BACnet Protocol Implementation Conformance Statement

KMC Conquest™

Advanced Application Controllers

BACnet Protocol Implementation Conformance Statement

KMC Conquest™ BAC-5900 Series General Purpose

Advanced Application Controllers
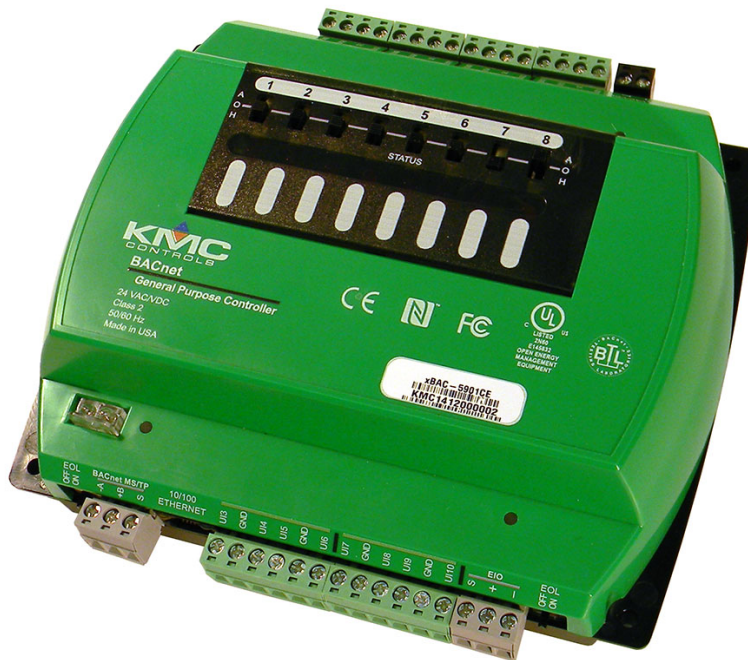
BACnet Protocol Implementation Conformance Statement
(BACnet Testing Laboratories Version)

Date: 17 Feb 2017
Vendor Name: KMC Controls
Product Name: KMC Conquest BACnet General Purpose Controllers (B-AAC)
Product Model Number: BAC-5900 Series
Applications Software Version: 0.1   **Firmware Revision:** R1.1.0.0
BACnet Protocol Revision: 12

Product Description:
KMC Conquest BAC-5900 series general purpose controllers are designed to control building systems and HVAC equipment. The integrated alarming, scheduling, and trending enable these BACnet Advanced Application Controllers to be powerful edge devices for the modern smart building ecosystem. BACnet network connection options are MS/TP (terminals) and Ethernet (jack).

The controllers provide 10 inputs (2 analog dedicated to a temperature sensor port and 8 universal inputs that are software configurable as analog, binary, or accumulator on terminals) and 8 universal outputs (software configurable as analog or binary). Override boards give additional output options.

The controllers feature easy-to-navigate, menu-driven setup choices using a KMC Conquest STE-9000 series NetSensor™ digital sensor, which can be installed permanently as the room sensor or used temporarily as a technician's service tool. Alternately, quick configuration of controller properties can be done using NFC (Near Field Communication) from a smart phone or tablet (using the KMC Connect Lite™ app) while the controller is unpowered.

To meet the most demanding building automation custom requirements, these controllers are also fully programmable. Custom configuration and programming, with wizards for application programming selection/configuration, are enabled by KMC Connect™ software and the KMC Converge™ module for Niagara Workbench. KMC Converge and TotalControl™ software additionally provide the capability of creating custom graphical web pages (hosted on a remote web server) to use as a custom user-interface for the controllers.

List <u>all</u> BACnet Interoperability Building Blocks supported (see Annex K in BACnet 2010):
AE-ACK-B, AE-ASUM-B, AE-INFO-B, AE-N-I-B, DM-BR-B, DM-DCC-B, DM-DDB-A, DM-DDB-B, DM-DOB-A, DM-DOB-B, DM-LM-B, DM-OCD-B, DM-RD-B, DM-TS-B, DM-UTC-B, DS-COV-B, DS-RP-A, DS-RP-B, DS-RPM-A, DS-RPM-B, DS-WP-A, DS-WP-B, DS-WPM-A, DS-WPM-B, SCHED-I-B, T-VMT-I-B, T-ATR-B, T-VMMV-I-B, T-AMVR-B

Which of the following device binding methods does the product support? (check one or more)

☑ Send Who-Is, receive I-Am (BIBB DM-DDB-A)
☑ Receive Who-Is, send I-Am (BIBB DM-DDB-B)
☐ Send Who-Has, receive I-Have (BIBB DM-DOB-A)
☑ Receive Who-Has, send I-Have (BIBB DM-DOB-B)
☑ Manual configuration of recipient device's network number and MAC address
☐ None of the above

Standard Object Types Supported:

OBJECT	CREATABLE	DELETABLE	OPTIONAL PROPERTIES
Accumulator Input	Yes	Yes	Description, Device_Type, Limit_Monitoring_Enable, and Pulse_Rate
Analog Input	Yes	Yes	COV_Increment, Description and Device_Type
Analog Output	Yes	Yes	COV_Increment, Description and Device_Type
Analog value	Yes	Yes	COV_Increment, Description, Priority_Array, and Relinquish_Default
Binary Input	Yes	Yes	Active_Text, Change_Of_State_Count, Change_Of_State_Time, Description, Device_Type, Elapsed_Active_Time, Inactive_Text, Time_Of_Active_Time_Reset. And Time_Of_State_Count_Reset
Binary Output	Yes	Yes	Active_Text, Change_Of_State_Count, Change_Of_State_Time, Description, Device_Type, Elapsed_Active_Time, Inactive_Text, Time_Of_Active_Time_Reset. And Time_Of_State_Count_Reset
Binary Value	Yes	Yes	Active_Text, Description, Inactive_Text, Priority_Array, and Relinquish Default
Calendar	Yes	Yes	Description
Device	No	No	Active_COV_Subscriptions, APDU_Segment_Timeout, Backup_And_Restore_State, Backup_Failure_Timeout, Backup_Preparation_Time, Configuration_Files, Daylight_Savings_Status, Description, Last_Restore_Time, Local_Date, Local_Time, Location, Max_Info_Frames, Max_Master, Max_Segments_Accepted, Restore_Completion_time, Restore_Preparation_Time, and UTC_Offset
Event Enrollment	Yes	Yes	Description
File	Yes	Yes	Description
Loop	Yes	Yes	Bias, COV_Increment, Derivative_Constant, Derivative_Constant_Units, Description, Error_Limit, Integral_Constant, Integral_Constant_Units, Maximum_Output, Minimum_Output, Proportional_Constant, Proportional_Constant_Units, and Update_Interval
Multistate value	Yes	Yes	Description, Priority_Array, Relinquish_Default, and State_Text
Notification Class	Yes	Yes	Description
Program	Yes	Yes	Description, Description_Of_Halt, Instance_Of, Program_Location, Reason_For_Halt
Schedule	Yes	Yes	Description, Exception_Schedule, Weekly_Schedule

Trend	Yes	Yes	Align_Intervals, Client_COV_Increment, COV_Resubscription_Interval, Description, Interval_Offset, Log_DeviceObjectProperty, Log_Interval, Start_Time, Stop_Time, and Trigger
Trend Multiple	Yes	Yes	Align_Intervals, Client_COV_Increment, COV_Resubscription_Interval, Description, Interval_Offset, Log_DeviceObjectProperty, Log_Interval, Start_Time, Stop_Time, and Trigger

Data Link Layer Options (check all that are supported):

☑ BACnet IP, (Annex J)
      ☑ Able to register as a Foreign Device
☑ ISO 8802-3, Ethernet (Clause 7)
☐ ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
☐ ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), baud rate(s) _____
☑ MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400, 57600, 76800, 115200
☐ MS/TP slave (Clause 9), baud rate(s): 9600, 19200, 38400, 76800
☐ Point-To-Point, EIA 232 (Clause 10), baud rate(s): _____
☐ Point-To-Point, modem, (Clause 10), baud rate(s): _____
☐ LonTalk, (Clause 11), medium: _____
☐ Other: _____

Networking Options (check all that are supported):

☐ Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.:
      _____

☐ Annex H.3, BACnet Tunneling Router over UDP/IP
☐ BACnet/IP Broadcast Management Device (BBMD)
      Does the BBMD support registrations by Foreign Devices? ☐ Yes ☐ No

Segmentation Capability (check all that apply):

☑ Able to transmit segmented messages   Window Size 7
☑ Able to receive segmented messages   Window Size 7

Character Sets Supported (check all that apply):

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 (ICS-4)   ☐ JIS C 6226

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

Include any addition information about the product's BACnet capabilities relevant to interoperability:
_____
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BACnet Protocol Implementation Conformance Statement

KMC Conquest™ BAC-9000 Series VAV

Advanced Application Controllers

BACnet Protocol Implementation Conformance Statement
(BACnet Testing Laboratories Version)

Date: 17 Feb 2017
Vendor Name: KMC Controls
Product Name: KMC Conquest BACnet VAV Controllers (B-AAC)
Product Model Number: BAC-9000 Series
Applications Software Version: 0.1   **Firmware Revision:** R1.1.0.0
BACnet Protocol Revision: 12

Product Description:
KMC Conquest BAC-9000 series VAV controller-actuators are designed to operate VAV (Variable Air Volume) terminal units. The integrated alarming, scheduling, and trending enable these BACnet Advanced Application Controllers to be powerful edge devices for the modern smart building ecosystem. BACnet network connection options are MS/TP (terminals) and Ethernet (jack

The controllers provide 8 inputs total:
- 1 internal actuator position feedback
- 1 integrated differential air pressure sensor (except BAC-9021)
- 2 analog (temperature sensor port)
- 4 universal inputs (terminals), software-configurable as analog, binary, or accumulator

The controllers provide 9 outputs total:
- 2 internal triacs (actuator motor control)
- 4 external triacs (terminals)
- 3 universal outputs (0–12 VDC on terminals)

The controllers feature easy-to-navigate, menu-driven setup choices using a KMC Conquest STE-9000 series NetSensor™ digital sensor, which can be installed permanently as the room sensor or used temporarily as a technician's service tool. Alternately, quick configuration of controller properties can be done using NFC (Near Field Communication) from a smart phone, tablet, or computer (using the KMC Connect Lite™ app or software) while the controller is unpowered.

To meet the most demanding building automation custom requirements, these controllers are also fully programmable. Custom configuration and programming, with wizards for application programming selection/configuration, are enabled by KMC Connect™ software and the KMC Converge™ module for Niagara Workbench. KMC Converge and TotalControl™ software additionally provide the capability of creating custom graphical web pages (hosted on a remote web server) to use as a custom user-interface for the controllers.

List all BACnet Interoperability Building Blocks supported (see Annex K in BACnet 2010):
AE-ACK-B, AE-ASUM-B, AE-INFO-B, AE-N-I-B, DM-BR-B, DM-DCC-B, DM-DDB-A, DM-DDB-B, DM-DOB-A, DM-DOB-B, DM-LM-B, DM-OCD-B, DM-RD-B, DM-TS-B, DM-UTC-B, DS-COV-B, DS-RP-A, DS-RP-B, DS-RPM-A, DS-RPM-B, DS-WP-A, DS-WP-B, DS-WPM-A, DS-WPM-B, SCHED-I-B, T-VMT-I-B, T-ATR-B, T-VMMV-I-B, T-AMVR-B

Which of the following device binding methods does the product support? (check one or more)

☑ Send Who-Is, receive I-Am (BIBB DM-DDB-A)
☑ Receive Who-Is, send I-Am (BIBB DM-DDB-B)
☐ Send Who-Has, receive I-Have (BIBB DM-DOB-A)
☑ Receive Who-Has, send I-Have (BIBB DM-DOB-B)
☑ Manual configuration of recipient device's network number and MAC address
☐ None of the above

Standard Object Types Supported:

OBJECT	CREATABLE	DELETABLE	OPTIONAL PROPERTIES
Accumulator Input	Yes	Yes	Description, Device_Type, Limit_Monitoring_Enable, and Pulse_Rate
Analog Input	Yes	Yes	COV_Increment, Description and Device_Type
Analog Output	Yes	Yes	COV_Increment, Description and Device_Type
Analog value	Yes	Yes	COV_Increment, Description, Priority_Array, and Relinquish_Default
Binary Input	Yes	Yes	Active_Text, Change_Of_State_Count, Change_Of_State_Time, Description, Device_Type, Elapsed_Active_Time, Inactive_Text, Time_Of_Active_Time_Reset. And Time_Of_State_Count_Reset
Binary Output	Yes	Yes	Active_Text, Change_Of_State_Count, Change_Of_State_Time, Description, Device_Type, Elapsed_Active_Time, Inactive_Text, Time_Of_Active_Time_Reset. And Time_Of_State_Count_Reset
Binary Value	Yes	Yes	Active_Text, Description, Inactive_Text, Priority_Array, and Relinquish Default
Calendar	Yes	Yes	Description
Device	No	No	Active_COV_Subscriptions, APDU_Segment_Timeout, Backup_And_Restore_State, Backup_Failure_Timeout, Backup_Preparation_Time, Configuration_Files, Daylight_Savings_Status, Description, Last_Restore_Time, Local_Date, Local_Time, Location, Max_Info_Frames, Max_Master, Max_Segments_Accepted, Restore_Completion_time, Restore_Preparation_Time, and UTC_Offset
Event Enrollment	Yes	Yes	Description
File	Yes	Yes	Description
Loop	Yes	Yes	Bias, COV_Increment, Derivative_Constant, Derivative_Constant_Units, Description, Error_Limit, Integral_Constant, Integral_Constant_Units, Maximum_Output, Minimum_Output, Proportional_Constant, Proportional_Constant_Units, and Update_Interval
Multistate value	Yes	Yes	Description, Priority_Array, Relinquish_Default, and State_Text
Notification Class	Yes	Yes	Description
Program	Yes	Yes	Description, Description_Of_Halt, Instance_Of, Program_Location, Reason_For_Halt
Schedule	Yes	Yes	Description, Exception_Schedule, Weekly_Schedule

Trend	Yes	Yes	Align_Intervals, Client_COV_Increment, COV_Resubscription_Interval, Description, Interval_Offset, Log_DeviceObjectProperty, Log_Interval, Start_Time, Stop_Time, and Trigger
Trend Multiple	Yes	Yes	Align_Intervals, Client_COV_Increment, COV_Resubscription_Interval, Description, Interval_Offset, Log_DeviceObjectProperty, Log_Interval, Start_Time, Stop_Time, and Trigger

Data Link Layer Options (check all that are supported):

☑ BACnet IP, (Annex J)
      ☑ Able to register as a Foreign Device
☑ ISO 8802-3, Ethernet (Clause 7)
☐ ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
☐ ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), baud rate(s) _____
☑ MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400, 57600, 76800, 115200
☐ MS/TP slave (Clause 9), baud rate(s): 9600, 19200, 38400, 76800
☐ Point-To-Point, EIA 232 (Clause 10), baud rate(s): _____
☐ Point-To-Point, modem, (Clause 10), baud rate(s): _____
☐ LonTalk, (Clause 11), medium: _____
☐ Other: _____

Networking Options (check all that are supported):

☐ Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.:
      _____

☐ Annex H.3, BACnet Tunneling Router over UDP/IP
☐ BACnet/IP Broadcast Management Device (BBMD)
      Does the BBMD support registrations by Foreign Devices? ☐ Yes ☐ No

Segmentation Capability (check all that apply):

    ☑ Able to transmit segmented messages   Window Size 7
    ☑ Able to receive segmented messages   Window Size 7

Character Sets Supported (check all that apply):

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 (ICS-4)   ☐ JIS C 6226

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

Include any addition information about the product's BACnet capabilities relevant to interoperability:
_____
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_____
_____
_____

BACnet Protocol Implementation Conformance Statement

KMC Conquest™ BAC-9300 Series Unitary

Advanced Application Controllers

BACnet Protocol Implementation Conformance Statement
(BACnet Testing Laboratories Version)

Date: 17 Feb 2017
Vendor Name: KMC Controls
Product Name: KMC Conquest BACnet Unitary Controllers (B-AAC)
Product Model Number: BAC-9300 Series
Applications Software Version: 0.1   **Firmware Revision:** R1.1.0.0
BACnet Protocol Revision: 12

Product Description:
KMC Conquest BAC-9300 series unitary controllers are designed to operate unitary and terminal equipment. The integrated alarming, scheduling, and trending enable these BACnet Advanced Application Controllers to be powerful edge devices for the modern smart building ecosystem. BACnet network connection options are MS/TP (terminals) and Ethernet (jack).

The controllers provide 8 inputs (2 analog dedicated to a temperature sensor port and 6 universal inputs that are software configurable as analog, binary, or accumulator on terminals) and 10 outputs (4 universal that are software configurable as analog or binary and 6 triacs). An integrated air pressure sensor (input) is optional.

The controllers feature easy-to-navigate, menu-driven setup choices using a KMC Conquest STE-9000 series NetSensor™ digital sensor, which can be installed permanently as the room sensor or used temporarily as a technician's service tool. Alternately, quick configuration of controller properties can be done using NFC (Near Field Communication) from a smart phone, tablet, or computer (using the KMC Connect Lite™ app or software) while the controller is unpowered.

To meet the most demanding building automation custom requirements, these controllers are also fully programmable. Custom configuration and programming, with wizards for application programming selection/configuration, are enabled by KMC Connect™ software and the KMC Converge™ module for Niagara Workbench. KMC Converge and TotalControl™ software additionally provide the capability of creating custom graphical web pages (hosted on a remote web server) to use as a custom user-interface for the controllers.

List all BACnet Interoperability Building Blocks supported (see Annex K in BACnet 2010):
AE-ACK-B, AE-ASUM-B, AE-INFO-B, AE-N-I-B, DM-BR-B, DM-DCC-B, DM-DDB-A, DM-DDB-B, DM-DOB-A, DM-DOB-B, DM-LM-B, DM-OCD-B, DM-RD-B, DM-TS-B, DM-UTC-B, DS-COV-B, DS-RP-A, DS-RP-B, DS-RPM-A, DS-RPM-B, DS-WP-A, DS-WP-B, DS-WPM-A, DS-WPM-B, SCHED-I-B, T-VMT-I-B, T-ATR-B, T-VMMV-I-B, T-AMVR-B

Which of the following device binding methods does the product support? (check one or more)

    ☑ Send Who-Is, receive I-Am (BIBB DM-DDB-A)
    ☑ Receive Who-Is, send I-Am (BIBB DM-DDB-B)
    ☐ Send Who-Has, receive I-Have (BIBB DM-DOB-A)
    ☑ Receive Who-Has, send I-Have (BIBB DM-DOB-B)
    ☑ Manual configuration of recipient device's network number and MAC address
    ☐ None of the above

Standard Object Types Supported:

OBJECT	CREATABLE	DELETABLE	OPTIONAL PROPERTIES
Accumulator Input	Yes	Yes	Description, Device_Type, Limit_Monitoring_Enable, and Pulse_Rate
Analog Input	Yes	Yes	COV_Increment, Description and Device_Type
Analog Output	Yes	Yes	COV_Increment, Description and Device_Type
Analog value	Yes	Yes	COV_Increment, Description, Priority_Array, and Relinquish_Default
Binary Input	Yes	Yes	Active_Text, Change_Of_State_Count, Change_Of_State_Time, Description, Device_Type, Elapsed_Active_Time, Inactive_Text, Time_Of_Active_Time_Reset. And Time_Of_State_Count_Reset
Binary Output	Yes	Yes	Active_Text, Change_Of_State_Count, Change_Of_State_Time, Description, Device_Type, Elapsed_Active_Time, Inactive_Text, Time_Of_Active_Time_Reset. And Time_Of_State_Count_Reset
Binary Value	Yes	Yes	Active_Text, Description, Inactive_Text, Priority_Array, and Relinquish Default
Calendar	Yes	Yes	Description
Device	No	No	Active_COV_Subscriptions, APDU_Segment_Timeout, Backup_And_Restore_State, Backup_Failure_Timeout, Backup_Preparation_Time, Configuration_Files, Daylight_Savings_Status, Description, Last_Restore_Time, Local_Date, Local_Time, Location, Max_Info_Frames, Max_Master, Max_Segments_Accepted, Restore_Completion_time, Restore_Preparation_Time, and UTC_Offset
Event Enrollment	Yes	Yes	Description
File	Yes	Yes	Description
Loop	Yes	Yes	Bias, COV_Increment, Derivative_Constant, Derivative_Constant_Units, Description, Error_Limit, Integral_Constant, Integral_Constant_Units, Maximum_Output, Minimum_Output, Proportional_Constant, Proportional_Constant_Units, and Update_Interval
Multistate value	Yes	Yes	Description, Priority_Array, Relinquish_Default, and State_Text
Notification Class	Yes	Yes	Description
Program	Yes	Yes	Description, Description_Of_Halt, Instance_Of, Program_Location, Reason_For_Halt
Schedule	Yes	Yes	Description, Exception_Schedule, Weekly_Schedule

Trend	Yes	Yes	Align_Intervals, Client_COV_Increment, COV_Resubscription_Interval, Description, Interval_Offset, Log_DeviceObjectProperty, Log_Interval, Start_Time, Stop_Time, and Trigger
Trend Multiple	Yes	Yes	Align_Intervals, Client_COV_Increment, COV_Resubscription_Interval, Description, Interval_Offset, Log_DeviceObjectProperty, Log_Interval, Start_Time, Stop_Time, and Trigger

Data Link Layer Options (check all that are supported):

☑ BACnet IP, (Annex J)
      ☑ Able to register as a Foreign Device
☑ ISO 8802-3, Ethernet (Clause 7)
☐ ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
☐ ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), baud rate(s) _____
☑ MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400, 57600, 76800, 115200
☐ MS/TP slave (Clause 9), baud rate(s): 9600, 19200, 38400, 76800
☐ Point-To-Point, EIA 232 (Clause 10), baud rate(s): _____
☐ Point-To-Point, modem, (Clause 10), baud rate(s): _____
☐ LonTalk, (Clause 11), medium: _____
☐ Other: _____

Networking Options (check all that are supported):

☐ Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.:
      _____
☐ Annex H.3, BACnet Tunneling Router over UDP/IP
☐ BACnet/IP Broadcast Management Device (BBMD)
      Does the BBMD support registrations by Foreign Devices? ☐ Yes ☐ No

Segmentation Capability (check all that apply):

    ☑ Able to transmit segmented messages   Window Size 7
    ☑ Able to receive segmented messages   Window Size 7

Character Sets Supported (check all that apply):

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 (ICS-4)   ☐ JIS C 6226

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

Include any addition information about the product's BACnet capabilities relevant to interoperability:
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