CRAY EL™ Series IOS™
Commands Ready Reference

SQ–2162 8.0

Cray Research, Inc.

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The date of printing or software version number is indicated in the footer. Changes in rewrites are noted by revision bars along the margin of the page.

Version	Description
8.0	April 1994. Original printing. This publication supports the 8.0 release of the CRAY EL series IOS.

Preface

This publication documents the CRAY EL series IOS
commands for release 8.0 running on CRAY EL series
systems, which includes the CRAY Y-MP EL, CRAY EL92, and
CRAY EL98 systems.

Related publications

For details on the commands documented in this ready
reference, see the *CRAY EL Series IOS Commands Reference
Manual*, publication SR–2408.

Conventions

The following conventions are used throughout this manual:

Convention	Meaning
Courier	This font denotes literal items such as commands, files, routines, path names, signals, messages, and programming language structures.
italic	This typeface denotes variable entries and words or concepts being defined.
[]	Brackets enclose optional portions of a command line.
...	Ellipses indicate that a preceding command-line parameter can be repeated.

The following machine naming conventions are used
throughout this manual:

Term	Definition
CRAY Y-MP systems	All configurations of CRAY Y-MP systems supported by UNICOS 8.0, including the M90 series (M92, M94, M98); C90 series (C916, C92A, C94, C94A, and C98); E series (2E, 4E, 8E, and 8I); EL series (including CRAY Y-MP EL, CRAY EL92, and CRAY EL98).
CRAY X-MP systems	All configurations of CRAY X-MP systems supported by UNICOS 8.0. This includes CRAY X-MP, CRAY X-MP EA, and CRAY X-MP EMA systems.

Term	Definition
CRAY-2 systems	All configurations of CRAY-2 systems supported by UNICOS 8.0.
Cray MPP systems	All configurations of the CRAY T3D series, supported by UNICOS 8.0, including CRAY T3D MC, CRAY T3D MCA, and CRAY T3D SC.
All Cray Research systems	All configurations supported by UNICOS 8.0.

It is the objective of Cray Research to become compliant with IEEE Std 1003.1–1990 (POSIX.1) and IEEE Std 1003.2–1992 (POSIX.2). This manual reflects those ongoing efforts.

POSIX.2 uses *utility* to refer to executable programs that Cray Research documentation usually refers to as *commands*. Both terms appear in this document.

In this publication, *Cray Research*, *CRI*, and *Cray* refer to Cray Research, Inc. and/or its products.

Ordering publications

The *User Publications Catalog*, publication CP–0099, lists all Cray Research hardware and software manuals that are available to customers.

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Reader comments

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- Send us electronic mail from a UNICOS or UNIX system, using the following UUCP address:

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- Send us electronic mail from any system connected to Internet, using the following Internet addresses:

      pubs2162@timbuk.cray.com (comments specific to this manual)

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- Contact your Cray Research representative and ask that a Software Problem Report (SPR) be filed. Use PUBLICATIONS for the group name, PUBS for the command, and NO-LICENSE for the release name.

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      (612) 683–5600

- Send a facsimile of your comments to the attention of "Software Information Services" in Eagan, Minnesota, at fax number (612) 683–5599.

We value your comments and will respond to them promptly.

Contents

adrm

adrm – Sets the default address mode

adrm [h] [o] [d]

CRAY EL series IOS

h   Hexadecimal addressing mode

o   Octal addressing mode

d   Decimal addressing mode (default)

If you do not specify an option, the current addressing mode is displayed.

---

am

am – Alters memory

am *address* [*parcelA*] [*parcelB*] [*parcelC*] [*parcelD*]

CRAY EL series IOS

address	Relative memory address that will be altered.
parcelA	Value of parcel to alter memory (most significant); default is no change.
parcelB	Value of parcel to alter memory; default is no change.
parcelC	Value of parcel to alter memory; default is no change.
parcelD	Value of parcel to alter memory (least significant); default is no change.

---

bmrtest

bmrtest – Executes a buffer memory resident (BMR) diagnostic test

bmrtest

CRAY EL series IOS

The bmrtest command lets users run and control offline BMR diagnostic tests.

bscan

bscan – Scans board-level data

bscan [i] [o] *slot filename* [d] [*tri-state*]
bscan [i] [o] *slot filename* [m] [*tri-state*]

CRAY EL series IOS

i	Directs the scan data from a file to a board.
o	Directs the scan data from a board out to a file.
slot	Specifies a value from 0 to 7 that designates which board slot in the CPU chassis to use. Slots 0 through 3 are for CPU modules 0–3, and slots 4–7 are for memory modules.
d	(CRAY EL98 systems only) Indicates that the scan data goes to a daughter board.
m	Indicates that the scan data goes to a mother board (default).
filename	Specifies IOS file name. The CRAY Y-MP EL Engineering department should provide the files used to scan in data, because a scan operation that loads incorrect data into the CPUs can cause unpredictable and fatal system errors.
tri-state	Controls the state of internal tri-state logic on scan completion. This option can be either 0 or 1. The default is 0.

cat

cat – Displays file

cat [-n] *filename*

CRAY EL series IOS

-n	Displays a line number with each line and first byte of that line's byte count.
filename	Specifies input file.

cd

cd – Changes current directory

cd *path*

CRAY EL series IOS

path   Absolute or relative path name of the desired directory

---

clearlog

clearlog – Clears the statistical log data on an STK 3480 tape drive

clearlog rss*CUL*

CRAY EL series IOS

C   Specifies controller number.
U   Specifies the unit number.
L   Specifies the logical unit (LUN).

---

clk

clk – Turns the clock on or off, or increments the clock

clk [on] [off] [*n*]

CRAY EL series IOS

on   Turns on the clock.

off   Turns off the clock (default). If the clock is off, the default is to increment the clock once; otherwise, an error message is issued.

n   Denotes the number of times to increment the clock if the clock is off. If the clock is on, an error message is issued.

cls

cls – Clears the screen display

cls

CRAY EL series IOS

The cls command clears the screen. It is useful in a command
script for clearing data on the screen.

---

cmioql

cmioql – Executes a quick look CM->IOBB->CM
diagnostic

cmioql *ios ch*

CRAY EL series IOS

ios   The IOS in which cmioql will run (decimal).

ch   The Y1 input channel that is connected to the IOS in
            which cmioql is running (octal).

---

cmiotest

cmiotest – Executes a data transfer test from
CM–>IOBB–>CM and verifies data

cmiotest

CRAY EL series IOS

The cmiotest command executes a data transfer test from
central memory to the I/O buffer board and back to central
memory. Test initialization includes the loading of and
deadstarting of the CPU binary. Section initialization verifies
that the I/O channels selected are connected to the IOBB being
tested.
cmiotest cannot run when the operating system is active and
must be run from the BOOT or IOS prompt.

cmp

cmp – Performs a byte-by-byte comparison of two files

cmp [-l] [-s] *filename1 filename2* [*skip1*] [*skip2*]

CRAY EL series IOS

-l	Prints the byte number (in decimal) and the differing bytes (in octal) for all differences between the two files.
-s	Silent. Prints nothing for differing files; sets only exit codes.
filename	Specifies the name of the file(s) to be compared.
skip	Specifies at which byte the comparison should begin.

---

comp

comp, uncomp – Compresses or uncompresses a file

comp *file*
uncomp *file*.Z

CRAY EL series IOS

The comp command reduces the size of *file* and appends the file name with the .Z suffix (*file*.Z). The uncomp command restores *file*.Z to its original uncompressed state and removes the .Z suffix from the file name.

---

conswitch

conswitch – Toggles console from IOS to UNICOS system console

conswitch

CRAY EL series IOS

The conswitch command can be executed only from the IOS. It is the equivalent of pressing <CONTROL-a> to toggle the console terminal from acting as the IOS console to the UNICOS console interface.

count

count – Counts the number of passes that a loop executes

count *init*
count *inc*
count *print*

CRAY EL series IOS

init   Initializes the counter to 0.

inc   Increments the counter by 1.

print   Prints the current value of the counter.

---

cp

cp – Makes a copy of a file

cp *filespec1 filespec2*

CRAY EL series IOS

filespec1   File specification of the source file.

filespec2   File specification of the destination file.

---

crash

crash – Interprets IOS system dumps

crash *filename*

CRAY EL series IOS

filename   The name of the file that contains the IOS system image.

The crash command accepts the following commands:

das [*n*]   Displays the state of the Disk Array controller at the time of the dump and the last *n* transfer status blocks.

dc5i [-f]   Displays the state of the DC5I controller (crash prompts you for the controller number if it is not specified on the command line) and a history of the I/O parameter blocks the driver has prepared for the controller in reverse chronological order.

dstage   Displays staged disk requests.

`dstat`	Displays the overall disk strategy numbers and the disk devices that were found on that IOS.
`er90`	Displays all ER90 information.
`er90cmd[start[stop]]`	Displays ER90 device command trace.
`er90stat[start[stop]]`	Displays ER90 device status trace.
`errpt`	Displays the error report.
`esdi[-all][start end]`	Displays the state of the ESDI controller.
`help[`*command*`]`	Outputs one help line that specifies the syntax of all available dump commands.
`ipi[-f]`	Displays the state of the IPI controller (`crash` prompts you for it if it is not specified on the command line) along with any active I/O parameter blocks.
`ireq[start[stop]]`	Displays the requests that were made to the various IOSs.
`istat`	Outputs the status of the `iosnet` at the time the dump was taken.
`itrace[start[stop]]`	Lists a history of `iosnet` activity. This command dumps the `iosnet` trace table. The most recent entry in the `iosnet` trace table is found by using the `istat` command. The `start` and `stop` options to `itrace` represent the range of `trace` entries that you want displayed (for example, if `istat` says that the most recent trace table entry is number 50, you can use `itrace 45 50` to look at the most recent 5 trace entries).
`jobs`	Shows the last 16 user commands run (or running at time of dump) on the IOS, along with their arguments and state.
`loadmap`	Lists each strategy, driver, or command that has been loaded, along with its load address and size.
`nm[-l][*]{`*symbol*|*address*|`driver`|`config`|`uconfig}`	Namelist command.

od [-*line count*] -[h|o|d] <*addr*>
>   Lists the contents of IOS memory at the *addr* specified according to the base specified (hexadecimal by default).

packet [*type*] [*addr*]
>   The *type* argument is a letter (A, D, M, and so on) denoting the type of packet to be displayed, and *addr* specifies the hexadecimal address of one packet. If *type* and *addr* are used together, crash attempts to display the information at *addr* as a packet of type *type*, if possible. If only *type* is specified, crash outputs only the packets found of that type. A history of the last 5120 packets are kept in the IOS; it can be displayed by specifying packet without parameters.

pertec [-f]
>   Displays various status information gathered from a given pertec-type controller.

q   Exits the crash utility.

rtbuf   Outputs the last characters, if any, printed by the real-time debugger before the dump occurred. This rarely contains useful information.

s2tape   Outputs status information on each tape attached to the SCSI adapter.

s3560   Outputs the last parameter and status blocks that were sent and received from the controller in chronological order.

sdisk   Outputs status information on each disk attached to the SCSI adapter.

si1   Outputs status information on the SCSI-1 adapter.

si2   Outputs status information on the SCSI-2 adapter.

stape   Displays the state of each small computer system interface (SCSI) tape command issued and the device to which it was issued.

status   Outputs the release level of the IOS contained in the dump and the time the PANIC occurred if the dump was the result of an IOS ASSERTION PANIC.

stb PC A6_register
>   Given the PC and A6 registers (which refer to a task's stack), stb lists a stack trace back from that point.

sysbuf	Outputs the last `syslog()` messages sent to the console.
systat	Displays the state of the IOBB buffer pool and IOBB transfer queue at the time of the dump.

`table[-a][-f]{pkt|fd|buf|trace}`

Displays the packet table (`pkt`) contained in IOS memory (not IOBB memory), the file descriptor table (`fd`), the IOBB buffer pool table (`buf`) (see `systat` above), or the trace table (`trace`), respectively. The trace table is defined only after an IOS ASSERTION PANIC.

`tcb [addr]` The *addr* operand is the IOBB address to start listing I/O transfer control blocks (IOTCB). By default, this command starts at the beginning of the IOTCB table and outputs each control block. Each control block contains the information required by the IOBB to complete one transfer to or from the mainframe.

`treq[start[stop]]`

Dumps the tty request table. This table holds the requests made either to print data to the console or to read input from the keyboard. The `treq` command works much the same as the `itrace` command except that to get the index into the table, the `treq` command must be specified without parameters. For example, `treq 0` prints out a single tty request entry and the indexes associated with this table.

tstat	Provides a trace of tape packets from UNICOS.
ttybuf	Displays the tty buffer (any print statements that were queued asynchronously; that is, from an ISR, and had not been printed to the console yet).
ver	Prints the IOS version of the IOS Kernel contained in the dump.

dasctest

dasctest – Executes a confidence test on DAS disk drives

dasctest

CRAY EL series IOS

The dasctest command lets users run and control an offline or online DAS disk drive confidence test.

dastest

dastest – Executes a diagnostic test for the disk array subsystem

dastest

CRAY EL series IOS

The dastest command lets users run and control an offline disk array subsystem diagnostic.

dd5iql

dd5iql – Executes a quick look buffered IPI drive diagnostic

dd5iql *ios*

CRAY EL series IOS

ios   The IOS in which dd5iql will run (decimal).

dd5itest

dd5itest – Executes a confidence test for DD-5I disk drives and controller

dd5itest

CRAY EL series IOS

The dd5itest test initialization reserves IOBB write and read blocks, which are released back to the system when the test is exited.

ddisable

ddisable – Disables defective drives in a disk array

ddisable D*cd unit*

CRAY EL series IOS

D   Indicates a DAS drive.

c   Specifies physical controller number (0 to F hexadecimal).

d   Specifies physical device or bank number (0 through 3).

unit   Specifies physical disk number (1 through 9) in the target bank.

---

ddtest

ddtest – Initiates on-board ESDI controller diagnostics

ddtest

CRAY EL series IOS

The ddtest command lets users initiate ESDI controller on-board diagnostics.

---

debug

debug – Reports and sets the debug level on the IOS

debug [*value*]

CRAY EL series IOS

value   Sets the debug bit flags.

---

df

df – Displays usage information on IOS SCSI disk

df

CRAY EL series IOS

The df command displays capacity information on the IOS small computer system interface (SCSI) disk.

dflawr

dflawr – Reads Disk Flaw table

dflawr B*cd* [-1] [-f *file*]
dflawr C: [-1] [-f *file*]
dflawr D*cd drive* [-1] [-f *file*]
dflawr E*cd* [-1r] [-s *serial number*] [-f *file*]
dflawr I*cd* [-1r] [-s *serial number*] [-f *file*]
dflawr S*cd* [-1] [-f *file*]

CRAY EL series IOS

B	Indicates a buffered IPI drive.
C:	Indicates the IOS SCSI disk.
D	Indicates a DAS drive.
E	Indicates an ESDI drive.
I	Indicates an IPI drive.
S	Indicates an SCSI drive.
c	Specifies controller number (0 to F).
d	Specifies disk or bank number (0 to F).
drive	Specifies the drive to read on the specific bank. Applicable only with the disk array; then it is mandatory.
-f *file*	Writes the defect lists to *file*.
-1	Lists the tables to the screen only.
-r	Reads the sector headers on the disk to obtain the Growth Error table (GET). Useful to validate the correctness of the stored defect lists, or used to generate a defect list where the stored list may have been corrupted. The DD-5I and DD-5S drive types do not support this option.

-s *serial number*
   Specifies serial number of the drive.

dflaww

`dflaww` – Reads Disk Flaw table from IOS disk and writes it to disk

```
dflaww Bcd [-f file]
dflaww Dcd drive [-f file]
dflaww Ecd [-f file]
dflaww Icd [-f file]
dflaww Scd [-f file]
```

CRAY EL series IOS

B   Indicates a buffered IPI drive.

D   Indicates a DAS drive.

E   Indicates an ESDI drive.

I   Indicates the IPI drive.

S   Indicates an SCSI drive.

c   Specifies controller number (0 to F).

d   Specifies disk or bank number (0 to F).

drive   Specifies the drive to read on the given bank.
            Applicable only with the disk array; then it is
            mandatory.

-f *file*   Specifies the file that `dflaww` reads.

dformat

dformat – Formats disk

dformat B*cd* [-1 *level*] [-f *file*]
dformat D*cd* B*xxx* [*das_level*]
dformat E*cd* [-1 *level*] [-s *serial number*] [-f *file*]
dformat I*cd* [-1 *level*] [-s *serial number*] [-f *file*]
dformat S*cd* [-1 *level*] [-f *file*]

CRAY EL series IOS

B	Indicates a buffered IPI drive.
D	Indicates a DAS drive.
E	Indicates an ESDI drive.
I	Indicates an IPI drive.
S	Indicates an SCSI drive.
c	Specifies controller number (0 to F).
d	Specifies disk or bank number (0 to F).
B	Applicable only with the disk array; then it is mandatory.
xxx	This field must be specified in hexadecimal. Applicable only with the disk array; then it is mandatory.

das_level
    Specifies integer format level for the disk array.

-f *file* Specifies the file to be used for generating the GET. All GET entries in the file will be slipped/mapped.

-1 *level* Specifies the format level used. If level 1 is specified, dformat does not map/slip any defects (dformat writes an empty Growth Error table); if level 2 is specified, dformat slips/maps only the OEM defect list; if level 3 is specified, dformat slips/maps all entries currently stored in the GET (this is the default).

-s *serial number*
    Specifies the drive's serial number.

dm

dm – Displays central memory

```
dm-[l|r|ll|lu|rl|ru][h|o]address
dm-[l|r]x address
dm-[l|r|ll|lu|rl|ru][h|o][upper_parcel]
[lower_parcel]
dm
```

CRAY EL series IOS

l	Displays on left half of the screen (default).
r	Displays on right half of the screen.
ll	Displays on the left-lower quadrant of the screen.
lu	Displays on the left-upper quadrant of the screen.
rl	Displays on the right-lower quadrant of the screen.
ru	Displays on the right-upper quadrant of the screen.
h	Specifies hexadecimal format.
o	Specifies octal format (default).
x	Displays the memory in exchange package format.
address	Specifies starting address of central memory to display, or an 8-bit address when the parcel parameter is specified.

upper_parcel
    Specifies upper 16 bits of an address.

lower_parcel
    Specifies lower 16 bits of an address.

dreplace

dreplace – Reconstructs data on newly replaced disk
drive of disk array subsystem

dreplace d[*cd*] *unit*

CRAY EL series IOS

d[*cd*]   Indicates the physical controller or device number
for the target bank.

     d   Specifies disk array; required argument.

     c   Specifies physical controller number (0 to F
hexadecimal).

     d   Specifies physical device or bank number (0
through 3).

unit   Specifies physical disk number (1 through 9) in the
target bank.

---

ds

ds – Loads and deadstarts a diagnostic test

ds [*filename*[.*ext*]] [*cpu*]

CRAY EL series IOS

filename   Specifies diagnostic test file.

.ext   Specifies file extension.

cpu   Specifies CPU number (0 through 7).

dslip

dslip – Slips one sector

dslip B*cd* *sector*
dslip E*cd* *sector*
dslip I*cd* *sector*
dslip C: *sector*
dslip S*cd* *sector*

CRAY EL series IOS

B	Indicates a buffered IPI drive.
C:	Indicates the IOS SCSI disk.
E	Indicates an ESDI drive.
I	Indicates an IPI drive.
S	Indicates an SCSI drive.
c	Specifies a controller number (0 to F).
d	Specifies a disk or bank number (0 to F).
sector	Specifies a sector number from beginning of device.

dstat

dstat – Outputs activity information about the disk subsystem

dstat B*cd*
dstat D*cd*
dstat E*cd*
dstat I*cd*
dstat S*cd*

CRAY EL series IOS

B	Indicates a buffered IPI disk drive.
D	Indicates a DAS disk drive.
E	Indicates an ESDI disk drive.
I	Indicates an IPI disk drive.
S	Indicates a SCSI disk drive.
c	Specifies controller number (0 to F).
d	Specifies disk or bank number (0 to F).

dsurf

`dsurf` – Disk surface analysis utility

```
dsurf Bcd [-adfirwv] [-l level] [-n blocks]
[-s start] [-p passes] [-t count]
dsurf C: [-adfirv] [-l level] [-n blocks]
[-s start] [-p passes]
dsurf Ecd [-adfirwv] [-l level] [-n blocks]
[-s start] [-p passes] [-t count]
dsurf Icd [-adfirwv] [-l level] [-n blocks]
[-s start] [-p passes] [-t count]
dsurf Scd [-adfirwv] [-l level] [-n blocks]
[-s start] [-p passes] [-t count]
```

CRAY EL series IOS

B	Indicates a buffered IPI drive.
C:	Indicates the IOS SCSI disk.
E	Indicates an ESDI drive.
I	Indicates an IPI drive.
S	Indicates an SCSI drive.
c	Specifies controller number (0 to F).
d	Specifies disk or bank number (0 to F).
-a	Asks before flawing (default is to flaw silently).
-d	Specifies debug mode. Errors are not flawed.
-f	Runs test until one pass completes without an error.
-i	Inhibits recheck on flawed errors (default is to recheck the space after flawing).
-l level	Specifies test level. A level of 0 is a read-only test (the default); a level of 1 is an eight-pattern write and read (the patterns are 0x00, 0xFF, 0xF0, 0x0F, 0xCC, 0x33, 0xAA, and 0x55); a level of 2 is a four random-pattern write and read.
-n blocks	Specifies number of blocks to test (default is the entire drive).
-p passes	Specifies number of passes to run (default is 1).

-r	Does not flaw errors (default is to flaw).
-s *start*	Starts block address (default is 0).
-t *count*	Reads or writes I/O size in sectors (default is one track).
-v	Specifies verbose mode. Its use is recommended.
-w	Allows writing without prompting (default is to prompt the user for a response if the disk will be written on). This option is used for background usage.

dverify
dverify — Verifies disk media on the DAS

dverify D*cd* B*xxx* [*level*]

CRAY EL series IOS

level	Specifies level of verification. Applicable on the disk array, IPI, and IOS disk.
D	Specifies a DAS drive.
c	Specifies controller number (0).
d	Specifies disk or bank number (0).
B	Applicable only with the disk array; then it is mandatory.
xxx	This field must be specified in hexadecimal.

dwconfig
dwconfig — Writes disk configuration to controller

dwconfig D*c filename*

CRAY EL series IOS

D	Specifies disk array type; mandatory.
c	Specifies controller number (0 to F).
filename	Specifies name of the file that contains the configuration information.

echo

echo – Displays a message

echo [*string*]

CRAY EL series IOS

string   Character string, which is displayed on the screen
            when the command executes.

---

ed

ed – Edits a text file

ed [*file*]

CRAY EL series IOS

The ed editor is the standard text editor.

Commands to ed have a simple and regular structure: zero,
one, or two *addresses*, followed by a single-character
command, possibly followed by parameters to that command.

---

eddql

eddql – Executes a quick look SCSI drive diagnostic

eddql *ios*

CRAY EL series IOS

ios   The IOS in which eddql will run (decimal).

---

eddtest

eddtest – Executes a DD-5S drive/4220 controller
confidence/comprehensive test

eddtest

CRAY EL series IOS

Test initialization of the eddtest diagnostic includes
reserving IOBB write and read blocks which are released back
to the system when the test is exited.

enetql

enetql – Executes a quick look Ethernet diagnostic

enetql *ios*

CRAY EL series IOS

ios   The IOS in which enetql will run (decimal).

---

enstat

enstat – Displays Ethernet controller status and statistics

enstat [-e *xxxx*]
enstat [-m *c lvl*]
enstat [-r *c*]
enstat [-s *c*]

CRAY EL series IOS

-e	Displays the meaning of Ethernet packet error status bits.
-m	Changes the automatic error logging level for a controller. Error reporting is on by default.
-r	Resets controller statistics counters.
-s	Displays controller statistics.
c	Specifies controller number (0 to 3).
lvl	Specifies the message reporting level. Valid values are ON or OFF. Default is ON.
xxxx	Specifies packet status bits (hexadecimal value).

---

errpt

errpt – Processes the error report generated by IOS Kernel

errpt [*filename*[.*ext*]]

CRAY EL series IOS

filename	IOS file name
.ext	File name extension

-r	Does not flaw errors (default is to flaw).
-s *start*	Starts block address (default is 0).
-t *count*	Reads or writes I/O size in sectors (default is one track).
-v	Specifies verbose mode. Its use is recommended.
-w	Allows writing without prompting (default is to prompt the user for a response if the disk will be written on). This option is used for background usage.

dverify

dverify – Verifies disk media on the DAS

dverify D*cd* B*xxx* [*level*]

CRAY EL series IOS

level	Specifies level of verification. Applicable on the disk array, IPI, and IOS disk.
D	Specifies a DAS drive.
c	Specifies controller number (0).
d	Specifies disk or bank number (0).
B	Applicable only with the disk array; then it is mandatory.
xxx	This field must be specified in hexadecimal.

dwconfig

dwconfig – Writes disk configuration to controller

dwconfig D*c filename*

CRAY EL series IOS

D	Specifies disk array type; mandatory.
c	Specifies controller number (0 to F).
filename	Specifies name of the file that contains the configuration information.

fm

fm – Fills central memory

fm *start count* [*parcelA*] [*parcelB*] [*parcelC*] [*parcelD*]

CRAY EL series IOS

start	Relative address of memory to start filling.
count	Number of words (in decimal) to fill.
parcelA	Value to fill parcel A (most significant); default is 0.
parcelB	Value to fill parcel B; default is 0.
parcelC	Value to fill parcel C; default is 0.
parcelD	Value to fill parcel D (least significant); default is 0.

---

goto

goto – Transfers control to a command file

goto :*label*

CRAY EL series IOS

label	A string preceded by a colon (:).

---

head

head – Displays the first few lines of a specified file

head [*-n*] *filename*

CRAY EL series IOS

-n	Specifies a line count.
filename	Specifies input file.

help

help – Displays commands and their syntax

help [*cmd*]

CRAY EL series IOS

cmd Specifies command to be displayed or first letter of
       commands to be displayed.

---

if

if – Allows conditional transfer of control

if *n* goto :*label*

CRAY EL series IOS

n   Value to compare with the return code from the
         previous command.

label String preceded by a colon (:); the first 8 characters are
         significant.

---

iob2test

iob2test – Executes a disk I/O <–> IOBB test

iob2test

CRAY EL series IOS

The iob2test command lets users run and control an offline
IOBB test. This test should be run after iobbtest to
thoroughly test the IOBB.

---

iobbql

iobbql – Executes a quick look IOBB diagnostic after
power on

iobbql [P|L]

CRAY EL series IOS

P Specifies a short version of the test. This test is run at the
   time of power up.

L Specifies a long version of the test. This test is run after
   power up and first load operations.

iobbtest

iobbtest – Executes diagnostic test for I/O buffer
board (IOBB)

iobbtest

CRAY EL series IOS

The iobbtest command lets users run and control an offline
IOBB diagnostic.

---

ioccql

ioccql – Executes a quick look IOBB<->CC
diagnostic

ioccql *ios ch type msize*

CRAY EL series IOS

ios	The IOS in which ioccql will run (decimal).
ch	Specifies the Y1 channel that is connected to the IOS in which it is running (octal).
type	Specifies the Y1 channel type being tested. Specify d for data or c for command.
msize	Specifies the CM memory size. Valid alphanumeric responses include m32, m64, m128, m256 or m512.

---

iocctest

iocctest – Executes diagnostic test for I/O channel
card (IOCC)

iocctest

CRAY EL series IOS

The iocctest command lets users run and control an offline
IOCC diagnostic.

iopmtest

iopmtest – Executes a memory diagnostic test on IOP RAM

iopmtest

CRAY EL series IOS

The iopmtest command lets users run and control an offline I/O processor random-access memory (IOP RAM) memory diagnostic.

iosdump

iosdump – Dumps the IOP and IOBB memories to file on the SCSI disk

iosdump [-n filename] [-s iobbsize]

CRAY EL series IOS

-n filename   Specifies input file.

-s iobbsize   Saves memory in Kbytes.

iosid

iosid – Returns the IOS numeric value

iosid

CRAY EL series IOS

The iosid command returns the numeric value of the IOS where the call was made.

iosinit

iosinit – Initializes a slave IOS

iosinit iosn [IOP serial number] [baud rate]

CRAY EL series IOS

iosn	Specifies the slave IOS1 through IOS15.
IOP serial number	Specifies the IOP number, which is used to associate the physical IOS, located on the IOP board, with a logical number.
baud rate	Specifies the baud rate.

iostart

iostart – Initiates communication between the IOS and UNICOS

iostart

CRAY EL series IOS

The iostart command creates the task that initiates packet communications with UNICOS, and it usually is run from the /bin/boot script.

---

ipiql

ipiql – Executes a quick look IPI drive diagnostic

ipiql *ios*

CRAY EL series IOS

ios   The IOS in which ipiql will run (decimal).

---

ipitest

ipitest – Executes a confidence test on a DD-4 disk drive

ipitest

CRAY EL series IOS

The ipitest command lets users run and control an offline or online DD-4 disk diagnostic.

---

jobs

jobs – Displays user commands that are running

jobs

CRAY EL series IOS

The jobs command displays all currently running user commands by name and task ID.

kill

kill – Kills a user command task

kill *tid*

CRAY EL series IOS

tid Task ID; integer task identifier.

ld

ld – Loads a file into central memory

ld *filename*[.*ext*]

CRAY EL series IOS

filename Specifies the name of file that is loaded.

.ext Specifies an optional file extension.

ldf

ldf – Transfers a file from tape to disk

ldf *tape_dev* B*cd sa*
ldf *tape_dev* D*cd sa*
ldf *tape_dev* E*cd sa*
ldf *tape_dev* I*cd sa*
ldf *tape_dev* S*cd sa*

CRAY EL series IOS

tape_dev	For cartridge, specify [*n*]rpq01 for no-rewind or rewind; for 9-track tape, specify [*n*]rmt00 for no-rewind or rewind.
B	Indicates a buffered IPI drive.
D	Indicates a DAS drive.
E	Indicates an ESDI drive.
I	Indicates an IPI drive.
S	Indicates an SCSI drive.
c	Indicates controller number (0 to F).
d	Indicates disk or bank number (0 to F).
sa	Indicates starting sector address at which to begin writing to system disk.

ldproto

ldproto – Loads, unloads, and manages software packages distributed by Cray Research, Inc.

```
ldproto -c
ldproto -h
ldproto -i [-AEILXln][-C cpio-options]
ldproto -r
ldproto -H
ldproto -P
ldproto -R [-EIn]
ldproto -V
ldproto -Z [-vxE]
```

CRAY EL series

-c   Lists on stdout all currently configured software as supplied by CRI.

-h   Lists on stdout packages and their contents in the order loaded that are in the current software history file (.PKG.HISTORY). See also -H.

-i   Loads software packages or cpio files. See the USAGE section for more information.

-l   Lists on stdout the entire contents of package headers during package loading (-i option).

-n   Specifies noninvasive checking usually done during a load, but no files are loaded.

-r   Generates an installation report for CRI Software Product Support group.

-v   Checks files usually marked as "volatile" when checking the current configuration (ldproto -Z).

-x   Lists files in the file structure that are not considered part of the configuration (local files) when checking the current configuration (ldproto -Z).

-A   Indicates that no existing files to be deleted or overwritten are saved, if specified during package loading,

-C cpio-options

  Invokes /bin/cpio with cpio-options, if specified when loading a cpio file.

-E   Prevents ldproto from altering file time stamps, mode (permissions), ownership (uid), and groups (gid) for existing files in the configuration.

- -H Lists on stdout packages (in the order loaded) in the current software configuration history file (.PKG.HISTORY). See also -h.

- -I Tries to load files even if errors are encountered in the current software configuration.

- -L Lists on stdout package labeling information from package headers during package loading (-i option).

- -P Permanently applies packages by removing any archives created when that package was loaded.

- -R Reloads missing files according to contents of file ORDER_FORM and the specific package presented to ldproto.

- -V Verifies that the package image is complete and unaltered by reading the entire software package without altering any disk resident files.

- -X Disables configuration management during file loading.

- -Z Completely checks current software configuration, repairing errors when possible (see also -x).

lm

lm – Loads central memory

lm B*cd sa cma word_count*
lm D*cd sa cma word_count*
lm E*cd sa cma word_count*
lm I*cd sa cma word_count*
lm S*cd sa cma word_count*

CRAY EL series IOS

B	Indicates a buffered IPI drive.
D	Indicates DAS drive.
E	Indicates ESDI drive.
I	Indicates IPI drive.
S	Indicates an SCSI drive.
c	Controller number (0 to F).
d	Disk or bank number (0 to F).
sa	Starting logical sector address at which data begins on system disk.
cma	Starting central memory word address at which the data will be written.
word_count	Specifies the number of 64-bit words to write to central memory.

---

load

load – Loads and boots an IOS binary image into the IOP

load [−*n*] [*filename* | *device*]

CRAY EL series IOS

−*n*	Loads in the image, but it does not try to boot it.
filename	Specifies input file.
device	Specifies input device.

loadmap

loadmap – Prints location of each load module that is in IOS memory

loadmap

CRAY EL series IOS

The loadmap command displays the location in memory for each module that the IOS Kernel loaded into IOS memory, including all drivers, strategies, and commands currently running.

---

ls

ls – Lists a directory

ls [-l] [*dir*] [*filename*[*.ext*]]

CRAY EL series IOS

-l	Displays long listing, including type of file, time stamp, and number of bytes in file.
dir	Path of directory that will be listed. The default is the current directory.
filename	Specifies file(s) that will be listed. All files are listed by default.
.ext	Specifies an optional file extension.

---

lu

lu – Loads UNICOS

lu *file1 file2*

CRAY EL series IOS

file1	Specifies UNICOS file.
file2	Specifies configuration file.

mc

mc – Stops all CPU activity

mc

CRAY EL series IOS

The mc command performs the initialization function for the
CPU and central memory.

---

mfdump

mfdump – Dumps mainframe memory

mfdump [-c] [-f] [-q] [-r] [-v]

CRAY EL series IOS

- -c   Checks parameters. Displays dump parameters, but it
        does not perform the dump.
- -f   Forces the dump, even if a dump already exists in the
        dump device.
- -q   Queries operator for dump parameters (see the
        EXAMPLES section).
- -r   Queries operator for the reason for the dump. The
        reason string cannot contain a semicolon.
- -v   Verbose. Displays internal debugging information,
        including dump parameters.

---

mkdir

mkdir – Makes a new directory

mkdir *dirname*

CRAY EL series IOS

dirname   Name of the new directory.

mkfs

mkfs – Formats local Winchester drive

mkfs C:

CRAY EL series IOS

The mkfs command formats a hard disk.

The C: file system must be unmounted before running mkfs.

---

mm

mm – Matches central memory

mm *start count* [*parcelA*] [*parcelB*] [*parcelC*] [*parcelD*]

CRAY EL series IOS

start	Relative address of central memory to start matching.
count	Number of central memory words to match.
parcelA	Value to fill parcel A (most significant); default is 0.
parcelB	Value to fill parcel B; default is 0.
parcelC	Value to fill parcel C; default is 0.
parcelD	Value to fill parcel D (least significant); default is 0.

---

more

more – Displays a file one screen at a time

more *filename*

CRAY EL series IOS

filename Specifies the name of the file to be viewed.

---

mount

mount – Mounts local Winchester drive

mount c:

CRAY EL series IOS

The mount command mounts, labels, and makes the Winchester drive available to the IOS; this is done automatically at IOS boot time.

mt

mt – Controls magnetic tape

mt [- f *tape_dev*] *command* [*count*]

CRAY EL series IOS

-f *tape_dev*	Specifies the device to be activated (for example: rpq01, nrpq01).	
command	Specifies the command to execute on the tape device. Valid commands are as follows:	
	bsf [*count*]	Skips back over *count* file marks; the default is 1.
	fsf [*count*]	Skips forward over *count* file marks; the default is 1.
	reten	Retensions the tape.
	rewind	Rewinds the tape.
	status	Displays drive status.
count	Specifies the number of files to skip over. This argument is valid only with the fsf argument.	

---

mv

mv – Moves (renames) a file

mv *oldfilename newfilename*

CRAY EL series IOS

The mv command renames the *oldfilename* file to *newfilename*. If *newfilename* exists, it is overwritten.

---

nettest

nettest – Executes a network controller confidence test

nettest

CRAY EL series IOS

The nettest command lets users run and control an offline network controller confidence test.

nvprint

`nvprint` – Displays contents of IOP nonvolatile random-access memory (NVRAM)

`nvprint`

CRAY EL series IOS

The `nvprint` command displays all fields within the NVRAM on the IOP.

---

nvread

`nvread` – Reads values from IOP nonvolatile random-access memory (NVRAM)

`nvread` [*bit address*] [*length*]

CRAY EL series IOS

bit address Specifies where `nvread` begins reading fields.

length Specifies bit length.

---

nvwrite

`nvwrite` – Writes values to IOP nonvolatile random-access memory (NVRAM)

`nvwrite` [*bit address*]

CRAY EL series IOS

bit address Specifies where `nvwrite` begins reading fields.

od

od – Displays a file using various formats

od [-d] *filename* [*offset*]
od [-h] *filename* [*offset*]
od [-o] *filename* [*offset*]
od [*num_lines*] *filename* [*offset*]

CRAY EL series IOS

-d	Interpets bytes as decimal.
-h	Interpets bytes as hexadecimal (default).
-o	Interpets bytes as octal.
filename	Specifies the name of a file on the IOS disk.
num_lines	Specifies how many lines to output; a numeric value.
offset	Specifies number of bytes to index into the file before outputting.

offline

offline – Loads and configures an offline mainframe diagnostic

offline [-c #] [-k *monitor*] [-m #] [-n #] [-s #] *filename*

CRAY EL series IOS

-c #	Specifies an octal bit mask selection of CPUs to test.
-k *monitor*	Specifies the monitor type, which can be one of the following:

    none
    ymm
    yms
    ymi
    ysmi
    ym8

-m #	Specifies central memory size (in megawords). For example, # is 32 for a 32-Mword system.
-n #	Specifies an octal number of clusters to test.
-s #	Specifies an octal bit mask section of a diagnostic.
filename	Specifies an offline mainframe diagnostic to load. The .bin extension is appended automatically to the file name.

---

pwd

pwd – Prints current directory

pwd

CRAY EL series IOS

The pwd command prints the path name of the working (current) directory.

rcmd

`rcmd` – Executes an IOS command on a slave IOS

`rcmd iosn command`

CRAY EL series IOS

iosn   Specifies the slave IOS1 through IOS15.

command   Specifies the IOS command that is executed.

---

readlog

`readlog` – Reads the statistical log data on an STK 3480 tape drive

`readlog rssCUL [-il] [-f file]`

CRAY EL series IOS

C   Specifies controller number.

U   Specifies the unit number.

L   Specifies the logical unit (LUN).

-i   Lists the improved cartridge recording capability (ICRC) format, which means that data compression and compaction are supported.

-l   Lists to screen.

-f *file*   Writes the log data to *file* (default is /ADM/READ.LOG).

---

readswitch

`readswitch` – Reads autoboot switch (script only)

`readswitch master`
`readswitch autoboot`

CRAY EL series IOS

master   Master IOS; if this is the master IOS, 0 is returned.

autoboot Autoboot; if the autoboot switch is set, 0 is returned.

reload
reload – Initiates the reboot of the IOS

reload [*filename*]
reload [*device*]

CRAY EL series IOS

filename   Specifies the input file.

device   Specifies the input device.

---

reset
reset – Resets the IOS

reset

CRAY EL series IOS

The reset command stops execution of the IOS by first
flushing any buffers out to the IOS disk, and then it resets the
VME bus. This returns control to PROM.

---

rm
rm – Removes files and directories

rm [-r] *file1* [*file2 file3* ...]

CRAY EL series IOS

-r   Removes directories recursively.

file1   Specifies name(s) of file(s) to be removed.

---

rmdir
rmdir – Removes a directory

rmdir [*path/*]*dirname*

CRAY EL series IOS

path/   Specifies the path to the new directory.

dirname   Specifies the name of the new directory.

s

s – Sets a word or parcel of a word

s *word* [*–parcel*] *parcel0* [*parcel1*] [*parcel2*] [*parcel3*]

CRAY EL series IOS

word	Word that the succeeding values set (required).
–parcel	Parcel that succeeding values set.
parcel0	Parcel 0 value (16 bits) (required).
parcel1	Parcel 1 value (16 bits).
parcel2	Parcel 2 value (16 bits).
parcel3	Parcel 3 value (16 bits).

---

sa

sa – Saves central memory into a binary file

sa *filename*[*.ext*] [*start*] [*count*]

CRAY EL series IOS

filename.ext	Name of the binary file that is saved.
start	Specifies start address to begin saving central memory; default is 0.
count	Specifies number of words to store; default is 512.

---

sc

sc – Resets all CPUs; executes a soft clear

sc

CRAY EL series IOS

The sc command stops the CPUs and puts them into a reset state.

scb

scb – Builds binary board-level scan chain files

scb[-1m|-4m][-[el90|8p]|-[el|4p][-iobb]
[-help]

CRAY EL series IOS

-1m	Specifies memory size.
-4m	Specifies memory size.
-el	Forces scb to treat the machine as if it has CRAY EL-type CPUs with the CRAY EL chipset.
-4p	Same as specifying the -el option.
-el90	Forces scb to treat the machine as if it has CRAY EL90-type CPUs (includes the CRAY EL92 and CRAY EL98 systems), with the CRAY EL90 chipset.
-8p	Same as specifying the -el90 option.
-iobb	Specify this option only when running on an STCO Test Vehicle. Do not use this option at a customer site.
-help	Prints available command-line options.

---

script

script – Executes a script of IOS commands

script [-x] *filename*

CRAY EL series IOS

-x	Debug flag; script prints each line it is about to execute.
filename	Specifies file on which to execute script.

sdsktest

`sdsktest` – Executes confidence test of the SCSI disk on the IOS

`sdsktest`

CRAY EL series IOS

The `sdsktest` command lets users run and control an offline small computer system interface (SCSI) disk confidence test on the Winchester SCSI disk of the master IOS.

---

sm

`sm` – Transfers data from central memory to system disk or tape drive

`sm B`*cd sa cma count*
`sm D`*cd sa cma count*
`sm E`*cd sa cma count*
`sm I`*cd sa cma count*
`sm S`*cd sa cma count*
`sm rst0` [*cma*] *count*

CRAY EL series IOS

B	Indicates a buffered IPI drive.
D	Indicates a DAS drive.
E	Indicates an ESDI drive.
I	Indicates an IPI drive.
S	Indicates an SCSI drive.
rst0	Indicates name of cartridge tape.
c	Indicates controller number (0 to F).
d	Indicates disk or bank number (0 to F).
sa	Indicates sector address.
cma	Indicates central memory address.
count	Indicates word count.

smt

smt — Saves central memory contents to a text file

smt *filespec*[.ext] [*start*] [*count*] [c]

CRAY EL series IOS

filespec[.ext]	Name of the file to which the memory contents are written.
start	Start address to save memory contents; default is 0.
count	Number of words to store; default is 16.
c	Writes the check bits to the file; default is that check bits are not written to the file.

---

stat

stat — Displays the CPU and program states

stat [*n*]

CRAY EL series IOS

n Specifies the number of times the stat function is executed before returning the IOS prompt. If *n* is not specified, stat will execute repeatedly until you press <CONTROL-c>.

---

sync

sync — Flushes outstanding I/O to hard disk

sync

CRAY EL series IOS

The sync command flushes only local IOS buffers to the IOS.

systat

`systat` – Outputs various IOS system-related information

`systat`

CRAY EL series IOS

The `systat` command displays the current status of various parts of the IOS.

---

table

`table` – Displays current status of various IOS system tables

`table[-a]` *table_name*

CRAY EL series IOS

`-a`	Specifies all table entries. This option can create a lot of output because each entry in the table is output whether or not it is in use. By default, only entries that are currently in use are output (except for small tables).
table_name	Specifies the name of table to be displayed (`pkt`, `fd`, or `loadmap`).

---

tapetest

`tapetest` – Executes a confidence test on tape handlers

`tapetest`

CRAY EL series IOS

The `tapetest` command lets users run and control an offline tape diagnostic.

tar

tar – Archives tape files

tar [*key*] [*files*]

CRAY EL series IOS

key   A string of characters that contains one function letter
          (c, t, or x) and possibly followed by one or more
          function modifiers (b, f, or v).

          The *key* argument can be one of the following options:

          c   Creation of a new archive; writing starts at
                  the beginning of the archive, rather than after
                  the last file.

          t   Table.

          x   Extract.

You can use the following options in addition to the option that
selects the desired function:

          b   Blocking factor.

          f   File.

          v   Verbose.

files   Files or directories that will be dumped or restored.

---

test

test – Returns value of program counter or status of
flag

test p
test pm

CRAY EL series IOS

p   Specifies the program counter.

pm   Specifies the PMATCHED flag.

time

time – Sets and displays the real-time clock

time [*dd/mm/yy hh:mm:ss*]

CRAY EL series IOS

dd/mm/yy   Specifies day, month, and year.
hh:mm:ss   Specifies hours, minutes, and seconds.

umount

umount – Unmounts local IOS disk drive

umount c:

CRAY EL series IOS

The umount command flushes the buffered IOS to the disk
drive and then unmounts it.

version

version, ver – Displays version number of the IOS
software or PROM firmware

version

CRAY EL series IOS

If entered from the IOS prompt, the version command
displays the version level of the IOS you are currently running,
along with the date and time stamp that indicates when it was
built.

wait

wait – Waits several seconds before executing next
command in command buffer

wait [*seconds*]

CRAY EL series IOS

seconds   Number of seconds; default is 10.

what

what – Extracts SCCS version from a file

what *filename*

CRAY EL series IOS

filename   Specifies file to be searched.

---

whatmic

whatmic – Displays microcode level(s) at the IOS prompt

whatmic [*device*] [-s]

CRAY EL series IOS

device   Displays the microcode level of the specified device.

-s   Saves the /adm/mic_code.log microcode file that is built at IOS load time in the /adm/mic_code.sav file.

---

which

which – Searches for specified file name

which *filename*

CRAY EL series IOS

The which command searches the same IOS disk directories that the IOS Kernel does when it tries to locate a file name to execute. If the file is found, which prints out the full path to it.

wpc

wpc – Waits for specified pass count value

wpc *address passcount* [*pause*]

CRAY EL series IOS

address   Address at which the value is compared to the pass count value.

passcount Pass count value.

pause   Wait time between reads of central memory. A value of 1 is 10 milliseconds, a value of 5 is 50 milliseconds, etc. The default value is 50, which is a wait of 500 milliseconds. Any value over 1000 is adjusted to be 1000. Any negative value is adjusted to be 0.