Appendix D

I/O Error Messages

When user codes cause an I/O error to be reported in the **ts-daemon**'s log file and/or the CM error logging system (see Chapter 5), the log message is simply **Fatal Interrupt: Bad return code from IO =** *IO−error−code*. To determine the probable cause of the I/O error, use Table 9 to reference *IO−error−code.*

Table 9. The error numbers and associated messages contained in `iop_sys_errlist.c` (requires the include files `"iop_error.h"` and `<cmdev/cmiodev.h>`.)

I/O Error Code	Explanation (Message Available to User via `CMFS_perror`)
0	No error.
1	Unspecified error.
2	**DVIOPECONFIG** must be the first command packet sent to the IOBA after the IOBA's code has been loaded. Run **io_cold_boot**.
3	An illegal number of buffer boards has been specified. Check the **etc/io.conf** file on the CM-5 Control Processor.
4	An illegal buffer board slot ID has been specified. Check the **/etc/io.conf** file on the CM-5 Control Processor.
5	The channel board in slot 0 has been specified, but it is not responding. Verify that the board is seated firmly in the backplane, or check the **/etc/io.conf** file on the CM-5 Control Processor.

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Table 9. I/O error messages *(cont'd)***.**

I/O Error Code	Explanation (Message Available to User via `CMFS_perror`)
6	The channel board in slot 0xC has been specified, but it is not responding. Verify that the board is seated firmly in the backplane, or check the **`/etc/io.conf`** file on the CM-5 Control Processor.
7	The buffer board in slot 1 has been specified, but it is not responding. Verify that the board is seated firmly in the backplane, or check the **`/etc/io.conf`** file on the CM-5 Control Processor.
8	The buffer board in slot 2 has been specified, but it is not responding. Verify that the board is seated firmly in the backplane, or check the **`/etc/io.conf`** file on the CM-5 Control Processor.
9	The buffer board in slot 5 has been specified, but it is not responding. Verify that the board is seated firmly in the backplane, or check the **`/etc/io.conf`** file on the CM-5 Control Processor.
10	The buffer board in slot 7 has been specified, but it is not responding. Verify that the board is seated firmly in the backplane, or check the **`/etc/io.conf`** file on the CM-5 Control Processor.
11	The buffer board in slot 8 has been specified, but it is not responding. Verify that the board is seated firmly in the backplane, or check the **`/etc/io.conf`** file on the CM-5 Control Processor.
12	The buffer board in slot 0xA has been specified, but it is not responding. Verify that the board is seated firmly in the backplane, or check the **`/etc/io.conf`** file on the CM-5 Control Processor.
13	The buffer board in slot 0xB has been specified, but it is not responding. Verify that the board is seated firmly in the backplane, or check the **`/etc/io.conf`** file on the CM-5 Control Processor.
14	The channel board in slot 0 has been specified as the arbiter of the CMIO bus, but there is already an arbiter on the bus. Choose one device connected to the CMIO bus to be the arbiter, and modify the appropriate configuration files for each device **`(/etc/io.conf`** file on the CM-5 Control Processor for the channel board).

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Table 9. I/O error messages *(cont'd)***.**

I/O Error Code	Explanation (Message Available to User via `CMFS_perror`)
15	The channel board in slot 0xC has been specified as the arbiter of the CMIO bus, and there is already an arbiter on the bus. Choose one device connected to the CMIO bus to be the arbiter, and modify the appropriate configuration files for each device (**`/etc/io.conf`** file on the CM-5 Control Processor for the channel board).
16–19	Reserved error code. Please contact CSG.
20	Although a valid command packet was received, the command has not been implemented. This is an internal software error. Please contact CSG.
21	An invalid command packet was received. This is an internal software error. Please contact CSG.
22	The number of partitions has exceeded the value **`MAXIOSP`** defined in the file **`master/src/sys/cmdev/cmiodev.h`**. This in an internal software error. Please contact CSG.
23	The number of partitions has exceeded the value **`MAXIOSPCM2`** defined in the file **`master/src/sys/cmdev/cmiodev.h`**. This in an internal software error. Please contact CSG.
24	The **`destid`** field of the command packet is out of range. This is an internal software error. Please contact CSG.
25	The **`ctid`** field of the command packet is out of range. This is an internal software error. Please contact CSG.
26	A READ command packet arrived before the **`ts-daemon`** sent the first command packet to describe the partition. This is an internal software error. Please contact CSG.
27	A READ command packet for the CMFS file system arrived before the **`ts-daemon`** sent the first command packet to describe the partition. This is an internal software error. Please contact CSG.

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Table 9. I/O error messages *(cont'd)***.**

I/O Error Code	Explanation (Message Available to User via `CMFS_perror`)
28	A READ command packet arrived before the **`ts-daemon`** finished sending the command packets that describe the partition. This is an internal software error. Please contact CSG.
29	A READ command packet for the CMFS file system has arrived before the **`ts-daemon`** finished sending the command packets that describe the partition. This is an internal software error. Please contact CSG.
30	The **`destid`** field of the command packet references a virtual chunk table that was not previously created with a DVSETOPT command packet. This is an internal software error. Please contact CSG.
31	The **`destid`** field of the command packet references a virtual chunk table that was not previously created with a DVSETPT command packet with its **`cm2flag`** field set to 0. This is an internal software error. Please contact CSG.
32	The **`destid`** field of the command packet references a virtual chunk table that was not previously created with a DVSETPT command packet with its **`cm2flag`** field set to 1. This is an internal software error. Please contact CSG.
33	The **`blockmod`** field of the command packet is not 0. This is an internal software error. Please contact CSG.
34	The **`blockoff`** field of the command packet is not 0. This is an internal software error. Please contact CSG.
35	The **`blockcnt`** field of the command packet is out of range. This is an internal software error. Please contact CSG.
36	The **`devicetype`** field of the command packet is invalid. This is an internal software error. Please contact CSG.
37–39	Reserved error code. Please contact CSG.

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Table 9. I/O error messages *(cont'd)***.**

I/O Error Code	Explanation (Message Available to User via `CMFS_perror`)
40	The selected DataVault did not respond to the command sent to it via the CMIO bus Command Channel. No problems were detected on the bus before the command was sent. Therefore, verify the following: 1. The station ID of the DataVault in the **`io.conf`** file matches the DataVault's station ID as found in the DataVault file **`/users/dvtmc/diag/dv_coldboot.config`**. 2. The Command Channel is activated for the DataVault's port connected to the channel board. The line **`command channel on port:`** in the DataVault file **`/users/dvtmc/diag/ dv_coldboot.config`** should have the port number of the DataVault to which the channel board is connected. If not, run this command on the DataVault: **`dvcoldboot +c0`** for Port 0 or **`dvcoldboot +c1`** for Port 1. This will activate the Command Channel. After verifying steps 1 and 2, run the command **`dvcoldboot`** on the appropriate DataVault.
41	The IOBA timed out while trying to send a command to the selected DataVault. However, after the timeout, the CMIO bus was in data transfer phase. This implies that a device connected to the CMIO bus either was doing transfers that took longer than 18 seconds, or is in an error state. Check each device and reboot the culprit.
42	The IOBA timed out waiting for a Command Channel response from the DataVault. Try running the command **`dvcoldboot`** on the appropriate DataVault and try your program again. If it fails again, run the IO tests from **`cmdiag`**.
43–45	Reserved error code. Please contact CSG.
46	Before the data transfer began, the IOBA detected that there was no arbiter on the CMIO bus. Verify that the CMIO bus cables are not disconnected or reversed. LEDS 4, 6, and 9 on the channel board should be lit. LED 4 lights when there is an arbiter on the bus. If it is still off, determine which device on the CMIO bus should be arbiter, adjust its configuration file, reboot the device, and try again.

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Table 9. I/O error messages *(cont'd)***.**

I/O Error Code	Explanation (Message Available to User via `CMFS_perror`)
47	Before the data transfer began, the IOBA detected a pending parity error on the CMIO bus. Run the IO tests from **`cmdiag`**.
48	Before the data transfer began, the IOBA detected a pending timer error on the CMIO bus. Run the IO tests from **`cmdiag`**.
49	Before the data transfer began, the IOBA detected a pending exception error on the CMIO bus. Reboot all devices on the CMIO bus that are in error state. If no devices are in the error state, run the IO tests from **`cmdiag`**.
50–55	Reserved error code. Please contact CSG.
56	A timeout occurred while trying to send data from the DataVault to the PNs using FIFO READ mode on the IOBA buffer boards. The problem may be one of the following: 1. The partition and chunk table information in the **`cm.conf`** file may be incorrect. 2. One or more PNs may be broken. 3. The IO hardware may be broken. Run the IO tests from **`cmdiag`**.
57	A timeout occurred while trying to send data from the PNs to the DataVault using FIFO WRITE mode on the IOBA buffer boards. The problem may be one of the following: 1. The DataVault may have detected a problem. Run **`dvdiag`** on the DataVault and use the command **`rdlog 1000 0`** to examine the log. If it says **`Pipe Underrun`**, then the IO hardware or PNs may be broken. If the log shows other kinds of errors, then the DataVault may be at fault; try rebooting the DataVault with **`dvcoldboot`**. 2. One or more PNs may be broken. 3. The IO hardware may be broken. Run the IO tests from **`cmdiag`**.

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Table 9. I/O error messages *(cont'd)***.**

I/O Error Code	Explanation (Message Available to User via `CMFS_perror`)
58	A timeout occurred while trying to send data from the PNs to the DataVault using FIFO WRITE mode on the IOBA buffer boards. The problem may be one of the following: 1. The DataVault may have detected a problem. Run **`dvdiag`** on the DataVault and use the command **`rdlog 1000 0`** to examine the log. If it says **`Pipe Underrun`**, then the IO hardware or PNs may be broken. If the log shows other kinds of errors, then the DataVault may be at fault; try rebooting the DataVault with **`dvcoldboot`**. 2. One or more PNs may be broken. 3. The IO hardware may be broken. Run the IO tests from **`cmdiag`**.
59	A timeout occurred while trying to send data from the PNs to the DataVault using FIFO WRITE mode on the IOBA buffer boards. The problem may be one of the following: 1. The DataVault may have detected a problem. Run **`dvdiag`** on the DataVault and use the command **`rdlog 1000 0`** to examine the log. If it says **`Pipe Underrun`**, then the IO hardware or PNs may be broken. If the log shows other kinds of errors, then the DataVault may be at fault; try rebooting the DataVault with **`dvcoldboot`**. 2. One or more PNs may be broken. 3. The IO hardware may be broken. Run the IO tests from **`cmdiag`**.
60	A timeout occurred during the first half of a data transfer from the PNs to the DataVault using BUFFERED WRITE mode on the IOBA buffer boards. The data never completely arrived into the buffer board's memory. The problem may be one of the following: 1. One or more PNs may be broken. 2. The IO hardware may be broken. Run the IO tests from **`cmdiag`**.

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Table 9. I/O error messages *(cont'd)***.**

I/O Error Code	Explanation (Message Available to User via `CMFS_perror`)
61	A timeout occurred during the second half of a data transfer from the PNs to the DataVault using BUFFERED WRITE mode on the IOBA buffer boards. The data was never completely sent to the DataVault. There may be a problem with one of the following: 1. The DataVault may have detected a problem. Run **`dvdiag`** on the DataVault and use the command **`rdlog 1000 0`** to examine the log. If it says **`Pipe Underrun`**, then the IO hardware or PNs may be broken. If the log shows other kinds of errors, then the DataVault may be at fault; try rebooting the DataVault with **`dvcoldboot`**. 2. The IO hardware may be broken. Run the IO tests from **`cmdiag`**.
62	A timeout occurred waiting for IO TRANSACTION COMPLETE status on the channel board while transferring data from the PNs to the DataVault. The problem may be one of the following: 1. The DataVault may have detected a problem. Run **`dvdiag`** on the DataVault and use the command **`rdlog 1000 0`** to examine the log. If it says **`Pipe Underrun`**, then the IO hardware or PNs may be broken. If the log shows other kinds of errors, then the DataVault may be at fault; try rebooting the DataVault with **`dvcoldboot`**. 2. The IO hardware may be broken. Run the IO tests from **`cmdiag`**.
63	A timeout occurred waiting for an IOBA PBUS transfer to complete while transferring data from the PNs to the DataVault. The problem may be one of the following: 1. The DataVault may have detected a problem. Run **`dvdiag`** on the DataVault and use the command **`rdlog 1000 0`** to examine the log. If it says **`Pipe Underrun`**, then the IO hardware or PNs may be broken. If the log shows other kinds of errors, then the DataVault may be at fault; try rebooting the DataVault with **`dvcoldboot`**. 2. The IO hardware may be broken. Run the IO tests from **`cmdiag`**.

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Table 9. I/O error messages *(cont'd)***.**

I/O Error Code	Explanation (Message Available to User via `CMFS_perror`)
64	A timeout occurred while waiting for data from the channel board during a transfer from the DataVault to the IOPN. The problem may be one of the following: 1. The DataVault may have detected a problem. Run **`dvdiag`** on the DataVault and use the command **`rdlog 1000 0`** to examine the log. If it says **`Pipe Underrun`**, then the IO hardware or PNs may be broken. If the log shows other kinds of errors, then the DataVault may be at fault; try rebooting the DataVault with **`dvcoldboot`**. 2. The IO hardware may be broken. Run the IO tests from **`cmdiag`**.
65–69	Reserved error code. Please contact CSG.
70	There was unexpected error status in the XBUS CONFIGURATION register on the channel board after the data transfer was complete. There may be a problem with the IO hardware. Run the IO tests from **`cmdiag`**.
71	There was unexpected error status in the PARITY register on the channel board after the data transfer was complete. There may be a problem with the IO hardware. Run the IO tests from **`cmdiag`**.
72	There was unexpected error status in the INTERRUPT STATUS register on the channel board after the data transfer was complete. There may be a problem with IO hardware. Run the IO tests from **`cmdiag`**.
73	There was unexpected error status in the CMIO STATUS register on the channel board after the data transfer was complete. There may be a problem with IO hardware. Run the IO tests from **`cmdiag`**.
74	There was unexpected error status in the CMIO SETUP register on the channel board after the data transfer was complete. There may be a problem with IO hardware. Run the IO tests from **`cmdiag`**.
75	There was an unexpected PBUS PARITY error on the channel board after the data transfer was complete. There may be a problem with the IO hardware. Run the IO tests from CMDIAG.
76–89	Reserved error code. Please contact CSG.

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Table 9. I/O error messages *(cont'd)***.**

I/O Error Code	Explanation (Message Available to User via `CMFS_perror`)
90	Internal error code: INVALID IOSPNI. Please contact CSG.
91	Internal error code: INVALID STATION ID. Please contact CSG.
92	Internal error code: INVALID TARGET ID. Please contact CSG.
93	Internal error code: INVALID SENDER ID. Please contact CSG.
94	Internal error code: INVALID BUS SPEED. Please contact CSG.

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