Preparing the HSC

Prior to any data capture, special monitoring code within the HSC must be enabled. To accomplish this, the SETSHO utility must be run, and a command must be issued to enable the monitoring code. Since this command causes special code within the HSC to be invoked, a reboot is required. Because of this, this step should be taken when it is convenient to restart the HSC.

To enable this code, enter the following on the HSC (the HSC node in this example is EWOK, and user typing is shown in **bold**):

```
^Y
EWOK>  SET  SERVER  DISK/MSCP
SETSHO-I Your settings require an IMMEDIATE reboot on exit.
SETSHO-Q Rebooting HSC.  Press RETURN to continue, CTRL/Y to abort:
```

In order for this change to take effect, the HSC must be rebooted. Entering a return will reboot the HSC, while entering a CTRL/Y will abort the operation. When the boot has been completed, the monitoring code has been enabled. No logging of I/O commands will take place until another HSC utility has been run.

The HSC will only log those I/O commands that are sent to disks connected to that HSC. Because of this, you should make sure that all disks you wish to monitor are connected to and mounted on the HSC under test. Since disks that were originally connected to the HSC under test will fail over to the alternate HSC when the original HSC is rebooted, make sure that you have all disks of interest connected back to the HSC under test.

The SETSHO command will cause the logging code to remain enabled even if the HSC is later rebooted, so the command only needs to be issued once. When all data has been captured, the special logging code may be deactivated be entering the following commands to the HSC:

```
^Y
EWOK>  SET  SERVER  DISK/NOMSCP
SETSHO-I Your settings require an IMMEDIATE reboot on exit.
SETSHO-Q Rebooting HSC.  Press RETURN to continue, CTRL/Y to abort:
```

As before, a reboot of the HSC will be required before this command will take effect.

Beginning the data capture

To capture the I/O stream, a dedicated disk drive must be connected to the HSC under test. This disk will be completely overwritten with the data, and any files on this disk will be lost. After the data capture, the disk must be reinitialized before it may be used with the operating system . Any RA disk may be used. The disk must not be mounted by the operating system, but it must be available (the port must be enabled).

Note

> The name of the utility on versions of the HSC40 and HSC70 prior to 6.00 is LGUTIL. As of version 6.00, this utility was renamed to DSKLOG. In the examples that follow, DSKLOG is used. If your HSC software version is less than 6.00, use LGUTIL instead of DSKLOG.

Once the data capture disk is connected, the logging utility on the HSC should be run. **The data capture disk will be completely overwritten by the logging software, and any files or data on that disk will be erased.** Assuming the data capture disk is unit 10, the steps for this are as follows:

```
^Y
EWOK> R DSKLOG
DSKLOG> ENABLE D10
    Log:           ENABLED
    Unit:          10
    LBN:           0
    Wrap Count:    0
    MSCP Status:   000000
    Wrap Point:    1216665
    Missed I/O:    0
```

At this point, the data capture code is active, and any I/O commands sent to any disk on the HSC will be logged to drive 10.

The meanings of the individual lines on the status message are as follows:

- Log - Either "ENABLED" or "DISABLED," indicating the status of the data logging. For data to be captured, the log must be "ENABLED."
- Unit - The disk unit to which data is being logged. If "Log" is "DISABLED," this field is the last unit on which data was captured.
- LBN - The last LBN on the data capture disk to which data was written. Each I/O packet occupies 24 bytes, so 3 logical blocks will contain 64 records. To determine the total number of I/O packets captured, divide the "LBN" field by 3 and then multiply by 64. This value is not exact, but will give a good approximation of how many I/O packets have been sent to the HSC.
- Wrap Count - DSKLOG continues writing I/O packets until the data capture disk is full. At that time, it "wraps" back to the beginning of the disk and starts over. The number of times this has happened is shown in this field.
- MSCP Status - The MSCP status of the last I/O operation. This will usually be zero, and may be ignored.
- Wrap Point - The number of logical blocks on the data capture disk. To determine how many I/O packets the disk will hold before wrapping, divide this number by 3 and multiply by 64.

The length of time before the data wraps depends on both the size of the disk and the I/O rate. In the above example, nearly 26 million I/O packets may be captured before data wraps to the beginning of the disk. If the I/O rate to the HSC (shown with the VTDPY program) was 200 requests per second, then approximately 129,000 seconds would be required before the data wrapped (about 36 hours).

- Missed I/O - This is the number of I/O packets that DSKLOG did not capture. This may happen on an extremely busy system when DSKLOG determines that it does not have enough resources to capture the I/O.

To exit DSKLOG, simply type a CTRL/Z:

```
DSKLOG> ^Z
DSKLOG-I Exiting.
```

At this point, data is still being captured onto the logging disk, even though DSKLOG has been exited. At a later time, you may run DSKLOG again and check the status of the data logging operation:

```
^Y
EWOK> R DSKLOG
DSKLOG> STATUS
    Log:           ENABLED
    Unit:          10
    LBN:           12
    Wrap Count:    0
    MSCP Status:   000000
    Wrap Point:    1216665
    Missed I/O:    0
```

As may be seen, the value for “LBN” has changed from 0 to 12, indicating that data has been captured (the values shown will differ from what you see on your HSC). In this example, 256 I/O packets have been captured. This step may be repeated as often as desired.

Ending the data capture

Once the time period of interest has passed, DSKLOG must be instructed to terminate operations. This may be done as follows:

```
^Y
EWOK> R DSKLOG
DSKLOG> DISABLE D10
    Log:           DISABLED
    Unit:          10
    LBN:           225
    Wrap Count:    0
    MSCP Status:   000000
    Wrap Point:    1216665
    Missed I/O:    0
```

A final status message is printed (in this example, the LBN indicates that 4,800 I/O packets have been captured), and disk logging is then terminated. DSKLOG does not terminate logging until its internal buffer has been filled, so there may be some delay between issuing the DISABLE command and the actual disabling of data logging.