies are found, the user will be warned and given the opportunity to quit.

#### Example:

```
DTDUTIL >load
```

```
Input the ldev of the tape drive to load from >>7
```

```
    You will now need to reply "Y" to the console request for "DTDUTIL".
```

```
The contents of disk ldev nn will be loaded from tape ldev nn
```

```
Do you wish to continue (Yes/No)[Yes]?Yes
```

```
Mount tape volume number 1.
```

```
Enter "YES" to continue, "NO" to abort >>
```

```
What tape drive do you want to load from -
```

```
(LDEV nn or PDEV nn/nn.nn.nn ) [<CR> to exit] >>ldev 7
```

```
    You will now need to reply "Y" to the console request for "DTDUTIL".
```

```
The contents of disk ldev 50 (pdev 8.0.6) will be loaded  
from tape ldev 7 (pdev 8.2.3).
```

```
Do you wish to continue (Yes/No)[Yes]?y
```

```
Mount tape volume number 1.
```

**FOR HP INTERNAL USE ONLY**

Enter "YES" to continue, "NO" to abort >>y

10% complete.

20% complete.

.

.

.

90% complete.

DTDUTIL >

## **FOR HP INTERNAL USE ONLY**

### **OUTPUTDIS**

This command is used to print a disclaimer on the system printer. This disclaimer is presented to, and signed by, the customer prior to use of DTDUTIL, if the use of DTDUTIL may result in corrupt data being restored to a disk. This is typically needed when the disk has some unrecoverable sectors and the data that is read from them by DTDUTIL cannot be guaranteed to be correct. The customer's signature on the disclaimer indicates that the customer realizes the risks involved of continuing to use the system with potentially corrupt data, and protects HP from legal action should there be a problem.

**FOR HP INTERNAL USE ONLY**

**PDEV**

This command will prompt the user for the pdev of a disk drive to be used. Subsequent operations will be performed on the selected drive. If the selected ldev is not a Hewlett Packard disk, an error will be generated and DTDUTIL will abort.

**Example:**

```
DTDUTIL > PDEV 8.0.6
```

The selected device is an HPNNNN disk.

The maximum available address is cylinder nn, head nn, sector nn.

The current sector size is nn.

The current PDEV is now nn/nn.nn.nn (ldev nn).

If the selected drive has multiple mechanisms (e.g., HPC2204A), the following message and prompt will be displayed:

The selected drive has multiple mechanisms. You may choose to:

- 0 - load/dump/verify both mechs
- 1 - load/dump/verify mech 1
- 2 - load/dump/verify mech 2

Which mech would you like to operate on [<cr> = both mechs] >

The pdev to be selected may be specified on the command line if desired. If no number follows the pdev command, the following prompt will be generated:

```
Pdev [nn/nn.nn.nn] >
```

[nn/nn.nn.nn] will display the current pdev. That value will be retained if the input is defaulted (by inputting only a <CR>).

## FOR HP INTERNAL USE ONLY

### VERIFY

This command will compare the contents of a set of dump tapes generated by DTDUTIL to the data on the selected disk. If any errors occur reading from the tape, the load operation will be aborted. Read errors on the disk will be ignored and the best guess data will be used.

If any mismatches occur during the verify operation, the address of the sector(s) will be reported to the user. In general, mismatches should not happen, even if the disk has numerous unrecoverable sectors. If any mismatches occur on sectors that were not reported as unrecoverable on the dump operation, the contents of the dump tape are suspect. If more than 20 mismatch errors occur, the verify operation will be aborted.

On MPE XL, once a tape drive has been selected, a console request will be generated to which the operator must reply Y before the verify operation can continue. Although the message displayed by DTDUTIL tells the user to reply Y, it doesn't matter whether a Y or N is supplied because DTDUTIL will continue either way. Thus, one cannot use the reply as a mechanism to abort the verify operation. However, the user will be given sufficient opportunities to abort the operation before the verify actually begins.

Prior to beginning the verify operation from each tape volume, DTDUTIL will check the header that was written at dump time. If a DTDUTIL header is not found, or the volume number in the header does not match the expected volume number, an error will be generated and the user will be asked to mount another volume. In addition, on the first volume, the header information on the tape will be cross-checked with information pertaining to the currently selected disk drive. If discrepancies are found, the user will be warned and given the opportunity to quit.

#### Example:

```
DTDUTIL >verify
```

```
Input the ldev of the tape drive to load from >>7
```

```
    You will now need to reply "Y" to the console request for "DTDUTIL".
```

```
The contents of disk ldev nn will be verified against tape ldev nn
```

```
Do you wish to continue (Yes/No)[Yes]?Yes
```

```
Mount tape volume number 1.
```

```
Enter "YES" to continue, "NO" to abort >>
```

```
The contents of this tape were dumped from ldev nn (an HPXXXX disk)
on (date/time).
```

```
What tape drive do you want to dump to -
(LDEV nn    or    PDEV nn/nn.nn.nn ) [<CR> to exit] >>ldev 7
```

```
    You will now need to reply "Y" to the console request for "DTDUTIL".
```

```
The contents of disk ldev 50 (pdev 8.0.6) will be verified
against tape ldev 7 (pdev 8.2.3).
```

## 7-14 Disk-Tape-Disk Utility

**FOR HP INTERNAL USE ONLY**

Do you wish to continue (Yes/No)[Yes]?y

Mount tape volume number 1.

Enter "YES" to continue, "NO" to abort >>y

Errors will be logged to the file "DTVERRO1.DIAG.SYS".

The contents of this tape were dumped from ldev 50  
(pdev 8.0.6 - an HP7937H disk) on MON, SEP 24, 1990, 1:49 PM.

10% complete.

20% complete.

.

.

.

90% complete.

DTDUTIL >

In this example, the user had already selected ldev 50 via the ldev or pdev command. The physical path to the disk is 8.0.6 and the path to the tape is 8.2.3. If any miscompare errors are detected during the verify operation, they will be reported in the following format:

**MISCOMPARE ERROR AT LOCATION:**

|       |      |       |        |     |   |         |           |
|-------|------|-------|--------|-----|---|---------|-----------|
| BLOCK | 1000 | %1750 | \$3E8, | CYL | 0 | HEAD 10 | SECTOR 80 |
| BLOCK | 1010 | %1762 | \$3F2, | CYL | 0 | HEAD 10 | SECTOR 90 |

The error addresses will also be logged to a file. The file name in this example is DTVERRO1.DIAG.SYS.







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