IpPac

## Classes

### IpCurrentProblem

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

Attributes for IpCurrentProblem

Table 1: Attributes for IpCurrentProblem

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| sequenceNumber | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |
| timeStamp |  | 1 | R | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |
| problemSeverity |  | 1 | R | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |

### IpIntefaceHistoricalPerformances

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO

Attributes for IpIntefaceHistoricalPerformances

Table 1: Attributes for IpIntefaceHistoricalPerformances

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| historicalPerformaceDataList | IpInterfaceHistoricalPerformanceType | 0..\* | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |

### IpInterfaceCapability

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO

Attributes for IpInterfaceCapability

Table 1: Attributes for IpInterfaceCapability

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| adminShutDownIsAvail | Boolean | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | To shutdown the interface administratively. IP Transport Model Atrribute list Annex 02.6a |
| portShapingIsAvail | Boolean | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | 1 = The interface supports port based shaping. |
| portShapingBandwidthMin | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Minimum configurable port shaping bandwidth in kbit/s. |
| portShapingBandwidthMax | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Maximum configurable port shaping bandwidth in kbit/s. |
| vpnBindingIsAvail | Boolean | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Shall be True if the port can be included as part of a VPN configuration. IP Transport Model Attribute List Annex 02.6a |
| maximumTransmissionUnitMin | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Minimum layer 3 MTU size configurable. |
| maximumTransmissionUnitMax | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Maximum layer 3 MTU size configurable. |
| layer3FlowStatisticsIsAvail | Boolean | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Shall be true if L3 statistics collection and aggregation is possible on the device. IP Transport Model attribute List annex 02.6a |
| layer3FlowStatisticsUpdatePeriodMax | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Time period over which Traffic volume is integrated. IP Transport Model Atrribute list Annex 02.6a |
| supportedAlarmList | String | 0..\* | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Available alarms to be listed.Mandatory InterfaceStatusTransition.Further alarms might be added by the device Vendors. Names are to be separated by commas.  Supported Alarms according to configuration. IP Transport Model Attribute list Annex 02.6a |

### IpInterfaceConfiguration

Configuration of the IP interface

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO

Attributes for IpInterfaceConfiguration

Table 1: Attributes for IpInterfaceConfiguration

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| ipInterfaceName | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Identifier of the Interface, could be a name, could be a number. |
| ipInterfaceIsOn | Boolean | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | 1 = Activation of the IP interface. 0 = De-activation of the IP interface (underlying layers (e.g. Ethernet MAC or Ethernet PHY) are not affected.) |
| dhcpClientIsOn | Boolean | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Preliminary  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Enables a DHCP client on the interface in order to request an address. |
| fixedIpV4Address | Ipv4Address | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | If (dhcpClientIsOn==0), IPv4 address fixed assigned to this interface. The format is IPv4, e.g. 172.168.0.5 |
| fixedIpV4AddressPrefixLength | Integer | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | If (dhcpClientIsOn==0), fixed assigned routing prefix (sub network) length (e.g. for 198.51.100.0/24 the ipV4AddressPrefixLength would be 24). |
| fixedDefaultGatewayIpV4Address | Ipv4Address | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | If (dhcpClientIsOn==0), fixed assigned IPv4 address of the default gateway. |
| arpProxy | arpProxyType | 1 | RW | OpenInterfaceModelAttribute   * AVC: NA   Preliminary  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | When set to a value other than DISABLE, the local system should respond to ARP requests that are for target addresses other than those that are configured on the local subinterface using its own MAC address as the target hardware address. If the REMOTE\_ONLY value is specified, replies are only sent when the target address falls outside the locally configured subnets on the interface, whereas with the ALL value, all requests, regardless of their target address are replied to. |
| portShapingIsOn | Boolean | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | 1 = The interface supports port based shaping. |
| portShapingBandwidth | Integer | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Port shaping rate in kbit/s. 0 is to be interpreted as port shaping to be switched off. |
| \_virtualPrivateNetwork | VirtualPrivateNetwork | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Reference to the definition of a Virtual Private Network, to which this IP interface belongs to. |
| maximumTransmissionUnit | Integer | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Layer 3 maximum transmission unit size in Byte. The MTU describes the maximum IP packet size that will travel along the entire route without fragmentation. |
| layer3QosTaggingSource | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | #### Tbc with Olaf Struck DSCP (DiffServ Code Point) bits. In the IP Header there is a Type of Service Byte (TOS). |
| layer3QosDiffservProfile | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | #### Tbc with Olaf Struck Traffic profile to be used for QoS. e.g. |
| layer3FlowStatisticsIsOn | Boolean | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | 1 = Layer 3 statistics collection is turned on. |
| layer3FlowStatisticsUpdatePeriod | Integer | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Time period, over which layer 3 traffic volume is aggregated, in seconds.  #### Falls alle 10s ausreichend, wären 16bit ausreichend. |
| problemKindSeverityList | IpInterfaceProblemSeverityType | 0..\* | RW | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Severity of the problems to be configured. |
| af1ClassWeight | Integer | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Assured Forwarding 1 weight as a percentage. IP Transport model Atrribute list Annex 2.6a |
| af1ClassWredProfile | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Name of the AF1 Assured Forwarding Weighted Random Early Detection Profile. IP Transport model Atrribute list Annex 02.6a |
| af2ClassWeight | Integer | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | AF2 Class weight for QoS, configured as a percentage.IP Transport model Atrribute list Annex 02.6a |
| af2ClassWredProfile | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Name of the AF2 Assured Forwarding Weighted Random Early Detection Profile.IP Transport model Atrribute list Annex 02.6a |
| af3ClassWeight | Integer | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Assured Forwarding Class 3 QoS class, configured as a percentage.IP Transport model Atrribute list Annex 02.6a |
| af3ClassWredProfile | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Name of the Assured Forwarding 3 Weighted Random Early Detection Profile.IP Transport model Atrribute list Annex 02.6a |
| af4ClassWeight | Integer | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Assured Forwarding 4 Class Weight as a percentage. Attribute list Annex 02.6a |
| af4ClassWredProfile | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Name of the Assured Forwarding 4 Weighted Random Early Detection Profile. |
| efClassWeight | Integer | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Expedited Forwarding class Weight as a percentage. Attribute list Annex 02.6a |
| efClassWredProfile | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Name of the Expedited Forwarding WRED Class profile. Attribute list Annex 02.6a |
| cs6ClassWeight | Integer | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | CS6 Class Weight as a percentage. Attribute list 2.60a |
| cs6ClassWredProfile | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Name of the CS6 WRED Profile. |
| cs7ClassWeight | Integer | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | CS7 Class Weight as a percentage. Attribute list 2.60a |
| cs7ClassWredProfile | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Name of the CS7 WRED profile used for QoS. |
| beClassWeight | Integer | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Best Effort Queue Serving Rate as a percentage value. Attribute list Annex 02.6a |
| beClassWredProfile | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: YES   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Name of the Best Effort Queue WRED Profile. Example BE\_WRED\_PROFILE. Atrribute list Annex 02.6a |

### IpInterfaceCurrentPerformance

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO

Attributes for IpInterfaceCurrentPerformance

Table 1: Attributes for IpInterfaceCurrentPerformance

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| currentPerformanceDataList | IpInterfaceCurrentPerformanceType | 0..\* | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |

### IpInterfaceCurrentProblems

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO

Attributes for IpInterfaceCurrentProblems

Table 1: Attributes for IpInterfaceCurrentProblems

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| currentProblemList | IpInterfaceCurrentProblemType | 0..\* | R | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |

### IpInterfaceStatus

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NO
* objectDeletionNotification: NO

Attributes for IpInterfaceStatus

Table 1: Attributes for IpInterfaceStatus

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| ipInterfaceStatus | InterfaceStatusType | 1 | R | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | If the IP interface is active, this shall be expressed as a 1. |
| ipV4AddressCur | Ipv4Address | 1 | R | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | IPv4 address currently active on this interface. The format is IPv4, e.g. 172.168.0.5 |
| ipV4AddressPrefixLengthCur | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | If (dhcpClientIsOn==0), fixed assigned routing prefix (sub network) length (e.g. for 198.51.100.0/24 the ipV4AddressPrefixLength would be 24). |
| defaultGatewayIpV4AddressCur | Ipv4Address | 1 | R | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | IPv4 address of the default gateway currently active on this interface. |
| ipAddressOrigin | ipAddressOriginType | 1 | R | OpenInterfaceModelAttribute   * AVC: YES   Preliminary  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | The origin of this address, e.g., statically configured, assigned by DHCP, etc.. |
| maximumTransmissionUnitCur | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | The currently effective (passing through the entire transmission path without fragmentation) maximum size of a layer 3 transmission unit in Byte. |
| vpnBindingIsUp | Boolean | 1 | R | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | If the binding to a VPN definition is currently effective, this shall be expressed as a 1. |
| neighbor | neighborType | 1 | R | OpenInterfaceModelAttribute   * AVC: NA   Preliminary  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Current IP and MAC addresses of the remote site of the IP link. |
| layer3FlowStatisticsIsUp | Boolean | 1 | R | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | If layer 3 flow statistics are currently collected and aggregated, this shall be expressed as a 1. |

### IpInterface\_Pac

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: YES
* objectDeletionNotification: YES

Attributes for IpInterface\_Pac

Table 1: Attributes for IpInterface\_Pac

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| \_ipInterfaceCapability | IpInterfaceCapability | 1 | RW | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |
| \_ipInterfaceConfiguration | IpInterfaceConfiguration | 1 | RW | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |
| \_ipInterfaceStatus | IpInterfaceStatus | 1 | RW | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |
| \_ipInterfaceCurrentProblems | IpInterfaceCurrentProblems | 1 | RW | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |
| \_ipInterfaceCurrentPerformance | IpInterfaceCurrentPerformance | 1 | RW | OpenInterfaceModelAttribute   * AVC: NA   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |
| \_ipIntefaceHistoricalPerformances | IpIntefaceHistoricalPerformances | 1 | RW | OpenInterfaceModelAttribute   * AVC: NA   Obsolete  OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |

### VirtualPrivateNetwork

Definition of a Virtual Private Network, which is to be referenced by the IP interfaces.

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

## Data Types

### IpInterfaceCurrentPerformanceType

#### Generalization of OTN\_CurrentData is missing

Applied Stereotypes:

Attributes for IpInterfaceCurrentPerformanceType

Table 1: Attributes for IpInterfaceCurrentPerformanceType

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| performanceData | IpInterfacePerformanceType | 1 | R | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |

### IpInterfaceCurrentProblemType

Applied Stereotypes:

Attributes for IpInterfaceCurrentProblemType

Table 1: Attributes for IpInterfaceCurrentProblemType

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| problemName | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Name of the alarm according to IpInterface\_Pac::IpInterfaceCapability::supportedAlarmList |

### IpInterfaceHistoricalPerformanceType

#### Generalization of OTN\_HistoryData is missing

Applied Stereotypes:

Attributes for IpInterfaceHistoricalPerformanceType

Table 1: Attributes for IpInterfaceHistoricalPerformanceType

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| performanceData | IpInterfacePerformanceType | 1 | RW | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY |  |

### IpInterfacePerformanceType

Applied Stereotypes:

Attributes for IpInterfacePerformanceType

Table 1: Attributes for IpInterfacePerformanceType

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| last10SecDataInputRate | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Data receive rate over the last 10 second interval in kbit/s. |
| last10SecDataOutputRate | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Data transmit rate over the last 10 second interval in kbit/s. |
| last10SecPacketsInputRate | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Packet receive rate over the last 10 second interval. |
| last10SecPacketsOutputRate | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Packet transmit rate over the last 10 second interval. |
| dataVolumeInput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Received data volume in kByte. |
| dataVolumeOutput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Sent data volume in kByte. |
| totalPacketsInput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | The total number of IP packets received for the specified address family, including those received in error |
| totalPacketsOutput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | The total number of IP packets for the specified address family that the device supplied to the lower layers for transmission.This includes packets generated locally and those forwarded by the device. |
| forwardedDataVolumeInput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | The number of octets received in input IP packets for the specified address family for which the device was not their final IP destination and for which the device attempted to find a route to forward them to that final destination. |
| forwardedDataVolumeOutput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | The number of octets in packets for which this entity was not their final IP destination and for which it was successful in finding a path to their final destination. |
| forwardedPacketsInput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | The number of input packets for which the device was not their final IP destination and for which the device attempted to find a route to forward them to that final destination. |
| forwardedPacketsOutput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | The number of packets for which this entity was not their final IP destination and for which it was successful in finding a path to their final destination. |
| unicastPacketsInput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Total number of received unicast packets. |
| unicastPacketsOutput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Total number of sent unicast packets. |
| multicastPacketsInput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Total number of received multicast packets. |
| multicastPacketsOutput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Total number of sent multicast packets. |
| broadcastPacketsInput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Total number of received broadcast packets. |
| broadcastPacketsOutput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Total number of sent broadcast packets. |
| fragmentedPacketsInput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Total number of received fragmented packets. |
| erroredPacketsInput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Total number of received errored packets. |
| erroredPacketsOutput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Number of IP packets for the specified address family locally generated and discarded due to errors, including no route found to the IP destination. |
| droppedPacketsInput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Total number of packets dropped at the receiver. The number of input IP packets for the specified address family, for which no problems were encountered to prevent their continued processing, but were discarded (e.g., for lack of buffer space). |
| droppedPacketsOutput | Integer | 1 | R | OpenInterfaceModelAttribute   * AVC: NO   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | The number of output IP packets for the specified address family for which no problem was encountered to prevent their transmission to their destination, but were discarded (e.g., for lack of buffer space). |

### IpInterfaceProblemSeverityType

Applied Stereotypes:

Attributes for IpInterfaceProblemSeverityType

Table 1: Attributes for IpInterfaceProblemSeverityType

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| problemKindName | String | 1 | RW | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Name of the alarm according to IpInterface\_Pac::IpInterfaceCapability::supportedAlarmList |
| problemKindSeverity | SeverityType | 1 | RW | OpenInterfaceModelAttribute   * AVC: NA   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | Severity of this type of alarm. |

### neighborType

Neighbor entries are analagous to static ARP entries, i.e., they create a correspondence between IP and link-layer addresses.

Applied Stereotypes:

* Preliminary

Attributes for neighborType

Table 1: Attributes for neighborType

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Type** | **Multiplicity** | **Access** | **Stereotypes** | **Description** |
| neighborIpV4Address | Ipv4Address | 1 | R | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | IPv4 address of the neighbor node. The format is IPv4, e.g. 172.168.0.5 |
| neighborMacAddress | MacAddress | 1 | R | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | MAC address of the neighbor node. The format is e.g. 00:80:41:ae:fd:7e |
| neighborOrigin | neighborOriginType | 1 | R | OpenInterfaceModelAttribute   * AVC: YES   OpenModelAttribute   * valueRange: no range constraint * support: MANDATORY | The origin of a neighbor entry. |

## Enumeration Types

### InterfaceStatusType

Current Interface Status

Contains Enumeration Literals:

* UP:
  + Ready to pass packets.
* DOWN:
  + The interface does not pass any packets.
* TESTING:
  + In some test mode. No operational packets can be passed.
* UNKNOWN:
  + Status cannot be determined for some reason.
* DORMANT:
  + Waiting for some external event.
* NOT\_PRESENT:
  + Some component (typically hardware) is missing.
* LOWER\_LAYER\_DOWN:
  + Down due to state of lower-layer interface(s).
* ADMIN\_DOWN:
  + Down due to configuration.
* NOT\_YET\_DEFINED:

### L3QosTaggingSourceType

Contains Enumeration Literals:

* 8021P:
* DSCP:
* NOT-SPECIFIED:

### SeverityType

Contains Enumeration Literals:

* NON-ALARMED:
* WARNING:
* MAJOR:
* MINOR:

### arpProxyType

Contains Enumeration Literals:

* DISABLE:
  + The system should not respond to ARP requests that do not specify an IP address configured on the local subinterface as the target address.
* REMOTE\_ONLY:
  + The system responds to ARP requests only when the sender and target IP addresses are in different subnets.
* ALL:
  + The system responds to ARP requests where the sender and target IP addresses are in different subnets, as well as those where they are in the same subnet.
* NOT\_YET\_DEFINED:

### ipAddressOriginType

The origin of the interface's own IP address.

Contains Enumeration Literals:

* OTHER:
  + None of the following.
* STATIC:
  + Indicates that the address has been statically configured - for example, using NETCONF or a Command Line Interface.
* DHCP:
  + Indicates an address that has been assigned to this system by a DHCP server.
* LINK\_LAYER:
  + Indicates an address created by IPv6 stateless autoconfiguration that embeds a link-layer address in its interface identifier.
* RANDOM:
  + Indicates an address chosen by the system at random, e.g., an IPv4 address within 169.254/16, an RFC 4941 temporary address, or an RFC 7217 semantically opaque address.
* NOT\_YET\_DEFINED:

### neighborOriginType

The origin of a neighbor entry.

Contains Enumeration Literals:

* OTHER:
  + None of the following.
* STATIC:
  + Indicates that the mapping has been statically configured - for example, using NETCONF or a Command Line Interface.
* DYNAMIC:
  + Indicates that the mapping has been dynamically resolved using, e.g., IPv4 ARP.
* NOT\_YET\_DEFINED:

## Primitive Types

Normal back matter in the document.