

Chapter 20

Interpreting the Enterprise-Specific Ping MIB

The ping MIB extends the standard ping MIB control table (RFC 2925). The ping MIB, whose object identifier is `jnxMibs 7`, allows you to monitor network delay (latency), packet loss, network delay variation (jitter), one-way latency, and other network statistics.

Items in this MIB are created when entries are created in the `pingCtlTable` of the ping MIB. Each item is indexed exactly as in the ping MIB.

To view a complete copy of the enterprise-specific extensions to the ping MIB, see www.juniper.net/techpubs/software/junos/junos71/swconfig71-net-mgmt/html/mib-jnx-ping.txt. For more information on using the ping MIB and enterprise-specific ping MIB, see “SNMP Remote Operations” on page 79. For information about how to configure thresholds at the `[edit services rpm]` hierarchy level, see the *JUNOS Services Interfaces Configuration Guide*.

This section includes the following topics:

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`jnxPingResultsTable` on page 301

`jnxPingProbeHistoryTable` on page 304

`jnxPingCtlTable`

The enterprise-specific ping MIB structure includes one main object, `jnxPingCtlTable`, whose object identifier is `{jnxPingObjects 2}`, and defines the `jnxPing` control table for providing enterprise-specific options to the corresponding `pingCtlEntry`. `jnxpingCtlTable` monitors thresholds; for example, the maximum allowed jitter in the trip time during a text.

jnxPingCtlEntry

Each `jnxPingCtlEntry` has two indexes identical to those of the corresponding `pingCtlEntry`. Entries created in `pingCtlTable` are mirrored here. `jnxPingCtlEntry` objects are listed in the Table 45.

Table 45: jnxPingCtlEntry

Object	Object Identifier	Description
jnxCtlOwnerIndex	jnxPingCtlEntry 1	The first index. It is identical to the pingCtlOwnerIndex of the corresponding pingCtlEntry in the pingCtlTable.
jnxPingCtlTestName	jnxPingCtlEntry 2	The other index and is identical to the pingCtlTestName of the corresponding pingCtlEntry in the pingCtlTable.
jnxPingCtlIfName	jnxPingCtlEntry 3	Specifies the name of the outgoing interface for ping probes. This is the name-based complement to pingCtlIfIndex. A zero-length string value for this object means that this option is not enabled. The following values can be set simultaneously, but only one value is used. The precedence order is as follows: <p style="margin-left: 40px;">pingCtlIfIndex (see pingCtlTable in the ping MIB)</p> <p style="margin-left: 40px;">jnxPingCtlIfName</p> <p style="margin-left: 40px;">jnxPingCtlRoutingInstanceName</p>
jnxPingCtlRoutingInstanceName	jnxPingCtlEntry 6	Specifies the name of the routing instance used when directing outgoing ping packets. The instance name specified must be configured at the [edit routing-instances] hierarchy level of the JUNOS configuration. The instance-type must be vrf.
jnxPingCtlRttThreshold	jnxPingCtlEntry 7	The maximum round-trip time allowed. If this threshold is crossed by any probe, a jnxPingRttThresholdExceeded trap will be sent.
jnxPingCtlRttStdDevThreshold	jnxPingCtlEntry 8	The maximum round-trip time standard deviation allowed over the course of any test. If the calculated standard deviation of the round-trip time at the end of any test exceeds this threshold, a jnxPingRttStdDevThresholdExceeded trap will be sent.
jnxPingCtlRttJitterThreshold	jnxPingCtlEntry 9	The maximum allowed jitter in the round-trip time over the course of any test. Jitter is the difference between the maximum and minimum round-trip times measured over the course of a single test (jnxPingResultsMaxRttUs minus jnxPingResultsMinRttUs). If the measured jitter exceeds this threshold, a jnxPingRttJitterThresholdExceeded trap is sent.
jnxPingCtlEgressTimeThreshold	jnxPingCtlEntry 10	Maximum egress trip time allowed. If this threshold is crossed by any probe, a jnxPingEgressThresholdExceeded trap will be sent. This applies only if the probe type (pingCtlType) provides one-way delay measurements. Currently jnxPingIcmpTimeStamp is the only supported probe type with this property.

Object	Object Identifier	Description
jnxPingCtlEgressStdDevThreshold	jnxPingCtlEntry 11	The maximum egress trip time standard deviation allowed over the course of any test. If the calculated standard deviation of the egress trip time at the end of any test exceeds this threshold, a jnxPingEgressStdDevThresholdExceeded trap will be sent. This applies only if the probe type (pingCtlType) provides one-way delay measurements. The jnxPingIcmpTimeStamp is the only supported probe type with this property.
jnxPingCtlEgressJitterThreshold	jnxPingCtlEntry 12	The maximum allowed jitter in the egress trip time over the course of any test. Jitter is defined as the difference between the maximum and minimum egress trip times measured over the course of a single test (jnxPingResultsMaxSrcDstt minus jnxPingResultsMinSrcDstt). If the measured jitter exceeds this threshold, a jnxPingEgressJitterThresholdExceeded trap will be sent. This applies only if the probe type (pingCtlType) provides one-way delay measurements. The jnxPingIcmpTimeStamp is the only supported probe type with this property.
jnxPingCtlIngressTimeThreshold	jnxPingCtlEntry 13	The maximum ingress trip time allowed. If this threshold is crossed by any probe, a jnxPingIngressThresholdExceeded trap will be sent. This applies only if the probe type (pingCtlType) provides one-way delay measurements. The jnxPingIcmpTimeStamp is the only supported probe type with this property.
jnxPingCtlIngressStddevThreshold	jnxPingCtlEntry 14	The maximum ingress trip time standard deviation allowed over the course of any test. If the calculated standard deviation of the ingress trip time at the end of any test exceeds this threshold, a jnxPingIngressStddevThresholdExceeded trap will be sent. This applies only if the probe type (pingCtlType) provides one-way delay measurements. Currently jnxPingIcmpTimeStamp is the only supported probe type with this property.
jnxPingCtlIngressJitterThreshold	jnxPingCtlEntry 15	The maximum allowed jitter in the ingress trip time over the course of any test. Jitter is defined as the difference between the maximum and minimum ingress trip times measured over the course of a single test (jnxPingResultsMaxDstSrct minus jnxPingResultsMinDstSrct). If the measured jitter exceeds this threshold, a jnxPingIngressJitterThresholdExceeded trap will be sent. This applies only if the probe type (pingCtlType) provides one-way delay measurements. The jnxPingIcmpTimeStamp is the only supported probe type with this property.

Object	Object Identifier	Description
jnxPingCtlTrapGeneration	jnxPingCtlEntry 16	<p>The value of this object determines when and if to generate a notification for this entry.</p> <p>rttThreshold(0)—Generate a jnxPingRttThresholdExceeded notification when the configured rtt threshold is exceeded.</p> <p>rttStdDevThreshold(1)—Generate a jnxPingRttStdDevThresholdExceeded notification when the configured rtt standard deviation threshold is exceeded.</p> <p>rttJitterThreshold(2)—Generate a jnxPingRttJitterThresholdExceeded notification when the configured rtt jitter threshold is exceeded.</p> <p>egressThreshold(3)—Generate a jnxPingEgressThresholdExceeded notification when the configured egress threshold is exceeded. This applies only if the probe type supports one-way measurements.</p> <hr/> <p>egressStdDevThreshold(4)—Generate a jnxPingEgressStdDevThresholdExceeded notification when the configured egress standard deviation threshold is exceeded. This applies only if the probe type supports one-way measurements.</p> <p>egressJitterThreshold(5)—Generate a jnxPingEgressJitterThresholdExceeded notification when the configured egress jitter threshold is exceeded. This applies only if the probe type supports one-way measurements.</p> <p>ingressThreshold(6)—Generate a jnxPingIngressThresholdExceeded notification when the configured ingress threshold is exceeded. This applies only if the probe type supports one-way measurements.</p> <p>ingressStdDevThreshold(7)—Generate a jnxPingIngressStdDevThresholdExceeded notification when the configured ingress standard deviation threshold is exceeded. This applies only if the probe type supports one way measurements.</p> <p>ingressJitterThreshold(8)—Generate a jnxPingIngressJitterThresholdExceeded notification when the configured ingress jitter threshold is exceeded. This applies only if the probe type supports one-way measurements. The value of this object defaults to zero, indicating that none of the above options have been selected.</p>

jnxPingResultsTable

jnxPingResultsTable, whose object identifier is jnxPingObjects 3, gathers ping test results on traffic on round-trip, ingress, and egress trip delays. This useful when you want to measure the performance of your network and verify service-level agreements with your vendors.

jnxpingResultsEntry

The jnxPingResultsEntry objects are listed in Table 46.

Table 46: jnxPingsResultsEntry

Object	Object Identifier	Description
jnxPingResultsRttUs	jnxPingResultsEntry 1	The round-trip delays measured for the most recent probe during this test, in microseconds
jnxPingResultsSumRttUs	jnxPingResultsEntry 2	The sum of the round-trip delays measured for all the probes during this test, in microseconds.
jnxPingResultsMinRttUs	jnxPingResultsEntry 3	The minimum of the round-trip delays measured for all the probes during this test, in microseconds.
jnxPingResultsMaxRttUs	jnxPingResultsEntry 4	The maximum of the round-trip delays measured for all the probes during this test, in microseconds.
jnxPingResultsAvgRttUs	jnxPingResultsEntry 5	The average of the round-trip delays measured for all the probes during this test, in microseconds.
jnxPingResultsStdDevRttUs	jnxPingResultsEntry 6	The standard deviation of the round-trip delays measured during this test, in microseconds.
jnxPingResultsEgressUs	jnxPingResultsEntry 7	The egress trip delays measured for the most recent probe during this test, in microseconds. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, their values are irrelevant and will return 0.
jnxPingResultsMinEgressUs	jnxPingResultsEntry 8	The minimum of the egress trip delays measured for the most recent probe during this test, in microseconds. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, their values are irrelevant and will return 0.

Object	Object Identifier	Description
jnxPingResultsMaxEgressUs	jnxPingResultsEntry 9	The maximum of the egress trip delays measured for the most recent probe during this test, in microseconds. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, their values are irrelevant and will return 0.
jnxPingResultsAvgEgressUs	jnxPingResultsEntry 10	The average of the egress trip delays measured for the most recent probe during this test, in microseconds. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, their values are irrelevant and will return 0.
jnxPingResultsStddevEgressUs	jnxPingResultsEntry 11	The standard deviation of the egress trip delays measured during this test, in microseconds. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, their values are irrelevant and will return 0.
jnxPingResultsIngressUs	jnxPingResultsEntry 12	The ingress trip delays measured for the most recent probe during this test, in microseconds. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, their values are irrelevant and will return 0."
jnxPingResultsMinIngressUs	jnxPingResultsEntry 13	The minimum of the ingress trip delays measured for the most recent probe during this test, in microseconds. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, their values are irrelevant and will return 0.
jnxPingResultsMaxIngressUs	jnxPingResultsEntry 14	The maximum of the ingress trip delays measured for the most recent probe during this test, in microseconds. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, their values are irrelevant and will return 0.

Object	Object Identifier	Description
jnxPingResultsAvgIngressUs	jnxPingResultsEntry 15	The average of the ingress trip delays measured for the most recent probe during this test, in microseconds. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, their values are irrelevant and will return 0.
jnxPingResultsStddevIngressUs	jnxPingResultsEntry 16	The standard deviation of the ingress trip delays measured during this test, in microseconds. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, their values are irrelevant and will return 0.

jnxPingProbeHistoryTable

jnxpingProbeHistoryTable contains the history of all ping tests.

jnxPingProbeHistoryEntry

The jnxPingProbeHistoryEntry objects are listed in Table 47.

Table 47: jnxPingProbeHistoryEntry

Object	Object Identifier	Description
jnxPingProbeHistoryResponseUs	jnxPingProbeHistoryEntry 1	The amount of time, in microseconds, from when a probe was sent to when its response was received or when it timed out. The value of this object is reported as 0 when it is not possible to transmit a probe.
jnxPingProbeHistoryJitterUs	jnxPingProbeHistoryEntry 2	The time difference, in microseconds, between the maximum and minimum round-trip times. Each history entry provides a running calculation of the jitter (calculated over the current test) at the time a probe was completed.
jnxPingProbeHistoryResponseEgressUs	jnxPingProbeHistoryEntry 3	The amount of time, in microseconds, from when a probe was sent to when it was received by destination. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, the value is irrelevant and will return 0.
jnxPingProbeHistoryResponseIngressUs	jnxPingProbeHistoryEntry 4	The amount of time, in microseconds, from when a probe was sent from the destination to when it was received. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, the value is irrelevant and will return 0.

Object	Object Identifier	Description
jnxPingProbeHistoryEgressJitterUs	jnxPingProbeHistoryEntry 5	The time difference, in microseconds, between the maximum and minimum egress trip times. Each history entry provides a running calculation of the jitter (calculated over the current test) at the time a probe was completed. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, the value is irrelevant and will return 0.
jnxPingProbeHistoryIngressJitterUs	jnxPingProbeHistoryEntry 6	The time difference, in microseconds, between the maximum and minimum ingress trip times. Each history entry provides a running calculation of the jitter (calculated over the current test) at the time a probe was completed. This applies only if the probe type (pingCtlType) provides one-way delay measurements. For all other probe types, the value is irrelevant and will return 0.

