# BACnet Protocol Implementation Conformance Statement
## I/O Zone 560, I/O Zone 583

Date: **3/20/2014**
Vendor Name: **OEMCtrl**
Product Name: **I/O Zone**
Product Model Number: **I/O Zone 560, I/O Zone 583**
Applications Software Version: **<depends on application>**    Firmware Revision: **6.00**
BACnet Protocol Revision: **9**

**Product Description:**
OEMCtrl's I/O Zone controller delivers powerful control and communications features all in a compact, economical package. Highly flexible, yet easy-to-use programming tools allow customization for a wide variety of small equipment applications. Fully capable of operating in a 100% stand-alone control mode, the I/O Zone can connect to a Building Automation System (BAS) using any of today's most popular protocols, such as BACnet, Modbus, N2, and LonWorks. The I/O Zone also supports communication to OEMCtrl's line of intelligent space sensors and keypad/display units.

**BACnet Standardized Device Profile (Annex L):**

☐ **BACnet Operator Workstation (B-OWS)**
☐ **BACnet Advanced Operator Workstation (B-AWS)**
☐ **BACnet Operator Display (B-OD)**
☐ **BACnet Building Controller (B-BC)**
☒ **BACnet Advanced Application Controller (B-AAC)**
☐ **BACnet Application Specific Controller (B-ASC)**
☐ **BACnet Smart Sensor (B-SS)**
☐ **BACnet Smart Actuator (B-SA)**

**List all BACnet Interoperability Building Blocks Supported (Annex K):**

| | | | | |
|---|---|---|---|---|
| DS-RP-A | AE-N-I-B | SCHED-I-B | T-VMT-I-B | DM-DDB-A |
| DS-RP-B | AE-ACK-B | SCHED-E-B | T-ATR-B | DM-DDB-B |
| DS-RPM-A | AE-ASUM-B | | | DM-DOB-A |
| DS-RPM-B | AE-INFO-B | | | DM-DOB-B |
| DS-RR-B | AE-ESUM-B | | | DM-DCC-B |
| DS-WP-A | | | | DM-PT-A |
| DS-WP-B | | | | DM-PT-B |
| DS-WPM-A | | | | DM-TS-B |
| DS-WPM-B | | | | DM-UTC-B |
| DS-COV-A | | | | DM-RD-B |
| DS-COV-B | | | | DM-LM-B |
| DS-COVU-A | | | | DM-R-B |
| DS-COVU-B | | | | |

**Segmentation Capability:**

☒ Able to transmit segmented messages        Window Size _____1_____
☒ Able to receive segmented messages        Window Size _____1_____

**Standard Object Types Supported:**

An object type is supported if it may be present in the device. For each standard Object Type supported provide the following data:

1) Whether objects of this type are dynamically creatable using the CreateObject service
2) Whether objects of this type are dynamically deletable using the DeleteObject service
3) List of the optional properties supported
4) List of all properties that are writable where not otherwise required by this standard
5) List of all properties that are conditionally writable where not otherwise required by this standard.
6) List of proprietary properties and for each its property identifier, datatype, and meaning
7) List of any property range restrictions

**(List of object types starts on page 4 …)**

**Data Link Layer Options:**

☐ BACnet IP, (Annex J)
☐ BACnet IP, (Annex J), Foreign Device
☐ ISO 8802-3, Ethernet (Clause 7)
☐ ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
☒ ANSI/ATA 878.1, EIA-485 ARCNET (Clause 8), baud rate(s) **156k baud**
☒ MS/TP master (Clause 9), baud rate(s): **9600, 19200, 38400, 76800**
☐ MS/TP slave (Clause 9), baud rate(s): _____
☐ Point-To-Point, EIA 232 (Clause 10), baud rate(s): _____
☐ Point-To-Point, modem, (Clause 10), baud rate(s): _____
☐ LonTalk, (Clause 11), medium: _____
☐ BACnet/Zigbee (Annex O) _____
☐ Other: _____

**Device Address Binding:**

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.) ☒Yes          ☐ No

**Networking Options:**

☐ Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
☐ Annex H, BACnet Tunneling Router over IP
☐ BACnet/IP Broadcast Management Device (BBMD)
      Does the BBMD support registrations by Foreign Devices?   ☐ Yes  ☐ No
      Does the BBMD support network address translation?   ☐ Yes  ☐ No

**Character Sets Supported:**

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

☒ANSI X3.4        ☒ IBM™/Microsoft™ DBCS     ☒ ISO 8859-1
☒ISO 10646 (UCS-2)   ☒ISO 10646 (UCS-4)      ☒JIS C 6226

**If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:  None.**

**Network Security Options:**

☐ Non-secure Device – is capable of operating without BACnet Network Security
☐ Secure Device – is capable of using BACnet Network Security (NS-SD BIBB)
      ☐ Multiple Application-Specific Keys
      ☐ Supports encryption (NS-ED BIBB)
      ☐ Key Server (NS-KS BIBB)

**Analog Input:**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:

> acked-transitions
> cov-increment
> deadband
> description
> device-type
> event-enable
> event-time-stamps
> high-limit
> limit-enable
> low-limit
> max-pres-value
> min-pres-value
> notification-class
> notify-type
> reliability
> resolution
> time-delay
> update-interval

4. Writeable properties:

> cov-increment
> deadband
> description
> device-type
> event-enable
> high-limit
> limit-enable
> low-limit
> notification-class
> notify-type
> out-of-service
> time-delay
> units

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| device-type | limited to 50 octets in length |
| present-value | limited by min-pres-value and max-pres-value properties |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Analog Input (ASVI_CS):**

1. Creatable? NO
2. Deletable? NO
3. Optional properties supported:

> acked-transitions
> cov-increment
> Deadband
> description
> device-type
> event-enable
> event-time-stamps
> high-limit
> limit-enable
> low-limit
> notification-class
> notify-type
> Reliability
> Resolution
> time-delay

4. Writeable properties:

> cov-increment
> Deadband
> description
> device-type
> event-enable
> high-limit
> limit-enable
> low-limit
> notification-class
> notify-type
> out-of-service
> time-delay
> units

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:

| | | |
|---|---|---|
| 4168 | optional/writable | cs-comb-algorithm |
| 4169 | optional/writable | cs-disp-source |
| 4170 | optional/writable | cs-sens-enable-arr |
| 4173 | optional/ | cs-corrected-value-arr |
| 4171 | optional | cs-sens-status-arr |
| 4172 | optional/writable | cs-sens-calib-arr |

7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| device-type | limited to 50 octets in length |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Analog Input (TLO):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:

   acked-transitions
   cov-increment
   deadband
   description
   device-type
   event-enable
   event-time-stamps
   high-limit
   limit-enable
   low-limit
   max-pres-value
   min-pres-value
   notification-class
   notify-type
   reliability
   resolution
   time-delay
   update-interval

4. Writeable properties:

   cov-increment
   deadband
   description
   device-type
   event-enable
   high-limit
   limit-enable
   low-limit
   notification-class
   notify-type
   out-of-service
   time-delay
   units

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

   | | |
   |---|---|
   | description | limited to 50 octets in length |
   | device-type | limited to 50 octets in length |
   | present-value | limited by min-pres-value and max-pres-value properties |
   | notification-class | must be valid notification-class |
   | time-delay | 0 to 4294967295 |

**Analog Input (PTA):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:

>>> acked-transitions
>>> cov-increment
>>> deadband
>>> description
>>> device-type
>>> Event-enable
>>> Event-time-stamps
>>> high-limit
>>> limit-enable
>>> low-limit
>>> max-pres-value
>>> min-pres-value
>>> notification-class
>>> notify-type
>>> reliability
>>> resolution
>>> time-delay
>>> update-interval

4. Writeable properties:

>>> cov-increment
>>> deadband
>>> description
>>> device-type
>>> event-enable
>>> high-limit
>>> limit-enable
>>> low-limit
>>> notification-class
>>> notify-type
>>> out-of-service
>>> time-delay
>>> units

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| device-type | limited to 50 octets in length |
| present-value | limited by min-pres-value and max-pres-value properties |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Analog Input (RS):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:

> acked-transitions
> cov-increment
> deadband
> description
> device-type
> event-enable
> event-time-stamps
> high-limit
> limit-enable
> low-limit
> max-pres-value
> min-pres-value
> notification-class
> notify-type
> reliability
> resolution
> time-delay
> update-interval

4. Writeable properties:

> cov-increment
> deadband
> description
> device-type
> event-enable
> high-limit
> limit-enable
> low-limit
> notification-class
> notify-type
> out-of-service
> time-delay
> units

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| device-type | limited to 50 octets in length |
| present-value | limited by min-pres-value and max-pres-value properties |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Analog Output:**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:

       acked-transitions

       cov-increment

       deadband

       description

       device-type

       event-enable

       event-time-stamps

       high-limit

       limit-enable

       low-limit

       max-pres-value

       min-pres-value

       notification-class

       notify-type

       reliability

       resolution

       time-delay

4. Writeable properties:

       cov-increment

       deadband

       description

       device-type

       event-enable

       high-limit

       limit-enable

       low-limit

       notification-class

       notify-type

       out-of-service

       present-value

       relinquish-default

       time-delay

       units

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| device-type | limited to 50 octets in length |
| present-value | limited by min-pres-value and max-pres-value properties |
| relinquish-default | limited by min-pres-value and max-pres-value properties |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Analog Output (FM):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:

>> acked-transitions
>> cov-increment
>> deadband
>> description
>> device-type
>> event-enable
>> event-time-stamps
>> high-limit
>> limit-enable
>> low-limit
>> max-pres-value
>> min-pres-value
>> notification-class
>> notify-type
>> reliability
>> resolution
>> time-delay

4. Writeable properties:

>> cov-increment
>> deadband
>> description
>> device-type
>> event-enable
>> high-limit
>> limit-enable
>> low-limit
>> notification-class
>> notify-type
>> out-of-service
>> present-value
>> relinquish-default
>> time-delay
>> units

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| device-type | limited to 50 octets in length |
| present-value | limited by min-pres-value and max-pres-value properties |
| relinquish-default | limited by min-pres-value and max-pres-value properties |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Analog Output (PWM):**

1. Creatable? NO
2. Deletable? NO
3. Optional properties supported:

    acked-transitions

    cov-increment

    deadband

    description

    device-type

    event-enable

    event-time-stamps

    high-limit

    limit-enable

    low-limit

    max-pres-value

    min-pres-value

    notification-class

    notify-type

    reliability

    resolution

    time-delay
4. Writeable properties:

    cov-increment

    deadband

    description

    device-type

    event-enable

    high-limit

    limit-enable

    low-limit

    notification-class

    notify-type

    out-of-service

    present-value

    relinquish-default

    time-delay

    units
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties: None
7. Range restrictions:

    | | |
    |---|---|
    | description | limited to 50 octets in length |
    | device-type | limited to 50 octets in length |
    | present-value | limited by min-pres-value and max-pres-value properties |
    | relinquish-default | limited by min-pres-value and max-pres-value properties |
    | notification-class | must be valid notification-class |
    | time-delay | 0 to 4294967295 |

**Analog Value (AVP_CS):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
   - acked-transitions
   - cov-increment
   - Deadband
   - description
   - event-enable
   - event-time-stamps
   - high-limit
   - limit-enable
   - low-limit
   - notification-class
   - notify-type
   - priority-array
   - Reliability
   - relinquish-default
   - time-delay
4. Writeable properties:
   - cov-increment
   - Deadband
   - description
   - event-enable
   - high-limit
   - limit-enable
   - low-limit
   - notification-class
   - notify-type
   - out-of-service
   - present-value
   - relinquish-default
   - time-delay
   - units

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| present-value | limited by min and max set via the microblock |
| relinquish-default | limited by min and max set via the microblock |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Analog Value (AVP_CS_Setpoint):**

1.  Creatable?  NO
2.  Deletable?  NO
3.  Optional properties supported:
    > cov-increment
    >
    > description
    >
    > Reliability

4.  Writeable properties:
    > cov-increment
    >
    > description
    >
    > out-of-service
    >
    > present-value
    >
    > units

5.  Conditionally writeable properties where not otherwise required by the standard: None
6.  Proprietary properties:

    | 4174 | Private-edit-range-min | optional |
    |------|------------------------|----------|
    | 4175 | Private-edit-range-max | optional |

7.  Range restrictions:

    | description | limited to 50 octets in length |
    |-------------|--------------------------------|
    | present-value | limited by min and max set via the microblock |

**Analog Value (AVS_CS_Setpoint):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
   cov-increment
   description
   Reliability

4. Writeable properties:
   cov-increment
   description
   out-of-service
   units

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:
   description                                limited to 50 octets in length

**Analog Value (PAR):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
   - acked-transitions
   - cov-increment
   - deadband
   - description
   - event-enable
   - event-time-stamps
   - high-limit
   - limit-enable
   - low-limit
   - notification-class
   - notify-type
   - priority-array
   - reliability
   - relinquish-default
   - time-delay
4. Writeable properties:
   - cov-increment
   - deadband
   - description
   - event-enable
   - high-limit
   - limit-enable
   - low-limit
   - notification-class
   - notify-type
   - out-of-service
   - present-value
   - relinquish-default
   - time-delay
   - units
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| present-value | limited by min-pres-value and max-pres-value properties |
| relinquish-default | limited by min-pres-value and max-pres-value properties |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Analog Value (PID):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
    description

    reliability
4. Writeable properties:
    description
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:
    description                                   limited to 50 octets in length

**Analog Value (RS):**
1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
    reliability
    cov-increment
4. Writeable properties:
    out-of-service

    present-value

    units

    cov-increment
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:  None

**Analog Value (STAT):**

1. Creatable? NO
2. Deletable? NO
3. Optional properties supported:

       acked-transitions
       cov-increment
       deadband
       description
       event-enable
       event-time-stamps
       high-limit
       limit-enable
       low-limit
       notification-class
       notify-type
       reliability
       time-delay

4. Writeable properties:

       cov-increment
       deadband
       description
       event-enable
       high-limit
       limit-enable
       low-limit
       notification-class
       notify-type
       out-of-service
       time-delay
       units

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties: None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Binary Input:**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:

    acked-transitions

    active-text

    alarm-value

    change-of-state-count

    change-of-state-time

    description

    device-type

    elapsed-active-time

    event-enable

    event-time-stamps

    inactive-text

    notification-class

    notify-type

    reliability

    time-delay

    time-of-active-time-reset

    time-of-state-count-reset

4. Writeable properties:

    active-text

    alarm-value

    change-of-state-count

    description

    device-type

    elapsed-active-time

    event-enable

    inactive-text

    notification-class

    notify-type

    out-of-service

    polarity

    time-delay

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

    | | |
    |---|---|
    | active-text | limited to 50 octets in length |
    | change-of-state-count | 0 to 4294967295 |
    | description | limited to 50 octets in length |
    | device-type | limited to 50 octets in length |
    | elapsed-active-time | 0 to 4294967295 |
    | inactive-text | limited to 50 octets in length |
    | notification-class | must be valid notification-class |
    | time-delay | 0 to 4294967295 |

**Binary Output:**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
   - acked-transitions
   - active-text
   - change-of-state-count
   - change-of-state-time
   - description
   - device-type
   - elapsed-active-time
   - event-enable
   - event-time-stamps
   - feedback-value
   - inactive-text
   - minimum-off-time
   - minimum-on-time
   - notification-class
   - notify-type
   - reliability
   - time-delay
   - time-of-active-time-reset
   - time-of-state-count-reset
4. Writeable properties:
   - active-text
   - change-of-state-count
   - description
   - device-type
   - elapsed-active-time
   - event-enable
   - inactive-text
   - minimum-off-time
   - minimum-on-time
   - notification-class
   - notify-type
   - out-of-service
   - polarity
   - present-value
   - relinquish-default
   - time-delay
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| active-text | limited to 50 octets in length |
| change-of-state-count | 0 to 4294967295 |
| description | limited to 50 octets in length |
| device-type | limited to 50 octets in length |
| elapsed-active-time | 0 to 4294967295 |

| | |
|---|---|
| inactive-text | limited to 50 octets in length |
| minimum-off-time | 0 to 4294967295 |
| minimum-on-time | 0 to 4294967295 |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Binary Value (BVP_CS):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
   - acked-transitions
   - active-text
   - alarm-value
   - change-of-state-count
   - change-of-state-time
   - description
   - elapsed-active-time
   - event-enable
   - event-time-stamps
   - inactive-text
   - minimum-off-time
   - minimum-on-time
   - notification-class
   - notify-type
   - priority-array
   - reliability
   - relinquish-default
   - time-delay
   - time-of-active-time-reset
   - time-of-state-count-reset
4. Writeable properties:
   - active-text
   - alarm-value
   - change-of-state-count
   - description
   - elapsed-active-time
   - event-enable
   - inactive-text
   - minimum-off-time
   - minimum-on-time
   - notification-class
   - notify-type
   - out-of-service
   - present-value
   - relinquish-default
   - time-delay

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| active-text | limited to 50 octets in length |
| change-of-state-count | 0 to 4294967295 |
| description | limited to 50 octets in length |

| | |
|---|---|
| elapsed-active-time | 0 to 4294967295 |
| inactive-text | limited to 50 octets in length |
| minimum-off-time | 0 to 4294967295 |
| minimum-on-time | 0 to 4294967295 |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Binary Value (BVP_CS_Momentary):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:

        acked-transitions

        active-text

        alarm-value

        change-of-state-count

        change-of-state-time

        description

        elapsed-active-time

        event-enable

        event-time-stamps

        inactive-text

        minimum-off-time

        minimum-on-time

        notification-class

        notify-type

        priority-array

        reliability

        relinquish-default

        time-delay

        time-of-active-time-reset

        time-of-state-count-reset

4. Writeable properties:

        active-text

        alarm-value

        change-of-state-count

        description

        elapsed-active-time

        event-enable

        inactive-text

        notification-class

        notify-type

        out-of-service

        present-value

        relinquish-default

        time-delay

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:

    4176               optional                    cs_momentary_state

7. Range restrictions:

| | |
|---|---|
| active-text | limited to 50 octets in length |
| change-of-state-count | 0 to 4294967295 |
| description | limited to 50 octets in length |
| elapsed-active-time | 0 to 4294967295 |
| inactive-text | limited to 50 octets in length |

| | |
|---|---|
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Binary Value (PAR):**

8. Creatable?  NO
9. Deletable?  NO
10. Optional properties supported:

        acked-transitions

        active-text

        alarm-value

        change-of-state-count

        change-of-state-time

        description

        elapsed-active-time

        event-enable

        event-time-stamps

        inactive-text

        minimum-off-time

        minimum-on-time

        notification-class

        notify-type

        priority-array

        reliability

        relinquish-default

        time-delay

        time-of-active-time-reset

        time-of-state-count-reset

11. Writeable properties:

        active-text

        alarm-value

        change-of-state-count

        description

        elapsed-active-time

        event-enable

        inactive-text

        minimum-off-time

        minimum-on-time

        notification-class

        notify-type

        out-of-service

        present-value

        relinquish-default

        time-delay

12. Conditionally writeable properties where not otherwise required by the standard: None
13. Proprietary properties:  None
14. Range restrictions:

        active-text                      limited to 50 octets in length

        change-of-state-count         0 to 4294967295

        description                   limited to 50 octets in length

        elapsed-active-time           0 to 4294967295

        inactive-text                  limited to 50 octets in length

| | |
|---|---|
| minimum-off-time | 0 to 4294967295 |
| minimum-on-time | 0 to 4294967295 |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Binary Value (CLOCK):**

1. Creatable? NO
2. Deletable? NO
3. Optional properties supported:
   - acked-transitions
   - active-text
   - alarm-value
   - change-of-state-count
   - change-of-state-time
   - description
   - elapsed-active-time
   - event-enable
   - event-time-stamps
   - inactive-text
   - minimum-off-time
   - minimum-on-time
   - notification-class
   - notify-type
   - priority-array
   - reliability
   - relinquish-default
   - time-delay
   - time-of-active-time-reset
   - time-of-state-count-reset
4. Writeable properties:
   - active-text
   - alarm-value
   - change-of-state-count
   - description
   - elapsed-active-time
   - event-enable
   - inactive-text
   - minimum-off-time
   - minimum-on-time
   - notification-class
   - notify-type
   - out-of-service
   - present-value
   - relinquish-default
   - time-delay
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties: None
7. Range restrictions:

| | |
|---|---|
| active-text | limited to 50 octets in length |
| change-of-state-count | 0 to 4294967295 |
| description | limited to 50 octets in length |
| elapsed-active-time | 0 to 4294967295 |
| inactive-text | limited to 50 octets in length |

| | |
|---|---|
| minimum-off-time | 0 to 4294967295 |
| minimum-on-time | 0 to 4294967295 |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Binary Value (STAT):**

1. Creatable? NO
2. Deletable? NO
3. Optional properties supported:

    acked-transitions
    active-text
    alarm-value
    change-of-state-count
    change-of-state-time
    description
    elapsed-active-time
    event-enable
    inactive-text
    minimum-off-time
    minimum-on-time
    notification-class
    notify-type
    reliability
    time-delay
    time-of-active-time-reset
    time-of-state-count-reset
    event-time-stamp

4. Writeable properties:

    active-text
    alarm-value
    change-of-state-count
    description
    elapsed-active-time
    event-enable
    inactive-text
    minimum-off-time
    minimum-on-time
    notification-class
    notify-type
    out-of-service
    time-delay

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties: None
7. Range restrictions:

| | |
|---|---|
| active-text | limited to 50 octets in length |
| change-of-state-count | 0 to 4294967295 |
| description | limited to 50 octets in length |
| elapsed-active-time | 0 to 4294967295 |
| inactive-text | limited to 50 octets in length |
| minimum-off-time | 0 to 4294967295 |
| minimum-on-time | 0 to 4294967295 |
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Binary Value (MODULE ALARM):**

1. Creatable? NO
2. Deletable? NO
3. Optional properties supported:
   - acked-transitions
   - alarm-value
   - description
   - event-enable
   - event-time-stamps
   - notification-class
   - notify-type
   - time-delay
4. Writeable properties:
   - alarm-value
   - event-enable
   - notification-class
   - notify-type
   - out-of-service
   - time-delay
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties: None
7. Range restrictions:

| | |
|---|---|
| notification-class | must be valid notification-class |
| time-delay | 0 to 4294967295 |

**Calendar:**

1. Creatable? NO
2. Deletable? NO
3. Optional properties supported:
   - description
4. Writeable properties:
   - date-list
   - description
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties: None
7. Range restrictions:

| | |
|---|---|
| date-list | limited to 30 BACnetCalendarEntrys |
| description | limited to 50 octets in length |

**Device:**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
   > active-cov-subscriptions
   > active-vt-sessions
   > apdu-segment-timeout
   > database-revision
   > description
   > list_of_session_keys
   > local_date
   > local_time
   > location
   > max-segments-accepted
   > vt-classes-supported
   > utc-offset
   > max-master
   > max-info-frames
   > last-restart-reason
   > time-of-device-restart
   > restart-notification-recipients

4. Writeable properties:
   > object-identifier
   > object-name
   > location
   > description
   > local-time
   > local-date
   > utc-offset
   > apdu-segment-timeout
   > apdu-timeout
   > number-of-apdu-retries
   > max-master
   > max-info-frames
   > last-restart-reason
   > restart-notification-recipients

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:

| Property no. | Property name | Data Type |
|---|---|---|
| 4149 | auto-identity-scheme | enumerated |
| 4150 | auto-identity-base | unsigned |
| 4153 | serial-number | char string |
| 4161 | array-of-mstp-baud-rates | array of unsigned |
| 4162 | test-mode | enumerated |
| 4166 | download-id | char string |
| 4167 | file-store-size | unsigned |
| 4901 | archive-valid-status | enumerated |
| 4902 | archive-now-trigger | bool |
| 4920 | lonworks-enable-metric-conversion | bool |

7.  Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| location | limited to 50 octets in length |
| max-master | 1 to 127 |
| object-identifier | must be a valid device identifier |
| object-name | limited to 50 octets in length |
| utc-offset | -780 to 780 |
| last-restart-reason | limited to BACnetRestartReason |
| restart-notification-recipients | 0 to 10 BACnetRecipients |
| auto-identity-scheme | 0 or 1 |
| auto-identity-base | 0 to 4294967295 |

**File:**

1.  Creatable?  NO
2.  Deletable?  NO
3.  Optional properties supported:
        description
4.  Writeable properties:
        archive
        description
        file-type
        file-size
        modification-date
        read-only
5.  Conditionally writeable properties where not otherwise required by the standard: None
6.  Proprietary properties:  None
7.  Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| file-type | limited to 50 octets in length |

**Loop Object (BACnet PID)**:

1. Creatable? No
2. Deletable? No
3. Optional properties supported:
   Description
   Update_interval
   Proportional_constant
   Proportional_constant_units
   Integral_constant
   Integral_constant_units
   Derivative_constant
   Derivative_constant_units
   Bias
   COV_increment
4. Writable properties:
   Description
   Update_interval
   Action
   Proportional_constant
   Integral_constant
   Derivative_constant
   Bias

5. Conditionally writeable properties where not otherwise required by the standard: None

6. Proprietary properties:
   Continuous_proportional
   Deadband
   Ramp_time
7. Range Restriction:

| Property no. | Property name | Property Restrictions | DataType |
|---|---|---|---|
| 4163 | Continuous_proportional | Can only be 0 or 1 | Boolean |
| 4164 | Deadband | Must be >=0 | Real |
| 4165 | Ramp_time | Must be >=0 | Real |

**Multi-State Value (MSVP_CS):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
   > acked-transitions
   > alarm-values
   > description
   > event-enable
   > event-time-stamps
   > fault-values
   > notification-class
   > notify-type
   > priority-array
   > reliability
   > relinquish-default
   > state-text
   > time-delay
4. Writeable properties:
   > alarm-values
   > description
   > event-enable
   > fault-values
   > notification-class
   > notify-type
   > out-of-service
   > present-value
   > relinquish-default
   > time-delay

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

   | | |
   |---|---|
   | description | limited to 50 octets in length |
   | notification-class | must be valid notification-class |
   | present-value | must be valid state |
   | relinquish-default | must be valid state |
   | time-delay | 0 to 4294967295 |

**Multi-State Value (MSVP_CS_ Momentary):**

1. Creatable? NO
2. Deletable? NO
3. Optional properties supported:

    acked-transitions
    alarm-values
    description
    event-enable
    event-time-stamps
    fault-values
    notification-class
    notify-type
    priority-array
    reliability
    relinquish-default
    state-text
    time-delay

4. Writeable properties:

    alarm-values
    description
    event-enable
    fault-values
    notification-class
    notify-type
    out-of-service
    present-value
    relinquish-default
    time-delay

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties: None
7. Range restrictions:

    description                    limited to 50 octets in length
    notification-class             must be valid notification-class
    present-value                  must be valid state
    relinquish-default             must be valid state
    time-delay                     0 to 4294967295

**Multi-State Value (PAR):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
    acked-transitions
    alarm-values
    description
    event-enable
    event-time-stamps
    fault-values
    notification-class
    notify-type
    priority-array
    reliability
    relinquish-default
    state-text
    time-delay
4. Writeable properties:
    alarm-values
    description
    event-enable
    fault-values
    notification-class
    notify-type
    out-of-service
    present-value
    relinquish-default
    time-delay
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| notification-class | must be valid notification-class |
| present-value | must be valid state |
| relinquish-default | must be valid state |
| time-delay | 0 to 4294967295 |

**Multi-State Value (CLOCK):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
   - acked-transitions
   - alarm-values
   - description
   - event-enable
   - event-time-stamps
   - fault-values
   - notification-class
   - notify-type
   - priority-array
   - reliability
   - relinquish-default
   - state-text
   - time-delay
4. Writeable properties:
   - alarm-values
   - description
   - event-enable
   - fault-values
   - notification-class
   - notify-type
   - out-of-service
   - present-value
   - relinquish-default
   - time-delay
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| notification-class | must be valid notification-class |
| present-value | must be valid state |
| relinquish-default | must be valid state |
| time-delay | 0 to 4294967295 |

**Multi-State Value (STAT):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
    acked-transitions
    alarm-values
    description
    event-enable
    event-time-stamps
    fault-values
    notification-class
    notify-type
    reliability
    state-text
    time-delay
4. Writeable properties:
    alarm-values
    description
    event-enable
    fault-values
    notification-class
    notify-type
    out-of-service
    time-delay
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| notification-class | must be valid notification-class |
| present-value | must be valid state |
| time-delay | 0 to 4294967295 |

**Notification Class:**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
   description
4. Writeable properties:
   ack-required
   description
   priority
   recipient-list
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:  None
   description                          limited to 50 octets in length
   recipient-list                       limited to 5 BACnetDestinations


**Program:**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
   description
   description-of-halt
   instance-of
   program-location
   reason-for-halt
   reliability
4. Writeable properties:
   description
   program-change
   program-location
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:
   description                          limited to 50 octets in length
   program-location                     limited to 50 octets in length

**Schedule (ENUM):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
    description
    exception-schedule
    weekly-schedule
4. Writeable properties:
    description
    effective-period
    exception-schedule
    priority-for-writing
    weekly-schedule
    list-of-prop-reference
    schedule-default
    Reliability
    out-of-service
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:
    schedule-names
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| exception-schedule | limited to 30 BACnetSpecialEvents, each being limited to 6 BACnetTimeValues |
| present-value | 0 to 4294967295 |
| relinquish-default | 0 to 4294967295 |
| weekly-schedule | limited to 6 BACnetTimeValues per BACnetDailySchedule |
| schedule-default | 0 to 4294967295 |
| reliability | limited to 4 BACnetReliability |
| out-of-service | limited to Boolean |
| (554) schedule-names | limited to 800 octets in length |

**Schedule (UNS):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:
> description
>
> exception-schedule
>
> weekly-schedule
4. Writeable properties:
> description
>
> effective-period
>
> exception-schedule
>
> priority-for-writing
>
> weekly-schedule
>
> list-of-prop-reference
>
> schedule-default
>
> reliability
>
> out-of-service
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:
> schedule-names
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| exception-schedule | limited to 30 BACnetSpecialEvents, each being limited to 6 BACnetTimeValues |
| present-value | 0 to 4294967295 |
| relinquish-default | 0 to 4294967295 |
| weekly-schedule | limited to 6 BACnetTimeValues per BACnetDailySchedule |
| schedule-default | 0 to 4294967295 |
| reliability | limited to 4 BACnetReliability |
| out-of-service | limited to Boolean |
| (554) schedule-names | limited to 800 octets in length |

**Trend-log (COV or polled):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:

>>> acked-transitions
>>> client-cov-increment
>>> cov-resubscription-interval
>>> description
>>> event-enable
>>> event-time-stamps
>>> log-device-object-property
>>> log-interval
>>> notification-class
>>> notification-threshold
>>> notify-type
>>> records-since-notification
>>> start-time
>>> stop-time
>>> last-notify-record
>>> align-intervals
>>> interval-offset
>>> reliability

4. Writeable properties:

>>> buffer-size
>>> client-cov-increment
>>> cov-resubscription-interval
>>> Description
>>> event-enable
>>> log-enable
>>> log-interval
>>> notification-class
>>> notification-threshold
>>> notify-type
>>> record-count
>>> start-time
>>> stop-time
>>> stop-when-full

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| log-interval | 0 to 4294967295 |
| notification-class | must be valid notification-class |
| notification-threshold | 0 to 4294967295 |
| record-count | can only be written to 0 |
| total-record-count | can only be written to 0 |
| reliability | limited to 4 BACnetReliability |

**Trend-log (of a non-BACnet property, COV or polled):**

1. Creatable?  NO
2. Deletable?  NO
3. Optional properties supported:

> acked-transitions
> client-cov-increment
> cov-resubscription-interval
> description
> event-enable
> event-time-stamps
> last-notify-record
> log-interval
> notification-class
> notification-threshold
> notify-type
> records-since-notification
> start-time
> stop-time
> align-intervals
> interval-offset
> reliability

4. Writeable properties:

> buffer-size
> client-cov-increment
> cov-resubscription-interval
> description
> event-enable
> log-enable
> log-interval
> notification-class
> notification-threshold
> notify-type
> record-count
> start-time
> stop-time
> stop-when-full

5.  Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:  None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| log_interval | 0 to 4294967295 |
| notification_class | must be valid notification_class |
| notification_threshold | 0 to 4294967295 |
| record_count | can only be written to 0 |
| logging-type | limited to 3 BACnetLoggingType |
| align-intervals | limited to Boolean |

| | |
|---|---|
| interval-offset | 0 to 4294967295 in hundredths of seconds |
| trigger | limited to Boolean |
| reliability | limited to 4 BACnetReliability |

**Trend-log (of a non-BACnet property, triggered):**

1. Creatable? NO
2. Deletable? NO
3. Optional properties supported:

       acked-transitions
       client-cov-increment
       cov-resubscription-interval
       description
       event-enable
       event-time-stamps
       last-notify-record
       log-interval
       notification-class
       notification-threshold
       notify-type
       records-since-notification
       start-time
       stop-time
       reliability
       trigger

4. Writeable properties:

       buffer-size
       client-cov-increment
       cov-resubscription-interval
       description
       event-enable
       log-enable
       notification-class
       notification-threshold
       notify-type
       record-count
       start-time
       stop-time
       stop-when-full
       trigger

5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties: None
7. Range restrictions:

| | |
|---|---|
| description | limited to 50 octets in length |
| log_interval | 0 to 4294967295 |
| notification_class | must be valid notification_class |
| notification_threshold | 0 to 4294967295 |
| record_count | can only be written to 0 |
| logging-type | limited to 3 BACnetLoggingType |
| align-intervals | limited to Boolean |
| interval-offset | 0 to 4294967295 in hundredths of seconds |

trigger      limited to Boolean
reliability      limited to 4 BACnetReliability

**Proprietary Object, AirFlow:**

1. Creatable?  No
2. Deletable?  No
3. Optional properties supported:
   - description
   - device-type
   - profile-name
   - tab-tech-name
   - tab-org-name
   - display-name
   - max-cool-flow
   - max-cool-flow-ovr
   - max-heat-flow
   - min-occ-flow
   - min-occ-flow-ovr
   - min-unocc-flow
   - tabs-pars-seal
   - min-aux-heat-flow
   - flow-at-one-inch
   - flow-calibration
   - sens-calibration
   - lock-flags
   - flow-setpt-lock
   - aux-heat-lock
   - damper-lock
   - fan-lock
   - auto-zero
   - tab-mode
   - last-tab-date
   - air-source-obj-id
   - par-prg-dev-id
   - par-prg-obj-id
   - loop-config
   - sens-config
   - damp-config
   - status-flags
   - reliability
   - occupied-mode
   - heat-mode
   - fan-outpt
   - cooling
   - heating
   - aux-heat
   - damper
   - flow-actual
   - flow-setpoint
   - air-flow-obj-id
   - own-prg-obj-id
   - flow-rawpct
   - flow-rawsetpt
   - moves-today
   - moves-yesterday
   - prop-stat-flags
   - units
   - ovr-flags

        lock-flags-bool
        prop-stat-flags-bool
        baf-version

4.   Writable properties:
        description
        device-type
        profile-name
        tab-tech-name
        tab-org-name
        display-name
        max-cool-flow
        max-cool-flow-ovr
        max-heat-flow
        min-occ-flow
        min-occ-flow-ovr
        min-unocc-flow
        tab-pars-seal
        min-aux-heat-flow
        flow-at-one-inch
        flow-calibration
        sens-calibration
        flow-setpt-lock
        aux-heat-lock
        damper-lock
        fan-lock
        auto-zero
        tab-mode
        last-tab-date
        lock-flags-bool

5.   Conditionally writeable properties where not otherwise required by the standard: None

6.   Proprietary properties:
        max-cool-flow
        max-heat-flow
        min-occ-flow
        min-unocc-flow
        min-aux-heat-flow
        flow-at-one-inch
        flow-calibration
        sens-calibration
        aux-heat-lock
        damper-lock
        flow-setpt-lock
        auto-zero
        tab-mode
        lock-flags
        par-prg-dev-id
        par-prg-obj-id
        air-source-obj-id
        occupied-mode
        heat-mode
        cooling
        heating
        aux-heat

damper
flow-actual
flow-setpoint
air-flow-obj-id
loop-config
sens-config
damp-config
flow-rawpct
flow-rawsetpt
moves-today
moves-yesterday
fan-lock
fan-outpt
prop-stat-flags
tab-tech-name
tab-org-name
last-tab-date
display-name
own-prg-obj-id
ovr-flags
max-cool-flow-ovr
min-occ-flow-ovr
tab-pars-seal
lock-flags-bool
prop-stat-flags-bool
baf-version

7. Range Restriction:

| Property no. | Property name | Property Restrictions | DataType |
|---|---|---|---|
| 4132 | tab-tech-name | limited to 50 octets in length | Chrstr |
| 4133 | tab-org-name | limited to 50 octets in length | Chrstr |
| 4135 | display-name | limited to 50 octets in length | Chrstr |
| 4096 | max-cool-flow | Unrestricted | Real |
| 4138 | max-cool-flow-ovr | Unrestricted | Real |
| 4097 | max-heat-flow | Unrestricted | Real |
| 4098 | min-occ-flow | Unrestricted | Real |
| 4139 | min-occ-flow-ovr | Unrestricted | Real |
| 4099 | min-unocc-flow | Unrestricted | Real |
| 4140 | tab-pars-seal | Unrestricted | Date/Time |
| 4100 | min-aux-heat-flow | Unrestricted | Real |
| 4101 | flow-at-one-inch | Unrestricted | Real |
| 4102 | flow-calibration | Unrestricted | Real(Array of 4 values) |
| 4103 | sens-calibration | Unrestricted | Real(Array of 4 values) |
| 4106 | flow-setpt-lock | Unrestricted | Real |
| 4104 | aux-heat-lock | 0 – 100 | Real |
| 4105 | damper-lock | 0 – 100 | Real |
| 4129 | fan-lock | Unrestricted | Boolean |
| 4107 | auto-zero | Unrestricted | Boolean |
| 4108 | tab-mode | 0-255 (Only 0 -8 is defined) | Byte |
| 4134 | last-tab-date | Unrestricted | Date/Time |
| 4141 | lock-flags-bool | | BitStr |
| | description | limited to 50 octets in length | ChrStr |
| | device-type | limited to 50 octets in length | ChrStr |
| | profile-name | limited to 50 octets in length | ChrStr |

## Proprietary Object, Network Port:

1. Creatable?  No
2. Deletable?  No
3. Optional properties supported:
   ip-multicast-address
   ip-subnet-mask
   ip-default-gateway
   max-master
   max-info-frames
   time-sync-interval
4. Writable properties:
   network-number
   mac-address
   ip-multicast-address
   ip-subnet-mask
   ip-default-gateway
   instance-of
   auto-identity-base
   auto-identity-scheme
   network-port-base
   max-master
   max-info-frames
   device-time-sync-mode
   time-sync-interval
5. Conditionally writeable properties where not otherwise required by the standard: None
6. Proprietary properties:
   network-type
   network-number
   mac-address
   ip-multicast-address
   ip-subnet-mask
   ip-default-gateway
   auto-identity-base
   auto-identity-scheme
   network-port-base
   device-time-sync-mode
7. Range Restriction:

| Property no. | Property name | Property Restrictions | DataType |
|---|---|---|---|
| 624 | network-type | | Unsigned |
| 622 | network-number | 0 – 65535 | Unsigned |
| 621 | mac-address | limited to 6 octets in length | Chrstr |
| 607 | ip-multicast-address | limited to 4 octets in length | Chrstr |
| 608 | ip-subnet-mask | limited to 4 octets in length | Chrstr |
| 601 | ip-default-gateway | limited to 4 octets in length | Chrstr |
| 4150 | auto-identity-base | 0 - 4294967295 | Unsigned |
| 4149 | auto-identity-scheme | 0 - 255 | Enum |
| 600 | network-port-base | | Chrstr |
| 660 | device-time-sync-mode | 0 - 2 | Enum |