

# Power and Energy Monitoring MIB

draft-claise-energy-monitoring-mib-09

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# Power and Energy Monitoring MIB claipse-energy-monitoring-mib-09

- Draft based on Working Charter

*“4. Power and Energy Monitoring MIB document -*

*The EMAN WG will develop a document defining managed objects for monitoring of power states and energy consumption/production ...”*

- Areas of focus

- Power measurement

- attributes of the power measurement

- Power States

- Energy measurement

- Power Quality

# Power and Energy Monitoring MIB claipse-energy-monitoring-mib-09

- Topics of discussion
  - What is new in this revision - claipse-energy-monitoring-mib-09 ?
  - Open Issues – feedback from the mailing list
    - Seeking WG direction on open issues

# Power and Energy Monitoring MIB claipse-energy-monitoring-mib-09

- What is new in version 09 ?
  - Revised based on IETF-80 EMAN WG consensus
    - New: Support for multiple Power State Sets
      - List all Power States in each Power State Set
      - Terminology change from Power State Series to Power State Sets
    - New: IANA consideration section
      - registration process of new Power State Sets
      - addition of new Power States
  - New: MIB OID tree and an UML diagram
  - Editorial: Use cases moved to the Applicability Statement draft
  - Editorial: Discovery of Power States w/o Energy-Aware MIB

# Power and Energy Monitoring MIB

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- NEW: Support for multiple Power State Sets
  - A textual convention PowerStateSet to be administered by IANA

PowerStateSet ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

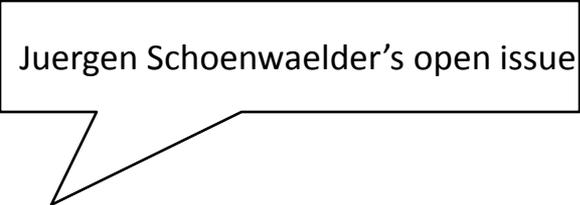
"PowerStateSet is a TC that describes the Power State Set a Power Monitor supports. IANA has created a registry of Power State Series supported by a Power Monitor entity and IANA shall administer the list of Power State Series. One byte is used to represent the Power State Set.

field	octets	contents	range
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1	1	Power State Series	1..255
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SYNTAX OCTETSTRING (SIZE(1))



Juergen Schoenwaelder's open issue

# Power and Energy Monitoring MIB

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- OPEN ISSUE: Textual Convention for PowerStateSet  
- Bitmap of 1-octet or enumerated integer ?  
(Juergen Schoenwaelder)
  - Bitmap representation of PowerStateSet
    - Pros: A compact representation – easier for IANA to implement  
With 8-bit up to 255 values of Power State Sets possible
  - Enumerated Integer for PowerStateSet
    - Pros: Easier for people to understand
    - Cons: Two TC to be defined
- Proposal: Keep the current TC representation

# Power and Energy Monitoring MIB

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PowerStateSet ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"PowerStateSet TC is used to capture both the Power State Series and the power state within the series with a single 2 byte index.

The PowerStateSet is composed of two bytes.

One byte is used to represent the power state series.

The second byte contains the specific power state within the power state series.

field	octets	contents	range
1	1	power state set	0..255
2	2	power state	1..255

0 in the first byte to indicate IEEE1621 power state series

1 in the first byte to indicate DMTF power state series

2 in the first byte to indicate EMAN power state series

For the DMTF power state series

if the first byte has 1 and the second byte can be used to represent the power states of DMTF.

1 in the second byte to represent DMTF power state on

2 in the second byte to represent DMTF power state Sleep-Light

3 in the second byte to represent DMTF power state Sleep-Deep

SYNTAX OCTET STRING (SIZE (2))

# Power and Energy Monitoring MIB

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PowerStateset ::= TEXTUAL-CONVENTION

DESCRIPTION

"The power state of this component ."

SYNTAX INTEGER {

IEEE1621 (1),

DMTF (2),

EMAN (3),

}

PowerState ::= TEXTUAL-CONVENTION

STATUS current

SYNTAX INTEGER {

DMTF-On (2002),

DMTF-sleeplight (2003),

DMTF-sleepdeep (2004),

DMTF-powercyclesoft (2005),

DMTF-offhard (2006),

DMTF-hibernate (2007),

DMTF-offsoft (2008),

DMTF-powercyclehard (2009),

DMTF-masterbusreset (2010),

DMTF-diaginterrupt (2011),

DMTF-offsoftgraceful (2012),

DMTF-offhardgraceful (2013),

DMTF-masterbusresetgraceful (2014),

DMTF-powercyclesoftgraceful (2015),

DMTF-powercyclehardgraceful (2016),

EMAN-Mechoff (3001),

EMAN-Softoff (3002),

EMAN-Hibernate (3003),

EMAN-Sleep (3004),

.....

)

# Power and Energy Monitoring MIB claipse-energy-monitoring-mib-09

- New: Support for multiple Power State Sets
  - pmPowerTable indexed by  
pmPowerIndex, pmPowerStateSetIndex

Juergen Schoenwaelder's open issue

pmPowerEntry OBJECT-TYPE

SYNTAX PmPowerEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry describes the power usage of a Power Monitor."

INDEX { pmPowerIndex, pmPowerStateSetIndex}

# Power and Energy Monitoring MIB

## claipse-energy-monitoring-mib-09

- OPEN ISSUE: Some variables appear to me to be rather a property of the monitor and not the power state series the monitor happens to support. So why do you index ALL mib variables by the pmPowerStateSetIndex and pmPowerIndex (Juergen Schoenwaelder)
  - Pros: A simpler design for the table with two indices
    - Assumption : Most Powered entities would implement only one PowerStateSet
  - Cons: Two tables to separate the common MIB objects for PowerStateSet
    - More complex design
- Feedback?

# Power and Energy Monitoring MIB claipse-energy-monitoring-mib-09

- NEW: IANA Registration of Power State Sets Process
  - Added 3 Power State sets
    - IEEE1621 3 states (on, off, sleep)
    - DMTF - 16 states (ACPI 7 states + transitional states)
    - EMAN – 12 states (ACPI non-operational states, operational states)
- New IANA Considerations – based on RFC 5226
  - New assignments in Power State Series require a Standards Action - they are to be made via Standards Track RFCs approved by the IESG.

# Power and Energy Monitoring MIB claipse-energy-monitoring-mib-09

- OPEN ISSUE: Do we want to change the IANA considerations ? (Juergen Schoenwaelder)
  - Stringent process for addition of PowerStateSets
    - Pros: In principle, a power management standard should constrain how new PowerState Sets can be added. Otherwise, it can lead to proliferation of power state sets.
    - Cons: Require an IETF process
  - Flexible/loose process
    - Pros: Anybody can register their power state series (Printer group?)
- Feedback?

# Power and Energy Monitoring MIB claipse-energy-monitoring-mib-09

- New: MIB objects revised; consistent with RFC 2863 (ifTable)

```
PmPowerEntry ::= SEQUENCE {  
    pmPowerIndex Integer32,  
    ...  
    pmPowerRequestedState pmPowerAdminState Integer32,  
    pmPowerState pmPowerOperState Integer32,  
    ...  
}  
pmPowerAdminState – Read/Write  
pmPowerOperState – Readonly
```

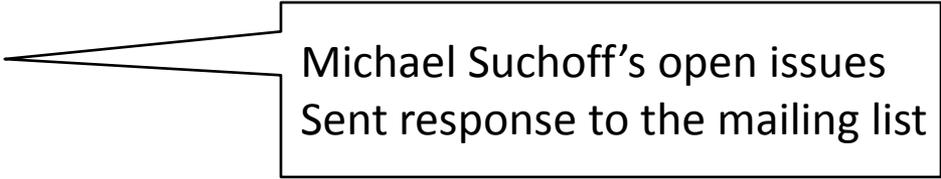
# Power and Energy Monitoring MIB

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- With the introduction of IANA registration of PowerState Sets, Manufacturer power series is not considered
- Deleted some MIB objects
  - pmPowerManufacturerActualPowerState
  - pmPowerManufacturerMappingId
- pmPowerStateMappingTable has been removed

# Power and Energy Monitoring MIB claipse-energy-monitoring-mib-09

## ■ Other Open Issues



Michael Suchoff's open issues  
Sent response to the mailing list

- Time Stamps for each Power measurements
  - Response: Energy measurement has pmEnergyIntervalStartTime, pmEnergyParametersIntervalLength
  - Power measurement is in response to SNMP request – requests based on time schedule ?
  - Should we try to solve SNMP response problem with timestamps ?
- AC Power, Voltage – Terminology - AC power is not an RMS measurement, it is an average reading.
  - Response: Requesting appropriate text for the measurement Power, Voltage – a topic of discussion on the email list

# Power and Energy Monitoring MIB claipse-energy-monitoring-mib-09

## ■ Other Open Issues



Michael Suchoff's open issues

- 3-phase configuration – Wye, Delta and Hybrid ?
  - Right now, we have Wye and Delta configuration.
  - For the hybrid Delta (208 Volts) and Wye – what are the differences ? Sent email to Michael Suchoff and the email list.
  
- Circuit breakers not modeled in EMAN ?
  - Response: Circuit breakers not in scope of EMAN

# Power and Energy Monitoring MIB claipse-energy-monitoring-mib-09

- Summary
  - Updated the MIB module based on WG resolution
  - Discussed the feedback from the mailing list
  - WG comments