SNMP RMON MIB

The RMON (Remote Monitor Management Information Base) MIB Test Suite is intended to test products implementing RMON-1 or RMON-2.

RMON-1 Test Suite: RFC 2819

RMON-2 Test Suite: RFC 2021

RMON-1 and RMON-2 MIB Test Suites are included with SilverCreek®, the SNMP Test Suite and does not require separate installation.

Summary of the RMON MIB Tests

- For every control table in the MIB, create and delete rows with various combinations of SNMP requests (all variables in a single request throughall variables in individual requests).
- Determine which row of this table is modeling the ethernet interface connected to the agent (requires that we are using ethernet). Check that this is for the same interface discovered in the "interfaces" test. Check counters.
- Build a history control row pointing to the interface connected to the agent. Check validity and traffic reported.
- Test agent's ability to generate an alarm on an RMON variable, then on threshold condition. Test for support of alarms on failing events, and in the event of target variable vanishing.
- Set up agent to track hosts on the ethernet interface connected to the agent. Check that entry was added for Rmon device's own ethernet address.
- Generate various top N reports (hostTopN test) and check validity.
- Start a matrix capture and check that the src-dst and dst-src tables are in sync.
- Check a channel and check for event generation (filter test).
- Create a channel and start a capture. Test locking and wrapWhenFull operation.

Summary of the RMON2 MIB Tests

Protocol Directory

- Verify probe implementation level.
- Verify changes to the Protocol Directory.
- Verify that the Protocol Directory is initialized at boot-time with the protocols the probe understands.
- Verify that the correct error is returned when a bad protocol is added to the Protocol Directory.
- Verify that the agent assigns unique values to the protocolDirLocalIndex column.
- Verify that the Protocol Directory Table entries have well formed indices, especially with respect to the length octets.
- Plus additional tests.

Protocol Distribution

- Verify that the protocolDistControlIndex can handle any random value within its defined range.
- Verify that the Protocol Distribution Control Table is initialized at boot-time with entries for each monitored interface.
- Verify that no entries exist in the Protocol Distribution Statistics Table which have zero-valued entries.

Address Mapping

- Verify that the Address Map Control Table is initialized at boot-time with the entries for default mappings.
- Verify that addressMapControlIndex can handle any random value in its defined range.
- Verify that the probe implements the proper range for addressMapControlIndex.
- Verify that the addressMapInserts and addressMapDeletes counters are functioning properly with respect to the Address Map Table.
- Plus seven additional tests.

Network Layer Host

- Verify that the Network Layer Host Control Table is initialized at boot-time with entries for each monitored interface.
- Verify that hlHostControlIndex can handle any random value within its defined range.
- Verify that the hlHostControlNIInsertsand hlHostControlNIDeletes counters are functioning properly with respect to the Network Layer Host Table.
- Verify that the hlHostControlAIInserts and hlHostControlAIDeletes counters are functioning properly with respect to the Application Layer Host Table.
- Plus seven additional tests.

Network Layer Matrix

- Verify that the Host Layer Matrix Control Table is initialized at boot-time with the entries for default mappings.
- Verify that the hlMatrixControlIndex can handle any random value within its defined range.
- Verify that the hlMatrixControlNIInserts and hlMatrixControlNIDeletes counters are functioning properly with respect to the Network Layer Matrix Table.
- Verify that the hlMatrixControlAIInserts and hlMatrixControlAIDeletes counters are functioning properly with respect to the Application Layer Matrix Table.
- Verify that the Network Layer Matrix Table entries have well formed indices, especially with respect to the length octets.
- Verify that all Network Layer Matrix Table entries have a Source/Dest Address that is formatted correctly with respect to the protocol document.
- Ensure that the sum of matrix counters for a host equals the value for the host.
- Plus seven additional tests.

Application Layer Host

- Verify that the Application Layer Host Table entries have well formed indices, especially with respect to the length octets.
- Verify that the probe counts fragmented IP packets correctly.
- Verify that the probe correctly counts octets in all frames of a UDP packet.
- Verify that the TimeFilter for the Application Layer Host Table works correctly under normal circumstances.
- Verify that the TimeFilter for the Network Layer Host Table works correctly under normal circumstances.
- Check for equivalency between nlHostInPkts.?.?.X.A and alHostInPkts.?.?.X.A.X.

Application Layer Matrix

- Verify that the Application Layer Matrix Table entries have well formed indices, especially with respect to the length octets.
- Verify that all Application Layer Matrix Table entries have a Source/Dest Address that is formatted correctly with respect to the protocol document.
- Verify that the TimeFilter for the Application Layer Matrix Table works correctly under normal circumstances.
- Plus nine additional tests.

User History

- Verify that usrHistoryControlIndex can handle any random value within its defined range.
- Check for proper operation of the usrHistoryControlObjects variable.
- Check for proper operation of usrHistoryObject configuration.
- Verify that the usrHistoryControl columns cannot be modified while the row is Active.

Probe Configuration

- Verify that the probeCapabilities object is encoded with the correct SYNTAX.
- Verify that trapDestIndex can handle any random value within its defined range.
- Verify that the trapDestTable works properly.
- Verify that the probeDateTime object handles Set functions properly using the current time.
- Verify that the probeDateTime object handles Set functions properly using a bad time.

RMON-1 Enhancements

- Verify that the probe implements RMON2 extensions to the RMON1 MIB.
- Check for proper operation of RMON1 filter enhancements.
- Check getNext behavior at the end of tables.

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