Product Implementation Conformance Statement
bCX1-R

Date: October 4, 2005
Vendor Name: TAC
Product Name: bCX1
Product Model Number: bCX1-R
Applications Software Version: 4.4 **Firmware Revision: 4.4**
BACnet Protocol Version: 1 **BACnet Protocol Revision: 4**

Product Description

The bCX1-R is a native BACnet protocol router and BACnet/IP Broadcast Management Device (BBMD). It performs BACnet routing functions among attached UDP/IP, Ethernet (ISO 8802-3) and MS/TP networks. It optionally serves as a gateway, converting BACnet Alarms to SNMP Alarms.

BACnet Standardized Device Profile (Annex L)

	BACnet Operator Workstation (B-OWS)
	BACnet Building Controller (B-BC)
	BACnet Advanced Application Controller (B-AAC)
	BACnet Application Specific Controller (B-ASC)
	BACnet Smart Actuator (B-SA)
	BACnet Smart Sensor (B-SS)

BACnet Interoperability Building Blocks (BIBBs) Supported

BIBB	Name	BACnet Service	Init	Exec
DS-RP-B	Data Sharing - ReadProperty-B	ReadProperty		X
DS-RPM-A[1]	Data Sharing - ReadPropertyMultiple-A	ReadPropertyMultiple	X	
DS-RPM-B	Data Sharing - ReadPropertyMultiple-B	ReadPropertyMultiple		X
DS-RPC-B	Data Sharing - ReadPropertyConditional-B	ReadPropertyConditional		X
DS-WP-B	Data Sharing - WriteProperty-B	WriteProperty		X
DS-WPM-B	Data Sharing - WritePropertyMultiple-B	WritePropertyMultiple		X
AE-N-A[1]	Alarm and Event-Notification-A	ConfirmedEventNotification		X
		UnconfirmedEventNotification		X
DM-DDB-A	Device Management-Dynamic Device Binding-A	Who-Is	X	
		I-Am		X
DM-DDB-B	Device Management-Dynamic Device Binding-B	Who-Is		X
		I-Am	X	
DM-DOB-B	Device Management-Dynamic Object Binding-B	Who-Has		X
		I-Have	X	
DM-DCC-B	Device Management-DeviceCommunicationControl-B	DeviceCommunicationControl		X
DM-TS-A	Device Management-TimeSynchronization-A	TimeSynchronization	X	
DM-TS-B	Device Management-TimeSynchronization-B	TimeSynchronization		X
DM-UTC-B	Device Management-UTCTimeSynchronization-B	UTCTimeSynchronization		X
DM-RD-B	Device Management-ReinitializeDevice-B	ReinitializeDevice		X
DM-BR-B[2]	Device Management-Backup and Restore-B	AtomicReadFile		X
		AtomicWriteFile		X
		ReinitializeDevice		X
NM-RC-B	Network Management-Router Configuration-B	Who-Is-Router-To-Network	X	X
		I-Am-Router-To-Network	X	X
		Initialize-Routing-Table		X
		Initialize-Routing-Table-Ack	X	

[1] Used to support SNMP alarms.

[2] A single stream-based file object is provided, to support Backup and Restore. Record-based access is *not* supported. The file has a proprietary format, which is produced by the controller during a Backup operation. Any attempt to write the file using data not obtained by reading it, will result in an error.

Segmentation Capability

X	Able to transmit segmented messages	Window Size: 1
X	Able to receive segmented messages	Window Size: 1

Standard Object Types Supported

Object Type	Supported	Creatable	Deletable
Device	X		
File	X		

Object Types and Properties Supported

Properties that are Writable and Optional are indicated. See Restrictions on Object Identifiers and Names, below. Unsigned values are limited to 4 294 967 294.

Device		
Property	**W**	**O**
APDU_Segment_Timeout	X	
APDU_Timeout	X	
Application_Software_Version		
Backup_Failure_Timeout	X	
Configuration_Files		
Database_Revision		
Daylight_Savings_Status	X	
Description	X	X
Device_Address_Binding		
Firmware_Revision		
Infinity_Path		X
Last_Restore_Time		
Local_Date		
Local_Time		
Location	X	X
Max_APDU_Length_Accepted		
Max_Info_Frames	X	
Max_Master	X	
Max_Segments_Accepted		
Model_Name		
Number_Of_APDU_Retries	X	
Object_Identifier		
Object_List		
Object_Name	X	
Object_Type		
Protocol_Object_Types_Supported		
Protocol_Revision		
Protocol_Services_Supported		
Protocol_Version		
Segmentation_Supported		
Serial_Number		X
System_Status		
Time_Synchronization_Recipients	X	
UTC_Offset	X	
Vendor_Identifier		
Vendor_Name		

Description is limited to 32 characters.

Infinity_Path is a proprietary property. See "Infinity Path Property" below.

Location is limited to 132 characters.

Max_Info_Frames is restricted to the range 1..127.

Number_Of_APDU_Retries is restricted to the range 0..255.

Serial_Number is a proprietary property – See "Serial Number Property" below.

File		
Property	**W**	**O**
Archive	X	
File_Access_Method		
File_Size	X	
File_Type		
Modification_Date		
Object_Identifier		
Object_Name		
Object_Type		
Read_Only		

File_Size is writable when in Restore mode. Values limited to zero and current file size.

Data Link Layer Options

X	BACnet IP
X	BACnet IP, Foreign Device
X	ISO 8802_3, Ethernet
	ANSI/ATA 878.1, 2.5 MB ARCNET
	ANSI/ATA 878.1, RS_485, baud rate(s)_____
X	MS/TP master, baud rate(s)_____9600,19200,38400,76800_____
	MS/TP slave, baud rate(s)_____
	Point-To-Point, EIA 232, baud rate(s)_____
	Point-To-Point, modem, baud rate(s)_____
	LonTalk, medium: _____
	Other

Device Address Binding

Static Device Binding Supported	☐	YES	■ NO

Networking Options

- [x] Router — List all routing configurations: BACnet IP, MS/TP, Ethernet
- [ ] Annex H, BACnet Tunneling Router over IP
- [x] BACnet/IP Broadcast Management Device (BBMD)
  - [x] Support registrations by foreign devices

Character Sets Supported

- [x] ANSI X3.4
- [x] ISO 8859-1
- [ ] ISO 10646 (UCS-2)
- [ ] ISO 10646 (UCS-4)
- [ ] IBM /Microsoft DBCS
- [ ] JIS C 6626

Serial Number Property

Every TAC device has a unique serial number, assigned at the factory. The serial number is made available by the Serial_Number property of the Device object. The property identifier is 515, and the data type is Unsigned.

Infinity Path Property

TAC devices can also be accessed via the proprietary Infinity protocol, which requires specific path information to access each device. Accordingly, the Infinity_Path property (identifier 517) of the Device object provides an unsigned integer value composed as follows:

Byte Position	bCX1 controllers	b3xxx controllers
Lowest	ACC Net ID of the device	ACC Net ID of the parent bCX1 device [bCX1 or other BACnet router]
Second	0	Commport Id [in the parent bCX1] of the MSTP network
Third	0	MSTP Mac address of the controller

Restrictions on Object Identifiers and Names

The instance number portion of the Object_Identifier property has a restricted range, which depends to some extent on the object type. The following table gives the valid range of instance numbers:

Object Type	Minimum	Maximum
Device	1	4194302
File[1]	1	1

For all object types, the Object_Name is limited to 16 characters. The first character must be alphabetic, and the remaining characters must be alphabetic, numeric, or one of '_' or '.'.

[1] Only one file object exists (for backup and restore) and users do not create objects of this type.