



Kepware Technologies

A Quick Reference Guide for the new
iSNMP solution released April 25, 2008

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1. Overview

Kepware purchased all SNMP assets of COI Software in September 2007. Kepware has developed a new iSNMP suite that “plugs-in” to Kepware’s award winning KEPServer architecture. The new iSNMP suite consists of 2 drivers, the SNMP driver for Managed devices and the Ping driver for Unmanaged devices.

This is a technical document only and its purpose is to provide a brief overview of the *new* Kepware iSNMP suite vs. the *legacy* COI iSNMP suite.

2. Device Auto Discovery

This feature is not implemented in the first release of the new iSNMP suite.

3. MIB Import

This feature is not implemented in the first release of the new iSNMP suite.

If you need to convert a Legacy iSNMP Project, manual conversion is fairly straightforward. Please refer to Kepware’s detailed conversion guideline for more information. This guideline explains how to export the project from Legacy iSNMP applications then manipulate with a CSV editor (like MS Excel) prior to import into the New iSNMP project.

4. Network Analyst Tags (for Managed switches)

This feature is not implemented in the first release of the new iSNMP suite.

5. Program ID

The legacy iSNMP server was for sale by COI Software but also as re-branded product for several industrial switch vendors. The Program ID has changed from the current Vendor specific id like “vendor.SNMPOPCServer.1” to “Kepware.KepserverEX.V4”. Users who upgrade to the new iSNMP solution by Kepware will need to update ProgID naming in all OPC client applications connected to the server.

6. Aliases

The full OPC item ID path for KEPServerEX tags contains an additional field to represent “channels” used for each driver. The KEPServerEX interface contains an “Alias Map” to map differing item ID paths to the server. Mapping is created by default in the server but if you want to edit Aliases Please refer to the main KEPServerEX help file for more information. The section is Basic Server Components | What is the **Alias Map**.

7. Specialty Tags

7.1 History Tags

History Tags were disabled by default in the Legacy iSNMP suite. If History Tags were enabled for individual items they could then be browsed by OPC Clients as tag groups with sub-items. In the New iSNMP suite history data will be available by appending a history property abbreviation to valid OIDs.

7.1.1 COI History Tag Syntax

To reference the three History Tag properties from an OPC Client the complete OPC item path format was as follows:

"devicename.tagname\$hist.dTm" – (delta time)

"devicename.tagname\$hist.moveavg - (moving average of 5 sample values)

"devicename.tagname\$hist.pre" – (previous value)

7.1.2 KEPServerEX History Tag Syntax

In the New iSNMP suite History Tags are created by defining separate Tagnames with underlying Addresses which have the history property appended to the OID. The address format is as follows:

OID(dt) - (delta time)

OID(ma5) - (moving average of 5 sample values)

OID(pre) - (previous value)

7.1.3 Mapping Legacy History Tags to New History Tags

If you are upgrading a Legacy project and History Tags were used, you can avoid making changes in your OPC client applications by creating a Tag Group for each legacy Tag (OID) using History properties. To easily map legacy history tags into the new project create a tag folder "tagname\$hist " under the appropriate device in the new iSNMP project, then create tags in the new tag group for each of the sub-items (like dTm, moveavg, pre). Each of these sub-items/tags would be mapped to the appropriate new history format such as OID(dt) for the dTM sub-item. Except for the OPC server ProgID mentioned earlier in section 5, no change would be required in the OPC Client applications because they are requesting an item called "device.tagname\$hist.dTm".

7.2 \$Device Tags

Legacy \$Device Tags will be Mapped to _System tags which exist at various levels in the New iSNMP server suite. These levels are: Server, Channel, and Device and they are created automatically by the server but can only be seen when browsing from an OPC client.

7.2.1 \$Device Mappings for Managed Devices (to new SNMP Driver)

Legacy Tag	New Tag
\$iSNMPDeviceNoItems	_ActiveTagCount (note: for entire server not by device)
\$iSNMPDeviceRetries	_RequestAttempts
\$iSNMPDeviceSkipCount (note: no longer used in legacy)	_AutoDemoted _AutoDemotionEnabled _AutoDemotionIntervalMS _AutoDemotionFailureCount
\$iSNMPDeviceStatus	_Error
\$iSNMPDeviceTimeOut	_ConnectTimeout
\$iSNMPMinimumPollTime	_ScanRateFloor _ScanRateFloorLock

7.2.2 \$Device Mappings for Unmanaged Devices (to new Ping Driver)

Legacy Tag	New Tag
\$PingDeviceRetries	_RequestAttempts
\$PingDeviceTimeOut	_ConnectTimeout
\$iSNMPDeviceSkipCount (note: no longer used in legacy)	_AutoDemoted _AutoDemotionEnabled _AutoDemotionIntervalMS _AutoDemotionFailureCount

7.3 Table Offsets

In the Legacy iSNMP product data from Tables is accessed by using the Offset field available by editing individual tags. Legacy Table Offsets can easily be mapped to the New format by appending the Offset in brackets to the OID. An offset of 1 would be established by editing the tag's address field with: OID[1].

- ✓ THE OFFSET OF THE FIRST ROW OF A TABLE SHOULD ALWAYS BE 1.

8. Traps

Traps are Unsolicited Notifications sent from an SNMP Agent (most often an Agent in a device) to an SNMP Manager (in this case the iSNMP server). Traps may contain multiple components such as fields for name, description, date/time, and value. The new iSNMP suite supports Traps in two ways: Events Tags and/or defined Trap OIDs.

8.1.1 Events Tags

The New iSNMP suite supports the Events format of the Legacy suite but additionally parses the Events into an array of sub-items or fields. When creating a new SNMP device you can specify the number of Events and Events fields to access only the Trap component information required. These Events tags will be auto-created in an Events tag folder with names that follow the Legacy suite's format i.e. "Events_001" and "Events_002". As valid Traps are received they will be posted to Events_001 then pushed down to Events_002 when a new Trap is received.

8.1.2 Defined Trap OIDs

In the first release of the New iSNMP suite you have the ability to define tags for individual trap OIDs. These tags are a Boolean data type and indicate that a Trap was received for that specific OID. The tag address syntax is OID(T).

For example, a ColdStart Trap from a device could exist for a specific OID in the device such as "1.3.6.1.4.1.11.1.1.3.3". To define a Trap OID for this create a tag (you could call it "evtColdstart") and then enter the following reference in the tag address field: "1.3.6.1.4.1.11.1.1.3.3(T)".

- ✓ CURRENTLY, TO RECEIVE SUBSEQUENT TRAP EVENTS TO THIS OID YOU MUST CLEAR THE TAG BY WRITING A ZERO TO IT FROM AN OPC CLIENT, AFTER EACH TRAP HAS BEEN RECEIVED.

9. SNMP Centric Data Type Support

In a few cases SNMP Centric data types do not exist in standard OPC. To read these items they should be mapped or correlated to a valid OPC data. Extensive testing has been performed to assure that SNMP centric data types can be served correctly to your OPC clients.