

VegaStream

Information Note

SNMP management



SNMP, Simple Network Management Protocol, allows disparate systems to be monitored and managed using a common protocol. This information note identifies the capabilities of the Vega product range with respect to supporting SNMP.

SNMP management

Vega gateways contain an SNMP server that is compatible with SNMP version 1; it supports MIB-1 and MIB-2 definitions, and can also generate SNMP traps on key system events.

SNMP Configuration

To enable SNMP the following information will need to be configured via the command line interface:

```
[snmp.mib2.system]           ; basic SNMP system details
    sysContact                ; contact name for this Vega
    sysLocation               ; location details for this Vega

[snmp.mib2.managers.n]       ; definition of who is allowed to interact with the Vega using
                               ; SNMP
    community                 ; community name (one of the mib2.communities.m.name)
    ip                        ; manager's ip address
    subnet                    ; mask to identify significant part of manager's IP address
                               ; to check

[snmp.mib2.communities.m]    ; list of available communities
    name                      ; community name
    get                       ; get allowed (1=yes, 0=no)
    set                       ; set allowed (1=yes, 0=no)
    traps                     ; traps allowed (1=yes, 0=no)
```

A manager, or a list of allowed managers (...managers.n) must be configured as only members of this closed user group are allowed access to the SNMP variables and can receive SNMP traps. A manager can alter the contact and location details using the corresponding SNMP set commands.

Typical Configuration and explanation of use of parameters

From a factory reset condition, to get SNMP working, typically you only need to change ...managers.1.ip and ...managers.1.subnet. ...managers.1.ip specifies the base of a range of IP addresses that the Vega will accept SNMP requests from / will send SNMP traps to. ...managers.1.subnet specifies how big the group of IP entries from that base IP address is (255.255.255.255 specifies “just the specified IP address”).

...managers.1.community provides a link from this manager / group of managers to a set of capabilities which are specified in ...communities.m. ...managers.1.community must match one of the ...communities.m.name entries.

...communities.m.get/set/traps specify which facilities members of this community can use.

...system parameters specify values for mib entries SysContact and SysLocation.

To create additional ...manager.m entries, from the command line interface type:



- new snmp.mib2.managers

SNMP Enterprise Object-ID

The VegaStream Object-ID for Vega gateways is: 1.3.6.1.4.1.4686.11
 1 (ISO).3 (organisations).6 (dod).1 (IAB Administered).4 (private).1 (enterprises).4686 (enterprise ID - VegaStream).11 (Vega)

Trap Support

Support is available for the following traps:

Trap Number	Definition
0	System Cold Boot
1	System Warm Boot
2	Link Down -  now enterprise specific traps 61 / 63 are used
3	Link Up -  now enterprise specific traps 60 / 62 are used
4	Authentication Failure
6	Enterprise specific – see below for the associated “specific codes”

Enterprise specific trap “specific codes”

The autoexec facility (see the Vega Primer for more details) uses SNMP trap values to identify the status of the code and configuration loading. Concatenated after the enterprise specific trap value (6) the Vega sets a “specific code” which identifies what happened:

Autoexec load – Error status	Enterprise trap – specific code
TFTP not configured – tftp.ip is set to 0.0.0.0	0 ... no longer used (see12)
TFTP/FTP/HTTP/HTTPS server not found – the server may not be running or cannot be reached over the LAN; Or file is not available / defined on the server.	1
Autoexec script file too big – there is a 512 byte limit on the script file.	2
TFTP/FTP/HTTP/HTTPS File server reported 'unknown error'.	3
File doesn't exist on file server or is invalid.	4
Recursive file server get error - only allowed one TFTP/FTP/HTTP/HTTPS get at a time.	5
'Get' memory error - the system hasn't enough memory to perform a TFTP/FTP/HTTP/HTTPS get.	6
LAN interface entity not active	7
FTP not configured - lan.ftp is set to 0.0.0.0	8
Invalid parameters for transfer, e.g. filename wrong	9
TFTP/FTP/HTTP/HTTPS server unavailable	10
System not ready - unable to action the autoexec	11
TFTP not configured – tftp.ip is set to 0.0.0.0	12
HTTP not configured – http.ip is set to 0.0.0.0	13
HTTPS not configured – http.https_ip is set to 0.0.0.0	14

Autoexec load – Non-error status	Enterprise trap – specific code
Configuration not loaded - "tget" used with "ifdiff" option but remote configuration file is not different.	21
Firmware not loaded – one of the following occurred: i. "download firmware" used with "ifnew" option but remote firmware is not newer. ii. "download firmware" used with "ifdiff" option but remote firmware is not different.	22
Configuration loaded – loaded remote configuration.	23
Firmware loaded - loaded remote firmware.	24

8 FXS + 2 FXO – Fallback relay state	Enterprise trap – specific code
Call in progress on fallback relays delays switchover to normal operation	25

QOS statistics	Enterprise trap – specific code
Gateway packet loss threshold has been exceeded	30
Gateway play-out delay threshold has been exceeded	31
Average jitter threshold has been exceeded	32

Physical measurements	Enterprise trap – specific code
Fan fail indicated	40
Fan no longer failed	41
Over temperature indicated	42
No longer over temperature	43
Over power – excessive power consumption detected	44
No longer over power – returned within normal working power consumption	45

SIP events	Enterprise trap – specific code
SIP Registered	50
SIP Registration Failed	51
SIP Unregistered	52

Link status	Enterprise trap – specific code
ISDN up	60
ISDN down	61
LAN up	62
LAN down	63

A MIB definition file is available from VegaStream that decodes the VegaStream Enterprise specific trap codes into textual definitions.

MIB Definition

MIB variables are available through the SNMP “management” branch. 1.3.6.1.2 (management). For a complete list of SNMP variables supported by the Vega see the SNMP MIB Definition Appendix.

Other related documents.

Please see the Vega primer.

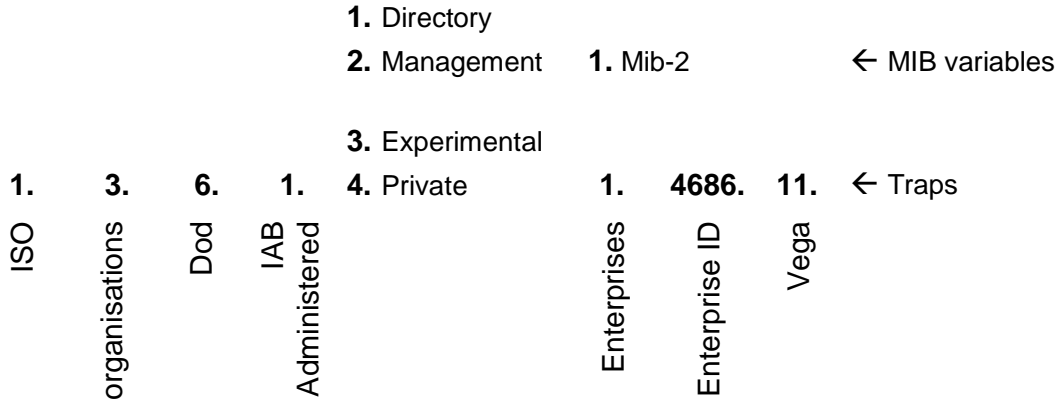
SNMP functionality is specified in the following RFCs:

- SNMP: www.ietf.org/rfc/rfc1157.txt
- SNMPv2: www.ietf.org/rfc/rfc1905.txt
- Structure of management information, SMIv1: www.ietf.org/rfc/rfc1155.txt
- Structure of management information, SMIv2: www.ietf.org/rfc/rfc2578.txt
- Internet MIB-I: www.ietf.org/rfc/rfc1156.txt
- Internet MIB-II: www.ietf.org/rfc/rfc1213.txt

For information on QOS statistics, see “IN_15-QOS_Statistics”

APPENDIX: SNMP MIB DEFINITION

The SNMP variable numbering follows the MIB-1 and MIB-2 conventions. The MIB variables are found under the “management.mib-2” section of the SNMP structure. (Traps are found under the private section).



Below is a dump of the SNMP MIB variables supported by Vega products. All variables defined are maintained within the product.

MIB reference	Description	Read/Write
1.3.6.1.2.1.1.1	system.sysDescr	R
1.3.6.1.2.1.1.2	system.sysObjectID	R
1.3.6.1.2.1.1.3	system.sysUpTime	R
1.3.6.1.2.1.1.4	system.sysContact	R/W
1.3.6.1.2.1.1.5	system.sysName	R/W
1.3.6.1.2.1.1.6	system.sysLocation	R/W
1.3.6.1.2.1.1.7	system.sysServices	R
1.3.6.1.2.1.2.1	interfaces.ifNumber	R
1.3.6.1.2.1.2.2.1.1	interfaces.iftable.ifentry.IfIndex	R
1.3.6.1.2.1.2.2.1.2	interfaces.iftable.ifentry.IfDescr	R
1.3.6.1.2.1.2.2.1.3	interfaces.iftable.ifentry.IfType	R
1.3.6.1.2.1.2.2.1.4	interfaces.iftable.ifentry.IfMtu	R
1.3.6.1.2.1.2.2.1.5	interfaces.iftable.ifentry.IfSpeed	R
1.3.6.1.2.1.2.2.1.6	interfaces.iftable.ifentry.ifPhysAddress	R
1.3.6.1.2.1.2.2.1.7	interfaces.iftable.ifentry.ifAdminStatus	R/W
1.3.6.1.2.1.2.2.1.8	interfaces.iftable.ifentry.ifOperStatus	R
1.3.6.1.2.1.2.2.1.9	interfaces.iftable.ifentry.ifLastChange	R
1.3.6.1.2.1.2.2.1.10	interfaces.iftable.ifentry.ifInOctets	R
1.3.6.1.2.1.2.2.1.11	interfaces.iftable.ifentry.ifInUcastPkts	R
1.3.6.1.2.1.2.2.1.12	interfaces.iftable.ifentry.ifInNUcastPkts	R
1.3.6.1.2.1.2.2.1.13	interfaces.iftable.ifentry.ifInDiscards	R
1.3.6.1.2.1.2.2.1.14	interfaces.iftable.ifentry.ifInErrors	R
1.3.6.1.2.1.2.2.1.15	interfaces.iftable.ifentry.ifInUnknownProtos	R
1.3.6.1.2.1.2.2.1.16	interfaces.iftable.ifentry.ifOutOctets	R

MIB reference	Description	Read/Write
1.3.6.1.2.1.2.2.1.17	interfaces.iftable.ifentry.ifOutUcastPkts	R
1.3.6.1.2.1.2.2.1.18	interfaces.iftable.ifentry.ifOutNUcastPkts	R
1.3.6.1.2.1.2.2.1.19	interfaces.iftable.ifentry.ifOutDiscards	R
1.3.6.1.2.1.2.2.1.20	interfaces.iftable.ifentry.ifOutErrors	R
1.3.6.1.2.1.2.2.1.21	interfaces.iftable.ifentry.ifOutQLen	R
1.3.6.1.2.1.2.2.1.22	interfaces.iftable.ifentry.ifSpecific	R
1.3.6.1.2.1.3.1.1.1	At.attable.atentry.atIndex	R/W
1.3.6.1.2.1.3.1.1.2	At.attable.atentry.atPhysAddress	R/W
1.3.6.1.2.1.3.1.1.3	At.attable.atentry.atNetAddress	R/W
1.3.6.1.2.1.4.1	Ip.ipForwarding	R/W
1.3.6.1.2.1.4.2	Ip.ipDefaultTTL	R
1.3.6.1.2.1.4.3	Ip.ipInReceives	R
1.3.6.1.2.1.4.4	Ip.ipInHdrErrors	R
1.3.6.1.2.1.4.5	Ip.ipInAddrErrors	R
1.3.6.1.2.1.4.6	Ip.ipForwDatagrams	R
1.3.6.1.2.1.4.7	Ip.ipInUnknownProtos	R
1.3.6.1.2.1.4.8	Ip.ipInDiscards	R
1.3.6.1.2.1.4.9	Ip.ipInDelivers	R
1.3.6.1.2.1.4.10	Ip.ipOutRequests	R
1.3.6.1.2.1.4.11	Ip.ipOutDiscards	R
1.3.6.1.2.1.4.12	Ip.ipOutNoRoutes	R
1.3.6.1.2.1.4.13	Ip.ipReasmTimeout	R
1.3.6.1.2.1.4.14	Ip.ipReasmReqds	R
1.3.6.1.2.1.4.15	Ip.ipReasmOKs	R
1.3.6.1.2.1.4.16	Ip.ipReasmFails	R
1.3.6.1.2.1.4.17	Ip.ipFragOKs	R
1.3.6.1.2.1.4.18	Ip.ipFragFails	R
1.3.6.1.2.1.4.19	Ip.ipFragCreates	R
1.3.6.1.2.1.4.20.1.1	Ip.ipaddrtable.ipaddrentry.ipAdEntAddr	R
1.3.6.1.2.1.4.20.1.2	Ip.ipaddrtable.ipaddrentry.ipAdEntIfIndex	R
1.3.6.1.2.1.4.20.1.3	Ip.ipaddrtable.ipaddrentry.ipAdEntNetMask	R
1.3.6.1.2.1.4.20.1.4	Ip.ipaddrtable.ipaddrentry.ipAdEntBcastAddr	R
1.3.6.1.2.1.4.20.1.5	Ip.ipaddrtable.ipaddrentry.ipAdEntReasmMaxSize	R
1.3.6.1.2.1.4.21.1.1	Ip.iproutetable.iprouteentry.ipRouteDest	R/W
1.3.6.1.2.1.4.21.1.2	Ip.iproutetable.iprouteentry.ipRouteIfIndex	R/W
1.3.6.1.2.1.4.21.1.3	Ip.iproutetable.iprouteentry.ipRouteMetric1	R/W
1.3.6.1.2.1.4.21.1.4	Ip.iproutetable.iprouteentry.ipRouteMetric2	R/W
1.3.6.1.2.1.4.21.1.5	Ip.iproutetable.iprouteentry.ipRouteMetric3	R/W
1.3.6.1.2.1.4.21.1.6	Ip.iproutetable.iprouteentry.ipRouteMetric4	R/W
1.3.6.1.2.1.4.21.1.7	Ip.iproutetable.iprouteentry.ipRouteNextHop	R/W
1.3.6.1.2.1.4.21.1.8	Ip.iproutetable.iprouteentry.ipRouteType	R
1.3.6.1.2.1.4.21.1.9	Ip.iproutetable.iprouteentry.ipRouteProto	R
1.3.6.1.2.1.4.21.1.10	Ip.iproutetable.iprouteentry.ipRouteAge	R/W

MIB reference	Description	Read/Write
1.3.6.1.2.1.4.21.1.11	Ip.iproutetable.iprouteentry.ipRouteMask	R/W
1.3.6.1.2.1.4.21.1.12	Ip.iproutetable.iprouteentry.ipRouteMetric5	R/W
1.3.6.1.2.1.4.21.1.13	Ip.iproutetable.iprouteentry.ipRouteInfo	R
1.3.6.1.2.1.4.22.1.1	Ip.ipnettomediatable.ipnettomedianetaddress.ipNetToMediaIfIndex	R/W
1.3.6.1.2.1.4.22.1.2	Ip.ipnettomediatable.ipnettomedianetaddress.ipNetToMediaPhysAddress	R/W
1.3.6.1.2.1.4.22.1.3	Ip.ipnettomediatable.ipnettomedianetaddress.ipNetToMediaNetAddress	R/W
1.3.6.1.2.1.4.22.1.4	Ip.ipnettomediatable.ipnettomedianetaddress.ipNetToMediaType	R/W
1.3.6.1.2.1.4.23	Ip.ipRoutingDiscards	R
1.3.6.1.2.1.5.1	Icmp.icmpInMsgs	R
1.3.6.1.2.1.5.2	Icmp.icmpInErrors	R
1.3.6.1.2.1.5.3	Icmp.icmpInDestUnreachs	R
1.3.6.1.2.1.5.4	Icmp.icmpInTimeExcds	R
1.3.6.1.2.1.5.5	Icmp.icmpInParmProbs	R
1.3.6.1.2.1.5.6	Icmp.icmpInSrcQuenchs	R
1.3.6.1.2.1.5.7	Icmp.icmpInRedirects	R
1.3.6.1.2.1.5.8	Icmp.icmpInEchos	R
1.3.6.1.2.1.5.9	Icmp.icmpInEchoReps	R
1.3.6.1.2.1.5.10	Icmp.icmpInTimestamps	R
1.3.6.1.2.1.5.11	Icmp.icmpInTimestampReps	R
1.3.6.1.2.1.5.12	Icmp.icmpInAddrMasks	R
1.3.6.1.2.1.5.13	Icmp.icmpInAddrMaskReps	R
1.3.6.1.2.1.5.14	Icmp.icmpOutMsgs	R
1.3.6.1.2.1.5.15	Icmp.icmpOutErrors	R
1.3.6.1.2.1.5.16	Icmp.icmpOutDestUnreachs	R
1.3.6.1.2.1.5.17	Icmp.icmpOutTimeExcds	R
1.3.6.1.2.1.5.18	Icmp.icmpOutParmProbs	R
1.3.6.1.2.1.5.19	Icmp.icmpOutSrcQuenchs	R
1.3.6.1.2.1.5.20	Icmp.icmpOutRedirects	R
1.3.6.1.2.1.5.21	Icmp.icmpOutEchos	R
1.3.6.1.2.1.5.22	Icmp.icmpOutEchoReps	R
1.3.6.1.2.1.5.23	Icmp.icmpOutTimestamps	R
1.3.6.1.2.1.5.24	Icmp.icmpOutTimestampReps	R
1.3.6.1.2.1.5.25	Icmp.icmpOutAddrMasks	R
1.3.6.1.2.1.5.26	Icmp.icmpOutAddrMaskReps	R
1.3.6.1.2.1.6.1	Tcp.tcpRtoAlgorithm	R
1.3.6.1.2.1.6.2	Tcp.tcpRtoMin	R
1.3.6.1.2.1.6.3	Tcp.tcpRtoMax	R
1.3.6.1.2.1.6.4	Tcp.tcpMaxConn	R
1.3.6.1.2.1.6.5	Tcp.tcpActiveOpens	R
1.3.6.1.2.1.6.6	Tcp.tcpPassiveOpens	R

MIB reference	Description	Read/Write
1.3.6.1.2.1.6.7	Tcp. tcpAttemptFails	R
1.3.6.1.2.1.6.8	Tcp. tcpEstabResets	R
1.3.6.1.2.1.6.9	Tcp. tcpCurrEstab	R
1.3.6.1.2.1.6.10	Tcp. tcpInSegs	R
1.3.6.1.2.1.6.11	Tcp. tcpOutSegs	R
1.3.6.1.2.1.6.12	Tcp. tcpRetransSegs	R
1.3.6.1.2.1.6.13.1.1	Tcp.tcpconntable.tcpconnentry. tcpConnState	R/W
1.3.6.1.2.1.6.13.1.2	Tcp.tcpconntable.tcpconnentry. tcpConnLocalAddress	R
1.3.6.1.2.1.6.13.1.3	Tcp.tcpconntable.tcpconnentry. tcpConnLocalPort	R
1.3.6.1.2.1.6.13.1.4	Tcp.tcpconntable.tcpconnentry. tcpConnRemAddress	R
1.3.6.1.2.1.6.13.1.5	Tcp.tcpconntable.tcpconnentry. tcpConnRemPort	R
1.3.6.1.2.1.6.14	Tcp. tcpInErrs	R
1.3.6.1.2.1.6.15	Tcp. tcpOutRsts	R
1.3.6.1.2.1.7.1	Udp. udpInDatagrams	R
1.3.6.1.2.1.7.2	Udp. udpNoPorts	R
1.3.6.1.2.1.7.3	Udp. udpInErrors	R
1.3.6.1.2.1.7.4	Udp. udpOutDatagrams	R
1.3.6.1.2.1.7.5.1.1	Udp.udptable.udpentry. udpLocalAddress	R
1.3.6.1.2.1.7.5.1.2	Udp.udptable.udpentry. udpLocalPort	R
1.3.6.1.2.1.8.1	Egp. egpInMsgs	R
1.3.6.1.2.1.8.2	Egp. egpInErrors	R
1.3.6.1.2.1.8.3	Egp. egpOutMsgs	R
1.3.6.1.2.1.8.4	Egp. egpOutErrors	R
1.3.6.1.2.1.8.5.1.1	Egp.egpneightable.egpneighentry. egpNeighState	R
1.3.6.1.2.1.8.5.1.2	Egp.egpneightable.egpneighentry. egpNeighAddr	R
1.3.6.1.2.1.8.5.1.3	Egp.egpneightable.egpneighentry. egpNeighAs	R
1.3.6.1.2.1.8.5.1.4	Egp.egpneightable.egpneighentry. egpNeighInMsgs	R
1.3.6.1.2.1.8.5.1.5	Egp.egpneightable.egpneighentry. egpNeighInErrs	R
1.3.6.1.2.1.8.5.1.6	Egp.egpneightable.egpneighentry. egpNeighOutMsgs	R
1.3.6.1.2.1.8.5.1.7	Egp.egpneightable.egpneighentry. egpNeighOutErrs	R
1.3.6.1.2.1.8.5.1.8	Egp.egpneightable.egpneighentry. egpNeighInErrMsgs	R
1.3.6.1.2.1.8.5.1.9	Egp.egpneightable.egpneighentry. egpNeighOutErrMsgs	R
1.3.6.1.2.1.8.5.1.10	Egp.egpneightable.egpneighentry. egpNeighStateUps	R
1.3.6.1.2.1.8.5.1.11	Egp.egpneightable.egpneighentry. egpNeighStateDowns	R
1.3.6.1.2.1.8.5.1.12	Egp.egpneightable.egpneighentry. egpNeighIntervalHello	R
1.3.6.1.2.1.8.5.1.13	Egp.egpneightable.egpneighentry. egpNeighIntervalPoll	R
1.3.6.1.2.1.8.5.1.14	Egp.egpneightable.egpneighentry. egpNeighMode	R
1.3.6.1.2.1.8.5.1.15	Egp.egpneightable.egpneighentry. egpNeighEventTrigger	R/W
1.3.6.1.2.1.8.6	Egp. EgpAs	R
1.3.6.1.2.1.11.1	Snmp. SnmpInPkts	R
1.3.6.1.2.1.11.2	Snmp. SnmpOutPkts	R
1.3.6.1.2.1.11.3	Snmp. SnmpInBadVersions	R
1.3.6.1.2.1.11.4	Snmp. SnmpInBadCommunityNames	R

MIB reference	Description	Read/Write
1.3.6.1.2.1.11.5	Snmp.snmpInBadCommunityUses	R
1.3.6.1.2.1.11.6	Snmp.snmpInASNParseErrsnb	R
1.3.6.1.2.1.11.8	Snmp.snmpInTooBig	R
1.3.6.1.2.1.11.9	Snmp.snmpInNoSuchNames	R
1.3.6.1.2.1.11.10	Snmp.snmpInBadValues	R
1.3.6.1.2.1.11.11	Snmp.snmpInReadOnly	R
1.3.6.1.2.1.11.12	Snmp.snmpInGenErrs	R
1.3.6.1.2.1.11.13	Snmp.snmpInTotalReqVars	R
1.3.6.1.2.1.11.14	Snmp.snmpInTotalSetVars	R
1.3.6.1.2.1.11.15	Snmp.snmpInGetRequests	R
1.3.6.1.2.1.11.16	Snmp.snmpInGetNexts	R
1.3.6.1.2.1.11.17	Snmp.snmpInSetRequests	R
1.3.6.1.2.1.11.18	Snmp.snmpInGetResponses	R
1.3.6.1.2.1.11.19	Snmp.snmpInTraps	R
1.3.6.1.2.1.11.20	Snmp.snmpOutTooBig	R
1.3.6.1.2.1.11.21	Snmp.snmpOutNoSuchNames	R
1.3.6.1.2.1.11.22	Snmp.snmpOutBadValues	R
1.3.6.1.2.1.11.24	Snmp.snmpOutGenErrs	R
1.3.6.1.2.1.11.25	Snmp.snmpOutGetRequests	R
1.3.6.1.2.1.11.26	Snmp.snmpOutGetNexts	R
1.3.6.1.2.1.11.27	Snmp.snmpOutSetRequests	R
1.3.6.1.2.1.11.28	Snmp.snmpOutGetResponses	R
1.3.6.1.2.1.11.29	Snmp.snmpOutTraps	R
1.3.6.1.2.1.11.30	Snmp.snmpEnableAuthenTraps	R/W

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