Monitoring FDDI Performance

This chapter describes how to use the console interface of the Cisco Catalyst 1800 Token Ring switch to monitor the performance of the FDDI board. This chapter contains the following sections:

- Accessing the Monitor Menu
- Monitoring FDDI MAC Parameters
- Monitoring FDDI Path Parameters
- Monitoring FDDI Port Parameters
- Monitoring FDDI SMT Parameters

Accessing the Monitor Menu

Type this command from the Main menu:

```
m
```

The Monitor menu appears (see Figure 8-1).

Figure 8-1 Monitor Menu with the FDDI Option

```
                Cisco Systems Catalyst 1800 Token Ring/FDDI Uplink


                                 Select From

                               Bridge
                               FDDI
                               MAC Addresses
                               NetBIOS Names
                               Physical Ports
                               Serial Port
                               SRT Statistics
                               STP Ports
                               System

Catalyst 1800> m
```

Type **f** and the FDDI Monitor menu appears (see Figure 8-2).

Figure 8-2 FDDI Monitor Menu

```
    Cisco Systems Catalyst 1800 Token Ring/FDDI Uplink

                Select From

                MAC
                Path
                Port
                SMT


Catalyst 1800> m f
```

The following table describes the FDDI parameters displayed on the Monitor menu and shows where to find additional information.

Table 8-1 FDDI Monitor Menu Selections

Parameter	Displays	For more information, see this section
MAC	Current FDDI MAC statistics for the selected port	"Monitoring FDDI MAC Parameters"
Path	Current FDDI Path statistics for the selected port	"Monitoring FDDI Path Parameters"
Port	Current FDDI Port statistics for the selected port	"Monitoring FDDI Port Parameters"
SMT	Current FDDI SMT statistics for the selected port	"Monitoring FDDI SMT Parameters"

Monitoring FDDI MAC Parameters

The FDDI MAC screen displays MAC-related values.

Type this command from the Main menu:

```
m f m
```

The FDDI MAC Configuration and Statistics screen appears (see Figure 8-3).

Figure 8-3 FDDI MAC Configuration and Statistics Screen

```
                Cisco Systems Catalyst 1800 Token Ring/FDDI Uplink

                      FDDI MAC Configuration and Statistics

SMT Address:                00-05-77-ff-ff-04          Downstream PORT type:   B
MAC Address:                00-05-77-ff-ff-04          MAC Index:              1
Upstream Neighbor:          00-05-77-ff-ff-04          Dup Address Test:       None
Downstream Neighbor:        00-00-1f-00-00-00          Frame Status Func.:     Repeating
Old Upstream Nbr:           00-00-1f-00-00-00          T-MAX Capability:       1336934400 ns
Old Downstream Nbr:         00-00-1f-00-00-00          TVX Capability:         5222400 ns
T-Req:                      4014080 ns                 T-Neg:                  4014080 ns
T-Max:                      167772160 ns               TVX Value:              2621440 ns
Frame Count:                890                        Copied Count:           0
Transmit Count:             443                        Error Count:            0
Lost Count:                 0                          Frame Err Threshold:    0
Frame Err Ratio:            0                          RMT State:              RING_OP
DA Flag:                    False                      UNDA Flag:              False
Frame Error Flag:           False                      MA Unit Data Avail:     True
Hardware Present:           PRESENT                    MA Unit Data Enable:    True
Current Path:               Primary                    Available Paths:        Primary
Requested Paths:            L0,SA,PA


Catalyst 1800>m f m
```

The following table describes the parameters displayed on the FDDI MAC Configuration and Statistics screen.

Table 8-2 Monitor FDDI MAC Configuration and Statistics Screen

Title	Description
SMT Address	The 48-bit individual MAC address used for SMT frames. This address is the same as the MAC address in non-cannonical format (MSB).
MAC Address	The end station MAC address for this port
Upstream Neighbor	The long individual MAC address of the most recently known upstream neighbor. It has an initial value of the SMT-Unknown-MAC Address parameter and is updated when the upstream neighbor becomes available (that is, inserted in the ring). The SMT_Unknown_Mac address is defined as 00-00-1F-00-00-00.
Downstream Neighbor	The long individual MAC address of the most recently known downstream neighbor. It has an initial value of the SMT- Unknown-MAC Address and is updated when the downstream neighbor becomes available (that is, inserted in the ring).
Old Upstream Nbr	The previously known value of the upstream neighbor's long individual MAC address
Old Downstream Nbr	The previously known value of the downstream neighbor's long individual MAC address

Title	Description
T-Req	The station's desired target token rotation time (TTRT), in nanoseconds, for this station's synchronous traffic. The TTRT is the time limit within which the station expects to receive and use the token. The TTRT for the ring is determined at ring initialization when each station declares what it wants the TTRT to be (also known as bidding). The value each station declares is the T-Req for that station. The lowest value is chosen as the TTRT for the ring.
T-Max	The maximum TTRT, in nanoseconds, that this station supports
Frame Count	The number of frames received by the MAC address
Transmit Count	The number of frames transmitted by this station. Note that this count does not include MAC frames.
Lost Count	The number of instances that this port detected a format error during frame reception
Frame Err Ratio	The ratio of lost count plus error count over frame count plus lost count $\text{Frame ERR Ratio} = \frac{\text{lost count + error count}}{\text{frame count + lost count}}$ H8567
DA Flag	Duplicate address flag. If set to True, it indicates that the MAC address under control has the same address as another one on the FDDI ring. If set to False, it indicates that the MAC address has a unique address on the FDDI ring. This is normal in a working ring.
Frame Error Flag	When set to True, this flag indicates that a MAC frame error condition is present. This flag is set to False (clear) upon station initialization. The default is False.
Hardware Present	Indicates the presence of underlying hardware support for the MAC address. It can either be True or False. The default is True.
Current Path	Indicates the path into which this MAC address is currently inserted. Valid values are:

Value	Meaning
Isolated	The MAC address is not inserted in any path.
Local	The MAC address is inserted in the local path.
Secondary	The MAC address is inserted in the secondary path.
Primary	The MAC address is inserted in the primary path.

Requested Paths: List of permitted Paths that specifies the path(s) into which the MAC address can be inserted. Valid values are:

Path Type	Meaning
LO	Local
SA	Secondary-Alternate
PA	Primary-Alternate
CA	Concatenated-Alternate
SP	Secondary-Preferred
PP	Primary-Preferred
CP	Concatenated-Preferred
TH	Thru

The Default values enabled are LO, SA, and PA.

Title	Description
Down Stream Port Type	Indicates the PC-Type of the first port that is downstream of this MAC address (the exit port). Valid values are:

Function	Meaning
A	The port in a dual-attached station or concentrator that attaches to the primary in and secondary out when attaching to the dual ring
B	The port in a dual-attached station or concentrator that attaches to the secondary in and the primary out when attaching to the dual ring
S	One port in a single attachment station shall be designated S. One port in a single attachment concentrator shall be designated S.
M	A port in a concentrator that serves as a master to a connected station or concentrator
None	No PC-Type

MAC index	An index variable for uniquely identifying the MAC address. In the Catalyst 1800 FDU, there is only one FDDI MAC address; therefore, the value is always set to 1.
Dup Address Test	A variable that indicates the current status of the duplicate address detection function. Valid values are:

Value	Meaning
None	The duplicate address test has not been completed.
Pass	The duplicate address test has completed without detecting a duplicate address.
Fail	The duplicate address test has detected a duplicate address.

Frame Status Func	Indicates the MAC address's optional frame status processing function (such as receive frame status). Valid values are:

Function	Meaning
Repeating	Repeats the transmission of the input symbol stream
Setting	Sets the frame status flag
Clearing	Clears the frame status flag

T-MAX Capability	Indicates the maximum T-Max, in nanoseconds, that this station supports
TVX Capability	Indicates the maximum time value, in nanoseconds, of the valid transmission timer (TVX) that this station supports
T-Neg	The negotiated TTRT, in nanoseconds, for all systems on the ring. This value is determined at ring initialization.
TVX Value	The maximum allowable time, in nanoseconds, between valid transmissions. The station uses this value to recover from any error conditions.
Copied Count	The number of frames copied from the ring to this station
Error Count	The number of frames detected in error by this port
Frame Err Threshold	A threshold for determining when a MAC condition report should be generated

<table>
<tr><th>Title</th><th>Description</th></tr>
<tr><td>RMT State</td><td>Indicates the current state of the RMT state machine. The RMT receives status information from the port and the ECM, PCM, and CFM, and reports the status of the port. It also provides notification when the port is available for transmission. Valid values are:
<table>
<tr><th>Function</th><th>Meaning</th></tr>
<tr><td>Isolated</td><td>The initial state of the RMT state machine. The ports are not inserted into any path.</td></tr>
<tr><td>Non_Op</td><td>The ring is not working because the MAC address is participating in ring recovery.</td></tr>
<tr><td>Ring_Op</td><td>The MAC address is part of a working ring.</td></tr>
<tr><td>Detect</td><td>The RMT detects conditions preventing the ring from working.</td></tr>
<tr><td>Non_Op_Dup</td><td>The RMT has received indications that the MAC address is a duplicate of another MAC address on the ring. The ring is not working.</td></tr>
<tr><td>Ring_Op_Dup</td><td>The RMT has received indications that the MAC is a duplicate of another MAC address on the ring. The ring is working.</td></tr>
<tr><td>Directed</td><td>The RMT has instructed this MAC address to send beacon frames notifying the ring of the stuck condition.</td></tr>
</table></td></tr>
<tr><td>UNDA Flag</td><td>Upstream neighbor duplicate address flag. If set to True, it indicates the upstream neighbor has reported a duplicate address condition. This flag is cleared (set to False) when the condition clears.</td></tr>
<tr><td>MA Unit Data Avail</td><td>A flag from the RMT indicating the port is available for frame transmission</td></tr>
<tr><td>MA Unit Data Enable</td><td>A flag to RMT indicating the port is enabled and will be available when the ring is working. This flag controls access of high-level protocols to the frame transmission and reception services of the port. When the MA Unit Data Enable flag is set to True, higher level protocols are allowed to transmit and receive frames.</td></tr>
<tr><td>Available Paths</td><td>Indicates the paths available for this port. Valid values are Primary, Secondary, and Local.</td></tr>
</table>

Monitoring FDDI Path Parameters

The FDDI PATH Configuration and Statistics screen displays path-related values.

Type this command from the Main menu:

```
m f pa
```

The FDDI PATH Configuration and Statistics screen appears (see Figure 8-4).

Figure 8-4 FDDI PATH Configuration and Statistics Screen

```
                    Cisco Systems Catalyst 1800 Token Ring/FDDI Uplink


                          FDDI PATH Configuration and Statistics

    Path Type:            Primary                          Trace Status:          None
    TVX Lower Bound:      2500000 nsc                      Max Lower Bound:       165000000 ns
    Max T Req:            165000000 ns                     Config Resource Type:  MAC
    Config Current Path:  Primary

    Path Type:            Secondary                        Trace Status:          None
    TVX Lower Bound:      2500000 ns                       Max Lower Bound:       165000000 ns
    Max T Req:            165000000 ns                     Config Resource Type:  PORT
    Config Current Path:  Secondary


Catalyst 1800> m f pa
```

The following table describes the parameters displayed on the FDDI PATH Configuration and Statistics screen.

Table 8-3 FDDI Path Configuration and Statistics Parameters

Title	Description
Path Type	Indicates one of the following path types for this MAC address: primary, secondary, or local.
TVX Lower Bound	The maximum available time, in nanoseconds, between valid transmission times. The station uses this value to recover from any ring error condition.
Max T Req	Specifies the maximum time value of the requested TTRT, in nanoseconds, that this station supports. The default value is 165,000,00 nsec.
Config Current Path	The current insertion status for this resource on this path. The available path types are: • Isolated • Local • Secondary • Primary • Concatenated • Thru
Trace Status	The status of the recovery mechanism for stuck beacon conditions on the FDDI ring. The available values are the following:

Status Type	Meaning
None	The trace is inactive.
Trace_Initiated	The trace has been initiated, generating a PC_Trace signal.
Trace_Propagated	The trace will be propagated upstream.
Trace_Terminated	The trace was propagated upstream and is now terminated.

Title	Description
Max Lower Bound	The minimum time value of the maximum TTRT, in nanoseconds, that this station supports. The default is 165,000,000 nsec.
Config Resource Type	The type of resource associated with this configuration. Available resource types are • MAC • Port

Monitoring FDDI Port Parameters

The FDDI PORT Configuration and Statistics screen displays port-related values.

Step 1 Type this command from the Main menu:

```
Monitor FDDI  Port
```

The system responds:

```
Enter A or B for port
```

Step 2 Type **A** and press **Return.**

Note In this and subsequent examples, Port A is used. However, you can perform the same procedures with Port B.

The FDDI PORT Configuration and Statistics screen for Port A appears (see Figure 8-5).

Figure 8-5 FDDI PORT Configuration & Statistics Screen

```
                    Cisco Systems Catalyst 1800 Token Ring/FDDI Uplink


                          FDDI PORT Configuration and Statistics

MyType:               A                                          NeighborType:None
PMD Class:            Multimode                                  MAC Placement Index:0
BS Flag:              False                                      LCT Fail Count:0
LER Estimate:         9                                          Lem Reject Count:0
Lem Count:            0                                          LER Cutoff:7
LER Alarm:            8                                          Connect State:Connecting
PCM State:            Break                                      PC Withhold:None
LER Flag:             False                                      Hardware Present:True
Conn Capabilities:    None                                       CurrentPath:Isolated
Available Paths:      Primary, Secondary
Requested Paths:
           *None:LO
           *Tree:LO,CA,PP
           *Peer:LO,CA,PP,TH
Connection Policies:None



Catalyst 1800> Monitor FDDI Port A
```

The following table describes the parameters displayed on the FDDI Port Configuration screen.

Table 8-4 FDDI Port Configuration & Statistics

Parameter	Description
MyType	A variable that specifies the type of port connector on the port being managed by the PCM (Physical Connection Management). The four different port connector types are:

Function	Meaning
A	The port in a dual-attached station or concentrator that attaches to the Primary In and Secondary Out when attaching to the dual ring
B	The port in a dual-attached station or concentrator that attaches to the Secondary In and the Primary Out when attaching to the dual ring
S	One port in a single attachment station or concentrator must be designated S.
M	A port in a concentrator that serves as a Master to a connected station or concentrator. Note that My Type only supports A, B, S, and None as connector types (that is, M is not supported).

PMD Class	Indicates the type of physical media dependent (PMD) entity associated with this port. Valid values are • Multimode • Single-Mode1 • Single-Mode2 • Sonet • Low-Cost-Fiber • Twisted-Pair • Unknown • Unspecified
BS Flag	The value of the Break Status (BS) flag. A BS flag is used to indicate that the PCM state machine is not leaving the Break State in an expected time interval; therefore, there may be a problem.
LER Estimate	The link error rate estimate. The LER specifies the number of link errors that occur in a given time interval. (A link error is a problem with the station's connection to the ring.) The LER estimate is a long-term average link error rate. It ranges from 10^{-4} to 10^{-15} and is reported as the absolute value of the base 10 logarithm.
LEM Counts	The total Link Error Monitor error count. Upon station initialization, it is set to 0.
LER Alarm	The Link Error Rate at which a link connection exceeds a preset alarm threshold. It ranges from 10^{-4} to 10^{-15} and is reported as the absolute value of the base 10 logarithm. For example, when LER Alarm is set to 10^{-8}, it is reported as 8.

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>PCM State</td><td>The Physical Connection Management (PCM) initializes the connection of neighboring ports and manages the signaling between ports. PCM provides all the necessary signaling to:
• Initialize a connection
• Withhold a marginal connection
• Support maintenance
PCM state machines can have the following states:
<table>
<tr><th>State</th><th>Meaning</th></tr>
<tr><td>Off</td><td>Indicates the initial state of the PCM state machine</td></tr>
<tr><td>Break</td><td>Indicates the entry point in the start of a PCM connection</td></tr>
<tr><td>Trace</td><td>Localizes a stuck beacon condition</td></tr>
<tr><td>Connect</td><td>Synchronizes the ends of the connection for the signaling sequence</td></tr>
<tr><td>Next</td><td>Separates the signaling performed and the to transmit PDUs while the MAC local loop is performed</td></tr>
<tr><td>Signal</td><td>Is entered from the Next state when a bit is ready to be transmitted</td></tr>
</table></td></tr>
<tr><td>LER Flag</td><td>The condition becomes active when the value of LER Estimate is less than or equal to that of LER Alarm. It is then reported with the status reporting frames (SRF).</td></tr>
<tr><td>Conn Capabilities</td><td>A value that indicates the connection capabilities of the port. Valid values are.
<table>
<tr><th>Value</th><th>Meaning</th></tr>
<tr><td>None</td><td>There is no connection policy.</td></tr>
<tr><td>LCT</td><td>The link confidence test. The MAC address is used to run the link confidence test to determine if the test passed or failed.</td></tr>
<tr><td>Loop</td><td>The local loop test. Run this test before a connection is made active to determine if the test passed or failed.</td></tr>
</table>
The default value is None.</td></tr>
<tr><td>Available Paths</td><td>Indicates the paths available to this port. In the absence of hardware faults, the A and B ports always have both the primary and secondary paths available.
The following values are available: Primary, Secondary, and Local.</td></tr>
</table>

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Requested Paths</td><td>A list of permitted paths where each list element defines the port's permitted paths. Valid values are
<table>
<tr><th>Value</th><th>Meaning</th></tr>
<tr><td>Peer (P)</td><td>Neither the port currently under control nor the port at the other end of the connection is of type M (an FDDI concentrator).</td></tr>
<tr><td>Tree (T)</td><td>A port at one end of the connection is of type M.</td></tr>
<tr><td>None (N)</td><td>Nothing has been established.</td></tr>
</table>
<table>
<tr><th>Port A Defaults</th><th>Port B Defaults</th></tr>
<tr><td>None: LO</td><td>LO</td></tr>
<tr><td>Tree: LO, CA, SP</td><td>LO, CA, PP</td></tr>
<tr><td>Peer: LO, CA, SP, TH</td><td>LO, CA, PP, TH</td></tr>
</table></td></tr>
<tr><td>Connection Policies</td><td>A value representing the port's connection policies desired in the node. Valid values are:
<table>
<tr><th>Policy</th><th>Meaning</th></tr>
<tr><td>LCT</td><td>Link Confidence Test</td></tr>
<tr><td>Loop</td><td>Loop</td></tr>
<tr><td>None</td><td>No policies</td></tr>
</table></td></tr>
<tr><td>NeighborType</td><td>Specifies the type of port connector at the other end of the physical connection. The Neighbor port type connected to MyType. Valid values are
• A
• B
• S
• M
• None</td></tr>
<tr><td>MAC Placement Index</td><td>Indicates the MAC address, if any, whose transmit path exits the station via this port. The value is 0 if there is no MAC address associated with the port. The MAC Placement Index ranges from 1 to n. In this FDU environment there is only one MAC address.
The MAC Placement Index is 0 for port A and 1 for port B.</td></tr>
<tr><td>LCT Fail Counts</td><td>The number of consecutive times the link confidence test (LCT) has failed during connection management</td></tr>
<tr><td>LEM Reject Counts</td><td>The number of times a link has been rejected</td></tr>
<tr><td>LER Cutoff</td><td>The link error rate estimate at which a link connection will be broken. It ranges from 10^{-4} to 10^{-15} and is reported as the absolute value of the base 10 logarithm.
For example, when LER Cutoff is set to 10^{-7}, it is reported as 7.</td></tr>
</table>

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Connect State</td><td>A variable from this port’s PCM to other management entities (such as CFM) indicating the state of the connection. Valid values are
• Disabled
• Connecting
• Standby
• Active</td></tr>
<tr><td>PC Withhold</td><td>A variable from this port’s PCM to other management entities containing the reason for withholding a connection. Valid values are:<table><tr><th>State</th><th>Meaning</th></tr><tr><td>None</td><td>No reason given</td></tr><tr><td>M-M</td><td>Connection is between two M ports.</td></tr><tr><td>Otherincompatible</td><td>The other ring is incompatible.</td></tr><tr><td>Pathnotavailable</td><td>The path is not available.</td></tr></table></td></tr>
<tr><td>Hardware Present</td><td>Indicates the presence of underlying hardware support for the MAC address. It can either be True or False.
The default is True.</td></tr>
<tr><td>CurrentPath</td><td>Indicates the path(s) into which this port is currently inserted. Valid values are:<table><tr><th>Path Value</th><th>Meaning</th></tr><tr><td>Isolated</td><td>The port is not inserted into any path.</td></tr><tr><td>Local</td><td>The port is inserted into the local path.</td></tr><tr><td>Secondary</td><td>The port is inserted into the secondary path.</td></tr><tr><td>Concatenated</td><td>The port is inserted into both the primary and secondary paths in a concatenated wrap configuration.</td></tr><tr><td>Primary</td><td>The port is inserted into the primary path.</td></tr><tr><td>Thru</td><td>The port is inserted into both the primary and secondary paths in a thru configuration.</td></tr></table></td></tr>
</table>

Monitoring FDDI SMT Parameters

The FDDI SMT screen displays SMT-related values.

Type this command from the Main menu:

```
Monitor FDDI SMT
```

The FDDI SMT Configuration and Statistics screen appears (see Figure 8-6).

Figure 8-6 FDDI SMT Configuration and Statistics Screen

```
                Cisco Systems Catalyst 1800 Token Ring/FDDI Uplink


                     FDDI SMT Configuration and Statistics

Station ID:               00-00:00-05-77-ff-ff-06
Highest Version ID:       2                                 Lowest Version ID:     2
MIB Version ID:           1                                 Manufacturer Data:     XDI731
User Data:                FDDI SMT v7.3                     MAC Count:             1
NonMaster Port Count:     2                                 Master Port Count:     0
T Notify:                 30 sec                            RPT Policy:            True
Trace Max Expiration:     7000 ns                           ByPass Present:        False
ECM State:                In                                CFM State:             Isolated
Peer Wrap Flag:           False                             Remote Disconnect:     False
Station Status:           Concatenated
Available Paths:          Primary, Secondary
Config Capability:        None
Conn Policy(REJECT):      AA,AS,BB,BS,SA,SB,MM



Catalyst 1800> Monitor FDDI SMT
```

The following table describes the parameters displayed on the FDDI SMT Configuration and Statistics screen.

Table 8-5 FDDI SMT Configuration and Statistics Parameters

Title	Description
Station ID	Uniquely identifies an FDDI station
Highest Version ID	Indicates the highest version of SMT this station supports
MIB Version ID	Indicates the version of the FDDI MIB of this station. For this version of SMT, the value is 1.
User Data	User-defined information. This variable can contain 32 characters (that is, an ASCII string).
NonMaster Port Count	The number of A, B, and S ports in this station or concentrator
T Notify	The timer, expressed in seconds, used in the SMT Neighbor Notification protocol. The range 2 to 30 seconds. The default value is 30 seconds.
Trace Max Expiration	The maximum propagation time for a trace on an FDDI topology. This parameter places a lower bound on the detection time for a non-recovering ring. The default is 7,000 nsec.

<table>
<tr><th>Title</th><th>Description</th></tr>
<tr><td>ECM State</td><td>Indicates the current state of the entity coordination management (ECM) state machine. The ECM controls the optical bypass switch of the physical media dependent (PMD) layer and signals the PCM when the media is available. The ECM starts the PCMs for the A and B ports in the station when the optical bypass switching is complete.
The following table describes the valid states:
<table>
<tr><th>State</th><th>Meaning</th></tr>
<tr><td>Out</td><td>Initial state of the ECM state machine</td></tr>
<tr><td>In</td><td>Normal state for a completed connection</td></tr>
<tr><td>Trace</td><td>Localizes a stuck beacon condition</td></tr>
<tr><td>Leave</td><td>Allows sufficient time to break any existing conditions</td></tr>
<tr><td>Path_Test</td><td>Entered upon the completion of the Trace function</td></tr>
<tr><td>Insert</td><td>Allows the switching time of the optical bypass switch</td></tr>
<tr><td>Check</td><td>Confirms that both the primary and secondary optical bypass switches have switched</td></tr>
</table></td></tr>
<tr><td>Peer Wrap Flag</td><td>A variable set to True when the CFM state is in any wrap state (for example, wrap_a)</td></tr>
<tr><td>Station Status</td><td>The status obtained from the CFM entity. The status can be one of the following:
<table>
<tr><th>Value</th><th>Status</th></tr>
<tr><td>Concatenated</td><td>Obtained when the CFM state is set to c_wrap_a, c_wrap_b, or c_wrap_s</td></tr>
<tr><td>Thru</td><td>Obtained when both ports A and B of this station are respectively connected to ports B and A of an adjacent station</td></tr>
<tr><td>Separated</td><td>Obtained when both ports A and B are not connected</td></tr>
</table></td></tr>
<tr><td>Available Paths</td><td>A value that indicates the Path types available in the station. The following is a list of allowable values:
• Primary
• Secondary
• Local</td></tr>
<tr><td>Config Capability</td><td>A value indicating the configuration capabilities of a node. When displayed as CF-Wrap-AB, it indicates that the station can perform a wrap_ab.</td></tr>
</table>

<table>
<tr><th>Title</th><th>Description</th></tr>
<tr><td>Conn Policy (REJECT)</td><td>A value representing the rejection connection policies in effect in a particular PC node type. The following is a list of allowable values:
<table>
<tr><th>Policy</th><th>Rule</th></tr>
<tr><td>AA</td><td>Reject A-A</td></tr>
<tr><td>AB</td><td>Reject A-B</td></tr>
<tr><td>AS</td><td>Reject A-S</td></tr>
<tr><td>AM</td><td>Reject A-M</td></tr>
<tr><td>BA</td><td>Reject B-A</td></tr>
<tr><td>BB</td><td>Reject B-B</td></tr>
<tr><td>BS</td><td>Reject B-S</td></tr>
<tr><td>BM</td><td>Reject B-M</td></tr>
<tr><td>SA</td><td>Reject S-A</td></tr>
<tr><td>SB</td><td>Reject S-B</td></tr>
<tr><td>SS</td><td>Reject S-S</td></tr>
<tr><td>SM</td><td>Reject S-M</td></tr>
<tr><td>MA</td><td>Reject M-A</td></tr>
<tr><td>MB</td><td>Reject M-B</td></tr>
<tr><td>MS</td><td>Reject M-S</td></tr>
<tr><td>MM</td><td>Reject M-M</td></tr>
</table></td></tr>
<tr><td>Lowest Version ID</td><td>Indicates the lowest version of SMT this station supports</td></tr>
<tr><td>Manufacturer Data</td><td>The manufacturer-defined information. This value contains up to 32 characters and cannot be changed by the user.</td></tr>
<tr><td>MAC Count</td><td>The number of MAC addresses in this station or concentrator</td></tr>
<tr><td>Master Port Count</td><td>The number of M Ports in a node. If the node is not a concentrator, the value is 0.</td></tr>
<tr><td>RPT Policy</td><td>Status report policy. This parameter is used to control the generation of status reporting frames (SRF) when this station experiences a change in status. When set to True, an SRF is generated, indicating a status change. When set to False, no SRF is generated.</td></tr>
<tr><td>Bypass Present</td><td>A flag indicating whether the station has a bypass on its AB port pair.
Valid values are True and False.</td></tr>
</table>

<table>
<tr><th>Title</th><th>Description</th></tr>
<tr><td>CFM State</td><td>
<table>
<tr><th>Value</th><th>State</th></tr>
<tr><td>isolated</td><td>The port is not inserted into any path.</td></tr>
<tr><td>local_a</td><td>The A port is inserted into a local path.</td></tr>
<tr><td>local_b</td><td>The B port is inserted into a local path.</td></tr>
<tr><td>local_ab</td><td>The A and B ports are inserted into a local path.</td></tr>
<tr><td>local_s</td><td>The S port is inserted into a local path.</td></tr>
<tr><td>wrap_a</td><td>The secondary path is wrapped to the A port.</td></tr>
<tr><td>wrap_b</td><td>The primary path is wrapped to the B port.</td></tr>
<tr><td>wrap_ab</td><td>The primary path is wrapped to the B port; the secondary path is wrapped to the A port.</td></tr>
<tr><td>wrap_s</td><td>The primary path is wrapped to the S port.</td></tr>
<tr><td>c_wrap_a</td><td>The primary and secondary paths are joined internally to the station and wrapped to the A port.</td></tr>
<tr><td>c_wrap_b</td><td>The primary and secondary paths are joined internally to the station.</td></tr>
</table>
</td></tr>
<tr><td>Remote Disconnect</td><td>A flag indicating that the station was remotely disconnected from the network because it received an SMT disconnect message. To rejoin the network, this station must receive an SMT connect message.
The value can be T (true) or F (false).</td></tr>
</table>