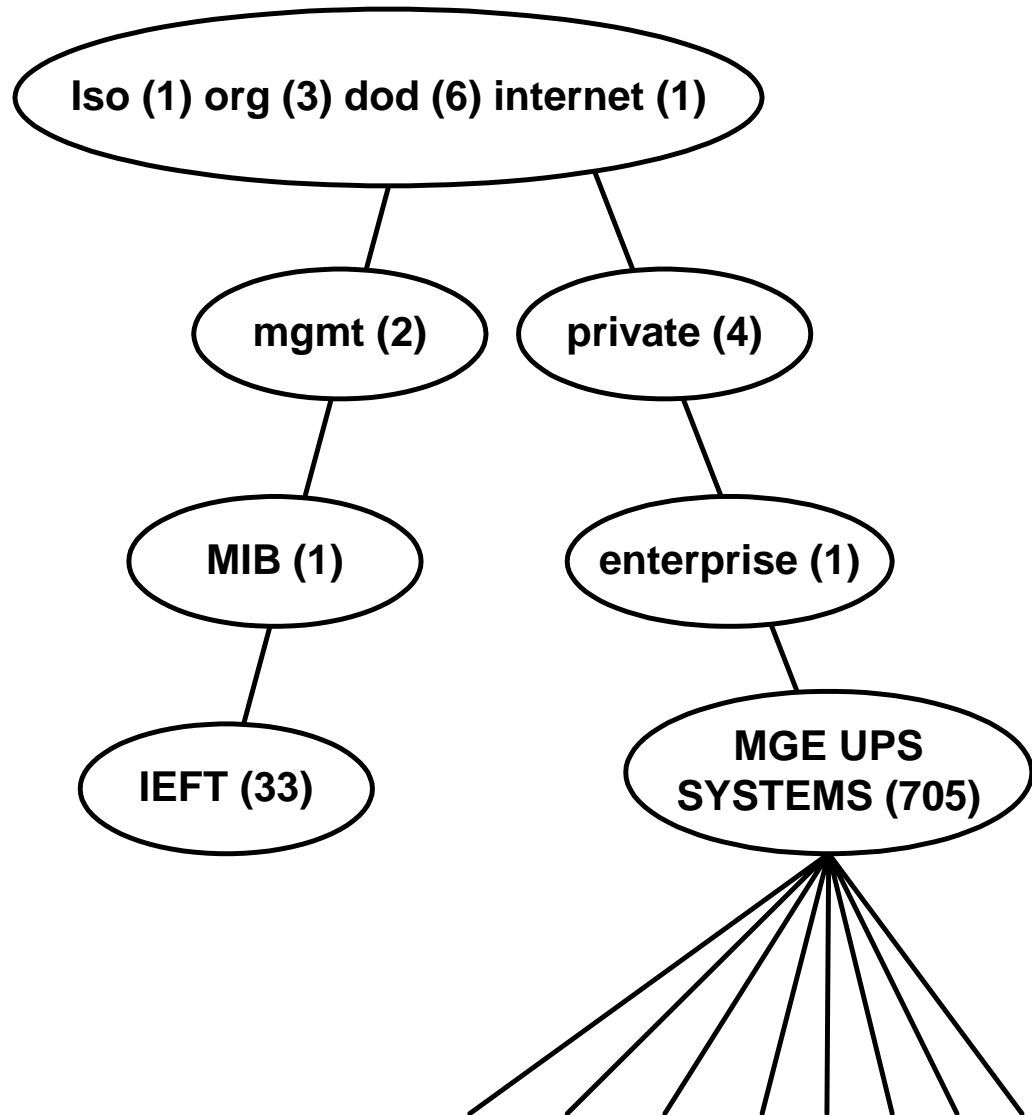


Agent's MIB description



Agent's MIB description

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Agent's MIB description

1 MG UPS MIB Objects

The MG UPS MIB V1.7 defines all objects for managing UPSs on a Network.

The following OID refers to the entry point of the MG UPS MIB in the Internet tree:

{iso(1).org(3).dod(6).internet(1).private(4).enterprises(1).merlinGerin(705).ups(1)}

1.3.6.1.4.1.705.1.

■ 1: upsmgIdent: "UPS Identification Group"

1: upsmgIdentFamilyName:	STRING UPS Family name. i.e. "PULSAR", "GALAXY", etc.
2: upsmgIdentModelName:	STRING UPS Model name. i.e. "SV6", "PSX30", etc.
3: upsmgIdentRevisionLevel:	STRING UPS revision level. i.e. "V1.2"
4: upsmgIdentFirmwareVersion:	STRING UPS firmware version. i.e. "V1.0"
5: upsmgIdentUserID:	STRING UPS identification string (user-defined)
6: upsmgIdentInstallationDate:	STRING UPS installation date (user-defined)
7: upsmgIdentSerialNumber:	STRING UPS serial number.

1.3.6.1.4.1.705.1.

■ 2: upsmgManagement: "UPS Management Group"

1: upsmgManagersNum:	Integer Number of managers. (8, 16 or 24 depending on the Agent)
2: upsmgManagersTable:	TABLE Description of all the managers that will receive traps transmitted by the agent. The table gives information such as the manager's IP address, the severity level of the traps to be sent to the manager, or how the acknowledgment procedure is configured.
1: upsmgManagerEntry:	TABLE Description of one of the managers in the Managers table.
1: mgmanagerIndex. <i>index</i>	Integer Manager's index number in the table, ranging from 1 to upsmgManagersNum.
2: mgmanagerDeviceNumber. <i>index</i>	Integer An entry is allocated to this object when the manager is powered by the UPS. It contains the input number used by the manager in the devices table. If the manager is not powered by the UPS, this object is set to 0.
3: mgmanagerNMSType. <i>index</i>	Integer Manager type - umclient(1), - decnetview(2), - umview(3), - dview(4), - hpopenview(5), - sunnetmanager(6), - novellnms(7), - ibmnetview(8), - other(9), - autolearning(10); this value is used by UM-Link to register an automatically detected manager.
4: mgmanagerCommType. <i>index</i>	Integer Communication protocol level used by the manager: - other(1): none of the following - invalid(2): an invalidated manager - cmip(3): OSI CMIP - snmpv1(4): SNMPv1 - snmpv2(5): SNMPv2 Value 2 indicates that the corresponding entry is free in the Managers table.
5: mgmanagerDescr. <i>index</i>	String Description of the manager.

Agent's MIB description

- 6: mgmanagerAddress.*index*
- 7: mgmanagerCommunity.*index*
- 8: mgmanagerSeverityLevel.*index*
- 9: mgmanagerTrapAck.*index*

Internet IP address of the manager's host workstation.
String Manager's community name. The default value is "public".

Integer Trap severity level. Maximum severity (from 1 to 7) of traps sent to the manager by the agent. No traps, with a higher level of severity, will be sent. Default value: 4

Integer Type of acknowledgment for the associated manager:

- mgack(1),
- mgnoack(2),
- stdnomg(3),
- mgacks(4),
- cpqnoack(5)

mgack or mgacks indicate that the manager is using the MGE UPS SYSTEMS trap acknowledgement system; mgnoack, ietfnoack and cpqnoack indicate that the manager (MGE UPS SYSTEMS, IETF, Compaq respectively) is not using the system.

1.3.6.1.4.1.705.1.

■ 3: upsmgReceptacle: "UPS Receptacle Group"

- 1: upsmgReceptaclesNum:
- 2: upsmgReceptaclesTable:

1: upsmgReceptacleEntry

- 1: mgreceptacleIndex.*index*
- 2: mgreceptacleLevel.*index*
- 3: mgreceptacleType.*index*
- 4: mgreceptacleIdent.*index*
- 5: mgreceptacleState.*index*

Integer Number of output receptacles.

TABLE Output Receptacles table, containing information such as the output ID (user-defined) or on/off status of the receptacle.

TABLE Description of an entry in the Receptacles table.

Integer Receptacle index number in the table, ranging from 1 to upsmgReceptaclesNum.

Integer Receptacle level.

Value 2 indicates that the corresponding entry is invalid in the table. Values 1 and 4 are reserved. Values greater than 4 are used to regroup equivalent receptacles.

String Description of receptacle type.

String Description of receptacle.

Integer Receptacle state:

- manualON(1): after manual power-up,
- manualOFF(2): after manual shutdown,
- normalON(3): after power is restored following a transfer to battery backup,
- normalOFF(4): after shutdown following a transfer to battery backup,
- controlON(5): after a Control ON operation,
- controlOFF(6): after a Control OFF operation,
- scheduleON(7): after a scheduled power-up,
- scheduleOFF(8): after a scheduled shutdown.

6: mgreceptacleReceptacle.*index*

Integer Object used to manage logical dependencies between receptacles. It contains the number of the top level receptacle. The default value is 0 (the receptacle does not depend on another receptacle).

7: mgreceptaclePowerCons.*index*

Integer Receptacle rated output in Volt-Amperes.

8: mgreceptacleOverload.*index*

Integer Receptacle overload status

9: mgreceptacleAutonomy.*index*

Integer Receptacle battery backup time. (Status)

1.3.6.1.4.1.705.1.

■ 4: upsmgConfig: "UPS Configuration Group"

- 1: upsmgConfigBatteryInstalled

Integer Battery installation state: yes(1), no(2)

Agent's MIB description

2: upsmgConfigNominalBatteryVoltage	Integer Battery rated voltage. (dV)
3: upsmgConfigNominalBatteryTime	Integer Rated battery backup time when fully charged. (Seconds)
4: upsmgConfigNominalRechargeTime	Integer Rated battery total recharge time. (Seconds)
5: upsmgConfigMinRechargeLevel:	Integer Minimum battery charge level. (%)
6: upsmgConfigMaxRechargeTime:	Integer Maximum time before restarting UPS. (Seconds)
7: upsmgConfigLowBatteryTime:	Integer Remaining battery backup time. (Seconds)
8: upsmgConfigLowBatteryLevel:	Integer Minimum battery charge level, at which UPS shutdown is initiated. (%)
9: upsmgConfigAutoRestart:	Integer "Automatic restart" status. always(1) never(2) onmain(3)
10: upsmgConfigShutdownTimer:	Integer UPS battery backup time on transfer to battery. (Seconds)
11: upsmgConfigSysShutDuration:	Integer Battery backup time after shutdown command. (Seconds)
12: upsmgConfigVARating	Integer UPS rated output in Volt-Amperes.
13: upsmgConfigLowTransfer	Integer Minimum voltage threshold for transfer to battery.
14: upsmgConfigHighTransfer	Integer Maximum voltage threshold for transfer to battery.
15: upsmgConfigOutputNominalVoltage	Integer Rated output voltage (dV).
16: upsmgConfigOutputNominalCurrent	Integer Rated output current .
17: upsmgConfigOutputNominalFrequency	Integer Rated output frequency (dHz).
18: upsmgConfigByPassType	Integer Bypass type: none(1) relay(2) static(3)
19: upsmgConfigAlarmAudible	Integer Audible alarm state: yes(1), no(2)
20: upsmgConfigAlarmTimeDelay	Integer Audible alarm time delay. (Seconds)
21: upsmgConfigDevicesNum:	Integer Number of devices supplied.
22: upsmgConfigDevicesTable:	TABLE Table listing devices connected to the UPS. The table contains information such as device ID (user-defined), VA rating, and the shutdown and reboot duration.
23: upsmgDeviceEntry:	TABLE Entry in the Devices table.
1: mgdeviceIndex. <i>index</i>	Integer Device index number in the table, ranging from 1 to upsmgConfigDevicesNum.
2: mgdeviceReceptacleNum. <i>index</i>	Integer Number of the receptacle to which the device is connected
3: mgdeviceIdent. <i>index</i>	String Text description of device.
4: mgdeviceVARating. <i>index</i>	Integer Volt-Ampere rating of connected device.
5: mgdeviceSequenceOff. <i>index</i>	Integer Sets position of device in shutdown sequence.
6: mgdeviceSequenceOn. <i>index</i>	Integer Sets position of device in reboot sequence.
7: mgdeviceShutdownDuration. <i>index</i>	Integer Time required for device to shutdown. (Seconds)
8: mgdeviceBootUpDuration. <i>index</i>	Integer Time required for device to reboot. (Seconds)
23: upsmgConfigReceptaclesTable:	TABLE UPS Receptacles table, containing information on the behavior of UPS outputs on battery back-up, such as the battery backup time for specific outputs, the delay before restart, and the shutdown duration of the receptacle which is calculated as a function of the devices connected to the output.
1: upsmgCfgReceptEntry	TABLE Description of an entry in the Receptacles table.

Agent's MIB description

1: mgreceptacleIndex. <i>index</i>	Integer Receptacle index number in the table, ranging from 1 to upsmgReceptaclesNum.
2: mgreceptacleStateTurnOn. <i>index</i>	Integer State of receptacle at reboot: on(1) off(2) last(3) schedule(4)
3: mgreceptacleStateMainReturn. <i>index</i>	Integer State of receptacle when power is restored: on(1) off(2) last(3) schedule(4)
4: mgreceptacleStateDischarge. <i>index</i>	Integer State of receptacle upon return transfer following battery discharge: on(1) off(2) last(3) schedule(4)
5: mgreceptacleShutoffLevel. <i>index</i>	Integer Battery level at which the shutdown sequence is initiated. (%)
6: mgreceptacleShutoffTimer. <i>index</i>	Integer Time delay before initiating shutdown sequence after transfer to battery.
7: mgreceptacleRestartLevel. <i>index</i>	Integer Battery level at which the restart sequence is initiated. (%)
8: mgreceptacleRestartDelay. <i>index</i>	Integer Time delay before initiating restart sequence after shutdown. (Seconds)
9: mgreceptacleShutdownDuration. <i>index</i>	Integer Maximum shutdown duration for the devices supplied by the receptacle. (Seconds)
10: mgreceptacleBootUpDuration. <i>index</i>	Integer Maximum restart duration for the devices supplied by the receptacle. (Seconds)
24: upsmgConfigExtAlarmNum:	Integer Number of external alarms.
25: upsmgConfigExtAlarmTable:	TABLE Table describing the relay contacts monitored by the UM-Sensor environment sensor.
1: upsmgExtAlarmEntry	TABLE Description of an entry in the External Alarms table.
1: mgextAlarmIndex. <i>index</i>	Integer Contact index number in the table, ranging from 1 to upsmgConfigExtAlarmNum.
2: mgextAlarmUID. <i>index</i>	Description of relay contact.
26: upsmgConfigEmergencyTestFail:	Integer Configuration of the SNMP agent to generate UPS shutdown on reception of negative test event.
27: upsmgConfigEmergencyOnByPass:	Integer Configuration of the SNMP agent to generate UPS shutdown on reception of transfer to bypass event.
28: upsmgConfigEmergencyOverload:	Integer Configuration of the SNMP agent to generate UPS shutdown on reception of overload event.
29: upsmgConfigControlDayTable:	UPS ON/OFF schedule table, indicating, for each day of the week, the power-on time and power-off time.
1: upsmgCtrlDayEntry	TABLE Description of an entry in the scheduled on/off table.
1: mgcontrolDayIndex. <i>index</i>	Integer Index number in the table, ranging from 1 to 7. Sunday(1) Monday(2) etc.
2: mgcontrolDayOn. <i>index</i>	Integer Schedules power-on time. The value must be entered in seconds starting at 00.00 (midnight). A value greater than 86400 indicates that no power-on operation has been scheduled.
3: mgcontrolDayOff. <i>index</i>	Integer Schedules power-off time. The value must be entered in seconds starting at 00.00 (midnight). A value

Agent's MIB description

30: upsmgConfigLowBooster:	Integer Low booster threshold. (dV)
31: upsmgConfigHighBooster:	Integer High booster threshold. (dV)
32: upsmgConfigLowFader:	Integer Low fader threshold. (dV)
33: upsmgConfigHighFader:	Integer High fader threshold. (dV)
34: upsmgConfigEnvironmentTable	TABLE The table containing the configuration of the environment sensor." The description of an entry in the table.
1: upsmgConfigEnvironmentEntry	
1: upsmgConfigSensorIndex. <i>index</i>	Integer The sensor index, ranging from 1 to upsmgEnvironmentNum.
2: upsmgConfigSensorName. <i>index</i>	String The sensor user-friendly name.
3: upsmgConfigTemperatureLow. <i>index</i>	Integer The low temperature threshold in unit 0.1 °C.
4: upsmgConfigTemperatureHigh. <i>index</i>	Integer The high temperature threshold in unit 0.1 °C.
5: upsmgConfigTemperatureHysteresis. <i>index</i>	Integer The temperature hysteresys used for threshold test in unit 0.1 °C.
6: upsmgConfigHumidityLow. <i>index</i>	Integer The low humidity threshold in unit 1 %.
7: upsmgConfigHumidityHigh. <i>index</i>	Integer The high humidity threshold in unit 1 %.
8: upsmgConfigHumidityHysteresis. <i>index</i>	Integer The humidity hysteresys used for threshold test in unit 1 %.
9: upsmgConfigInput1Name. <i>index</i>	String The Input #1 user-friendly name.
10: upsmgConfigInput1ClosedLabel. <i>index</i>	String The Input #1 label for closed position.
11: upsmgConfigInput1OpenLabel. <i>index</i>	String The Input #1 label for open position.
12: upsmgConfigInput2Name. <i>index</i>	String The Input #2 user-friendly name.
13: upsmgConfigInput2ClosedLabel. <i>index</i>	String The Input #2 label for closed position.
14: upsmgConfigInput2OpenLabel. <i>index</i>	String The Input #2 label for open position.

1.3.6.1.4.1.705.1.

■ 5: upsmgBattery: "UPS battery backup time group"

1: upsmgBatteryRemainingTime:	Integer Remaining battery backup time. (Seconds)
2: upsmgBatteryLevel:	Integer Battery charge level. (%)
3: upsmgBatteryRechargeTime	Integer Recharge time required for the battery level to reach the level set by upsmgConfigRechargeLevel. (Seconds)
4: upsmgBatteryRechargeLevel	Integer (%)
5: upsmgBatteryVoltage	Integer Voltage delivered by the battery. (dV)
6: upsmgBatteryCurrent	Integer Current delivered by the battery.
7: upsmgBatteryTemperature:	Integer UPS internal temperature. (°C)
8: upsmgBatteryFullRechargeTime	Integer Time required to fully recharge the battery. (Seconds)
9: upsmgBatteryFaultBattery:	Integer Battery fault indicator: yes(1), no(2).
10: upsmgBatteryNoBattery:	Integer Battery presence indicator: yes(1), no(2).
11: upsmgBatteryReplacement	Integer Battery replacement indicator: yes(1), no(2).
12: upsmgBatteryUnavailableBattery	Integer Battery unavailable indicator: yes(1), no(2).
13: upsmgBatteryNotHighCharge	Integer Battery not charged to maximum indicator: yes(1), no(2).
14: upsmgBatteryLowBattery	Integer Low battery indicator: yes(1), no(2).
15: upsmgBatteryChargerFault	Integer Charger fault indicator: yes(1), no(2).
16: upsmgBatteryLowCondition	Integer State indicating that battery has entered low condition: yes(1), no(2).
17: upsmgBatteryLowRecharge	Integer Low battery recharge indicator: yes(1), no(2).

■ 6: upsmgInput: "UPS input group"

1: upsmgInputPhaseNum:	Integer Number of input phases.
------------------------	--

Agent's MIB description

2: upsmgInputPhaseTable:

1: upsmgInputPhaseEntry

1: mginputIndex.*index*

2: mginputVoltage.*index*

3: mginputFrequency.*index*

4: mginputMinimumVoltage.*index*

5: mginputMaximumVoltage.*index*

6: mginputCurrent.*index*

3: upsmgInputBadStatus:

4: upsmgInputLineFailCause

TABLE Phase state table, including information such as the input phase voltage, frequency and current.

TABLE Description of an entry in the Inputs table.

Integer Index number in the table, ranging from 1 to upsmgInputPhaseNum.

Integer Input voltage. (dV)

Integer Input frequency. (dHz)

Integer Minimum voltage of phase during the previous minute. (dV)

Integer Maximum voltage of phase during the previous minute. (dV)

Integer Input current. ()

Integer Incorrect input voltage or frequency: yes(1), no(2).

Integer Cause of outage:

no(1): no outage

outoftolvolt(2): voltage out of tolerance

outoftolfreq(3): frequency out of tolerance

utilityoff(4): no voltage.

1.3.6.1.4.1.705.1.

■ 7: upsmgOutput: "UPS output group"

1: upsmgOutputPhaseNum:

2: upsmgOutputPhaseTable:

1: upsmgOutputPhaseEntry

1: mgoutputPhaseIndex.*index*

2: mgoutputVoltage.*index*

3: mgoutputFrequency.*index*

4: mgoutputLoadPerPhase.*index*

5: mgoutputCurrent.*index*

3: upsmgOutputOnBattery:

4: upsmgOutputOnByPass

5: upsmgOutputUnavailableByPass

6: upsmgOutputNoByPass

7: upsmgOutputUtilityOff

8: upsmgOutputOnBoost

9: upsmgOutputInverterOff

10: upsmgOutputOverLoad

11: upsmgOutputOverTemp

12: upsmgOutputOnBuck

Integer Number of output phases.

TABLE Phase state table, including information such as the output phase voltage, frequency, current and load.

TABLE Description of an entry in the Outputs table.

Integer Index number in the table, ranging from 1 to upsmgOutputPhaseNum.

Integer Output voltage. (dV)

Integer Output frequency. (dHz)

Integer Load per phase. (%)

Integer Output current. ()

Integer UPS is on battery: yes(1), no(2)

Integer Bypass state: yes(1), no(2)

Integer Bypass not available: yes(1), no(2)

Integer Bypass not installed: yes(1), no(2)

Integer UPS in battery backup time: yes(1), no(2)

Integer Output on booster indicator: yes(1), no(2)

Integer Inverter state. yes(1), no(2)

Integer Overload indicator: yes(1), no(2)

Integer Excess temperature indicator: yes(1), no(2)

Integer Transfer to fader indicator: yes(1), no(2)

1.3.6.1.4.1.705.1.

■ 8: upsmgEnviron: "UPS environment group"

1: upsmgEnvironAmbientTemp:

2: upsmgEnvironAmbientHumidity:

3: upsmgEnvironExtAlarmTable:

1: upsmgEnvironExtAlarmEntry

Integer Ambient temperature measured by UM-Sensor 1. ()

Integer Relative humidity measured by UM-Sensor 1. ()

TABLE Table indicating the state of the relay contacts monitored by UM-Sensor.

TABLE Description of an entry in the External Alarms table.

Agent's MIB description

- 1: mgalarmNum.*index*
- 2: mgalarmState.*index*
- 4: upsmgEnvironSensorNum:
- 5: upsmgEnvironSensorTable:
 - 1: upsmgEnvironSensorEntry
 - 1: mgEvnIndex.*index*
 - 2: mgEvnTemperature.*index*
 - 3: mgEvnHumidity.*index*
- 6: upsmgEnvironmentNum:
- 7: upsmgEnvironmentSensorTable:
 - 1: upsmgEnvironmentEntry
 - 1: upsmgEnvironmentIndex.*index*
 - 2: upsmgEnvironmentComFailure.*index*
 - 3: upsmgEnvironmentTemperature.*index*
 - 4: upsmgEnvironmentTemperatureLow.*index*
 - 5: upsmgEnvironmentTemperatureHigh.*index*
 - 6: upsmgEnvironmentHumidity.*index*
 - 7: upsmgEnvironmentHumidityLow.*index*
 - 8: upsmgEnvironmentHumidityHigh.*index*
 - 9: upsmgEnvironmentInput1State.*index*
 - 10: upsmgEnvironmentInput2State.*index*

1.3.6.1.4.1.705.1.

■ 9: upsmgControl: "UPS control group"

- 1: upsmgControlReceptaclesTable:
 - 1: upsmgCtrlReceptEntry
 - 1: mgreceptacleIndexc.*index*
 - 2: mgreceptacleOnDelay.*index*
 - 3: mgreceptacleOnCtrl.*index*
 - 4: mgreceptacleOnStatus.*index*
 - 5: mgreceptacleOffDelay.*index*
 - 6: mgreceptacleOffCtrl.*index*

- Integer** Table index number.
- Integer** External relay contact state.
- Integer** Number of UM-Sensor units (0 to 4).
- Integer** Table containing measurements made by UM-Sensor units.
 - Description of an entry in the Measurements table.
 - Integer** Index number in the table, ranging from 1 to upsmgEnvironEnvironNum.
 - Integer** Temperature measurement. ()
 - Integer** Humidity measurement. ()
 - Integer** Number of Environment sensor connected.
 - TABLE** The table containing the measurements and alarms made by Environment sensor units.
 - The description of an entry in the measurement table.
 - Integer** The sensor index, ranging from 1 to upsmgEnvironmentNum.
 - Integer** The sensor communication failure : yes(1), no(2).
 - Integer** The temperature measurement in unit 0.1 °C.
 - Integer** Temperature is below low threshold : yes(1), no(2).
 - Integer** Temperature is above high threshold : yes(1), no(2).
 - Integer** The humidity measurement in unit 1 %.
 - Integer** Humidity is below low threshold : yes(1), no(2).
 - Integer** Humidity is above high threshold : yes(1), no(2).
 - Integer** State of Input#1 : closed(1), open(2).
 - Integer** State of Input#2 : closed(1), open(2).

- TABLE** Receptacles table, indicating the (user-definable) objects for controlling the on/off sequences of UPS outputs.
- TABLE** Description of an entry in the Receptacles table.
 - Integer** Receptacle index number in the table, ranging from 1 to upsmgReceptaclesNum.
 - Integer** Time delay before powering up receptacle during a Control ON sequence. (Seconds)
 - Integer** Object used to trigger or stop the Control ON sequence:
 - nothing(1)
 - start(2)
 - stop(3)
 - Integer** Control ON sequence state
 - none(1)
 - started(2)
 - inprogressinups(3)
 - completed(4)
 - Integer** Time delay before starting a shutdown sequence during a Control OFF operation. (Seconds)
 - Integer** Object used to trigger or stop the Control OFF sequence:
 - nothing(1)
 - start(2)
 - stop(3)

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7: mgreceptacleOffStatus. <i>index</i>	Integer Control OFF sequence state none(1) started(2) inprogressinups(3) completed(4)
8: mgreceptacleToggleDelay. <i>index</i>	Integer Time delay before starting a shutdown sequence during a Toggle OFF/ON operation. (Seconds)
9: mgreceptacleToggleCtrl. <i>index</i>	Integer Object used to initiate or stop the Toggle OFF/ON sequence: nothing(1) start(2) stop(3)
10: mgreceptacleToggleStatus. <i>index</i>	Integer Toggle OFF/ON sequence state none(1) started(2) inprogressinups(3) completed(4)
11: mgreceptacleToggleDuration. <i>index</i>	Integer Receptacle shutdown time delay during Toggle OFF/ON sequence.
2: upsmgControlDayOff:	Integer Triggers scheduled UPS shutdown. yes(1), no(2)
3: upsmgControlDayOn:	Integer Triggers receptacle reboot after scheduled shutdown. yes(1), no(2)
1.3.6.1.4.1.705.1.	
■ 10: upsmgTest: "UPS test group "	
1: upsmgTestBatterySchedule	Integer Schedules automatic battery test for UPSs that support this function.
2: upsmgTestDiagnostics:	Integer Starts the diagnostics program: default(1), start(2).
3: upsmgTestDiagResult	Integer Result of test: success(1), failed(2), none(3)
4: upsmgTestBatteryCalibration:	Integer Starts the battery test: default(1), start(2).
5: upsmgTestLastCalibration	String Date of previous test.
6: upsmgTestIndicators	Integer Starts the UPS indicator test: default(1), start(2).
7: upsmgTestCommandLine:	String Transmits a line of ASCII commands to the UPS.
8: upsmgTestCommandReady:	Integer Warns UPS that the command line is ready. yes(1), no(2)
9: upsmgTestResponseLine:	String Enables receipt of ASCII response from UPS.
10: upsmgTestResponseReady:	Integer Informs agent that response has been received. yes(1), no(2)
11: upsmgTestBatteryResult:	Integer Result of previous battery test.
1.3.6.1.4.1.705.1.	
■ 11: upsmgTraps: "UPS trap group"	
There are no objects defined for this group.	Refer to the section entitled "MGE MIB specific traps"
1.3.6.1.4.1.705.1.	
■ 12: upsmgAgent: "UPS agent group"	
1: upsmgAgentIpAddress:	Internet IP address of UM-Agent host workstation.
2: upsmgAgentSubnetMask:	Internet Sub-network mask indicating network class.
3: upsmgAgentDefGateway:	Internet IP address of default gateway (if applicable)
4: upsmgAgentBaudRate:	Integer Communications port transmission speed (mandatorily 2400 bauds)

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5: upsmgAgentPollRate:	Integer Frequency at which the agent polls the connected UPS with ASCII commands. (DO NOT MODIFY)
6: upsmgAgentType	Integer Type of agent: UM-Link Ethernet (1) UM-Agent Ethernet (3) Other(5)
7: upsmgAgentTrapAlarmDelay:	Integer Delay, before a trap is retransmitted if it has not been acknowledged.
8: upsmgAgentTrapAlarmRetry:	Integer Record of the number of times a trap is retransmitted if it is not acknowledged.
9: upsmgAgentReset:	Integer Resets agent. yes(1), no(2)
10: upsmgAgentFactReset:	Integer Resets MIB to default (factory) settings. yes(1), no(2)
11: upsmgAgentMibVersion	Integer Version of MIB being implemented.
12: upsmgAgentFirmwareVersion	Integer Version of agent.
13: upsmgAgentCommUPS:	Integer State of communication with UPS. No communication (2). The other values of the object depend on the devices connected to the communications path. The value is calculated using the following formula: $1000*NSE+100*NSW+10*UPSW+UPST$ where - UPST: UPS type (5: no UPS, 3: Protocol Interface, 1: UPS) - UPSW: number of switchable receptacles on UPS - NSW: number of UM-Switch(s) - NSE: number of UM-Sensor(s).
14: upsmgAgentTrapAck:	Integer Object used by certain Managers to acknowledge traps.
15: upsmgAgentAutoLearning:	Integer Configures automatic learning (1) enable, (2) Disable.
16: upsmgAgentBootP:	Integer Configures the BootP process (1) enable, (2) Disable.
17: upsmgAgentTFTP:	Integer Configures the TFTP downloading process (1) enable, (2) Disable.
18: upsmgAgentTrapSignature:	Integer Signature transmitted with traps.

1.3.6.1.4.1.705.1.

■ 13: upsmgRemote: "Source UPS group"

1: upsmgRemoteOnBattery:	Integer This object enables a manager to indicate the state of the source UPS. This object is only accessible if the configuration managed by the agent does not comprise a UPS. RemoteOnBattery(1) RemoteReturnFromBattery(2) RemoteBatteryFault(3) RemoteOverLoad(4)
2: upsmgRemotelpAddress:	Internet IP address of the agent for the source UPS.

Agent's MIB description

2 IETF UPS MIB Objects

The IETF UPS MIB defines standard objects for managing UPSs on a network. The MIB is defined in ASN.1 format in the Request For Comment RFC1628.

The standard IETF UPS-MIB, as implemented by UM-Agent, enables any management application using the MIB to see, monitor and manage the UPSs controlled by the agent.

The ASN.1 definition of this IETF UPS MIB uses new SNMPv2 capabilities from:

- RFC-1442 (Structure of Management Information)
- RFC-1443 (Textual Conventions)
- RFC-1444 (Conformance Statements)

The first group in this MIB (upsObjects(1)) includes nine groups of objects that are implemented in UM-Agent. A short description of these objects is given in this section.

The following OID refers to the entry point of the IETF UPS MIB in the Internet tree structure:
{iso(1).org(3).dod(6).internet(1).mgmt(2).mib(1).upsMIB(33).ups(1)}

■ 1: upsIdent: "Device identification group"

1: upsIdentManufacturer:	Name of UPS manufacturer.
2: upsIdentModel:	see upsmgIdentModelName for MGE MIB.
3: upsIdentUPSSoftware:	see upsmgIdentFirmwareVersion for MGE MIB.
4: upsIdentAgentSoftwareVersion:	see upsmgAgentVersion for MGE MIB.
5: upsIdentName:	see upsmgIdentUserID for MGE MIB.
6: upsIdentAttachedDevices:	see Devices table for MGE MIB.

■ 2: upsBattery: "Battery backup time group"

1: upsBatteryStatus:	see battery state trap indicator for MGE MIB.
2: upsBatterySecondsOnBattery:	Battery backup time used.
3: upsBatteryEstimatedMinutesRemaining:	see upsmgBatteryRemainingTime for MGE MIB.
4: upsBatteryEstimatedChargeRemaining:	see upsmgBatteryLevel for MGE MIB.
5: upsBatteryVoltage:	see upsmgBatteryVoltage for MGE MIB.
6: upsBatteryCurrent:	see upsmgBatteryCurrent for MGE MIB.
7: upsBatteryTemperature:	see upsmgBatteryTemperature for MGE MIB.

■ 3: upsInput: "Inputs group"

1: upsInputLineBads:	Out of tolerance condition counter.
2: upsInputNumLines	see upsmgInputPhaseNum for MGE MIB.
3: upsInputTable	
1: upsInputEntry	
1: upsInputLineIndex:	see mginputIndex for MGE MIB
2: upsInputLineFrequency:	see mginputFrequency for MGE MIB
3: upsInputLineVoltage:	see mginputVoltage for MGE MIB
4: upsInputLineCurrent:	see mginputCurrent for MGE MIB.
5: upsInputLineTruePower:	Active input power in Watts.

■ 4: upsOutput: "Outputs group"

1: upsOutputSource:	see battery state trap indicator for MGE MIB.
2: upsOutputFrequency:	see mgoutputFrequency for MGE MIB.

Agent's MIB description

3: upsOutputNumLines:	see upsmgOutputPhaseNum for MGE MIB.
4: upsOutputTable	
1: upsOutputEntry	
1: upsOutputLineIndex:	see mgoutputPhaseIndex for MGE MIB
2: upsOutputVoltage:	see mgoutputVoltage for MGE MIB
3: upsOutputCurrent:	see mgoutputCurrent for MGE MIB
4: upsOutputPower:	Output power in Watts.
5: upsOutputPercentLoad:	see mgoutputLoadPerPhase for MGE MIB.

■ 5: upsBypass: "Bypass group"

The bypass group corresponds to the MG-MIB output group when UPS is on bypass.

1: upsBypassFrequency	
2: upsBypassNumLines	
3: upsBypassTable	
1: upsBypassEntry	
1: upsBypassLineIndex	
2: upsBypassVoltage	
3: upsBypassCurrent	
4: upsBypassPower	

■ 6: upsAlarm: "IETF alarms group "

1: upsAlarmPresent:	Number of active IETF alarms.
2: upsAlarmTable:	Table of defined IETF alarms.
1: upsAlarmEntry	
1: upsAlarmId	
2: upsAlarmDescr	
3: upsAlarmTime	
3: upsWellKnownAlarms:	Defines 24 alarms. See "IETF traps and alarms".

■ 7: upsTest: "Test group"

1: upsTestId:	Start/abort control of defined tests.
2: upsTestSpinLock:	Spin lock on test subsystem.
3: upsTestResultsSummary:	Results of previous or current diagnostics test.
4: upsTestResultsDetail:	Additional information on test results.
5: upsTestStartTime:	Time (sysUpTime) of previous test.
6: upsTestElapsedTime:	Duration of previous test.
7: upsWellKnownTests:	Defines 5 tests.
1: upsTestNoTestsInitiated:	No test requested and none under way.
2: upsTestAbortTestIn-Progress:	Current test will be interrupted.
3: upsTestGeneralSystem-Test:	Standard manufacturers test for UPSs.
4: upsTestQuickBatteryTest:	Test to establish whether the battery needs to be replaced.
5: upsTestDeepBatteryTest:	As the system is transferred to the battery at a charge level that is set by the manufacturer, it is possible to establish precisely the length of battery service life and, consequently, when it should be replaced.

Agent's MIB description

■ 8: upsControl: "Control Group"

- | | |
|---------------------------|--|
| 1: upsShutdownType: | Choice between output off and system off. |
| 2: upsShutdownAfterDelay: | Controls output or system off sequence (start/stop). |
| 3: upsStartupAfterDelay: | Controls output or system on sequence (start/stop). |
| 4: upsRebootWithDuration: | Controls UPS toggle operation (start/stop). |
| 5: upsAutoRestart: | Configures automatic restart after shutdown. |

■ 9: upsConfig: "Configuration group"

- | | |
|--|---|
| 1: upsConfigInputVoltage: | Rated input voltage. |
| 2: upsConfigInputFreq: | Rated input frequency. |
| 3: upsConfigOutputVoltage: | see upsmgConfigOutputVoltage for MGE MIB. |
| 4: upsConfigOutputFreq: | see upsmgConfigOutputFrequency for MGE MIB. |
| 5: upsConfigOutputVA: | see upsmgConfigVARating for MGE MIB. |
| 6: upsConfigOutputPower: | Rated active load. |
| 7: upsConfigLowBattTime: | see upsmgConfigLowBatteryTime for MGE MIB. |
| 8: upsConfigAudibleStatus: | see upsmgConfigAlarmAudible for MGE MIB. |
| 9: upsConfigLowVoltageTransferPoint: | see upsmgConfigLowTransfer for MGE MIB. |
| 10: upsConfigHighVoltageTransferPoint: | see upsmgConfigHighTransfer for MGE MIB. |

Agent's MIB description

3 COMPAQ UPS MIB Objects

ATTENTION: This functionality is only implemented on certain systems.

The COMPAQ UPS MIB defines COMPAQ objects for managing UPSs on a network. The following OID refers to the entry point of the COMPAQ UPS MIB in the Internet tree structure:

{iso(1).org(3).dod(6).internet(1).private(4).entreprerceptacles(1).Compaq(232).cpqUps(12)}

UM-Agent manages the following objects in the MIB:

■ 1: cpqUpsMibRev: "MIB revision group"

1: cpqUpsMibRevMajor:	Major version of the implemented MIB.
2: cpqUpsMibRevMinor:	Major version of the implemented MIB.
3: cpqUpsMibCondition:	Overall state of system.

■ 2.1.4 cpqUpsOsCommon: "Modules group"

1: cpqUpsOsCommonPollFreq:	Frequency at which agent polls the UPS.
2: cpqUpsOsCommonModule-Table:	Modules table.
1: cpqUpsOsCommonModule-Entry	
1: cpqUpsOsCommonModule-Index:	Index on the described software module.
2: cpqUpsOsCommonModule-Name:	Name of software module.
3: cpqUpsOsCommonModule-Version:	Version of software module.
4: cpqUpsOsCommonModule-Date:	Date of software module version.
5: cpqUpsOsCommonModule-Purpose:	Commentary on the purpose of the software module.

■ 2.2: cpqUpsBasic: "Basic measurements group"

1: cpqUpsLineStatus:	Mains state at UPS input.
2: cpqUpsName:	UPS type.
3: cpqUpsEstimatedBatteryLife:	Estimated battery operation.
4: cpqUpsAutoShutdownDelay:	Time before automatic shutdown.

Agent's MIB description

4 MGE MIB traps

The UM-Agent will send SNMP traps to the management stations which are configured in the MGE MIB UPS Management group.

Traps are error or warning messages sent to the managers. The messages may concern any of the following events that may occur on the UPS:

- errors,
- state changes,
- operations.

Traps are classified by level, each level corresponding to the degree of severity of the event. Level 1 corresponds to the most serious events.

Only traps up to the configured Trap Level are sent from UM-Agent to the manager. The default Trap Level of any manager is 4.

Most of the traps are grouped in pairs, with one trap indicating a fault on the UPS and the second one indicating that the UPS has returned to its normal state.

The following list details various pairs of traps, with their level of severity and meaning.

1:upsBatteryFault (level 2) 2:upsBatteryOK	UPS battery fault status
3:upsBatteryReplacementIndicated (level 3) 4:upsBatteryReplacementNotIndicated	UPS battery replacement indicator
5:upsAtLowBattery (level 1) 6:upsFromLowBattery	UPS low battery internal indicator
7:upsChargerFault (level 3) 8:upsChargerOK	UPS battery charger fault status
9:ups AtLowCondition (level 1) 10:upsFromLowCondition	UPS battery minimum condition status
11:upsOnBattery (level 1) 12:upsReturnFromBattery	UPS on battery backup status
13:upsOnByPass (level 2) 14:upsReturnFromByPass	UPS on bypass status
15:upsByPassUnavailable (level 3) 16:upsByPassAvailable	UPS bypass unavailable/available
17:upsUtilityFailure (level 2) 18:upsUtilityRestored	UPS mains input failure indicator
19:upsOnBoost (level 3) 20:upsReturnFromBoost	UPS booster feature enabled
21:upsOverLoad (level 2) 22:upsLoadOK	UPS load in excess of rated value

Agent's MIB description

23:upsOverTemperature (level 2)	Incorrect UPS internal temperature
24:upsTemperatureOK	
37:upsCommunicationFailure (level 1)	State of serial communication with UPS
38:upsCommunicationRestored	
39:upsInputBad (level 3)	Incorrect input voltage or frequency
40:upsInputOK	
41:upsBatteryUnavailable (level 3)	UPS battery unavailable
42:upsBatteryAvailable	
43:upsAtLowRecharge (level 4)	UPS awaiting restart condition
44:upsFromLowRecharge	
45:upsDiagnosticTestFail (level 3)	UPS internal self test state
46:upsDiagnosticTestOK	
47:upsBatteryTestOK (level 3)	UPS battery test state
48:upsBatteryTestFail	
49:upsExternalAlarmActive (level 2)	External alarm state
50:upsExternalAlarmInactive	
51:upsOnBuck (level 3)	Activation of UPS fader
52:upsReturnFromBuck	
53: upsmgEnvironmentComFailure (level 2)	Environment Probe communication failure.
54: upsmgEnvironmentComOK	Environment Probe communication restored.
55: upsmgEnvironmentTemperatureLow (level 2)	Temperature is below low threshold.
56: upsmgEnvironmentTemperatureHigh (level 2)	Temperature is above high threshold.
57: upsmgEnvironmentTemperatureOK	Temperature is in normal range.
58: upsmgEnvironmentHumidityLow (level 2)	Humidity is below low threshold.
59: upsmgEnvironmentHumidityHigh (level 2)	Humidity is above high threshold.
60: upsmgEnvironmentHumidityOK	Humidity is in normal range.
61: upsmgEnvironmentInput1Closed (level 2)	Input #1 is Closed.
62: upsmgEnvironmentInput1Open (level 2)	Input #1 is Open.
63: upsmgEnvironmentInput2Closed (level 2)	Input #2 is Closed.
64: upsmgEnvironmentInput2Open (level 2)	Input #2 is Open.
65: upsmgQF1Closed (level 2)	QF1 is Closed.
66: upsmgQF1Open (level 1)	QF1 is Open.
67: upsmgQ1Closed (level 2)	Q1 is Closed.
68: upsmgQ1Open (level 1)	Q1 is Open.
69: upsmgQ4SClosed (level 2)	Q4S is Closed.
70: upsmgQ4SOpen (level 1)	Q4S is Open.

Agent's MIB description

71: upsmgQ3BPClosed (level 1)	Q3BP is Closed.
72: upsmgQ3BPOpen (level 2)	Q3BP is Open.
73: upsmgQ5NCClosed (level 2)	Q5N is Closed.
74: upsmgQ5NOpen (level 1)	Q5N is Open.

Other traps are used to report current UPS and agent events. Whereas the events listed above are related to a particular state of the UPS, the events described below correspond to more complex operations that require additional information to be sent to the managers. The information is sent to the manager in the form of a data packet associated with the trap containing both the OID and the value of the information. These traps are mainly used for on/off sequences on UPS outputs. The information associated with the trap is sent to the manager in such a way as to enable it to determine the exact delay before initiating the operation.

The following list details these traps, and their level of severity, with a brief explanation. A toggle operation involves turning a UPS output off and then on again.

25:upsOnToStart (level 2)	UPS on procedure initiated
26:upsOnAbort	UPS on procedure cancelled
27:upsOnInProgress (level 1)	UPS on procedure under way
28:upsOnComplete	UPS on procedure finished
29:upsOffToStart (level 2)	UPS off procedure initiated
30:upsOffAbort	UPS off procedure cancelled
31:upsOffInProgress (level 1)	UPS off procedure under way
32:upsOffComplete	UPS off procedure finished
33:upsToggleToStart (level 2)	UPS toggle operation initiated
34:upsToggleAbort	UPS toggle operation cancelled
35:upsToggleInProgress (level 2)	UPS toggle operation under way
36:upsToggleComplete	UPS toggle operation finished

All these traps are defined as specific SNMP traps in version 1.7 of the MGE MIB.

Agent's MIB description

5 IETF MIB traps and alarms

UM-Agent can be configured to send IETF traps instead of MG enterprise-specific SNMP traps. Each manager can be configured individually.

The second group of the IETF UPS MIB (upsTraps(2)) defines four kinds of message that are implemented by UM-Agent.

1: upsTrapOnBattery	The UPS is operating on battery power. The trap is retransmitted at one minute intervals until the UPS is either shutdown or no longer running on battery.
2: upsTrapTestCompleted	Trap sent upon completion of a UPS diagnostic test.
3: upsTrapAlarmEntryAdded	Trap sent each time an alarm is entered in the Alarms table, except for upsAlarmOnBattery and upsAlarmTestInProgress alarms.
4: upsTrapAlarmEntryRemoved	Alarm sent each time an alarm is deleted from the Alarms table, except for upsAlarmTestInProgress alarms.

The data accompanying these traps provides the manager with information on the corresponding entry in the Alarms table.

The following is a list of the most common alarms that are added to or removed from the Alarms table:

1: upsAlarmBatteryBad	UPS battery fault: one or more batteries require replacement.
2: upsAlarmOnBattery	UPS is on battery backup
3: upsAlarmLowBattery	UPS has entered low condition. The remaining battery backup time is less than or equal to upsConfigLowBattTime.
4: upsAlarmDepletedBattery	UPS has reached the end of the backup time and is about to shutdown
5: upsAlarmTempBad	UPS internal temperature is out of tolerance
6: upsAlarmInputBad	An input condition is out of tolerance
7: upsAlarmOutputBad	An output condition (other than OutputOverload) is out of tolerance
8: upsAlarmOutputOverload	Output load exceeds rated capacity of UPS
9: upsAlarmOnBypass	UPS output is on bypass
10: upsAlarmBypassBad	UPS bypass out of tolerance
11: upsAlarmOutputOffAsRequested	UPS output turned off by Control Group
12: upsAlarmUpsOffAsRequested	UPS shutdown command executed
13: upsAlarmChargerFailed	An uncorrected problem has been detected in the UPS charger subsystem
14: upsAlarmUpsOutputOff	UPS output has been turned off
15: upsAlarmUpsSystemOff	UPS has been turned off
16: upsAlarmFanFailure	Failure detected on one or more UPS fans
17: upsAlarmFuseFailure	Failure detected on one or more UPS fuses
18: upsAlarmGeneralFault	A general fault in the UPS has been detected
19: upsAlarmDiagnosticTestFailed	Failure detected by previous diagnostic test
20: upsAlarmCommunicationsLost	A communications problem between the agent and UPS has been detected
21: upsAlarmAwaitingPower	UPS output has been turned off and UPS is waiting for input power to be restored
22: upsAlarmShutdownPending	Countdown after shutdown (upsShutdownAfterDelay) in progress

Agent's MIB description

23: upsAlarmShutdownImminent

upsShutdownAfterDelay countdown elapsed,
shutdown imminent

24: upsAlarmTestInProgress

UPS test in progress

Agent's MIB description

6 COMPAQ MIB traps

UM-Agent can be configured to send COMPAQ traps instead of MG enterprise-specific SNMP traps. Each manager can be configured individually.

- | | |
|-----------------------|---|
| 1: cpqUpsLineFailed | Mains power has failed. |
| 2: cpqUpsLineOk | Mains power has been restored. |
| 3: cpqUpsShutdown | The system shutdown procedure has been initiated. |
| 4: cpqUpsConfirmation | The system is operational again following a shutdown caused by a power failure. |
| 5: cpqUpsBatteryLow | UPS battery charge is low. |

Agent's MIB description

7 Traps monitored by UM-Client

UM-Client are distributed basic management applications running on host systems, that provide domain alarm messages and shutdown script initiation activated by acknowledged SNMP traps received from MGE UPS SYSTEMS agents.

UM-Client provides provides reliable cross-platform fail-safe shutdown of multiple distributed hosts powered by mid-range and large MGE UPS SYSTEMS SNMP instrumented UPS's.

It is recommended to use UM-Link configured with Auto-Learning disabled, in order to work easily with UM-Client.

Following is a list of MGE traps which are monitored by the UM-Client :

Trap Level 1 :	9:upsAtLowCondition	UPS battery minimum condition status
	31:upsOffInProgress	UPS off procedure under way
	37:upsCommunicationFailure	State of serial communication with UPS
	38:upsCommunicationRestored	

Trap Level 2 :	1:upsBatteryFault	UPS battery fault status
	13:upsOnByPass	UPS on bypass status
	17:upsUtilityFailure	UPS mains input failure indicator
	18:upsUtilityRestored	UPS mains input restored
	29:upsOffToStart	UPS off procedure initiated

UM-Client acknowledges reception of these traps.

For more information, please refer to the UM-Client User Manual.

Agent's MIB description

8 Main MGE MIB objects

Useful SNMP commands :

```
Snmpm get @ip 1.3.6.1.4.1.705.1.1.1.0
1.3.6.1.4.1.705.1.1.1.0 (String)=[Pulsar]
```

```
Snmpm set @ip 1.3.6.1.4.1.705.1.1.1.0 String Nom
1.3.6.1.4.1.705.1.1.1.0 (String)=[Nom]
```

```
Snmpm /c:public /gp:161 next @ip 1.3.6.1.4.1.705.1.1.1.0
1.3.6.1.4.1.705.1.1.2.0 (String) =[4.5]
```

For specifying community name (default :public) : /c:community_name

For specifying SNMP get port (default :161) : /gp:161

Main MGE MIB objects are the following ones :

■ Group5: upsmgBattery: "UPS battery backup time group"

- | | |
|-------------------------------|-----------------------------------|
| 1: upsmgBatteryRemainingTime: | Remaining battery backup time. |
| 2: upsmgBatteryLevel: | Battery charge level. |
| 5: upsmgBatteryVoltage | Voltage delivered by the battery. |

■ Group6: upsmgInput: "UPS input group"

- | | |
|--------------------------|--|
| 2: upsmgInputPhaseTable: | Phase state table, including information such as the input phase voltage, frequency and current. |
| 1: upsmgInputPhaseEntry | Description of an entry in the Inputs table. |
| 2: mginputVoltage | Input voltage. |
| 3: mginputFrequency | Input frequency. |
| 6: mginputCurrent | Input current. |

■ Group7: upsmgOutput: "UPS output group"

- | | |
|---------------------------|---|
| 2: upsmgOutputPhaseTable: | Phase state table, including information such as the output phase voltage, frequency, current and load. |
| 1: upsmgOutputPhaseEntry | Description of an entry in the Outputs table. |
| 2: mgoutputVoltage | Output voltage. |
| 3: mgoutputFrequency | Output frequency. |
| 4: mgoutputLoadPerPhase | Load per phase. |
| 5: mgoutputCurrent | Output current. |

■ Group9: upsmgControl: "UPS control group"

- | | |
|----------------------------------|---|
| 1: upsmgControlReceptaclesTable: | Receptacles table, indicating the (user-definable) objects for controlling the on/off sequences of UPS outputs. |
| 1: upsmgCtrlReceptEntry | Description of an entry in the Receptacles table. |
| 2: mgreceptacleOnDelay | Time delay before powering up receptacle during a Control ON sequence. |
| 3: mgreceptacleOnCtrl | Object used to trigger or stop the Control ON sequence: nothing(1) / start(2) / stop(3) |
| 4: mgreceptacleOnStatus | Control ON sequence state none(1) / started(2) / inprogressinups(3) / completed(4) |

Agent's MIB description

5: mgreceptacleOffDelay

Time delay before starting a shutdown sequence during a Control OFF operation.

6: mgreceptacleOffCtrl

Object used to trigger or stop the Control OFF sequence:
nothing(1) / start(2) / stop(3)

7: mgreceptacleOffStatus

Control OFF sequence state
none(1) / started(2) / inprogressinups(3) /
completed(4)

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