

Chapter 30

Interpreting the Enterprise-Specific VPN MIB

The enterprise-specific virtual private network (VPN) MIB, whose object identifier is {jnxMibs 26}, provides monitoring for the following type of VPNs:

Layer 2 based on Internet draft draft-kompella-l2ppvpn-version.txt, *MPLS-based Layer 2 VPNs*.

Layer 3 based on Internet draft draft-ietf-l3vpn-rfc2547bis-03.txt, *BGP and MPLS IP VPNs*.

VPLS based on Internet draft draft-ietf-lasserre-vkompella-ppvpn-vpls-04.txt, *Virtual Private LAN Services over MPLS*.



NOTE: The Simple Network Management Protocol (SNMP) cannot be associated with any routing instances other than the master routing instance.

For a downloadable version of this MIB, see www.juniper.net/techpubs/software/junos/junos71/swconfig71-net-mgmt/html/mib-jnx-vpn.txt.

This chapter discusses the following topics:

jnxVpnInfo on page 340

jnxVpnTable on page 341

jnxVpnIfTable on page 342

jnxVpnPwTable on page 345

jnxVpnRTTable on page 349

VPN Traps on page 350

jnxVpnInfo

jnxVpnInfo, whose object identifier is jnxVpnMibObjects 1, contains information about the number of configured VPNs and active VPNs.

Table 63 lists the supported jnxVpnInfo objects, VPNs, and circuit connection services.

Table 63: Supported jnxVpnInfo Objects, VPNs, and Circuit Connection Services

Object	Object Identifier	Layer 3 VPN	Layer 2 VPN	VPLS VPN	Circuit Cross-Connect	L2 Circuit	Optical VPN	Description
jnxVpnConfiguredVpns	jnxVpnInfo 1	Yes	Yes	Yes	No	No	NA	Number of configured VPNs.
jnxVpnActiveVpns	jnxVpnInfo 2	Yes	Yes	Yes	No	No	NA	Number of active VPNs.
jnxVpnNextIfIndex	jnxVpnInfo 3	NA	NA	NA	NA	NA	NA	Next free VPN interface index.
jnxVpnNextPwIndex	jnxVpnInfo 4	NA	NA	NA	NA	NA	NA	Next free pseudo-wire index.
jnxVpnNextRTIndex	jnxVpnInfo 5	NA	NA	NA	NA	NA	NA	Next free route target index.

jnxVpnTable

jnxVpnTable, whose object identifier is jnxVpnMibobjects 2, lists configured VPNs.

jnxVpnEntry

JnxVpnEntry contains information about a configured VPN with the objects listed in Table 64 and their supported VPNs and circuit connection services. The first two objects in jnxVpnEntry (JnxVpnType and JnxVpnname) are indexes and are not included in this table.

Table 64: Supported jnxVpnEntry Objects, VPNs, and Circuit Connection Services

Object	Object Identifier	Layer 3 VPN	Layer 2 VPN	VPLS VPN	L2 Circuit	Circuit Cross-Connect	Optical VPN	Description
jnxVpnRowStatus	jnxVpnEntry 3	NA	NA	NA	NA	NA	NA	Creates, modifies, or deletes a row in this table.
JnxVpnStorageType	jnxVpnEntry 4	NA	NA	NA	NA	NA	NA	The storage type.
jnxVpnDescription	jnxVpnEntry 5	Yes	Yes	Yes	No	No	NA	VPN description.
jnxVpnIdentifierType	jnxVpnEntry 6	Yes	Yes	Yes	No	No	NA	Type of jnxVpnIdentifier.
jnxVpnIdentifier	jnxVpnEntry 7	Yes	Yes	Yes	No	No	NA	For Border Gateway Protocol (BGP) VPNs, the route distinguisher for the VPN. For Label Distribution Protocol (LDP) VPNs, the virtual circuit (VC) ID for the circuit. A value of all zeros indicates that a route distinguisher and a VC ID are not configured for the VPN.
jnxVpnConfiguredSites	jnxVpnEntry 8	NA	No	No	No	No	NA	The number of sites configured in the VPN.
jnxVpnActiveSites	jnxVpnEntry 9	NA	No	No	No	No	NA	The number of active sites in the VPN.
jnxVpnLocalAddresses	jnxVpnEntry 10	No	No	No	No	No	NA	The number of addresses learned from the CE device.
jnxVpnTotalAddresses	jnxVpnEntry 11	No	No	No	No	No	NA	The total number of addresses in the VPN routing table.
jnxVpnVpnAge	jnxVpnEntry 12	Yes	Yes	Yes	No	No	NA	How old the VPN is, in hundreds of a second.

jnxVpnIfTable

The `jnxVpnIfTable`, whose object identifier is `jnxVpnMibObjects 3`, lists VPN interfaces.

jnxVpnIfEntry

`jnxVpnIfEntry` contains information about VPN interfaces, and has the objects listed in Table 65. The first three objects (`jnxVpnIfVpnType`, `jnxVpnIfVpnName`, and `jnxVpnIfIndex`) are indexes and are not included in this table.

Table 65: Supported `jnxVpnIfEntry` Objects, VPNs, and Circuit Connection Services

Object	Object Identifier	Layer 3 VPN	Layer 2 VPN	VPLS VPN	L2 Circuit	Circuit Cross-Connect	Optical VPN	Description
<code>jnxVpnIfRowStatus</code>	<code>jnxVpnIfEntry 4</code>	NA	NA	NA	NA	NA	NA	Creates, modifies, or deletes a row in this table.
<code>jnxVpnIfStorageType</code>	<code>jnxVpnIfEntry 5</code>	NA	NA	NA	NA	NA	NA	Identifies the storage type for an object.
<code>jnxVpnIfAssociationPw</code>	<code>jnxVpnIfEntry 6</code>	NA	Yes	Yes	No	No	NA	The index of the associated pseudo-wire. If there no index is associated with a pseudo-wire, the index is 0. A pseudo-wire is a mechanism that carries essential elements of an emulated circuit from one provider edge (PE) device to one or more other PEs over a PSN.

Object	Object Identifier	Layer 3 VPN	Layer 2 VPN	VPLS VPN	L2 Circuit	Circuit Cross-Connect	Optical VPN	Description
jnxVpnIfProtocol	jnxVpnIfEntry 7	No	Yes	Yes	No	No	NA	<p>Indicates the protocol running over a VPN interface.</p> <p>This object contains the following values:</p> <ul style="list-style-type: none"> other(0) frameRelay(1) atmAal5(2) atmCell(3) ethernetVlan(4) ethernet(5) ciscoHdlc(6) ppp(7) cem(8) atmVcc(9) atmVpc(10) vpls(11) ipInterworking(12) snapInterworking(13) static(20) rip(21) ospf(22) bgp(23) atmTrunkNNI (129) atmTrunkUNI (130)
jnxVpnIfInBandwidth	jnxVpnIfEntry 8	No	No	No	No	No	NA	<p>The maximum bandwidth that the customer edge (CE) device connected over a VPN can send to the PE device, in kilobytes per second. A value of "0" indicates that there is no configured maximum.</p>

Object	Object Identifier	Layer 3 VPN	Layer 2 VPN	VPLS VPN	L2 Circuit	Circuit Cross-Connect	Optical VPN	Description
jnxVpnIfOutBandwidth	jnxVpnIfEntry 9	No	No	No	No	No	NA	The maximum bandwidth that the PE device can send to the CE device over a VPN interface, in kilobytes per second. A value of "0" indicates that there is no configured maximum.
jnxVpnIfStatus	jnxVpnIfEntry 10	Yes	Yes	Yes	No	No	NA	Displays the status of a monitored VPN interface. This object contains the following values: <ul style="list-style-type: none"> unknown(0) noLocalInterface(1) disabled(2) encapsulation-Mismatch(3) down(4) up(5)

jnxVpnPwTable

jnxVpnPwTable, whose object identifier is jnxVpnMibObjects 4, lists pseudo-wire connections.

jnxVpnPwEntry

jnxVpnPwEntry contains pseudo-wire information about a VPN that is being monitored, and has the objects listed in Table 66. The first three objects (jnxVpnPwVpnType, jnxVpnPwVpnName, and jnxVpnPwIndex) are indexes and are not listed in this table.

Table 66: Supported jnxVpnEntry Objects, VPNs, and Connection Circuit Services

Object	Object Identifier	Layer 3 VPN	Layer 2 VPN	VPLS VPN	L2 Circuit	Circuit Cross-Connect	Optical VPN	Description
jnxVpnPwRowStatus	jnxVpnPwEntry 4	NA	NA	NA	NA	NA	NA	Creates, modifies, and deletes a row in this table.
jnxVpnPwStorageType	jnxVpnPwEntry 5	NA	NA	NA	NA	NA	NA	The storage type.
jnxVpnPwAssociatedInterface	jnxVpnPwEntry 6	NA	Yes	Yes	No	No	NA	The VPN index of the interface associated with a pseudo-wire. If there is no interface associated with a pseudo-wire, 0 is returned.
jnxVpnPwLocalSiteId	jnxVpnPwEntry 7	NA	Yes	Yes	No	No	NA	The local site identifier for a pseudo-wire. When there is no local site identifier, 0 is returned.
jnxVpnPwRemoteSiteId	jnxVpnPwEntry 8	NA	Yes	Yes	No	No	NA	The remote site identifier. For example, the site at the end of the pseudo-wire. When there is no remote site identifier, 0 is returned.
jnxVpnRemotetPeldAddrType	jnxVpnPwEntry 9	NA	Yes	Yes	No	No	NA	The remote PE address. For example, the router at the end of the pseudo-wire.

Object	Object Identifier	Layer 3 VPN	Layer 2 VPN	VPLS VPN	L2 Circuit	Circuit Cross-Connect	Optical VPN	Description
jnxVpnRemotePeldAddress	jnxVpnPwEntry 10	NA	Yes	Yes	No	No	NA	The type of the tunnel over which the pseudo-wire is carried. If several pseudo-wires can be carried in one tunnel, each pseudo-wire is identified by the multiplexer or demultiplexer within a tunnel. This object can contain the following values: <ul style="list-style-type: none"> static(1) gre(2) l2tpv3(3) ipSec(4) ldp(5) rsvpTe(6) crLdp(7)
jnxVpnPwTunnelType	jnxVpnPwEntry 11	NA	Yes	Yes	No	No	NA	The type of tunnel over which the pseudo-wire is carried.
jnxVpnPwTunnelName	jnxVpnPwEntry 12	NA	Yes	Yes	No	No	NA	The name of the tunnel over which a pseudo-wire is carried.
jnxVpnPwReceiveDemux	jnxVpnPwEntry 13	NA	Yes	Yes	No	No	NA	The demultiplexer value that identifies received the packets associated with this pseudo-wire.
jnxVpnPwTransmitDemux	jnxVpnPwEntry 14	NA	Yes	Yes	No	No	NA	The demultiplexer value that identifies the transmitted packets associated with this pseudo-wire.

Object	Object Identifier	Layer 3 VPN	Layer 2 VPN	VPLS VPN	L2 Circuit	Circuit Cross-Connect	Optical VPN	Description
jnxVpnPwStatus	jnxVpnPwEntry 15	NA	Yes	Yes	No	No	NA	The status of the pseudo-wire. This object can have the following values: unknown(0) down(1) up(2)
jnxVpnPwTunnelStatus	jnxVpnPwEntry 16	NA	No	No	No	No	NA	The status of the PE-to-PE tunnel over which the pseudo-wire is carried.
jnxVpnPwRemoteSiteStatus	jnxVpnPwEntry 17	NA	No	No	No	No	NA	The interface status at the remote end of the pseudo-wire. This object can have the following values: unknown(0) outOfRange(1) down(2) up(3)
jnxVpnPwTimeUp	jnxVpnPwEntry 18	NA	Yes	Yes	No	No	NA	The time, in hundredths of a second, that a pseudo-wire has been operational.
jnxVpnPwTransitions	jnxVpnPwEntry 19	NA	Yes	Yes	No	No	NA	The number of state transitions (up to down and down to up) that a tunnel has undergone.
jnxVpnPwLastTransition	jnxVpnPwEntry 20	NA	Yes	Yes	No	No	NA	The time, in hundredths of a second, since the last transition occurred in a tunnel.
jnxVpnPwPacketsSent	jnxVpnPwEntry 21	NA	No	No	No	No	NA	The number of packets sent over a pseudo-wire.
jnxVpnPwOctetsSent	jnxVpnPwEntry 22	NA	No	No	No	No	NA	The number of octets sent over a pseudo-wire.

Object	Object Identifier	Layer 3 VPN	Layer 2 VPN	VPLS VPN	L2 Circuit	Circuit Cross-Connect	Optical VPN	Description
jnxVpnPwPacketsReceived	jnxVpnPwEntry 23	No	No		No	No	NA	The number of packets received over a pseudo-wire.
jnxVpnPwOctetsReceived	jnxVpnPwEntry 24	No	No		No	No	NA	The number of octets received over a pseudo-wire.
jnxVpnPwLRPacketsSent	jnxVpnPwEntry 25	No	No		No	No	NA	The number of packets sent over a pseudo-wire.
jnxVpnPwLROctetsSent	jnxVpnPwEntry 26	No	No		No	No	NA	The number of octets sent over a pseudo-wire.
jnxVpnPwLRPacketsReceived	jnxVpnPwEntry 27	No	No		No	No	NA	The number of packets received over a pseudo-wire.
jnxVpnPwLROctetsReceived	jnxVpnPwEntry 28	No	No		No	No	NA	The number of octets received over a pseudo-wire.

jnxVpnRTTable

The jnxVpnRTTable, whose object identifier is jnxVpnMibObjects 4, contains route targets for a VPN.

jnxVpnRTEntry

jnxVpnRTEntry lists route targets for a given VPN, and has the objects listed in Table 67. The first three objects (jnxVpnRTVpnType, jnxVpnRTVpnName, and jnxVpnRTIndex) are indexes and are not listed in this table.

Table 67: Supported jnxVpnRTEntry Objects, VPNs, and Circuit Connection Services

Object	Object Identifier	Layer 3 VPN	Layer 2 VPN	VPLS	L2 Circuit	Circuit Cross-Connect	Optical VPN	Description
jnxVpnRTRowStatus	jnxVpnRTEntry 4	NA	NA	NA	NA	NA	NA	Creates, modifies, or deletes a row in this table.
jnxVpnRTStorageType	jnxVpnRTEntry 5	NA	NA	NA	NA	NA	NA	Identifies the storage type for an object.
jnxVpnRTType	jnxVpnRTEntry 6	Yes	Yes	Yes	No	No	NA	The type of the following route target. The type can be routeTarget[012] or none.
jnxVpnRT	jnxVpnRTEntry 7	Yes	Yes	Yes	No	No	NA	The VPN route target. If jnxVpnRTType is none, the value must be all zeros.
jnxVpnRTFunction	jnxVpnRTEntry 8	Yes	Yes	Yes	No	No	NA	The route target export distribution type.

VPN Traps

The enterprise-specific VPN MIB provides traps for monitoring VPNs. Table 68 lists supported VPN traps, VPNs, and circuit connection services.

Table 68: Supported VPN Traps, VPNs, and Circuit Connection Services

Object	Object Identifier	Layer 3 VPN	Layer 2 VPN	VPLS VPN	L2 Circuit	Circuit Cross-Connect	Optical VPN	Description
jnxVpnIfUp	jnxVpnMIBnotificatio 1	Yes	Yes	NA	Yes	No	NA	Indicates that the interface with the index jnxVpnIfIndex belonging to the jnxVpnIfVpnName of type jnxVpnIfVpnType went up.
jnxVpnIfDown	jnxVpnMIBnotificatio 2	Yes	Yes	NA	Yes	No	NA	Indicates that the interface with index jnxVpnIfIndex belonging to jnxVpnIfVpnName of type jnxVpnIfVpnType went down.
jnxVpnPwUp	jnxVpnMIBnotificatio 3	Yes	Yes	Yes	Yes	No	NA	Indicates that the pseudo-wire with the index jnxVpnPwIndex belonging to jnxVpnPwVpnName of type jnxVpnPwVpnType went up.
jnxVpnPwDown	jnxVpnMIBnotificatio 4	Yes	Yes	Yes	Yes	No	NA	Indicates that the pseudo-wire with index jnxVpnPwIndex belonging to jnxVpnPwVpnName of type jnxVpnPwVpnType went down.