# Y. YANG module for Ethernet Interface

## **Introduction**

This clause defines two YANG modules for configuring Ethernet interfaces.

## **Module structure**

Two modules are defined in this clause focused on the configuration and monitoring of IEEE Std 802.3 Ethernet interfaces. The *ieee802-ethernet-interface* YANG module contains definitions of current attributes used widely in the industry in current products, while the *ieee802-ethernet-interface-legacy* YANG module contains definitions of legacy attributes, no longer widely used in the industry. The legacy attributes are maintained for backwards compatibility purposes.

## **Mapping of IEEE Std 802.3 Clause 30 managed objects**

This sub-clause contains the mapping between YANG data nodes included in *ieee802-ethernet-interface* (see Table x-1) and *ieee802-ethernet-interface-legacy* (see Table x-2) YANG modules and the attributes defined in IEEE Std 802.3, Clause 30.

**Table x-1-mapping between IEEE Std 802.3, Clause 30 managed objects and**

**ieee802-ethernet-interface YANG data nodes**

|  |  |
| --- | --- |
| **Corresponding ieee802-ethernet-interface YANG data nodes** | **IEEE Std 802.3, Clause 30 managed object** |
| **container** | **data nodes** | **Managed objects** | **Attributes** | **Normative references** |
| interfaces/ interface/ethernet/ | auto-negotiation/enable | N/A | No direct attributes | IEEE 802.3 Clause 28 and Annexes 28A-D |
| flow-control/pause/direction | No direct attributes | 802.3 PAUSE frame based flow control |
| flow-control/pfc/enable | No direct attributes | Annex 31 D |
| force-flow-control | No direct attributes | IEEE Std 802.3 Table 28B-3 |
| duplex | oMACEntity | aDuplexStatus |  |
| speed | N/A |  |
| interfaces-state/interface/ethernet/ | auto-negotiation/enable | N/A | No direct attribute | IEEE 802.3 section 28 and annexes 28A-D |
| auto-negotiation/negotiation-status | IEEE 802.3 section 28 and annexes 28A-D |
| speed | N/A |  |
| duplex | oMACEntity | aDuplexStatus |  |
| max-frame-length | aMaxFrameLength |  |
|  | frame-limit-slow-protocol | aSlowProtocolFrameLimit |  |
|  | macc-extension-control | oEXTENSION | aEXTENSIONMACCtrlStatus |  |
| interfaces/interface/ethernet/flow-control/ | force-flow-control | N/A | IEEE 802.3 Table 28B-3-Pause resolution |  |
| interfaces/interface/ethernet/ flow-control/ pause/ | direction | N/A |  |  |
| statistics/in-pkts-pause | oMACControlFunctionEntity | aPAUSEMACCtrlFramesReceived |  |
| statistics/out-pkts-pause | aPAUSEMACCtrlFramesTransmitted |  |
| interfaces/interface/ethernet/flow-control/pfc{ethernet-pfc}/ | enable | N/A |  |  |
| statistics/in-pkts-pfc | dot3HCInPFCFrames /not in CL30 | ETHERLIKE MIB |
| statistics/out-pkts-pfc | dot3HCOutPFCFrames/not in CL30 | ETHERLIKE MIB |
| interfaces-state/interface/ethernet/capabilities | auto-negotiation |  |  |
| interfaces-state/interface/ethernet/frame-statistics | in-total-pkts | oMACEntity | No direct object\*.  |  |
| in-total-octets | N/A | etherStatsOctets/not in CL30 | RMON MIB |
| in-pkts | oMACEntity | aFramesReceivedOK |  |
| in-multicast-pkts | aMulticastFramesReceivedOK |  |
| in-broadcast-pkts | aBroadcastFramesReceivedOK |  |
| in-error-fcs-pkts | aFrameCheckSequenceErrors + aAlignmentErrors |  |
| in-error-undersize-pkts | N/A |  (etherStatsUndersizePkts + etherStatsFragments)/ not in CL30 | RMON MIB |
| in-error-oversize-pkts | oMACEntity | aFrameTooLongErrors |  |
| in-error-mac-internal-pkts | aFramesLostDueToIntMACRcvError |  |
| out-pkts | aFramesTransmittedOK |  |
| out-multicast-pkts | aMulticastFramesXmittedOK |  |
| out-broadcast-pkts | aBroadcastFramesXmittedOK |  |
| out-error-mac-internal-pkts | aFramesLostDueToIntMACXmitError |  |
| interfaces-state/interface/ethernet/phy-statistics | in-error-symbol | oPHYEntity | aSymbolErrorDuringCarrier |  |
| interfaces-state/interface/ethernet/phy-statistics/lpi | in-lpi-transitions | aReceiveLPITransitions |  |
| in-lpi-time | aReceiveLPIMicroseconds |  |
| out-lpi-transitions | aTransmitLPITransitions |  |
| out-lpi-time | aTransmitLPIMicroseconds |  |
| interfaces-state/interface/ethernet/mac-control- statistics | in-pkts-macc-unknown | oMACControlEntity | aUnsupportedOpcodesReceived |  |
| in-pkts-macc-extension | oEXTENSION | aEXTENSIONMACCtrlFramesReceived |  |
| out-pkts-macc-extension | aEXTENSIONMACCtrlFramesTransmitted |  |

Note\*: Can be calculated as (aFramesReceivedOK + aFrameCheckSequenceErrors + aAlignmentErrors + aFrameTooLongErrors + aFrameTooShortErrors + aFramesLostDueToIntMACRcvError)

**Table x-2-mapping between IEEE 802.3 managed objects and ieee802-ethernet-interface-legacy data nodes**

|  |  |
| --- | --- |
| **Corresponding ieee802-ethernet-interface-legacy data nodes** | **IEEE 802.3 managed object** |
| **YANG container** | **Data nodes** | **Managed objects** | **Attributes** |
| interfaces/interface/ethernet | dynamic-rate-control | oMACEntity | aRateControlAbility |
| interfaces-state/interface/ethernet/capability | dynamic-rate-control-supported |
| interfaces-state/interface/ethernet/frame-statistics/csmacd{csma-cd} | in-errors-sqe-test | oPHYEntity | aSQETestErrors |
| out-pkts-collision-single | oMACEntity | aSingleCollisionFrames |
| out-pkts-collision-multiple | aMultipleCollisionFrames |
| out-pkts-deferred | aFramesWithDeferredXmissions |
| out-pkts-collisions-excessive | aFramesAbortedDueToXSColls |
| out-collisions-late | aLateCollisions |
| out-errors-carrier-sense | aCarrierSenseErrors |
| collision-histogram/collision-count | aCollisionFrames |
| collision-histogram/collision-count-pkts |

## **Module definition**

### **Tree hierarchy**

### **YANG module definition**