

Application Note

SNMP Object Identifiers





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Used symbols

 *Danger* – Information regarding user safety or potential damage to the router.

 *Attention* – Problems that can arise in specific situations.

 *Information* – Useful tips or information of special interest.

 *Example* – Example of function, command or script.

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1. Basics and MIB Files

OID (Object Identifier) is the name for a numeric identifier that is unique for every value in SNMP. This identifier consists of a numbers separated by points. The shape of each OID is determined by the identifier value of the parent element and then this value is complemented by a point and current number. So it is obvious that there is a tree structure. It is stored in the MIB (Management Information Base) that contains names and descriptions of numeric identifiers.



Information about the router can be found in the *mgmt* and *private* parts of the tree. The private tree for Advantech routers is defined by MIB files accessible in the public repository here: <https://bitbucket.org/bbsmartworx/snmp-mib/> (Requires RFC1155-SMI and RFC-1212 modules). These files are up-to-date and determinant. They are readable by any SNMP MIB browser and can be analysed for exact information on carried Base Types (data format) of OIDs etc.



SNMP v1/v2 or v3 is supported. All the SNMP values are *read-only*, except for the binary outputs: *ioOut0* (.1.3.6.1.4.1.30140.2.3.2.0) and *xccntOut1* (.1.3.6.1.4.1.30140.2.1.9.0). These two OIDs are *read-write* and can be set via SNMP according to write settings on *SNMP* configuration page in the router.

1.1 Tree Structure

Figure 1 shows the basic tree structure that is used for creating all of OIDs.

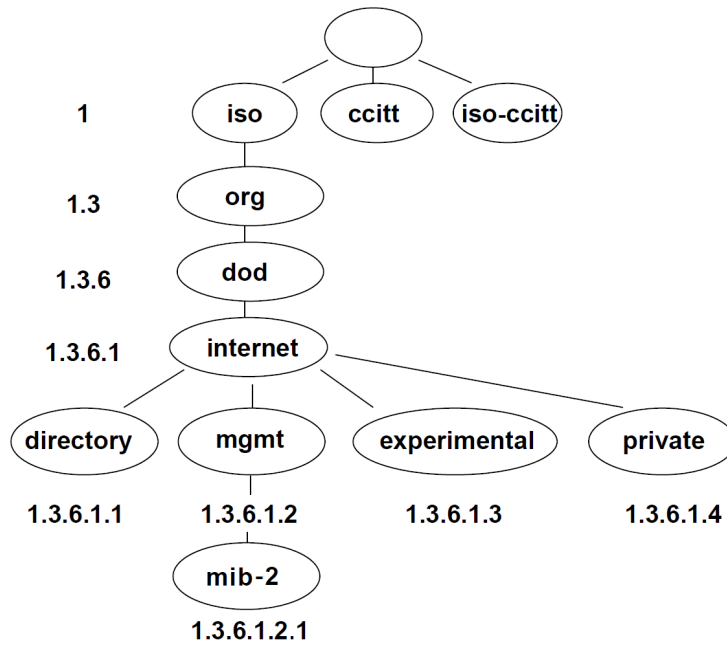


Figure 1: Basic Structure

In the standard MIB tree, the *mgmt* item is further divided into the following groups:

OID	Group name	Note
.1.3.6.1.2.1.1	system	For more information see section 1.2
.1.3.6.1.2.1.2	interfaces	For more information see section 1.3
.1.3.6.1.2.1.3	at	<i>Not supported by Advantech routers</i>
.1.3.6.1.2.1.4	ip	For more information see section 1.4
.1.3.6.1.2.1.5	icmp	For more information see section 1.5
.1.3.6.1.2.1.6	tcp	For more information see section 1.6
.1.3.6.1.2.1.7	udp	For more information see section 1.7
.1.3.6.1.2.1.8	egp	<i>Not supported by Advantech routers</i>
.1.3.6.1.2.1.9	transmission	<i>Not supported by Advantech routers</i>
.1.3.6.1.2.1.10	snmp	<i>Not supported by Advantech routers</i>

Table 1: Basic Groups of *mgmt* Section

1.2 System

OID	Object	Description
.1.3.6.1.2.1.1.1	sysDescr	A textual description of the entity. Name of product and version of firmware in case of Advantech routers.
.1.3.6.1.2.1.1.2	sysObjectID	Identification of the network management subsystem contained in the entity. Contains OID of the product type in private tree from table 8.
.1.3.6.1.2.1.1.3	sysUpTime	The time (in hundredths of a second) since the device was last re-initialized.
.1.3.6.1.2.1.1.4	sysContact	The textual identification of the contact person, taken from router <i>Configuration</i> (page <i>Services, SNMP</i>). If it is unknown, the value is a zero-length string.
.1.3.6.1.2.1.1.5	sysName	System name (from <i>SNMP</i> configuration page). Otherwise a zero-length string.
.1.3.6.1.2.1.1.6	sysLocation	The physical location (from <i>SNMP</i> configuration page). Otherwise a zero-length string.
.1.3.6.1.2.1.1.7	sysServices	A value which indicates the set of services that this entity primarily offers. Value 4 for Advantech routers.

Table 2: System

1.3 Interfaces

OID	Table	Description
.1.3.6.1.2.1.2.1	ifNumber	The number of network interfaces (regardless of their current state).
.1.3.6.1.2.1.2.2	ifTable	A list of interface entries. Table with properties for every interface. The number of tables is given by the value of ifNumber.

Table 3: Interfaces

ifTable is the parent element for a group *ifEntry* (OID .1.3.6.1.2.1.2.2.1). This group includes scalar objects that store information about a particular interface. There are the following interface types:

- **ethx** – Ethernet interface:
 - **eth0** – primary Ethernet interface,
 - **eth1** – secondary Ethernet interface,
 - **eth2** – tertiary Ethernet interface,
- **lanx** – xth single Ethernet port of a switch (from left to right),
- **mwan0** – primary Mobile WAN interface,
- **mwan1** – secondary Mobile WAN interface,
- **wlanx** – WiFi interface:
 - **wlan0** – primary Access Point interface,
 - **wlan02** – secondary Access Point interface,
 - **wlan1** – primary Station interface,
 - **wlan2** – tertiary Access Point interface,
 - **wlan22** – quaternary Access Point interface,
 - **wlan3** – secondary Station interface.

1.4 IP

OID	Object	Description
.1.3.6.1.2.1.4.1	ipForwarding	The indication of whether this entity is acting as an IP gateway in respect to the forwarding of datagrams received by, but not addressed to, this entity.
.1.3.6.1.2.1.4.2	ipDefaultTTL	The default value inserted into the Time-To-Live field of the IP header of datagrams originated at this entity, whenever a TTL value is not supplied by the transport layer protocol.
.1.3.6.1.2.1.4.3	ipInReceives	The total number of input datagrams received from interfaces, including those received in error.
.1.3.6.1.2.1.4.4	ipInHdrErrors	The number of input datagrams discarded due to errors in their IP headers, including bad checksums, version number mismatch, other format errors, etc.
.1.3.6.1.2.1.4.5	ipInAddrErrors	The number of input datagrams discarded because the IP address in their IP header's destination field was not a valid address to be received at this entity.
.1.3.6.1.2.1.4.6	ipForwDatagrams	The number of input datagrams for which this entity was not their final IP destination, as a result of which an attempt was made to find a route to forward them to that final destination.
.1.3.6.1.2.1.4.7	ipInUnknownProtos	The number of locally-addressed datagrams received successfully but discarded because of an unknown or unsupported protocol.
.1.3.6.1.2.1.4.8	ipInDiscards	The number of input IP datagrams for which no problems were encountered to prevent their continued processing, but which were discarded (e.g., for lack of buffer space).
.1.3.6.1.2.1.4.9	ipInDelivers	The total number of input datagrams successfully delivered to IP user-protocols (including ICMP).
.1.3.6.1.2.1.4.10	ipOutRequests	The total number of IP datagrams which local IP userprotocols (including ICMP) supplied to IP in requests for transmission. Note that this counter does not include any datagrams counted in <i>ipForwDatagrams</i> .
.1.3.6.1.2.1.4.11	ipOutDiscards	The number of output IP datagrams for which no problem was encountered to prevent their transmission to their destination, but which were discarded (e.g., for lack of buffer space). Note that this counter would include datagrams counted in <i>ipForwDatagrams</i> if any such packets met this (discretionary) discard criterion.
.1.3.6.1.2.1.4.12	ipOutNoRoutes	The number of IP datagrams discarded because no route could be found to transmit them to their destination. Note that this counter includes any packets counted in <i>ipForwDatagrams</i> which meet this "no-route" criterion.
.1.3.6.1.2.1.4.13	ipReasmTimeout	The maximum number of seconds which received fragments are held while they are awaiting reassembly at this entity.
.1.3.6.1.2.1.4.14	ipReasmReqds	The number of IP fragments received which needed to be re-assembled at this entity.
.1.3.6.1.2.1.4.15	ipReasmOKs	The number of IP datagrams successfully re-assembled.
.1.3.6.1.2.1.4.16	ipReasmFails	The number of failures detected by the IP re-assembly algorithm (for whatever reason: timed out, errors, etc).

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OID	Object	Description
.1.3.6.1.2.1.4.17	ipFragOKs	The number of IP datagrams that have been successfully fragmented at this entity.
.1.3.6.1.2.1.4.18	ipFragFails	The number of IP datagrams that have been discarded because they needed to be fragmented at this entity but could not be.
.1.3.6.1.2.1.4.19	ipFragCreates	The number of IP datagram fragments that have been generated as a result of fragmentation at this entity.
.1.3.6.1.2.1.4.20	ipAddrTable	<i>Not supported by Advantech routers.</i>
.1.3.6.1.2.1.4.21	ipRouteTable	<i>Not supported by Advantech routers.</i>
.1.3.6.1.2.1.4.22	ipNetToMediaTable	<i>Not supported by Advantech routers.</i>
.1.3.6.1.2.1.4.23	ipRoutingDiscards	<i>Not supported by Advantech routers.</i>

Table 4: IP

1.5 ICMP

OID	Object	Description
.1.3.6.1.2.1.5.1	icmplnMsgs	The total number of ICMP messages which the entity received. Note that this counter includes all those counted by <i>icmplnErrors</i> .
.1.3.6.1.2.1.5.2	icmplnErrors	The number of ICMP messages which the entity received but determined as having ICMP-specific errors (bad ICMP checksums, bad length, etc.).
.1.3.6.1.2.1.5.3	icmplnDestUnreachs	The number of ICMP Destination Unreachable messages received.
.1.3.6.1.2.1.5.4	icmplnTimeExclds	The number of ICMP Time Exceeded messages received.
.1.3.6.1.2.1.5.5	icmplnParmProbs	The number of ICMP Parameter Problem messages received.
.1.3.6.1.2.1.5.6	icmplnSrcQuenchs	The number of ICMP Source Quench messages received.
.1.3.6.1.2.1.5.7	icmplnRedirects	The number of ICMP Redirect messages received.
.1.3.6.1.2.1.5.8	icmplnEchos	The number of ICMP Echo (request) messages received.
.1.3.6.1.2.1.5.9	icmplnEchoReps	The number of ICMP Echo Reply messages received.
.1.3.6.1.2.1.5.10	icmplnTimestamps	The number of ICMP Timestamp (request) messages received.
.1.3.6.1.2.1.5.11	icmplnTimestampReps	The number of ICMP Timestamp Reply messages received.
.1.3.6.1.2.1.5.12	icmplnAddrMasks	The number of ICMP Address Mask Request messages received.
.1.3.6.1.2.1.5.13	icmplnAddrMaskReps	The number of ICMP Address Mask Reply messages received.
.1.3.6.1.2.1.5.14	icmpOutMsgs	The total number of ICMP messages which this entity attempted to send. Note that this counter includes all those counted by <i>icmpOutErrors</i> .
.1.3.6.1.2.1.5.15	icmpOutErrors	The number of ICMP messages which this entity did not send due to problems discovered within ICMP such as a lack of buffers.
.1.3.6.1.2.1.5.16	icmpOutDestUnreachs	The number of ICMP Destination Unreachable messages sent.
.1.3.6.1.2.1.5.17	icmpOutTimeExclds	The number of ICMP Time Exceeded messages sent.
.1.3.6.1.2.1.5.18	icmpOutParmProbs	The number of ICMP Parameter Problem messages sent.
.1.3.6.1.2.1.5.19	icmpOutSrcQuenchs	The number of ICMP Source Quench messages sent.
.1.3.6.1.2.1.5.20	icmpOutRedirects	The number of ICMP Redirect messages sent. For a host, this object will always be zero, since hosts do not send redirects.
.1.3.6.1.2.1.5.21	icmpOutEchos	The number of ICMP Echo (request) messages sent.
.1.3.6.1.2.1.5.22	icmpOutEchoReps	The number of ICMP Echo Reply messages sent.
.1.3.6.1.2.1.5.23	icmpOutTimestamps	The number of ICMP Timestamp (request) messages sent.
.1.3.6.1.2.1.5.24	icmpOutTimestampReps	The number of ICMP Timestamp Reply messages sent.

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OID	Object	Description
.1.3.6.1.2.1.5.25	icmpOutAddrMasks	The number of ICMP Address Mask Request messages sent.
.1.3.6.1.2.1.5.26	icmpOutAddrMaskReps	The number of ICMP Address Mask Reply messages sent.

Table 5: ICMP

1.6 TCP

OID	Object	Description
.1.3.6.1.2.1.6.1	tcpRtoAlgorithm	The algorithm used to determine the timeout value used for retransmitting unacknowledged octets.
.1.3.6.1.2.1.6.2	tcpRtoMin	The minimum value permitted by a TCP implementation for the retransmission timeout, measured in milliseconds.
.1.3.6.1.2.1.6.3	tcpRtoMax	The maximum value permitted by a TCP implementation for the retransmission timeout, measured in milliseconds.
.1.3.6.1.2.1.6.4	tcpMaxConn	The limit on the total number of TCP connections the entity can support. In entities where the maximum number of connections is dynamic, this object should contain -1.
.1.3.6.1.2.1.6.5	tcpActiveOpens	The number of times TCP connections have made a direct transition to the SYN-SENT state from the CLOSED state.
.1.3.6.1.2.1.6.6	tcpPassiveOpens	The number of times TCP connections have made a direct transition to the SYN-RCVD state from the LISTEN state.
.1.3.6.1.2.1.6.7	tcpAttemptFails	The number of times TCP connections have made a direct transition to the CLOSED state from either the SYN-SENT state or the SYN-RCVD state, plus the number of times TCP connections have made a direct transition to the LISTEN state from the SYN-RCVD state.
.1.3.6.1.2.1.6.8	tcpEstabResets	The number of times TCP connections have made a direct transition to the CLOSED state from either the ESTABLISHED state or the CLOSE-WAIT state.
.1.3.6.1.2.1.6.9	tcpCurrEstab	The number of TCP connections for which the current state is either ESTABLISHED or CLOSE-WAIT.
.1.3.6.1.2.1.6.10	tcpInSegs	The total number of segments received, including those received in error. This count includes segments received on currently established connections.
.1.3.6.1.2.1.6.11	tcpOutSegs	The total number of segments sent, including those on current connections but excluding those containing only retransmitted octets.
.1.3.6.1.2.1.6.12	tcpRetransSegs	The total number of segments retransmitted – that is, the number of TCP segments transmitted containing one or more previously transmitted octets.
.1.3.6.1.2.1.6.13	tcpConnTable	<i>Not supported by Advantech routers.</i>
.1.3.6.1.2.1.6.14	tcpInErrs	<i>Not supported by Advantech routers.</i>
.1.3.6.1.2.1.6.15	tcpOutRsts	<i>Not supported by Advantech routers.</i>

Table 6: TCP

1.7 UDP

OID	Object	Description
.1.3.6.1.2.1.7.1	udpInDatagram	The total number of UDP datagrams delivered to UDP users.
.1.3.6.1.2.1.7.2	udpNoPorts	The total number of received UDP datagrams for which there was no application at the destination port.
.1.3.6.1.2.1.7.3	udpInErrors	The number of received UDP datagrams that could not be delivered for reasons other than the lack of an application at the destination port.
.1.3.6.1.2.1.7.4	udpOutDatagrams	The total number of UDP datagrams sent from this entity.
.1.3.6.1.2.1.7.5	udpTable	<i>Not supported by Advantech routers.</i>

Table 7: UDP

2. Private Tree for Advantech Routers

This chapter describes the SNMP values that are specific for the *Advantech Czech* company (formerly *Conel*). The tree starts at OID = .1.3.6.1.4.1.30140. It can be interpreted as:

iso.org.dod.internet.private.enterprises.conel

Figure 2 shows the tree that is used for creating conel OIDs for Advantech routers.

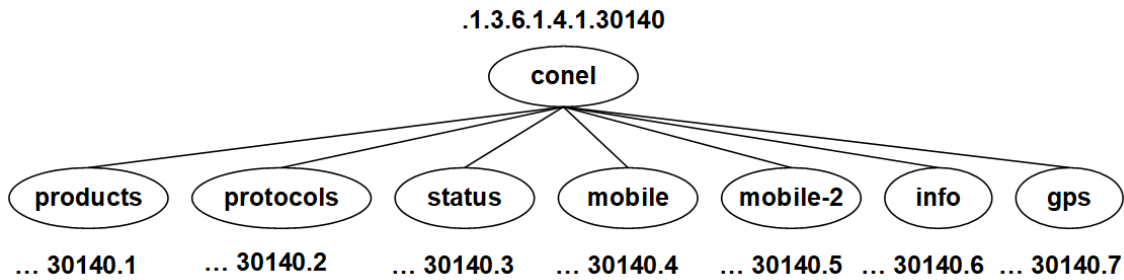


Figure 2: Private Tree for Advantech Routers



Subtrees *mobile* and *mobile-2* are not available for routers with no cellular module.

2.1 Product OIDs

For the products that are manufactured by the *Advantech Czech* company (formerly *Conel*), the following range of OIDs is used in `sysObjectID` (see Chapter 1.2):

OID	Name	Product
.1.3.6.1.4.1.30140.1.1	routerER75	EDGE router ER75
.1.3.6.1.4.1.30140.1.2	routerER75i	EDGE router ER75i
.1.3.6.1.4.1.30140.1.3	routerUR5	UMTS router UR5
.1.3.6.1.4.1.30140.1.4	routerUR5i	UMTS router UR5i
.1.3.6.1.4.1.30140.1.5	routerXR5i	Industrial router XR5i
.1.3.6.1.4.1.30140.1.6	routerER75iV2	EDGE router ER75i v2
.1.3.6.1.4.1.30140.1.7	routerUR5V2	UMTS router UR5 v2
.1.3.6.1.4.1.30140.1.8	routerUR5iV2	UMTS router UR5i v2
.1.3.6.1.4.1.30140.1.9	routerXR5iV2	Industrial router XR5i v2
.1.3.6.1.4.1.30140.1.10	routerLR77V2	LTE router LR77 v2
.1.3.6.1.4.1.30140.1.11	routerCR10V2	CDMA router CR10 v2
.1.3.6.1.4.1.30140.1.12	routerUCR11V2	CDMA/UMTS router UCR11 v2
.1.3.6.1.4.1.30140.1.13	routerUR5iV2L	HSPA+ router UR5i v2 Libratum
.1.3.6.1.4.1.30140.1.14	routerSpectre3G	HSPA+ router UR5i v2 SL for US
.1.3.6.1.4.1.30140.1.15	routerSpectreRT	Industrial router XR5i v2 SL for US
.1.3.6.1.4.1.30140.1.16	routerRR75i	GSM-R router RR75i v2
.1.3.6.1.4.1.30140.1.17	routerSpectreLTEAT	LTE router LR77 v2 SL for US AT&T

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OID	Name	Product
.1.3.6.1.4.1.30140.1.18	routerXR5iV2E	Industrial router XR5i v2 Libratum
.1.3.6.1.4.1.30140.1.19	routerBiviasV2HC	Twin cellular module router Bivias v2 HC
.1.3.6.1.4.1.30140.1.20	routerBiviasV2LC	Twin cellular module router Bivias v2 LC
.1.3.6.1.4.1.30140.1.21	routerSpectreLTEVZ	LTE router LR77 v2 SL for US Verizon
.1.3.6.1.4.1.30140.1.22	routerBiviasV2LL	Twin cellular module router Bivias v2 LL
.1.3.6.1.4.1.30140.1.23	routerBiviasV2LH	Twin cellular module router Bivias v2 LH
.1.3.6.1.4.1.30140.1.24	routerBiviasV2HH	Twin cellular module router Bivias v2 HH
.1.3.6.1.4.1.30140.1.25	routerLR77V2L	LTE router LR77 v2 Libratum
.1.3.6.1.4.1.30140.1.26	routerSpectreV3HSPA	<i>not launched</i>
.1.3.6.1.4.1.30140.1.27	routerSpectreV3LTE	LTE router SmartFlex
.1.3.6.1.4.1.30140.1.28	routerSpectreV3CDMA	<i>not launched</i>
.1.3.6.1.4.1.30140.1.29	routerSpectreV3ERT	Industrial router SmartFlex SR300
.1.3.6.1.4.1.30140.1.32	routerSpectreV3TLTE	Twin module LTE router SmartMotion
.1.3.6.1.4.1.30140.1.35	routerSpectreV3LTEUS	LTE router SmartFlex for US
.1.3.6.1.4.1.30140.1.36	routerSpectreV3LLTE	LTE router SmartStart
.1.3.6.1.4.1.30140.1.37	routerSpectreV3LLTEUS	LTE router SmartStart for US
.1.3.6.1.4.1.30140.1.38	routerSpectreV3ERTUS	<i>not launched</i>
.1.3.6.1.4.1.30140.1.39	routerSpectreV3LERT	<i>not launched</i>
.1.3.6.1.4.1.30140.1.40	routerSpectreV3LERTUS	<i>not launched</i>
.1.3.6.1.4.1.30140.1.41	routerSpectreV3TLTEUS	<i>not launched</i>
.1.3.6.1.4.1.30140.1.42	routerICR321X	LTE router ICR-321x
.1.3.6.1.4.1.30140.1.43	routerICR323X	LTE router ICR-323x
.1.3.6.1.4.1.30140.1.44	routerICR324X	LTE router ICR-324x
.1.3.6.1.4.1.30140.1.45	routerICR320X	LAN router ICR-320x
.1.3.6.1.4.1.30140.1.46	routerICR383X	LTE industrial router ICR-383x
.1.3.6.1.4.1.30140.1.47	routerICR213X	HSPA+ industrial router ICR-213x
.1.3.6.1.4.1.30140.1.48	routerICR233X	LTE industrial router ICR-233x
.1.3.6.1.4.1.30140.1.49	routerICR440X	LAN industrial router ICR-440x
.1.3.6.1.4.1.30140.1.50	routerICR443X	LTE industrial router ICR-443x
.1.3.6.1.4.1.30140.1.51	routerICR444X	LTE industrial router ICR-444x
.1.3.6.1.4.1.30140.1.52	routerICR203X	LTE industrial router ICR-203x
.1.3.6.1.4.1.30140.1.53	routerICR204X	LTE industrial router ICR-204x
.1.3.6.1.4.1.30140.1.54	routerICR240X	LAN industrial router ICR-240x
.1.3.6.1.4.1.30140.1.55	routerICR243X	LTE industrial router ICR-243x
.1.3.6.1.4.1.30140.1.56	routerICR244X	LTE industrial router ICR-244x
.1.3.6.1.4.1.30140.1.57	routerICR201X	LTE industrial router ICR-201X
.1.3.6.1.4.1.30140.1.58	routerICR241X	LTE industrial router ICR-241X
.1.3.6.1.4.1.30140.1.59	routerICR445X	LTE industrial router ICR-445X
.1.3.6.1.4.1.30140.1.60	routerICR446X	LTE industrial router ICR-446X
.1.3.6.1.4.1.30140.1.61	routerICR250X	LTE industrial router ICR-250X

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OID	Name	Product
.1.3.6.1.4.1.30140.1.62	routerICR253X	LTE industrial router ICR-253X
.1.3.6.1.4.1.30140.1.63	routerICR254X	LTE industrial router ICR-254X
.1.3.6.1.4.1.30140.1.64	routerICR260X	LTE industrial router ICR-260X
.1.3.6.1.4.1.30140.1.65	routerICR263X	LTE industrial router ICR-263X
.1.3.6.1.4.1.30140.1.66	routerICR264X	LTE industrial router ICR-264X
.1.3.6.1.4.1.30140.1.67	routerICR270X	LAN industrial router ICR-270X
.1.3.6.1.4.1.30140.1.68	routerICR271X	LTE industrial router ICR-271X
.1.3.6.1.4.1.30140.1.69	routerICR273X	LTE industrial router ICR-273X
.1.3.6.1.4.1.30140.1.70	routerICR274X	LTE industrial router ICR-274X
.1.3.6.1.4.1.30140.1.71	routerICR280X	LAN industrial router ICR-280X
.1.3.6.1.4.1.30140.1.72	routerICR281X	LTE industrial router ICR-281X
.1.3.6.1.4.1.30140.1.73	routerICR283X	LTE industrial router ICR-283X
.1.3.6.1.4.1.30140.1.74	routerICR284X	LTE industrial router ICR-284X
.1.3.6.1.4.1.30140.1.75	routerICR410X	LAN industrial router ICR-410X
.1.3.6.1.4.1.30140.1.76	routerICR413X	LTE industrial router ICR-413X
.1.3.6.1.4.1.30140.1.77	routerICR414X	LTE industrial router ICR-414X
.1.3.6.1.4.1.30140.1.78	routerICR416X	5G industrial router ICR-416X
.1.3.6.1.4.1.30140.1.79	routerICR417X	5G industrial router ICR-417X
.1.3.6.1.4.1.30140.1.80	routerICR420X	LAN industrial router ICR-420X
.1.3.6.1.4.1.30140.1.81	routerICR423X	LTE industrial router ICR-423X
.1.3.6.1.4.1.30140.1.82	routerICR424X	LTE industrial router ICR-424X
.1.3.6.1.4.1.30140.1.83	routerICR426X	5G industrial router ICR-426X
.1.3.6.1.4.1.30140.1.84	routerICR427X	5G industrial router ICR-427X
.1.3.6.1.4.1.30140.1.85	routerICR160X	LTE industrial router ICR-160X
.1.3.6.1.4.1.30140.1.86	routerICR164X	LTE industrial router ICR-164X
.1.3.6.1.4.1.30140.1.87	routerICR170X	5G industrial router ICR-170X
.1.3.6.1.4.1.30140.1.88	routerICR174X	5G industrial router ICR-174X

Table 8: Product OIDs

2.2 Protocols

2.2.1 XC-CNT



To use the *xcnt* part of the tree, you have to use the v2 router with XC-CNT interface (expansion board) installed and activated on *SNMP* configuration page in the router. See the *Configuration Manual for v2 Routers* [1] for more details. It is possible to set the binary output *xcntOut1* (.1.3.6.1.4.1.30140.2.1.9.0) via SNMP. Other values are read-only. The following range of OIDs is used for the CNT expansion port:

OID	Name	Description
.1.3.6.1.4.1.30140.2.1.1.0	xcntAn1	Analogy input AN1 (range 0-4095)
.1.3.6.1.4.1.30140.2.1.2.0	xcntAn2	Analogy input AN2 (range 0-4095)
.1.3.6.1.4.1.30140.2.1.3.0	xcntCnt1	Counter input CNT1 (range 0-4294967295)
.1.3.6.1.4.1.30140.2.1.4.0	xcntCnt2	Counter input CNT2 (range 0-4294967295)
.1.3.6.1.4.1.30140.2.1.5.0	xcntBin1	Binary input BIN1 (values 0,1)
.1.3.6.1.4.1.30140.2.1.6.0	xcntBin2	Binary input BIN2 (values 0,1)
.1.3.6.1.4.1.30140.2.1.7.0	xcntBin3	Binary input BIN3 (values 0,1)
.1.3.6.1.4.1.30140.2.1.8.0	xcntBin4	Binary input BIN4 (values 0,1)
.1.3.6.1.4.1.30140.2.1.9.0	xcntOut1	Binary output OUT1 (values 0,1)

Table 9: OIDs for XC-CNT

2.2.2 M-BUS

The following range of OIDs is used for M-BUS expansion port. It can be used only in v2 routers and it is necessary to enable sending SNMP values on *SNMP* Configuration page in the router (*Enable M-BUS extension*). There 255 branches in mbus tree. Every branch is defined by mbus device address in hexadecimal format. Textual names of branches (addresses) are *mbus00* to *mbusFF*, which is equivalent to addresses 0 to 255. Every address branch carries the following range of OIDs:

OID	Name	Description
.1.3.6.1.4.1.30140.2.2.<address>.1.0	IdNumber	Number of meter
.1.3.6.1.4.1.30140.2.2.<address>.2.0	Manufacturer	Manufacturer
.1.3.6.1.4.1.30140.2.2.<address>.3.0	Version	Specified meter version
.1.3.6.1.4.1.30140.2.2.<address>.4.0	Medium	Type of metered medium
.1.3.6.1.4.1.30140.2.2.<address>.5.0	Status	Errors report
.1.3.6.1.4.1.30140.2.2.<address>.6.0	VIF00	Value information field
.1.3.6.1.4.1.30140.2.2.<address>.7.0	Value00	Out
.1.3.6.1.4.1.30140.2.2.<address>.8.0	VIF01	1. VIF – value information field
.1.3.6.1.4.1.30140.2.2.<address>.9.0	Value01	1. measured value
⋮	⋮	⋮
.1.3.6.1.4.1.30140.2.2.<address>.100.0	VIF2F	47. VIF – value information field
.1.3.6.1.4.1.30140.2.2.<address>.101.0	Value2F	47. measured value

Table 10: OIDs for M-BUS

Where <address> is a number from range 0 to 255 (address of MBUS device). Usable are addresses 0 to 250, the rest is reserved or used by broadcast.

2.2.3 Binary Input and Output



Note: It is necessary to activate I/O reading on *SNMP* page in the router's configuration Web interface. It is possible to set one binary output *ioOut0* (.1.3.6.1.4.1.30140.2.3.2.0) via SNMP. Other values are read-only. The following range of OID is used for binary input and output:

OID	Name	Description
.1.3.6.1.4.1.30140.2.3.1.0	ioBin0	Binary input BIN0 (values 0,1)
.1.3.6.1.4.1.30140.2.3.2.0	ioOut0	Binary output OUT0 (values 0,1)
.1.3.6.1.4.1.30140.2.3.3.0	ioBin1	Binary input BIN1 (values 0,1)
.1.3.6.1.4.1.30140.2.3.4.0	ioOut1	Binary output OUT1 (values 0,1)
.1.3.6.1.4.1.30140.2.3.5.0	ioBin2	Binary input BIN2 (values 0,1)
.1.3.6.1.4.1.30140.2.3.6.0	—	N/A
.1.3.6.1.4.1.30140.2.3.7.0	ioBin3	Binary input BIN3 (values 0,1)
.1.3.6.1.4.1.30140.2.3.8.0	—	N/A

Table 11: OIDs for Binary I/O

2.3 Status

OID	Name	Description
.1.3.6.1.4.1.30140.3.1.0	statusMbusOverload1	M-BUS overload 1 (values 0,1)
.1.3.6.1.4.1.30140.3.2.0	statusMbusOverload2	M-BUS overload 2 (values 0,1)
.1.3.6.1.4.1.30140.3.3.0	statusTemperature	Internal temperature ¹
.1.3.6.1.4.1.30140.3.4.0	statusVoltage	Power voltage ¹ (input power supply)
.1.3.6.1.4.1.30140.3.5.0 ²	statusRTCBattery	RTC backup battery state: 0 = unknown 1 = ok 2 = empty
.1.3.6.1.4.1.30140.3.6.0	statusCPUUsage	CPU Usage (in %)
.1.3.6.1.4.1.30140.3.7.0	statusRAMUsage	RAM Usage (in %)
.1.3.6.1.4.1.30140.3.8.0	statusRAMUsed	RAM Used (in bytes)
.1.3.6.1.4.1.30140.3.9.0	statusRAMFree	RAM Free (in bytes)
.1.3.6.1.4.1.30140.3.10.0	statusRAMTotal	RAM Total (in bytes)

Table 12: Status OIDs

¹Information about power voltage and internal temperature:

- Is available only for routers with firmware 3.0.4 and later.
- For v2 routers, it is necessary to have router with RB-v2-6 board and later.
- It is not supported by ICR-2[0]4[5]6]xx routers.

²Supported on routers of v3 platform only.

2.4 Mobile

OID	Name	Description
.1.3.6.1.4.1.30140.4.1.0	mobileTechnology	Values 0–24, see Table 14
.1.3.6.1.4.1.30140.4.2.0	mobilePLMN	Operator code
.1.3.6.1.4.1.30140.4.3.0	mobileCell	Cell
.1.3.6.1.4.1.30140.4.4.0	mobileChannel	Channel
.1.3.6.1.4.1.30140.4.5.0	mobileSignalStrength	Signal strength for cell (dBm)
.1.3.6.1.4.1.30140.4.6.0	mobileChannelN1	Adjacent channel No. 1
.1.3.6.1.4.1.30140.4.7.0	mobileSignalStrengthN1	Signal strength, cell of adjacent chann. No. 1
.1.3.6.1.4.1.30140.4.8.0	mobileChannelN2	Adjacent channel No. 2
.1.3.6.1.4.1.30140.4.9.0	mobileSignalStrengthN2	Signal strength, cell of adjacent chann. No. 2
.1.3.6.1.4.1.30140.4.10.0	mobileChannelN3	Adjacent channel No. 3
.1.3.6.1.4.1.30140.4.11.0	mobileSignalStrengthN3	Signal strength, cell of adjacent chann. No. 3
.1.3.6.1.4.1.30140.4.12.0	mobileChannelN4	Adjacent channel No. 4
.1.3.6.1.4.1.30140.4.13.0	mobileSignalStrengthN4	Signal strength, cell of adjacent chann. No. 4
.1.3.6.1.4.1.30140.4.14.0	mobileChannelN5	Adjacent channel No. 5
.1.3.6.1.4.1.30140.4.15.0	mobileSignalStrengthN5	Signal strength, cell of adjacent chann. No. 5
.1.3.6.1.4.1.30140.4.16.0	mobileUpTime	Period of time from the moment when connection was established
.1.3.6.1.4.1.30140.4.17.0	mobileConnect	Time stamp of last connection (otherwise 0)
.1.3.6.1.4.1.30140.4.18.0	mobileDisconnect	Time stamp of last moment when the connection fell apart
.1.3.6.1.4.1.30140.4.19.0	mobileCard	SIM card number: primary (0), secondary (1) or tertiary (2)
.1.3.6.1.4.1.30140.4.20.0	mobileIPAddress	Assigned IP address (or zeros)
.1.3.6.1.4.1.30140.4.21.0	mobileLatency	Response time – keeps a valid value only when sending trap (otherwise the value is 0)
.1.3.6.1.4.1.30140.4.22.0	mobileReportPeriod	Period of sending reports to the R-SeeNet
.1.3.6.1.4.1.30140.4.23.0	mobileRegistration	State of the network registration: unknown (0), idle (1), search (2), denied (3), home (4) or foregien (5)
.1.3.6.1.4.1.30140.4.24.0	mobileOperator	Mobile network (operator) the router is connected to
.1.3.6.1.4.1.30140.4.25.0	mobileLAC	Location Area Code
.1.3.6.1.4.1.30140.4.26.0	mobileSignalQuality	Signal quality of the selected cell
.1.3.6.1.4.1.30140.4.27.0	mobileCSQ	Signal strength number (0 to 31)
.1.3.6.1.4.1.30140.4.28.0	mobilePNOffset	PN Offset (0 to 511)
.1.3.6.1.4.1.30140.4.29.0	mobileBand	Cellular band
.1.3.6.1.4.1.30140.4.30.0	mobileRSSI	RSSI signal strength
.1.3.6.1.4.1.30140.4.31.0	mobileRSCP	RSCP signal strength
.1.3.6.1.4.1.30140.4.32.0	mobileRSRP	RSRP signal strength
.1.3.6.1.4.1.30140.4.33.0	mobileRSRQ	RSRQ signal strength

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OID	Name	Description
.1.3.6.1.4.1.30140.4.34.0	mobileEcIo	Ec/Io signal strength
.1.3.6.1.4.1.30140.4.35.0	mobileNRBand	NR Cellular band
.1.3.6.1.4.1.30140.4.36.0	mobileNRChannel	NR channel
.1.3.6.1.4.1.30140.4.37.0	mobileNRRSSI	NR RSSI signal strength
.1.3.6.1.4.1.30140.4.38.0	mobileNRRSRP	NR RSRP signal strength
.1.3.6.1.4.1.30140.4.39.0	mobileNRRSRQ	NR RSRQ signal strength
.1.3.6.1.4.1.30140.4.40.0	mobileNRSINR	NR SINR signal strength
.1.3.6.1.4.1.30140.4.41.0	mobileSINR	SINR signal strength
.1.3.6.1.4.1.30140.4.101.0	mobile2Technology	Second cellular module: <i>Values 0–24, see Table 14</i>
.1.3.6.1.4.1.30140.4.102.0	mobile2PLMN	Second cellular module: Operator code
.1.3.6.1.4.1.30140.4.103.0	mobile2Cell	Second cellular module: Cell
.1.3.6.1.4.1.30140.4.104.0	mobile2Channel	Second cellular module: Channel
.1.3.6.1.4.1.30140.4.105.0	mobile2SignalStrength	Second cellular module: Signal strength for cell (dBm)
.1.3.6.1.4.1.30140.4.106.0	mobile2ChannelN1	Second cellular module: Adjacent channel No. 1
.1.3.6.1.4.1.30140.4.107.0	mobile2SignalStrengthN1	Second cellular module: Signal strength, cell of adjacent chann. No. 1
.1.3.6.1.4.1.30140.4.108.0	mobile2ChannelN2	Second cellular module: Adjacent channel No. 2
.1.3.6.1.4.1.30140.4.109.0	mobile2SignalStrengthN2	Second cellular module: Signal strength, cell of adjacent chann. No. 2
.1.3.6.1.4.1.30140.4.110.0	mobile2ChannelN3	Second cellular module: Adjacent channel No. 3
.1.3.6.1.4.1.30140.4.111.0	mobile2SignalStrengthN3	Second cellular module: Signal strength, cell of adjacent chann. No. 3
.1.3.6.1.4.1.30140.4.112.0	mobile2ChannelN4	Second cellular module: Adjacent channel No. 4
.1.3.6.1.4.1.30140.4.113.0	mobile2SignalStrengthN4	Second cellular module: Signal strength, cell of adjacent chann. No. 4
.1.3.6.1.4.1.30140.4.114.0	mobile2ChannelN5	Second cellular module: Adjacent channel No. 5
.1.3.6.1.4.1.30140.4.115.0	mobile2SignalStrengthN5	Second cellular module: Signal strength, cell of adjacent chann. No. 5
.1.3.6.1.4.1.30140.4.116.0	mobile2UpTime	Second cellular module: Period of time from the moment when connection was established
.1.3.6.1.4.1.30140.4.117.0	mobile2Connect	Second cellular module: Time stamp of last connection (otherwise 0)
.1.3.6.1.4.1.30140.4.118.0	mobile2Disconnect	Second cellular module: Time stamp of last moment when the connection fell apart
.1.3.6.1.4.1.30140.4.119.0	mobile2Card	Second cellular module: SIM card number: primary (0), secondary (1) or tertiary (2)
.1.3.6.1.4.1.30140.4.120.0	mobile2IPAddress	Second cellular module: Assigned IP address (or zeros)

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OID	Name	Description
.1.3.6.1.4.1.30140.4.121.0	mobile2Latency	Second cellular module: Response time – keeps a valid value only when sending trap (otherwise the value is 0)
.1.3.6.1.4.1.30140.4.122.0	mobile2ReportPeriod	Second cellular module: Period of sending reports to the R-SeeNet
.1.3.6.1.4.1.30140.4.123.0	mobile2Registration	Second cellular module: State of the network registration: unknown (0), idle (1), search (2), denied (3), home (4) or foregien (5)
.1.3.6.1.4.1.30140.4.124.0	mobile2Operator	Second cellular module: Mobile network (operator) the router is connected to
.1.3.6.1.4.1.30140.4.125.0	mobile2LAC	Second cellular module: Location Area Code
.1.3.6.1.4.1.30140.4.126.0	mobile2SignalQuality	Second cellular module: Signal quality of the selected cell
.1.3.6.1.4.1.30140.4.127.0	mobile2CSQ	Second cellular module: Signal strength number (0 to 31)
.1.3.6.1.4.1.30140.4.128.0	mobile2PNOffset	PN Offset (0 to 511)
.1.3.6.1.4.1.30140.4.129.0	mobile2Band	Second cellular module: Cellular band
.1.3.6.1.4.1.30140.4.130.0	mobile2RSSI	Second cellular module: RSSI signal strength
.1.3.6.1.4.1.30140.4.131.0	mobile2RSCP	Second cellular module: RSCP signal strength
.1.3.6.1.4.1.30140.4.132.0	mobile2RSRP	Second cellular module: RSRP signal strength
.1.3.6.1.4.1.30140.4.133.0	mobile2RSRQ	Second cellular module: RSRQ signal strength
.1.3.6.1.4.1.30140.4.134.0	mobile2EcIo	Second cellular module: Ec/Io signal strength
.1.3.6.1.4.1.30140.4.135.0	mobile2NRBand	Second cellular module: NR Cellular band
.1.3.6.1.4.1.30140.4.136.0	mobile2NRChannel	Second cellular module: NR channel
.1.3.6.1.4.1.30140.4.137.0	mobile2NRRSSI	Second cellular module: NR RSSI signal strength
.1.3.6.1.4.1.30140.4.138.0	mobile2NRRSRP	Second cellular module: NR RSRP signal strength
.1.3.6.1.4.1.30140.4.139.0	mobile2NRRSRQ	Second cellular module: NR RSRQ signal strength
.1.3.6.1.4.1.30140.4.140.0	mobileNRSINR	Second cellular module: NR SINR signal strength
.1.3.6.1.4.1.30140.4.141.0	mobileSINR	Second cellular module: SINR signal strength

Table 13: Mobile OIDs

2.4.1 Mobile Technology Values

Value	Meaning
0	none
2	gprs
4	edge
6	umts
8	hsdpa
10	hsupa
12	hspa
14	lte
16	cdma
18	evdo
20	evdo0
22	evdoA
24	evdoB

Table 14: Mobile Technology Values

2.5 Mobile-2

These OIDs are statistical values for cellular connection. They contain analytic data for cellular connection today, yesterday, this week, last week, etc. The types of SNMP values (OIDs) are the same for every time period. Described in the table below for *mobileToday*.

2.5.1 MobileToday

OID	Name	Description
.1.3.6.1.4.1.30140.5.1.1.0	mobileTodayRxPri	Received data – primary SIM card
.1.3.6.1.4.1.30140.5.1.2.0	mobileTodayRxSec	Received data – secondary SIM card
.1.3.6.1.4.1.30140.5.1.3.0	mobileTodayTxPri	Sent data – primary SIM card
.1.3.6.1.4.1.30140.5.1.4.0	mobileTodayTxSec	Sent data – secondary SIM card
.1.3.6.1.4.1.30140.5.1.5.0	mobileTodayConnectionsPri	Number of connections – primary SIM card
.1.3.6.1.4.1.30140.5.1.6.0	mobileTodayConnectionsSec	Number of connections – secondary SIM card
.1.3.6.1.4.1.30140.5.1.7.0	mobileTodayOnlinePri	Time on primary SIM card
.1.3.6.1.4.1.30140.5.1.8.0	mobileTodayOnlineSec	Time on secondary SIM card
.1.3.6.1.4.1.30140.5.1.9.0	mobileTodayOffline	Time in offline mode
.1.3.6.1.4.1.30140.5.1.10.0	mobileTodayCells	Number of cells (during the period)
.1.3.6.1.4.1.30140.5.1.11.0	mobileTodaySignalAvg	Average signal strength
.1.3.6.1.4.1.30140.5.1.12.0	mobileTodaySignalMin	Minimum signal strength
.1.3.6.1.4.1.30140.5.1.13.0	mobileTodaySignalMax	Maximum signal strength
.1.3.6.1.4.1.30140.5.1.14.0	mobileTodayDateMin	Time stamp for LevelMin (the last moment when signal strength was minimal)
.1.3.6.1.4.1.30140.5.1.15.0	mobileTodayDateMax	Time stamp for LevelMax (the last moment when signal strength was maximal)
.1.3.6.1.4.1.30140.5.1.101.0	mobile2TodayRxPri	Second cellular module: Received data – primary SIM card
.1.3.6.1.4.1.30140.5.1.102.0	mobile2TodayRxSec	Second cellular module: Received data – secondary SIM card
.1.3.6.1.4.1.30140.5.1.103.0	mobile2TodayTxPri	Second cellular module: Sent data – primary SIM card
.1.3.6.1.4.1.30140.5.1.104.0	mobile2TodayTxSec	Second cellular module: Sent data – secondary SIM card
.1.3.6.1.4.1.30140.5.1.105.0	mobile2TodayConnectionsPri	Second cellular module: Number of connections – primary SIM card
.1.3.6.1.4.1.30140.5.1.106.0	mobile2TodayConnectionsSec	Second cellular module: Number of connections – secondary SIM card
.1.3.6.1.4.1.30140.5.1.107.0	mobile2TodayOnlinePri	Second cellular module: Time on primary SIM card
.1.3.6.1.4.1.30140.5.1.108.0	mobile2TodayOnlineSec	Second cellular module: Time on secondary SIM card
.1.3.6.1.4.1.30140.5.1.109.0	mobile2TodayOffline	Second cellular module: Time in offline mode

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OID	Name	Description
.1.3.6.1.4.1.30140.5.1.110.0	mobile2TodayCells	Second cellular module: Number of cells (during the period)
.1.3.6.1.4.1.30140.5.1.111.0	mobile2TodaySignalAvg	Second cellular module: Average signal strength
.1.3.6.1.4.1.30140.5.1.112.0	mobile2TodaySignalMin	Second cellular module: Minimum signal strength
.1.3.6.1.4.1.30140.5.1.113.0	mobile2TodaySignalMax	Second cellular module: Maximum signal strength
.1.3.6.1.4.1.30140.5.1.114.0	mobile2TodayDateMin	Second cellular module: Time stamp for LevelMin (the last moment when signal strength was minimal)
.1.3.6.1.4.1.30140.5.1.115.0	mobile2TodayDateMax	Second cellular module: Time stamp for LevelMax (the last moment when signal strength was maximal)

Table 15: MobileToday OIDs

2.5.2 MobileYesterday

The information carried in items correspond to the items that are listed in table ???. The values are for the day before today. So the every name of the item contains "Yesterday" (not Today). The range of object identifiers starts at .1.3.6.1.4.1.30140.5.2.1.

2.5.3 MobileThisWeek

The information carried in items correspond to the items that are listed in table ???. The values are for the current week. So the every name of the item contains "ThisWeek" (not Today). The range of object identifiers starts at .1.3.6.1.4.1.30140.5.3.1.

2.5.4 MobileLastWeek

The information carried in items correspond to the items that are listed in table ???. The values are for the last week. So the every name of the item contains "LastWeek" (not Today). The range of object identifiers starts at .1.3.6.1.4.1.30140.5.4.1.

2.5.5 MobileThisPeriod

The information carried in items correspond to the items that are listed in table ???. The values are for the current period. So the every name of the item contains "ThisPeriod" (not Today). The range of object identifiers starts at .1.3.6.1.4.1.30140.5.5.1.

2.5.6 MobileLastPeriod

The information carried in items correspond to the items that are listed in table ???. The values are for the last period. So the every name of the item contains "LastPeriod" (not Today). The range of object identifiers starts at .1.3.6.1.4.1.30140.5.6.1.

2.6 Info

This group of OIDs stores the basic information about the router.

OID	Name	Description
.1.3.6.1.4.1.30140.6.1.0	infoProduct	Designation of the product
.1.3.6.1.4.1.30140.6.2.0	infoFirmware	Information about firmware
.1.3.6.1.4.1.30140.6.3.0	infoSN	Serial number of the product
.1.3.6.1.4.1.30140.6.4.0	infoIMEI	IMEI number of the cellular module
.1.3.6.1.4.1.30140.6.5.0	infoESN	ESN number of the cellular module
.1.3.6.1.4.1.30140.6.6.0	infoMEID	MEID number of the cellular module
.1.3.6.1.4.1.30140.6.7.0	infoICCID	ICCID number of the SIM card in use on first cellular module
.1.3.6.1.4.1.30140.6.8.0	infoIMSI	IMSI number of the SIM card in use on first cellular module
.1.3.6.1.4.1.30140.6.10.0	infoProfile	Current active configuration profile (see <i>Administraion</i> → <i>Change Profile</i>). Possible values: <i>standard</i> , <i>alt1</i> , <i>alt2</i> and <i>alt3</i> .
.1.3.6.1.4.1.30140.6.11.0	infoCustom	A custom field designated for user-defined purposes.
.1.3.6.1.4.1.30140.6.104.0	info2IMEI	IMEI number of the second cellular module
.1.3.6.1.4.1.30140.6.105.0	info2ESN	ESN number of the second cellular module
.1.3.6.1.4.1.30140.6.106.0	info2MEID	MEID number of the second cellular module
.1.3.6.1.4.1.30140.6.107.0	info2ICCID	ICCID number of the SIM card in use on second cellular module
.1.3.6.1.4.1.30140.6.108.0	info2IMSI	IMSI number of the SIM card in use on second cellular module

Table 16: Info OIDs

2.7 GPS



Note: To use *gps* part of the tree, you need to install the *GPS* router app to the router. The router app is available for download at our Engineering Portal, see the Literature link [6] and *Configuration Manual* on how to upload it to the router.

The following range of OIDs is then used for sending GPS messages:

OID	Name	Description
.1.3.6.1.4.1.30140.7.1.0	gpsTimeUTC	Current time in hhmmss format (it's patterned on Coordinated Universal Time).
.1.3.6.1.4.1.30140.7.2.0	gpsLatitude	Geographic coordinate specifying the northsouth position (in degrees).
.1.3.6.1.4.1.30140.7.3.0	gpsLongitude	Geographic coordinate that specifies the east-west position (in degrees).
.1.3.6.1.4.1.30140.7.4.0	gpsAltitude	Specifies the height above sea level of a location (in meters).
.1.3.6.1.4.1.30140.7.5.0	gpsSatellites	Number of satellites that are directly visible for the router.
.1.3.6.1.4.1.30140.7.6.0	gpsFixStatus	Indicates the availability of data and its quality. If no data is available, the value of this item is 0. A nonzero value indicates the presence of data.
.1.3.6.1.4.1.30140.7.7.0	gpsSpeedOverGround	Current speed of the router relative to Earth's surface (in knots).
.1.3.6.1.4.1.30140.7.8.0	gpsCourseOverGround	The actual course the router is moving along at the moment relative to Earth's surface (in degrees).
.1.3.6.1.4.1.30140.7.9.0	gpsDate	Current date in ddmmyy format.

Table 17: GPS OIDs

3. Usage on Advantech Routers

3.1 SNMP Configuration

This is an example of basic SNMP configuration of the router. You can see the *SNMP Configuration* page in Figure 3. It is accessible in the router's Web interface in the *Configuration* section, *Services*. To enable SNMP for the router, check the *Enable SNMP agent* box and click *Apply* button. Optionally fill in the Name, Location and Contact information and configure other details.

SNMP Configuration		
<input checked="" type="checkbox"/> Enable SNMP agent		
Name *	<input type="text" value="Conel"/>	
Location *	<input type="text" value="Usti nad Orlici"/>	
Contact *	<input type="text" value="Jack Roghul +420 732 123 4"/>	
<i>(Configuration via SNMP is not possible.)</i>		
<input checked="" type="checkbox"/> Enable SNMPv1/v2 access		
Community	Read <input type="text" value="public"/>	Write <input type="text" value="public"/>
<input type="checkbox"/> Enable SNMPv3 access		
Username	Read <input type="text"/>	Write <input type="text"/>
Authentication	<input type="text" value="MD5"/>	<input type="text" value="MD5"/>
Authentication Password	<input type="text"/>	<input type="text"/>
Privacy	<input type="text" value="DES"/>	<input type="text" value="DES"/>
Privacy Password	<input type="text"/>	<input type="text"/>
<input checked="" type="checkbox"/> Enable I/O extension		
<input type="checkbox"/> Enable XC-CNT extension		
<input checked="" type="checkbox"/> Enable M-BUS extension		
Baudrate	<input type="text" value="300"/>	
Parity	<input type="text" value="even"/>	
Stop Bits	<input type="text" value="1"/>	
<input type="checkbox"/> Enable reporting to supervisory system		
IP Address	<input type="text"/>	
Period	<input type="text"/>	min
<i>* can be blank</i>		
<input type="button" value="Apply"/>		

Figure 3: Example of SNMP Configuration

3.2 OIDs in SNMP Trap

It is possible to enable continuous regular sending of SNMP traps to any supervisory system. On *SNMP* page in the router, choose *Enable reporting to supervisory system*, fill in the IP Address, time interval and click Apply button. Now the SNMP traps are send regularly in the configured interval. The first SNMP trap is bigger (carries more information) and this bigger trap is sent every 24 hours.

Every SNMP trap contains these OIDs:

- .1.3.6.1.2.1.2.2.1.6.1 (ifPhysAddress)
- .1.3.6.1.2.1.2.2.1.10.2 (ifInOctets)
- .1.3.6.1.2.1.2.2.1.16.2 (ifOutOctets)
- .1.3.6.1.4.1.30140.4.1.0 (mobileTechnology)
- .1.3.6.1.4.1.30140.4.2.0 (mobilePLMN)
- .1.3.6.1.4.1.30140.4.3.0 (mobileCell)
- .1.3.6.1.4.1.30140.4.4.0 (mobileChannel)
- .1.3.6.1.4.1.30140.4.5.0 (mobileSignalStrength)
- .1.3.6.1.4.1.30140.4.6.0 (mobileChannelN1)
- .1.3.6.1.4.1.30140.4.7.0 (mobileSignalStrengthN1)
- .1.3.6.1.4.1.30140.4.8.0 (mobileChannelN2)
- .1.3.6.1.4.1.30140.4.9.0 (mobileSignalStrengthN2)
- .1.3.6.1.4.1.30140.4.10.0 (mobileChannelN3)
- .1.3.6.1.4.1.30140.4.11.0 (mobileSignalStrengthN3)
- .1.3.6.1.4.1.30140.4.12.0 (mobileChannelN4)
- .1.3.6.1.4.1.30140.4.13.0 (mobileSignalStrengthN4)
- .1.3.6.1.4.1.30140.4.14.0 (mobileChannelN5)
- .1.3.6.1.4.1.30140.4.15.0 (mobileSignalStrengthN5)
- .1.3.6.1.4.1.30140.4.16.0 (mobileUpTime)
- .1.3.6.1.4.1.30140.4.17.0 (mobileConnect)
- .1.3.6.1.4.1.30140.4.18.0 (mobileDisconnect)
- .1.3.6.1.4.1.30140.4.19.0 (mobileCard)
- .1.3.6.1.4.1.30140.4.21.0 (mobileLatency)
- .1.3.6.1.4.1.30140.4.22.0 (mobileReportPeriod)
- .1.3.6.1.4.1.30140.4.26.0 (mobileSignalQuality)
- .1.3.6.1.4.1.30140.4.27.0 (mobileCSQ)
- .1.3.6.1.4.1.30140.5.1.10.0 (mobileTodayCells)
- .1.3.6.1.4.1.30140.3.3.0 (statusTemperature)
- .1.3.6.1.4.1.30140.3.4.0 (statusVoltage)

The bigger SNMP trap sent every 24 hours contains also these OIDs:

- .1.3.6.1.4.1.30140.6.3.0 (infoSN)
- .1.3.6.1.4.1.30140.6.4.0 (infoIMEI)
- .1.3.6.1.4.1.30140.6.5.0 (infoESN)
- .1.3.6.1.4.1.30140.6.6.0 (infoMEID)
- .1.3.6.1.2.1.1.1.0 (sysDescr)
- .1.3.6.1.2.1.1.5.0 (sysName)
- .1.3.6.1.2.1.1.6.0 (sysLocation)

3.3 SNMP Capturing

You can access the router's SNMP tree using any available SNMP MIB browser like *MG-SOFT* (in Figure 4), *SnmpB* or any other. Set the router's IP address in the browser, load MIB files from the repository and explore the SNMP OIDs and the values they contain.

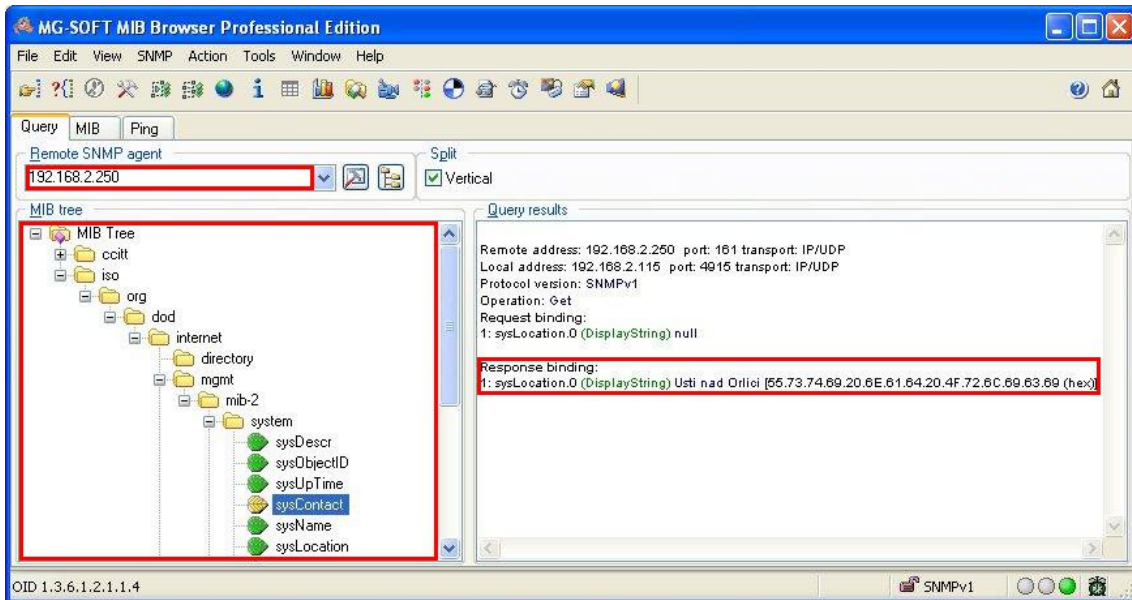


Figure 4: Example of MIB Browser

The path to private (Advantech routers) objects is:

iso → org → dod → internet → private → enterprises → conel

The path to basic information about the router is:

iso → org → dod → internet → mgmt → mib-2 → system

4. Related Documents

- [1] Advantech Czech: **v2 Routers Configuration Manual** (MAN-0021-EN)
- [2] Advantech Czech: **SmartFlex Configuration Manual** (MAN-0023-EN)
- [3] Advantech Czech: **SmartMotion Configuration Manual** (MAN-0024-EN)
- [4] Advantech Czech: **SmartStart Configuration Manual** (MAN-0022-EN)
- [5] Advantech Czech: **SNMP MIB repository**, available from:
<https://bitbucket.org/bbsmartworx/snmp-mib/>
- [6] Engineering Portal: **Router Apps**
icr.advantech.com/user-modules
- [7] Advantech Czech: **ICR-3200 Configuration Manual** (MAN-0042-EN)
- [8] Advantech Czech: **ICR-3800 Configuration Manual** (MAN-0045-EN)
- [9] Advantech Czech: **ICR-2100 Configuration Manual** (MAN-0049-EN)