C H A P T E R 3

Catalyst 2820 Module MIB Objects

The Catalyst 2820 hot-swappable modules provide a choice of FDDI and 100BaseT connections that support Category 5 UTP or fiber-optic cabling. This chapter describes the MIB objects used to configure and manage these modules.

The esModuleBasic Group

This group is used to manage the high-speed expansion modules in the Catalyst 2820 expansion slots. Any attempt to manage a Catalyst 2820 without modules using this group results in an error. This group provides configuration, status, and control objects for the overall unit.

esModuleCapacity (integer)

This read-only MIB object displays the number of expansion slots that are available in the unit.

Valid Values: 2

The Catalyst 2820 Module Basic Table

esModuleIndex (integer)

This read-only MIB object identifies the module for which this entry contains information. This value is never greater than esModuleCapacity.

esModuleStatus (integer)

This read-only MIB object displays the current operational status of the port. This value is exactly the same as the swPortStatus for the associated switched port.

esModuleAdminStatus (integer)

This read-write MIB object is used to change the port status to either:

- Enabled: normal status (transmit and receive)

- Disabled-mgmt: port is no longer in use

Valid Values: enabled   (1)

disabled (2)

This value is the same as swPortAdminStatus for the corresponding switched port.

esModuleDescr (display string)

This read-only MIB object displays a text string that includes the full name and version identification of the module's hardware type.

esModuleID (display string)

This read-only MIB object displays a text representation of the specified identifier for the installed module or *notPresent*.

Valid Values: 110 SingleUTP

101 SingleFiber

140 FourUTP

104 FourFiber

108 EightUTP

401 FDDI (DAS)

401 FDDI (SAS)

410 CDDI (SAS)

esModuleVersion (integer)

This read-only MIB object displays the specified unique identification for the module version, ranging from 1 to 254.

esModuleObjectID (object identifier)

This read-only MIB object displays the vendor's authoritative identification of the module.

esModulePortCapacity (integer)

This read-only MIB object displays the number of external port attachments provided by the module (the object sysInfoTotalNumberOfPorts is the sum of this object, for each module, plus 25 for the built-in 10-Mbps ports).

esModuleReset (integer)

Setting this read-write MIB object to reset forces the module into a reset state. The reset state is a module-specific condition in which the module's packet operations cease while the module resets to a known state. Setting this object to noReset has no effect. Catalyst 2820 always returns the value noReset when this object is read.

Valid Values: reset   (1)

noReset   (2)

esModuleLastStatusChange (time tick)

This read-only MIB object contains the value of sysUpTime at the time that the value of the esModuleStatus object for this module last changed. A value of zero indicates that the group's operational status has not changed since the agent last restarted.

esModuleCollisionPeriods (counter)

This read-only MIB object contains the number of times the firmware has toggled the module's collision LED from off to on.

esModuleLinkDisplayMap (octet string)

This read-only MIB object displays a bit array where the presence of a particular bit indicates a link LED is on for a module port.

Each octet within the value of this object specifies a set of eight link LEDs, with the first octet specifying link LEDs for ports 1 through 8, the second octet specifying link LEDs 9 through 16, and so on. Within each octet, the most significant bit represents the lowest numbered LED, and the least significant bit represents the highest numbered LED. Thus, each LED is represented by a single bit within the value of this object. If the bit has a value of 1, then the LED is currently on; if the value is 0, the LED is off.

esModuleDisabledDisplayMap (octet string)

This read-only MIB object displays a bit array where the presence of a particular bit indicates a disabled LED is on for a module port.

Each octet within the value of this object specifies a set of 8 link LEDs, with the first octet specifying link LEDs for ports 1 through 8, the second octet specifying link LEDs 9 through 16, and so on. Within each octet, the most significant bit represents the lowest numbered LED, and the least significant bit represents the highest numbered LED. Thus, each LED is represented by a single bit within the value of this object. If the bit has a value of 1, then the LED is currently on; if the value is 0, the LED is off.

esModuleBroadcastBlocked (integer)

This MIB object applies to the Catalyst 2820 and 1900 only.

This read-only MIB object is the current broadcast-forwarding status of the module. If the module is blocked by Broadcast Storm Control, the switch drops all broadcast packets received from it. If the module is a multiport repeater, broadcast packets received from a repeater port are forwarded to all other ports in the same module; the broadcast packets are not forwarded to other ports.

Valid Values: NotBlocked   (1)

Blocked   (2)

The Catalyst 2820 Module Port Table

esModulePortTable

This MIB object displays a table of descriptive and status information about the individual ports in a module.

esModuleSlotIndex (integer)

This read-only MIB object identifies the module containing the port for which this entry contains information. This value is never greater than esModuleCapacity.

esModulePortIndex (integer)

This read-only MIB object identifies the port for which this entry contains information. This value is never greater than esModulePortCapacity.

esModulePortDescr (display string)

This read-write MIB object displays a descriptive string of up to 60 characters used by the network administrator to name the port.

esModulePortAdminStatus (integer)

This read-write MIB object is used to change the port status to either:

- Enabled: normal status (transmit and receive)

- Disabled: the port neither transmits nor receives.

Once disabled, a port must be explicitly enabled to restore operation.

Valid Values: enabled   (1)

disabled   (2)

esModulePortAutoPartitionState (integer)

This read-only MIB object indicates whether the port is currently partitioned by the repeater's auto-partition protection.

Valid Values: notAutoPartitioned   (1)

autoPartitioned   (2)

notAutoPartitioned   (1)

esModulePortOperStatus (integer)

This read-only MIB object indicates the port's operational status:

- enabled: port is enabled and working

- notOperational: port neither transmits nor receives

- suspended-not-present: module group is not installed

Valid Values: enabled   (1)

                   disabled   (2)

                   suspended-not-present (3)

esModulePortLinkbeatStatus (integer)

This read-only MIB object displays the port's current linkbeat status.

Valid Values: linkbeat   (1)

                   noLinkbeat (2)

esModulePortConnectorType (integer)

This read-only MIB object displays the connector type for the port. The connector types include:

- Other: none of the following (unknown)

- RJ-45: common unshielded twisted-pair connector

- BN: thin coaxial (BNC)

- AUI: thick coaxial (AUI)

- Fiber-SC: fiber-optic Fast Ethernet connector

- Fiber-ST: fiber-optic Fast Ethernet connector

- Empty: the port is not installed

- FDDI-mic: FDDI fiber-optic connector

Valid Values: Other   (1)

                    RJ-45   (2)

                    BNC   (3)

                    AUI   (4)

                    Fiber-SC   (5)

                    Fiber-ST   (6)

                    Empty   (7)

                    FDDI-MIC (8)

Default Value: RJ-45 (2) if 100-Mbps port

esModulePortReceivePeriods (counter)

This read-only MIB object contains the count of times the front-panel port-receive activity LED has been toggled from off to on.

The esModuleSpecific Group

fmCfgTable

This read-only MIB object displays a table of configuration and status information about FDDI modules.

fmCfgEntry

This read-only MIB object displays an entry in the table containing information about a FDDI module.

fmCfgIndex (integer)

This read-only MIB object identifies the module for which this entry contains information. This value is never greater than esModuleCapacity.

fmCfgFirmwareVersion (display string)

This read-only MIB object returns the version number of the firmware stored in FLASH memory on the FDDI module. The string has the format *v1.00*.

fmCfgBOOTCodeVersion (display string)

This read-only MIB object returns the version number of the BOOT code stored in permanent FLASH memory on the FDDI module. The string has the format *v1.00*.

fmCfgPOSTResult (integer)

This read-only MIB object indicates the result of the FDDI module's POST. If the module passed POST, this item returns noFailure.

Valid Values: noFailure   (1)

prom   (2)

cpu   (3)

flash   (4)

dram   (5)

arbiter   (6)

shared-ram   (7)

ethernet   (8)

fddi-mac   (9)

fddi-phy-a   (10)

fddi-phy-b   (11)

packet-ram   (12)

fmCfgPOSTTest (integer)

This read-only MIB object indicates the specific test that caused the POST to fail. If the module passed POST, this item returns noFailure.

Valid Values:	noFailure	(1)
	invalid-marker	(2)
	checksum	(3)
	ram-quick-scan	(4)
	ram-byte-test	(5)
	checkerboard	(6)
	arbiter-id	(7)
	read-only-register	(8)
	read-write-register	(9)
	ethernet-interrupt	(10)
	loopback	(11)
	invalid-version	(12)

fmCfgPOSTLoopbackResult (integer)

If the FDDI module fails the loopback test during POST, this read-only MIB object indicates which portion of the test caused the failure. If the value of fmCfgPOSTTest is anything other than loopback (11), this object has the value noFailure (1).

Valid Values:　noFailure　　　　　(1)

　　　　　　　　cannot-transmit　(2)

　　　　　　　　receive-timeout　(3)

　　　　　　　　data-mismatch　　(4)

　　　　　　　　length-mismatch　(5)

　　　　　　　　receiver-error　　(6)

　　　　　　　　buffer-error　　　(7)

fmCfgFlashStatus (display string)

This read-only MIB object displays a string of up to 80 characters that indicate the status of the firmware stored in the FDDI module's FLASH memory. The string includes the firmware revision, the date and time of the last upgrade, the source of the upgrade, and the validity of the firmware. The string is in net ASCII and conforms to one of the following formats:

- For factory-installed firmware: *v1.00 factory installed: valid*

- For out-of-band upgrades: *v1.00 written 07-22-1994 08:19:15 from serial terminal: valid*

- For in-band upgrades: *v1.00 written 07-22-1994 12:19:15 from 192.009.200.200: invalid*

fmCfgResetToFactoryDefaults (integer)

Setting this read-write MIB object to reset causes the settings on the FDDI module to revert to factory defaults. The module is then reset by the system. The module's packet operations cease while the module resets to a known state. A read of this object always returns the value noReset. Setting this object to noReset has no effect.

Valid Values: noReset (1)

reset (2)

fmCfgResetModule (integer)

Setting this read-write MIB object to reset forces the module into a reset state. During the reset state, the module's packet operations cease while the module resets to a known state.

Valid Values: noReset (1)

reset (2)

fmCfgNovellFDDISNAPTranslation (integer)

This read-write MIB object specifies the Ethernet frame type into which the FDDI module translates Novell SNAP FDDI frames.

Valid values include:

- Automatic (1): The FDDI module automatically learns which frame type to use.

- Ethernet-802.3 (2): The FDDI module converts Novell SNAP FDDI frames to Ethernet 802.3.

- Ethernet-SNAP (3): The FDDI module converts Novell SNAP FDDI frames to Ethernet SNAP.

- Ethernet-II (4): The FDDI module converts Novell SNAP FDDI frames to Ethernet II.

- Drop (5): The FDDI module does not forward Novell SNAP FDDI frames to Ethernet.

Default Value: automatic (1)

fmCfgUnmatchedSNAPDestination (integer)

This read-write MIB object specifies what the FDDI module does with Novell SNAP FDDI frames whose destination frame type cannot be determined. The value of this object is only valid when fmCfgNovellFDDISNAPTranslation is set to automatic (1).

Valid Values:

- All (1): The unmatched Novell SNAP FDDI frames convert into all three possible frame types.

- Ethernet-802.3 (2): The unmatched Novell SNAP FDDI frames convert into Ethernet 802.3.

- Ethernet-SNAP (3): The unmatched Novell SNAP FDDI frames convert into Ethernet SNAP.

- Ethernet-II (4): The unmatched Novell SNAP FDDI frames convert into Ethernet II.

- Drop: The FDDI module does not forward unmatched Novell SNAP FDDI frames to Ethernet.

Default Value: al   (1)
                l

fmCfgAuthorizationChecking (integer)

This read-write MIB object controls enabling and disabling of authorization string checking by the SMT entity. When enabled, the FDDI module uses the current authorization string to verify SMT requests from remote stations.

Valid Values:　enabled　(1)

disabled　(2)

Default Value:　disabled　(2)

fmCfgAuthorizationString (display string)

This read-write MIB object specifies the string to be used in the authentication of SMT requests. The length is from 0 to 32 bytes and must be a multiple of 4 bytes. This item is only used when authorization string checking is enabled.

The Catalyst 2820 FDDI Translation-to-Ethernet Table

fmXlateToEthTable

This MIB object displays a table of statistics that records the number of frames successfully forwarded from the FDDI module to the switch forwarding engine.

fmXlateToEthIndex (integer)

This read-only MIB object identifies the module for which this entry contains information. This value is never greater than esModuleCapacity.

fmXlateToEthNovellSnapToRaw8023Frames (counter)

This read-only MIB object is a count of the number of Novell SNAP FDDI frames that have been converted to raw 802.3 Ethernet frames.

fmXlateToEthNovellSnapToEthIIFrames (counter)

> This read-only MIB object is a count of the number of Novell SNAP FDDI frames that have been converted to Ethernet II frames.

fmXlateToEthNovellSnapToSnapFrames (counter)

> This read-only MIB object is a count of the number of Novell SNAP FDDI frames that have been converted to Novell SNAP Ethernet frames.

fmXlateToEthAppleTalkSnapToSnapFrames (counter)

> This read-only MIB object is a count of the number of AppleTalk SNAP FDDI frames that have been converted to Novell SNAP Ethernet frames.

fmXlateToEthIpSnapForFragmentationFrames (counter)

> This read-only MIB object is a count of the number of IP FDDI frames that were fragmented.

fmXlateToEthIpSnapFragmentedFrames (counter)

> This read-only MIB object is a count of the number of Ethernet frames that were forwarded to the switch forwarding engine as a result of IP fragmentation.

fmXlateToEthBridgeTunnelToEthIIFrames (counter)

> This read-only MIB object is a count of the number of Bridge Tunnel FDDI frames that have been converted to Ethernet II frames.

fmXlateToEthOtherSnapToEthIIFrames (counter)

> This read-only MIB object is a count of the number of SNAP FDDI frames that do not fall into one of the previous SNAP FDDI categories that have been converted to Ethernet II frames.

fmXlateToEthOtherSnapToSnapFrames (counter)

This read-only MIB object is a count of the number of SNAP FDDI frames that do not fall into one of the previous SNAP FDDI categories that have been converted to Ethernet SNAP frames.

fmXlateToEth8022To8022Frames (counter)

This read-only MIB object is a count of the number of 802.2 FDDI frames that have been converted to Ethernet 802.2 frames.

The Catalyst 2820 FDDI Translation-to-FDDI Table

fmXlateToFDDITable

This read-only MIB object displays a table of statistics that records the number of frames successfully forwarded from the switch forwarding engine to the FDDI ring.

fmXlateToFDDIIndex (integer)

This read-only MIB object identifies the module for which this entry contains information. This value is never greater than esModuleCapacity.

fmXlateToFDDINovellRaw8023ToSnapFrames (counter)

This read-only MIB object is a count of the number of Novell raw 802.3 Ethernet frames that have been converted to SNAP FDDI frames.

fmXlateToFDDINovellEthIIToSnapFrames (counter)

This read-only MIB object is a count of the number of Ethernet II frames that have been converted to SNAP FDDI frames.

fmXlateToFDDINovellSnapToSnapFrames (counter)

This read-only MIB object is a count of the number of Novell SNAP Ethernet frames that have been converted to SNAP FDDI frames.

fmXlateToFDDIEthIIToBridgeTunnelFrames (counter)

This read-only MIB object is a count of the number of Ethernet II frames that have been converted to Bridge Tunnel FDDI frames.

fmXlateToFDDIEthIIToSnapFrames (counter)

This read-only MIB object is a count of the number of Ethernet II frames that have been converted to SNAP FDDI frames.

fmXlateToFDDIOtherSnapToSnapFrames (counter)

This read-only MIB object is a count of the number of SNAP frames that do not fall into one of the above listed SNAP type categories that have been translated to Ethernet II.

fmXlateToFDDI8022To8022Frames (counter)

This read-only MIB object is a count of the number of FDDI 802.2 frames that have been converted to Ethernet 802.2 frames.

The Catalyst 2820 FDDI Filter Table

fmFilterTable

This read-only MIB object displays a table of statistics that records the number of frames that were not forwarded by the FDDI module.

fmFilterIndex (integer)

This read-only MIB object identifies the module for which this entry contains information. This value is never greater than esModuleCapacity.

fmFilterFcsInvalidFrames (counter)

This read-only MIB object is a count of the number of FDDI frames that were not forwarded because the frame contained an invalid FCS.

fmFilterDataLengthFrames (counter)

This read-only MIB object is a count of the number of FDDI frames that were not forwarded because the frame contained an invalid data length.

fmFilterErrorIndFrames (counter)

This read-only MIB object is a count of the number of FDDI frames that were not forwarded because the frame's error indication flag was set.

fmFilterFddiFifoOverrunFrames (counter)

This read-only MIB object is a count of the number of FDDI frames that were not forwarded because the FDDI FIFO experienced an overflow.

fmFilterFddiInternalErrorFrames (counter)

This read-only MIB object is a count of the number of FDDI frames that were not forwarded because the module experienced an internal error.

fmFilterNoBufferSpaceFrames (counter)

This read-only MIB object is a count of the number of FDDI frames that were not forwarded because the module did not have sufficient buffer space.

fmFilterNoEndDelimitFrames (counter)

This read-only MIB object is a count of the number of FDDI frames that were not forwarded because the frame did not have a valid end delimiter.

fmFilterNoLlcHeaderFrames (counter)

This read-only MIB object is a count of the number of FDDI frames that were not forwarded because the frame did not have a valid LLC header.

fmFilterSourceRouteFrames (counter)

The FDDI module does not forward source routing frames. This read-only MIB object is a count of the number of such frames that were filtered.

fmFilterNoSnapHeaderFrames (counter)

This read-only MIB object is a count of the number of FDDI frames that were not forwarded because the frame did not have a valid SNAP header.

fmFilterTooLargeFrames (counter)

This read-only MIB object is a count of the number of FDDI frames that were not forwarded because the frame was too large.

fmFilterNovellSnapFilteredFrames (counter)

This read-only MIB object is a count of the number of Novell SNAP FDDI frames that were filtered by the module.

fmFilterCantFragmentFrames (counter)

This read-only MIB object is a count of the number of FDDI IP frames that were not forwarded because the module was unable to fragment the frame.

fmFilterBadIpHeaderFrames (counter)

This read-only MIB object is a count of the number of FDDI frames that were not forwarded because the frame contained an invalid IP header.

fmFilterRingDownDiscards (counter)

This read-only MIB object is a count of the number of FDDI frames that were not forwarded because the FDDI ring was not operational.

fmFilterNovellOtherFilteredFrames (counter)

This read-only MIB object is the sum of the Novell Ethernet frames that were not forwarded because they contained an invalid size field and the number of Novell Ethernet frames that were not forwarded because the FDDI module was configured to filter Novell SNAP FDDI frames.