APPENDIX C

Using the FDDI Status Utility

This chapter gives an overview of fddistat, the FDDI status utility, Cisco's monitoring tool for the CDDI and FDDI SBus adapters. This utility is a standalone application that works in conjunction with the FDDI driver for SunOS 4.x and Solaris 2.x. It supports SMT MIB and SNMP FDDI MIB specifications and most of the objects defined in SNMP MIB II.

Invoking fddistat

The FDDI status utility (fddistat) was loaded into your system with the SBus driver software (see Chapter 2, "Preparing for Installation").

The format of the **fddistat** command is:

```
fddistat [-f fddiNum][-l] [-p] [-h]
```

where:
-f fddiNum specifies the FDDI interface number of the SBus adapter you are gathering statistics for. The default is 0, or the first SBus adapter.

-l indicates that fddistat will display statistics in long form. The default is short. The long form displays a snapshot of statistics in the SNMP and FDDI MIBs.

-p perpetually displays the short form of information. It provides continual updates to a basic set of data, which is useful for monitoring. This option will continue to display until you press Ctrl-C.

-h displays all fddistat options.

fddistat—Short Form

The fddistat short form provides you with most of the statistics you will need to monitor the FDDI SBus adapter.

Figure C-1 gives an example of the fddistat short form without additional usage commands.

Figure C-1 fddistat Short Form Example

```
console# fddistat
_____________________________________________________________
   FDDI Adapter Statistics [2.6]                  (fddi0)
_____________________________________________________________
Serial Number               063024289
Model Number                C303T
HW Rev                      3.5
Main FW Rev                 4.2
Boot FW Rev                 3.0
Driver Rev                  3.1
Upstream Nbr                00:02:d0:02:8a:20 (00:40:0b:40:51:04)  [ CISCO ]
Downstream Nbr              00:02:d0:02:4f:5e (00:40:0b:40:f2:7a)  [ CISCO ]
MAC Address                 00:02:d0:02:8a:42 (00:40:0b:40:51:42)  [ CISCO ]
T-Neg                       187504 (15.000 msec)
Frame Count                 1735121
Error Count                 0
Lost Count                  0
Tvx Expired Count           1
Ring Op Count               8
RMT State                   ring-op
Ler Estimate                10
Lem Reject Count            0
Lem Count                   0
Connect State               active
MediaType                   TP-PMD
Attachment Class            single
Adapter Diagnostics         pass
console#
```

The definitions of the short form fddistat parameters areas follow:

- Serial Number—Displays the adapter's serial number.
- Model Number—Displays the model number of the SBus adapter.
- HW Rev—Displays the hardware revision of the SBus adapter.
- Main FW Rev—Displays the revision of the main firmware residing in the Flash memory of the adapter.
- Boot FW Rev—Displays the revision of the boot firmware in the adapter.
- Driver Rev—Contains the revision of the driver installed.
- Upstream Nbr—Contains the address of the MAC's current upstream neighbor, defined as the previous MAC that sent frames to this MAC.
- Downstream Nbr—Contains the address of the MAC's current downstream neighbor.
- MAC Address—Contains the adapter's MAC address.
- T-Neg—Contains the TReq value agreed upon by all MACs in the ring.
- Frame Count—Contains all frames that the MAC has seen on the ring.
- Error Count—Displays a count of all error frames detected by this MAC. Frames that were detected as bad by a previous station are not included in this count.
- Lost Count—Contains a count of all frames and tokens received by this MAC that have an error.
- Tvx Expired Count—Displays the number of times that the TVX timer expired because of a problem on the ring.
- Ring Op Count—Shows the number of times that the ring becomes active from an inoperable state.

- RMT State—Shows the ring management state. Ring management (RMT) identifies stuck beaconing, initiates traces, provides notification of MAC availability, and detects duplicate addresses that prevent ring operation. This field will have one of the following values:
  - Isolated—The initial state of the RMT.
  - Non_Op—The ring is not operational.
  - Ringop—The ring is operational.
  - Detect—A duplicate address was detected and rendered the ring non-operational.
  - Non_Op_Dup—The ring is not operational because this MAC has a duplicate address.
  - Ring_Op_Dup—This MAC has a duplicate address.
  - Directed—This MAC sends beacon frames to notify the ring of a stuck condition.
  - Trace—The MAC initiates a trace function. Trace provides a recovery mechanism from a stuck beacon.
- Ler Estimate—The link error rate estimate defines the long-term estimated error rate for the link. This value is the exponent of 10^{-x}; for example, if the indicated value is 11, the estimated error rate is 10^{-11}. Thus, the higher the value of Ler Estimate, the lower the link error rate. Values range from 10^{-4} to 10^{-15}.
- Lem Reject Count—Indicates the link error monitor rejected count, the number of times a link was disabled because the link error rate reached the cutoff threshold.
- Lem Count—Indicates the link error monitor count or the number of recorded link errors received. This value is used to estimate the link error rate. The link error monitor helps measure link performance and isolate faulty links that pass initial tests.

- Connect State—Indicates the connect state of this port. It groups PCM states and PC-Withhold flag states. The connect states follow:
  - Disabled—The port is disconnected.
  - Connecting—The port is attempting to connect.
  - Standby—The connection is withheld or is the inactive port of a dual homing SBus adapter.
  - Active—The port is active.
- Media Type—Indicates the media type of the adapter, and can be one of the following:
  - CDDI—CDDI MLT-2
  - MLT-3—CDDI MLT-3
  - smfiber—single mode fiber
  - fiber—multimode fiber
- Attachment Class—Displays the attachment class of the adapter, single or dual.
- Adapter diagnostics—Indicates if the adapter internal diagnostics passed or failed.

Note If any adapter internal diagnostics test fails, enter the command **fddistat -l** to see which test failed and the error code.

fddistat—Long Form

The fddistat long form displays basic statistics as well as statistics from several other groups including the following:

- FDDI adapter statistics
- General group
- SMT group
- MAC group
- Port group

- Attach group
- Intermediate Frequency (IF) group
- Internet Protocol (IP) group
- Transmission Control Protocol (TCP) group
- Internet Control Message Protocol (ICMP) group
- User Datagram Protocol (UDP) group

Note You must be a superuser to see statistics from the IF group, the IP group, the ICMP group, the TCP group, and the UDP group.

The parameters in these groups conform to the groupings in the Workgroup Director. Refer to the *Workgroup Director User Guide* or the FDDI MIB, the SMT specification, and the MAC specification, to learn more about these parameters.

fddistat—Perpetual Form

The fddistat perpetual form displays the short form information and continually updates the counter until you press Ctrl-C. (See Figure C-2.)

Figure C-2 fddistat Perpetual Form Example

```
console# fddistat -p

Frame-Ct   Error-Ct  Lost-Ct   Tvx-Exp-Ct Ring-Op-Ct Lem-Ct-s   Ring
---------- --------- --------- ---------- ---------- ---------- ----
 614736    0         0         3          7          0          up
 619977    0         0         3          7          0          up


console#
```