SPLnet SNMP Agent Guide

Issue 9, December 2007

This document applies to SPLnet SNMP MIB version 2.01

Overview

This guide provides an overview of the capabilities provided by the SPLnet Model 100 SNMP Agent. For the most complete and up-to-date information, please refer to the MIB files located on the website: www.splnet.net.

SNMP Capabilities

The Model 100's SNMP Agent supports SNMP v1 and v2c operations including *get*, *getnext*, and *set*. The Model 100 can also send SNMP v1 or v2c traps (notifications) and will respond properly to SNMP community names.

The SNMP Agent supports data objects from two MIBs: SNMPv2-MIB (which can be viewed at http://www.ietf.org/rfc/rfc3418.txt) and M100-MIB (http://www.splnet.net/MIBFiles/M100-MIB.mib). The SNMPv2-MIB defines objects standard to most SNMP devices such as sysDescr and sysContact. The M100-MIB defines all parameters specific to the SPLnet Model 100. The Studio Technologies MIB (STI-CAPABILITIES), available for download at http://www.splnet.net/MIBFiles/STI-CAPABILITIES.mib, describes how the Model 100's SNMP Agent implements the objects in these two MIBs in detail.

SNMPv2-MIB Support

The SPLnet Model 100's SNMP Agent implements two groups of objects from SNMPv2-MIB: the system group and the snmpTrap group. See the SNMPv2-MIB for more details.

system group

OID	Function
sysDescr	This OID reports a textual description of the device. Read only.
sysObjectID	The authoritative identification of the device's top-level OID address: 1.3.6.1.4.1.26565.1.1. Read only.
sysUpTime	The number of hundredths of a second since the device was last restarted. Read only.
sysContact	Textual identification of the person in charge of managing the device. The factory default for this field is "Unknown". Read-write.
sysName	Textual name to identify the device. Factory default is "Studio Technologies, Inc." Read-write.
sysLocation	Textual name to identify the location of the device. Factory default is "Skokie, Illinois USA". Read-write.
sysServices	The OID reports 72 indicating this device supports the TCP and application protocols. Read only.
sysORLastChange	The OID reports 0 due to the characteristics of the device. Read only.

The following objects are located within the sysORTable:

OID	Function
sysORIndex	The OID reports 1 as is appropriate for the device. Read only.
sysORID	Fixed to 1.3.6.1.4.1.26565.100.1, which is the OID address of the stiM100Capability statement within the STI-CAPABILITIES MIB. Read only.
sysORDescr	Fixed as "M100 Capabilities" in the device. "A textural description of the capabilities identified by the corresponding instance of sysORID." Read only.
sysORUpTime	Fixed to 0 in the device. "The value of sysUpTime at the time this conceptual row was last instantiated." Read only.

snmpTrap group

OID	Function
snmpTrapOID	Fixed at 26565.1.0.1. "The authoritative identification of the notification currently being sent. This variable occurs as the second varbind in every SNMPv2-Trap-PDU and InformRequest-PDU." Note: The Model 100 sends this OID with version v2c traps only. Read only.
snmpTrapEnterprise	Not implemented by the device.

M100-MIB

The data objects within the M100-MIB are separated into a number of functional groups.

m100Notifications group

The Model 100 can be configured to send SNMP traps (notifications) to a trap receiver. All of the relevant parameters can be configured using the Model 100's SNMP webpage. These include status, trap community name, receiver address, version, trigger threshold, trigger measurement type, and minimum trap interval. The status, trigger measurement, and trigger threshold parameters can also be configured using SNMP *set* commands that are part of the m100Config group.

Test traps can be generated from the Model 100's SNMP webpage as well as using an SNMP *set* command. (See the m100Config group.) Note that test traps replace the normal trap text with "Test Trap." If you need to test parsing of a trap's "real" text you can generate a test trap by temporarily setting the trap trigger threshold to a very low value, e.g., 1.

OID	Function
splThresholdExceeded	This is the OID of the trap sent when the current SPL measurement defined by trapTriggerMeasurement exceeds the threshold defined by trapTriggerThreshold. It is not sent if trapEnable is set to disabled. It is not sent more often than the minimum time interval defined in the device's SNMP webpage. Not accessible using read or write.
trapString	This text object is sent only as part of a trap (notification) and includes the triggering SPL value, trigger measurement, and trigger threshold. It is sent in the following format (using example data): "97.4 dBA (Leq 10 sec) exceeded trap threshold (94 dB)". If the trap was sent as a test trap the text is "Test Trap." Not accessible using read or write.

m100SplData group

The m100SplData group contains a number of read-only objects.

OID	Function
splFast	Current SPL Fast measurement reported in tenths of a dB. Returns −1 if valid data not available.
splFastMax	Current maximum SPL Fast measurement reported in tenths of a dB. Returns −1 if valid data not available.
splSlow	Current SPL Slow measurement reported in tenths of a dB. Returns −1 if valid data not available.
splSlowMax	Current maximum SPL Slow measurement reported in tenths of a dB. Returns −1 if valid data not available.
leq10sec	Current Leq 10 sec measurement reported in tenths of a dB. Returns −1 if valid data not available.
leq1min	Current Leq 1 min measurement reported in tenths of a dB. Returns −1 if valid data not available.
leq5min	Current Leq 5 min measurement reported in tenths of a dB. Returns −1 if valid data not available.
leq10min	Current Leq 10 min measurement reported in tenths of a dB. Returns −1 if valid data not available.
leq15min	Current Leq 15 min measurement reported in tenths of a dB. Returns −1 if valid data not available.
leq30min	Current Leq 30 min measurement reported in tenths of a dB. Returns −1 if valid data not available.
leq1hr	Current Leq 1 hr measurement reported in tenths of a dB. Returns −1 if valid data not available.
leq8hr	Current Leq 8 hr measurement reported in tenths of a dB. Returns −1 if valid data not available.
leq24hr	Current Leq 24 hr measurement reported in tenths of a dB. Returns −1 if valid data not available.
leqContinuous	Current Leq Continuous measurement reported in tenths of a dB. Number of seconds in measurement given by leqContinuousSecs. Returns −1 if valid data not available.
leqContinuousSecs	Number of seconds in the current Leq Continuous measurement. Returns 0 if valid data not available.
l10	Current L10 measurement in whole dB. Number of seconds in measurement given by lnSecs. Returns −1 if valid data not available.
lUser	Current Luser Measurement in whole dB. Number of seconds in measurement given by lnSecs. Returns −1 if valid data not available.

m100SplData group, continued

OID	Function
l90	Current L90 measurement in whole dB. Number of seconds in measurement given by lnSecs. Returns −1 if valid data not available.
lnSecs	Number of seconds in the current Ln (percentile) measurements. Returns 0 if valid data not available.
overloadFlags	This is a "bit mask" created by adding the following error codes: 0 No overloads 1 splFastSlow 2 splFastSlowMax 4 leq10sec 8 leq2min 16 leq5min 32 leq10min 64 leq15min 128 leq30min 256 leq1hr 512 leq8hr 1024 leq24hr 2048 leqContinuous 4096 l10 8192 lUser 16384 l90
m100Indicator1	This is a "bit mask" that shows the status of the green LED function during last second. Each bit gives status for 1/8th of a second. LSB contains first (oldest) 1/8-second data.
m100Indicator2	This is a "bit mask" that shows the status of the red LED function during last second. Each bit gives status for 1/8th of a second. LSB contains first (oldest) 1/8-second data.

m100Config group

The m100Config group contains a number of read-write objects. Writing to many of these objects with a *set* command may change the behavior of the Model 100.

OID	Function		
frequencyWeighting	1	dBA	
	2	dBC	
	3	dBZ	

m100Config group, continued

OID	Function
resetMeasurements	Reading always returns 0. This is a "bit mask" created by adding the following codes. Writing an integer between 1 and 255 resets the appropriate measurements. 1 resetFixedLeqs 2 resetContinuousLeq 4 resetLns 8 resetSplFastMax 16 resetSplSlowMax 32 resetFreqLeqs 64 resetFreqFastMax 128 resetFreqSlowMax 255 resetAll
trapEnable	1 disables trap (notification) generation 2 enables trap generation
trapTriggerMeasurement	This object defines which measurement is used to trigger traps. 1 splFast 2 splSlow 3 leq10sec 4 leq1min 5 leq5min 6 leq10min 7 leq15min 8 leq30min 9 leq1hr 10 leq8hr 11 leq24hr 12 leqContinuous 13 l10 14 lUser 15 l90
trapTriggerThreshold	Writing an integer between 1 and 160 sets the trap trigger threshold in dB SPL.
smtpEnable	1 Disables email/SMS generation 2 Enables email/SMS generation
lUserValue	Writing an integer between 0 and 100, inclusive, sets the percentile threshold for the Luser measurement.
lnBufferLength	1 oneMin 2 fiveMin 3 tenMin 4 fifteenMin 5 thirtyMin 6 oneHr

m100Config group, continued

OID	Function	
lnCalculationMethod	1	Exceeded
	2	Equaled or exceeded
sendTestTrap	Reading always returns 0. To allow a test trap to be sent trapEnable must be configured for enable trap generation.	
	1	Send test trap (notification)
indicatorStatus	This is a "bit mask" created by adding the following codes.	
	1	On-board LEDs enabled
	2	Applet LEDs enabled

m100Sys group

The m100Sys group contains objects which relate to Model 100 system data.

OID	Function
currentTime	Textual display of the current time and UTC offset. Read only.
serialNum	Serial number of the device's hardware. Read only.
systemFirmwareVersion	Textual display of the device's main processor firmware version. Read only.
systemHardwareVersion	Textual display of the device's hardware version. Read only.
dspFirmwareVersion	Textual display of the device's DSP firmware version. Read only.
updateDSPfirmware	Reading always returns 0. Read-write. 1 Initiates TFTP download of DSP firmware.
appletSize	Integer display of the size of the Applet in Bytes. Read only.
updateApplet	Reading always returns 0. Read-write. 1 Initiates TFTP download of Applet.
tftpServerAddress	Textual address of the TFTP server. Can be a name (such as tftp.splnet.net) or an IP address (such as 70.91.247.59). Factory default is "tftp.splnet.net". Read-write.

m100Sys group, continued

OID	Function
sysErrorFlags	A single numeric error code is returned. Read only. This is a "bit mask" created by adding the following error codes: 0 No errors 1 Unable to find SMTP server 2 Failed to communicate with SMTP server 4 Unable to find SNMP trap receiver 8 Failed to send SNMP trap 16 Unable to find SNTP (time) server 32 Failed to communicate with SNTP (time) server 64 Unable to find TFTP server 128 Failed to communicate with TFTP server 256 Failed to change Configuration Menu password 512 Valid TEDS data not read 1024 Microphone input not calibrated
clearSysErrors	Reading always returns 0. Read-write. 1 Clears system error codes.

m100Mic group

The m100Mic group contains a number of objects which relate to the Model 100's system input and connected microphone.

OID	Function
micStatus	Read only. 1 No microphone connected 2 TEDS 0.9 microphone connected 3 TEDS 1.0 microphone connected 4 No valid TEDS data found 5 Non-TEDS microphone connected 6 Audio only
micClass	Integer display of the connected microphone's measurement class (per IEC 61672). Read only. Returns −1 if data not available.
m100InputType	Writing will cause all measurements to be reset. Read-write. 1 CCP – TEDS Sensitivity 2 CCP – Manual Sensitivity 3 Audio Only – Manual Sensitivity
micSensitivity	Integer display of the connected microphone's sensitivity reported in tenths of mV/Pa. See Note 1. Read only. Returns −1 if data not available.

m100Mic group, continued

OID	Function
manualSensitivity	Integer display of the manual sensitivity reported in tenths of mV/Pa. If manual sensitivity is the active source writing will cause all measurements to be reset. Read-write. Returns −1 if data not available.
micManufacturerID	Integer display of the connected microphone's manufacturer ID. See Note 1. Read only. Returns −1 if data not available.
micModelNum	Integer display of the connected microphone's model number. See Note 1. Read only. Returns −1 if data not available.
micSerialNum	Integer display of the connected microphone's serial number. See Note 1. Read only. Returns −1 if data not available.
micCalibrationDate	Textual display of the connected microphone's latest calibration date. See Note 1. Read only. Returns "---" if not available.
micCalibrationPeriod	Integer display of the connected microphone's recommended number of days required between calibrations. See Note 1. Read only. Returns −1 if data not available.
fieldCalibrationDate	Textual display of the date and time when the last field calibration data was stored. Displays "---" if a field calibration value has never been stored. Read only.
fieldCalibrationValue	Field calibration value in tenths of a dB. Acceptable values range from −125 (−12.5 dB) to +125 (+12.5 dB). Writing will cause all measurements to be reset. Read-write.
m100InputGain	Read-write. 1 neg15dB 2 zerodB 3 pos15dB 4 pos30dB
m100MaxSPL	Integer display of approximate maximum SPL in linear operating range of Model 100 based on current sensitivity and input gain. Use overloadFlags to accurately determine if the linear operating range has been exceeded. Read only.

Note 1: Information in this OID derived from connected microphone's Transducer Electronic Data Sheet (TEDS) data. Refer to IEEE 1451.4 template 27 for details. OID micManufacturerID for Studio Technologies, Inc. is 82. For a complete list of TEDS-compliant manufacturers see http://standards.ieee.org/regauth/1451/manufacturerID/Public_Listing.html.

m100SensorBus group

The m100SensorBus group contains objects which relate to the Model 100's sensor bus.

OID	Function
m100Temp	Temperature reported in whole degrees. Units are defined in m100TempUnits. Read only. Returns −255 if not available.
m100TempUnits	Writing to this object immediately polls the sensor bus. Read-write. 1 Celsius 2 Fahrenheit
m100RelativeHumidity	Integer display of relative humidity in %. Read only. Returns −1 if not available.

m100FreqData group

The m100FreqData group contains a number of objects which relate to Model 100's frequency band measurements. Data available only from SLPnet units that have required software license. Refer to the resetMeasurements OID to reset the "Maxs" and "Leqs" OIDs contained in this group. Refer to Table 1 for listing of exact 1/3-octave and 1/1-octave frequency centers.

OID	Function
thirdOctaveFasts	A list of 1/3-octave fast time-weighted data. 62 bytes long, two bytes for each band. The first two bytes report the current fast measurement for the 1/3-octave-band centered at 20 Hz in tenths of a dB. The next two bytes report the current level of the 25 Hz band, etc. The last two bytes report the current level for the 20 kHz band. Read only. Returns 31 −1s if data not available.
thirdOctaveFastMaxs	A list of 1/3-octave fast maximum data. 62 bytes long, two bytes for each band. The first two bytes report the current fast max measurement for the 1/3-octave-band centered at 20 Hz in tenths of a dB. The next two bytes report the current level of the 25 Hz band, etc. The last two bytes report the current level for the 20 kHz band. Read only. Returns 31 −1s if data not available.
thirdOctaveSlows	A list of 1/3-octave slow time-weighted data. 62 bytes long, two bytes for each band. The first two bytes report the current slow measurement for the 1/3-octave-band centered at 20 Hz in tenths of a dB. The next two bytes report the current level of the 25 Hz band, etc. The last two bytes report the current level for the 20 kHz band. Read only. Returns 31 −1s if data not available.

m100FreqData group, continued

OID	Function
thirdOctaveSlowMaxs	A list of 1/3-octave slow maximum data. 62 bytes long, two bytes for each band. The first two bytes report the current slow max measurement for the 1/3-octave-band centered at 20 Hz in tenths of a dB. The next two bytes report the current level of the 25 Hz band, etc. The last two bytes report the current level for the 20 kHz band. Read only. Returns 31 −1s if data not available.
thirdOctaveLeqs	A list of 1/3-octave continuous Leq (time-averaged) data. 62 bytes long, two bytes for each band. The first two bytes report the current Leq measurement for the 1/3-octave-band centered at 20 Hz in tenths of a dB. The next two bytes report the current Leq of the 25 Hz band, etc. The last two bytes report the current Leq for the 20 kHz band. Read freqDataLeqSecs for the number of seconds worth of data in the current continuous Leq measurement. Read only. Returns 31 −1s if data not available.
fullOctaveFasts	A list of 1/1-octave fast time-weighted data. 20 bytes long, two bytes for each band. The first two bytes report the current fast measurement for the 1/1-octave-band centered at 31.5 Hz in tenths of a dB. The next two bytes report the current level of the 63 Hz band, etc. The last two bytes report the current level for the 16 kHz band. Read only. Returns 10 −1s if data not available.
fullOctaveFastMaxs	A list of 1/1-octave fast maximum data. 20 bytes long, two bytes for each band. The first two bytes report the current fast max measurement for the 1/1-octave-band centered at 31.5 Hz in tenths of a dB. The next two bytes report the current level of the 63 Hz band, etc. The last two bytes report the current level for the 16 kHz band. Read only. Returns 10 −1s if data not available.
fullOctaveSlows	A list of 1/1-octave slow time-weighted data. 20 bytes long, two bytes for each band. The first two bytes report the current slow measurement for the 1/1-octave-band centered at 31.5 Hz in tenths of a dB. The next two bytes report the current level of the 63 Hz band, etc. The last two bytes report the current level for the 16 kHz band. Read only. Returns 10 −1s if data not available.
fullOctaveSlowMaxs	A list of 1/1-octave slow maximum data. 20 bytes long, two bytes for each band. The first two bytes report the current slow max measurement for the 1/1-octave-band centered at 31.5 Hz in tenths of a dB. The next two bytes report the current level of the 63 Hz band, etc. The last two bytes report the current level for the 16 kHz band. Read only. Returns 10 −1s if data not available.

m100FreqData group, continued

OID	Function
fullOctaveLeqs	A list of 1/1-octave continuous Leq (time-averaged) data. 20 bytes long, two bytes for each band. The first two bytes report the current Leq measurement for the 1/1-octave-band centered at 31.5 Hz in tenths of a dB. The next two bytes report the current Leq of the 63 Hz band, etc. The last two bytes report the current Leq for the 16 kHz band. Read freqDataLeqSecs for the number of seconds worth of data in the current continuous Leq measurement. Read only. Returns 10 −1s if data not available.
freqDataOverloadFlags	Read only. This is a bit mask created by adding the following error codes: 0 noOverloads 1 freqFastSlow 2 freqFastMax 4 freqSlowMax 8 freqLeqs
freqDataLeqSecs	Number of seconds included in current frequency data continuous Leq measurements. Read only. Returns 0 if data not available.
setCurFreqData	Use this to set which measurement type and frequency band is displayed at getCurFreqData. This is an integer found by starting with the band number. (See table 1.) Then adding 0 for 1/3-octave data or 64 for 1/1-octave data. Finally adding 128 for fast, 256 for fast max, 512 for slow, 1024 for slow max, and 2048 for leq. Read-write. For example 1/3-octave fast at 1 kHz would be: 30 (1 kHz) + 0 (1/3 octave) + 128 (fast) = 158. For 8 kHz 1/1-octave leq it would be: 39 (8 kHz) + 64 (1/1 octave) + 2048 (leq) = 2151.
getCurFreqData	Current data from measurement type and frequency band determined by setCurFreqData reported in tenths of a dB. Read only. Returns −1 if valid data not available.
freqDataAvailable	Status of 1/1 and 1/3 octave data. notAvailable indicates unit is not licensed for this capability. Read only. 1 notAvailable 2 available

Table 1. Nominal 1/3-octave midband frequencies shown below. Nominal 1/1-octave midband frequencies shown in bold. Exact frequencies follow ANSI S1.11-2004 base-two guidelines (based on ISO preferred numbers).

Band Number	Midband Frequency	Band Number	Midband Frequency	Band Number	Midband Frequency	Band Number	Frequency Center
		20	100 Hz	30	**1 kHz**	40	10 kHz
		21	**125 Hz**	31	1.25 kHz	41	12.5 kHz
		22	160 Hz	32	1.6 kHz	42	**16 kHz**
13	20 Hz	23	200 Hz	33	**2 kHz**	43	20 kHz
14	25 Hz	24	**250 Hz**	34	2.5 kHz		
15	**31.5 Hz**	25	315 Hz	35	3.15 kHz		
16	40 Hz	26	400 Hz	36	**4 kHz**		
17	50 Hz	27	**500 Hz**	37	5 kHz		
18	**63 Hz**	28	630 Hz	38	6.3 kHz		
19	80 Hz	29	800 Hz	39	**8 kHz**		