BACnet Protocol Implementation Conformance Statement

Date:	2021-July-25
Vendor Name:	SWG Automation Fuzhou Limited (Vendor ID 844)
Product Name:	BACRouter
Product Model Number:	BACRouter
Application Software Version:	
Firmware Revision:	4.12
BACnet Protocol Revision:	16

Product Description:

   The BACRouter is a BACnet router that routes BACnet traffic between BACnet/IP, Ethernet, and MS/TP networks. BACnet/IP port can work as BBMD or Foreign Device Mode. Slave proxy is supported for MS/TP port. Gateway for Modbus RTU/ASCII/TCP slave devices is built-in, which support virtual network and embedded object mode.

BACnet Standardized Device Profiles Supported (Annex L):

☑ BACnet Application Specific Controller (B-ASC)

☑ BACnet Router (B-RTR)

☑ BACnet Gateway (B-GW)

☑ BACnet Broadcast Management Device (B-BBMD)

☑ BACnet General (B-GENERAL)

BACnet Interoperability Building Blocks Supported (Annex K):

Data Sharing	Data Sharing-ReadProperty-A	DS-RP-A
	Data Sharing-ReadProperty-B	DS-RP-B
	Data Sharing-ReadPropertyMultiple-A	DS-RPM-A
	Data Sharing-ReadPropertyMultiple-B	DS-RPM-B
	Data Sharing-WriteProperty-B	DS-WP-B
	Data Sharing-WritePropertyMultiple-B	DS-WPM-B
	Data Sharing-Change Of Value-B	DS-COV-B

Device Management	Device Management-Dynamic Device Binding-B	DM-DDB-B
	Device Management-Dynamic Object Binding-B	DM-DOB-B
	Device Management-DeviceCommunicationControl-B	DM-DCC-B
	Device Management-ReinitializeDevice-B	DM-RD-B
	Device Management-Slave Proxy-B	DM-SP-B
Network	Network Management-Router Configuration-B	NM-RC-B
	Network Management-BBMD Configuration-B	NM-BBMDC-B
	Network Management-Foreign Device Registration-A	NM-FDR-A
Gateway	Gateway-Virtual Network-B	GW-VN-B
	Gateway-Embedded Objects-B	GW-EO-B

Segmentation Capability:

☐Able to transmit segmented messages   Window Size _____
☐Able to receive segmented messages   Window Size _____

Standard Object Types Supported:

The CreateObject and DeleteObject services are not supported

Device Object Type

Properties	Optional	Writable	Note
Object_Identifier		√	Instance range: 0~4194302
Object_Name			
Object_Type			
System_Status		√	
Vendor_Name			
Vendor_Identifier			
Model_Name			
Firmware_Revision			
Application_Software_Version			

Description	√		
Protocol_Version			
Protocol_Revision			
Protocol_Services_Supported			
Protocol_Object_Types_Supported			
Object_List			
Structured_Object_List	√		
Max_APDU_Length_Accepted			
Segmentation_Supported			
APDU_Timeout*		√	Range:2000~60000
Number_Of_APDU_Retries*		√	Range:0~10
Max_Master**	√	√	Range:1~127, and >= Local MAC
Max_Info_Frames**	√	√	Range:1~255
Device_Address_Binding			
Database_Revision			
Active_COV_Subscriptions	√		
Slave_Proxy_Enable***	√	√	
Manual_Slave_Address_Binding***	√	√	
Auto_Slave_Discovery***	√	√	
Slave_Address_Binding***	√	√	
Property_List			

* Those properties in all virtual devices and the gateway share same values.

** They represent the first MS/TP port. If there is no enabled MS/TP port, those properties will not exist.

*** They are only presented if at least one MS/TP port is enabled.

Structured View Object Type

Properties	Optional	Writable	Note
Object_Identifier			
Object_Name			
Object_Type			

Description	√		
Node_Type			
Subordinate_List			
Property_List			

Analog Input Object Type

Properties	Optional	Writable	Note
Object_Identifier			
Object_Name			
Object_Type			
Present_Value			
Description	√		
Status_Flags			
Event_State			
Reliability	√	√	Only writable when out of service
Out_Of_Service		√	
Units			
COV_Increment	√		
Property_List			

Analog Output Object Type

Properties	Optional	Writable	Note
Object_Identifier			
Object_Name			
Object_Type			
Present_Value		√	
Description	√		
Status_Flags			

Properties	Optional	Writable	Note
Event_State			
Reliability	√	√	Only writable when out of service
Out_Of_Service		√	
Units			
Priority_Array			
Relinquish_Default			
COV_Increment	√		
Property_List			

Analog Value Object Type

Properties	Optional	Writable	Note
Object_Identifier			
Object_Name			
Object_Type			
Present_Value*		√	
Description	√		
Status_Flags			
Event_State			
Reliability	√	√	Only writable when out of service
Out_Of_Service		√	
Units			
COV_Increment	√		
Property_List			

* If mapping to unwritable data type, it will be read-only.

Binary Input Object Type

Properties	Optional	Writable	Note

Properties	Optional	Writable	Note
Object_Identifier			
Object_Name			
Object_Type			
Present_Value			
Description	√		
Status_Flags			
Event_State			
Reliability	√	√	Only writable when out of service
Out_Of_Service		√	
Polarity			
Inactive_Text	√		
Active_Text	√		
Property_List			

Binary Output Object Type

Properties	Optional	Writable	Note
Object_Identifier			
Object_Name			
Object_Type			
Present_Value		√	
Description	√		
Status_Flags			
Event_State			
Reliability	√	√	Only writable when out of service
Out_Of_Service		√	
Polarity			
Inactive_Text	√		

Properties	Optional	Writable	Note
Active_Text	√		
Priority_Array			
Relinquish_Default			
Property_List			

Binary Value Object Type

Properties	Optional	Writable	Note
Object_Identifier			
Object_Name			
Object_Type			
Present_Value*		√	
Description	√		
Status_Flags			
Event_State			
Reliability	√	√	Only writable when out of service
Out_Of_Service		√	
Inactive_Text	√		
Active_Text	√		
Property_List			

Proprietary Properties	Datatype	Writable	Note
Polarity	BACnetPolarity		

* If mapping to unwritable data type, it will be read-only.

Multi-state Input Object Type

Properties	Optional	Writable	Note
Object_Identifier			
Object_Name			

Object_Type			
Present_Value			
Description	√		
Status_Flags			
Event_State			
Reliability	√	√	Only writable when out of service
Out_Of_Service		√	
Number_Of_States			
State_Text	√		
Property_List			

Multi-state Output Object Type

Properties	Optional	Writable	Note
Object_Identifier			
Object_Name			
Object_Type			
Present_Value		√	
Description	√		
Status_Flags			
Event_State			
Reliability	√	√	Only writable when out of service
Out_Of_Service		√	
Number_Of_States			
State_Text	√		
Priority_Array			
Relinquish_Default			
Property_List			

Multi-state Value Object Type

Properties	Optional	Writable	Note
Object_Identifier			
Object_Name			
Object_Type			
Present_Value*		√	
Description	√		
Status_Flags			
Event_State			
Reliability	√	√	Only writable when out of service
Out_Of_Service		√	
Number_Of_States			
State_Text	√		
Property_List			

*   If mapping to unwritable data type, it will be read-only.

BACnet Data Link Layer Options:

☐ ARCNET (ATA 878.1), 2.5 Mb. (Clause 8)

☐ ARCNET (ATA 878.1), EIA-485 (Clause 8), baud rate(s) _____

☑ BACnet IP, (Annex J)

☑ BACnet IP, (Annex J), BACnet Broadcast Management Device (BBMD)

☑ BACnet IP, (Annex J), Network Address Translation (NAT Traversal)

☐ BACnet IPv6, (Annex U)

☐ BACnet IPv6, (Annex U), BACnet Broadcast Management Device (BBMD)

☐ BACnet/ZigBee (Annex O) _____

☑ Ethernet, ISO 8802-3 (Clause 7)

☐ LonTalk, ISO/IEC 14908.1 (Clause 11), medium: _____

☑ MS/TP master (Clause 9)

      ☑ Master   ☐ Slave

      ☐ Non-isolated transceiver   ☑ Isolated transceiver

☐ Local 47K ohms bias resistors   ☐ None   ☑ Other: DIP selectable 510 ohms bus bias resistors

Transceiver unit loading: ☐ 1   ☐ ½   ☐ ¼   ☑ ⅛

Data rates: ☑ 9600   ☑ 19200   ☑ 38400   ☑ 57600   ☑ 76800   ☑ 115200

☐ Point-To-Point, EIA 232 (Clause 10), baud rate(s):_____

☐ Point-To-Point, modem, (Clause 10), baud rate(s): _____

☐ BACnet Secure Connect (Annex AB)

     ☐ BACnet Secure Connect Node

      If direct connections are supported:

        Maximum number of simultaneous direct connections initiated:_____

        Maximum number of simultaneous direct connections accepted:_____

     ☐ BACnet Secure Connect Hub Function

        Maximum number of simultaneous hub connections accepted:_____

     ☐ HTTPS Proxy Support

        List the types of HTTPS proxies supported: _____

     ☐ Additional cipher suites supported beyond those required for TLS V1.3

        The additional cipher suites supported using the cipher suite names as of the TLS Cipher Suite Registry at IANA (See RFC 8446):

     _____

     _____

     ☐ Additional Transport Layer Security versions other than V1.3 supported

        The TLS versions other than V1.3 that are supported, including the supported cipher suites for the version beyond those required, using the cipher suite names as defined by the TLS version supported:

     _____

     _____

     ☐ Generates private keys internally, and provides matching certificate signing requests.

     ☐ DNS host name resolution supported (RFC 1123)

     ☐ mDNS host name resolution supported (RFC 6762)

☑ Other: Virtual data link port, max NPDU is 1497 bytes

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.

Ethernet-BACnet/IP, Ethernet-MS/TP, Ethernet-Virtual data link, BACnet/IP-BACnet/IP, BACnet/IP-MS/TP,

BACnet/IP-Virtual data link, MS/TP-MS/TP, MS/TP-Virtual data link.

☐ Annex H, BACnet Tunneling Router over IP

Character Sets Supported:

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

☑ ISO 10646 (UTF-8)   ☐ IBM™/Microsoft™ DBCS   ☐ ISO 8859-1

☐ ISO 10646 (UCS-2)   ☐ ISO 10646 (UCS-4)   ☐ JIS X 0208

Gateway Options:

If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports:

Modbus RS485 RTU/ASCII slave, supports baudrate: 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 76800, 115200; parity: None, Even, Odd

Modbus TCP slave with fixed IP

If this product is a communication gateway which presents a network of virtual BACnet devices, a separate PICS shall be provided that describes the functionality of the virtual BACnet devices. That PICS shall describe a superset of the functionality of all types of virtual BACnet devices that can be presented by the gateway.