

## MultiSpeak Version 3.0 Interoperability Assertion

Statement of Interoperable Functionality Between:

Vendor(s)	Product	Product Version	Role	Batch Interface	Web Client Interfaces	Web Server Interfaces
Cannon Technologies	Yukon	3.2	MR			MR→CB
National Information Solutions Cooperative	iVUE	1.8	CB		MR→CB	
Cannon Technologies	Yukon	3.2	MR		CB→MR	
National Information Solutions Cooperative	iVUE	1.8	CB			CB→MR

### Summary:

Web Service interfaces using MultiSpeak standards were developed in order to provide NISC iVUE and Cannon Yukon customers a way to keep the system databases synchronized without having to update and maintain data in both systems through manual processes. It provides a way for iVUE to collect and display metering data using the Yukon AMR capabilities and Cannon hardware.

### Prerequisites:

AMRType in iVUE must be populated for Cannon specific meter types. If AMRType is not populated, iVUE may use Assertion 10 to retrieve all of the AMR supported meters from Yukon, this will update iVUE's AMRType field if not already populated. A table mapping the iVUE location (substation) to the Yukon specific communication routes is beneficial to the automatic communication setup in Yukon but is not required. If the AMRMeterType extension is not used, a Meter named "\*Default Template" must be created in Yukon and will be used for the default meter setup when adding new meters.

### *Enable the Integration in YUKON*

Minimal setup is required to define a Multispeak interface in Yukon. A Multispeak setup page is provided to define the interface(s) to NISC iVUE and/or NISC OMS. Here, one will enter the Vendor's Company and Application names, along with the URL for the NISC Multispeak webservices. Interfaces are enabled by checking the supported interfaces check boxes.

### *Enable the Integration in iVUE*

There is currently a setup procedure that needs to be run before web services are enabled. Contact NISC's MultiSpeak coordinator, Deena Williams at (x 2846) to run the setup procedure.

### Specific Vendor Assertions:

## 1) iVUE will notify Yukon of newly deployed (added) AMR meters

**Importance to user:** This function will save the utility time and money during the initial deployment and ongoing maintenance of their Yukon system by removing the need to manually enter or import a list of newly deployed AMR meters to Yukon.

**How Achieved:** When an in-stock meter is installed at a meter service location on iVUE CIS.

A transaction history record is created for the meter installation (Transaction = 'MTRINSREM', Activity = 'ADD', Meter Status = 1 or 2), which is picked up and the meter number and status is passed to Yukon.

Note: See Meter Remove Notification use case for Meter Exchanges, which creates both a Meter Add Notification and a Meter Remove Notification.

Notification of meter add (deployment) is sent to Yukon and compared to existing meters in the Yukon system. If conflicting meter information is received, an error message is returned to iVUE and logged in Yukon. If the meter data does not conflict with any existing meters in Yukon, then an entry is added to the Yukon Bulk Importer process for automatic creation of the meter. (For information regarding the Bulk Importer process, please contact Cannon). If the meter already exists in Yukon but is disabled, the meter add notification is treated as a meter update notification. The meter is then enabled and updated in Yukon. The AMRMeterType extension is used to setup the communication details of the meter.

Note: The Meter.AMRMeterType attribute value is limited to 10 characters. Therefore, the meter template name defined in Yukon must also comply with this size.

## 2) iVUE will notify Yukon of exchanged AMR meters

**Importance to user:** This function will save the utility time and money during the ongoing maintenance of their Yukon system by removing the need to manually enter meter change information in Yukon.

**How Achieved:** A meter exchange is performed in the iVUE CIS.

A transaction history record is created for the meter exchange (Transaction = 'MTREXC', Activity = 'ADD'), and the out and in meters and statuses are picked up and passed to Yukon. This will generate a Meter Remove Notification for the 'out' meter and a Meter Add Notification for the 'in' meter.

Review Assertions 1 and 3 for Yukon handling of Meter Add Notification and Meter Remove Notification messages.

### **3) iVUE will notify Yukon of removed AMR meters**

**Importance to user:** This function will save the utility time and money during the ongoing maintenance of their systems by removing the need to manually enter a list of removed AMR meters in Yukon

#### ***How Achieved:***

A remove from service transaction is completed in iVUE using standard procedures.

A transaction history record is created for the meter removal (Transaction = 'MTRINSREM', Meter Service Function = 'Remove Meter'), which is picked up and the meter number and status is passed to Yukon.

In both scenarios iVUE will send notification to Yukon.

Notification of meter remove is sent to Yukon. If the meter exists in Yukon, it is disabled and flagged as removed. If the meter is not found in Yukon or if it is already disabled, an error message is returned to iVUE.

Note: The meter is not deleted from Yukon so that historical meter reads may be saved.

### **4) iVUE will notify Yukon of changed customer/service location information**

**Importance to user:** This function will save the utility time and money by removing the need to manually enter initial and changed customer information to Yukon. The ability to view customer information within Yukon is highly useful during ongoing administration of the system, specifically during outages, during theft detection and during troubleshooting processes.

#### ***How Achieved:***

#### **Service Location Changed Notification**

iVUE notifies Yukon of a change in any of several service location specific elements by sending the changed service location information.

If a property of a service location such as the customer id, account number, map location, or billing cycle changes within iVUE, notification is sent to Yukon via this function.

Scenario 1: A change is made to the Cycle code on the iVUE Account screen.

A transaction history record is created for the Account screen modification (Transaction = 'ACCT', Activity = 'MODIFY'), which is picked up and the meter number and data change is passed to Yukon. The cycle data is updated for the meter in Yukon. Yukon meters are scheduled for end of cycle reads based in the cycle data.

Scenario 2: A change is made to the Account number on the iVUE Account Number Change screen.

A transaction history record is created for the Account screen modification (Transaction = 'ACNCHG'), which is picked up and the meter number and data change is passed to Yukon.

Scenario 3: A change is made to the Service Address on the Service Location screen.

A transaction history record is created for the Service Location screen modification (Transaction = 'SRVLOC', Activity = 'MODIFY'), which is picked up and the meter number and data change is passed to Yukon.

In each scenario the Billing Cycle and Account Number or Customer are updated within Yukon upon receipt of the notification. Note: The AccountNumber or Customer is only updated if the Multispeak interface is setup with the Yukon DeviceName Alias defined as 'Account Number' or 'Customer', respectively. All service location changes made to the Yukon system are logged in the System Log.

## **5) iVUE will notify Yukon of locations where Usage should be monitored.**

**Importance to user:** Provides automatic maintenance of status groups within Yukon that are used to track locations where electric usage is not expected, such as vacant dwellings. This function is intended to save the utility money by allowing for a "soft disconnect" of a meter versus sending an employee to "hard disconnect" the meter. The utility can take comfort in knowing they will be notified within a day of usage occurring at a virtually disconnected location.

**How Achieved:** A disconnect order is processed within the iVUE CIS.

The meter status on meter inventory is made "inactive installed" (status 2) and neither the "Disconnect at Transformer" nor the "Dead Plug" options are checked.

A transaction history record is created for the disconnect order (Transaction = 'SRVORD', SO function = 'DS', SO Status = 'C'), which is picked up and the meter number and status is passed to Yukon.

Within Yukon, the Meter is placed in a “Usage Monitoring Group.” Meters in this collection group may be read on a nightly (scheduled) basis to verify usage (or lack of). If scheduled, the usage reading is archived in Yukon, therefore any of Yukon’s reporting and graphing tools may be used to display the usage reading.

**6) iVUE will notify Yukon of locations where Usage Monitoring is no longer required.**

**Importance to user:** This feature is intended to benefit the utility by removing the necessity to manually remove meters from the Usage Monitoring status group.

**How Achieved:** A reconnect order is processed within the iVUE CIS.

The meter status on meter inventory is made “active” (status 1).

A transaction history record is created for the reconnect order (Transaction = ‘SRVORD’, SO function = ‘RS’, ‘RN’, ‘RO’ or ‘NS’, SO Status = ‘C’), which is picked up and the meter number and status is passed to Yukon.

Within Yukon, the Meter is removed from a “Usage Monitoring Group” and placed back in the original collection group. The meter’s group setup can be viewed using Yukon’s Database Report.

**7) iVUE will notify Yukon of locations where no AMR reading is expected.**

**Importance to user:**

This feature is intended to benefit the utility by removing the necessity to manually add meters to the disconnected status group.

**How Achieved:**

Customer Billing notifies Yukon that meter(s) have been disconnected and no AMR reading is expected using the initiateDisconnectedStatus method.

Use Case:

When a meter is totally disconnected and no electricity is available to power the AMR device, a disconnect order is processed within the iVUE CIS.

The meter status on meter inventory is made “inactive installed” (status 2) and the “Disconnect at Transformer” or “Dead Plug” are checked indicating power to the meter is disconnected:

In this scenario a transaction history record is created for the disconnect order (Transaction = ‘SRVORD’, SO function = ‘DS’, SO Status = ‘C’), which is picked up and the meter number and status is passed to Yukon.

Within Yukon, the Meter is placed in a “Disconnected Group.” This will remove the meter from their original scheduled collection process.

**8) iVUE will notify Yukon of locations where AMR readings are once again expected.**

***Importance to user:***

This feature will benefit the utility by removing the necessity to manually remove meters from the disconnected status group using the CancelDisconnectedStatus method.

***How Achieved:***

iVUE notifies Yukon that meter(s) should no longer be considered disconnected and that an AMR reading is expected. Within Yukon, the meter is marked as enabled. This can be verified by viewing the individual meter in Yukon.

Use Case:

A reconnect order is processed within the iVUE CIS.

The meter status on meter inventory is made “active” (status 1).

A transaction history record is created for the reconnect order (Transaction = ‘SRVORD’, SO function = ‘RS’, ‘RN’, ‘RO’ or ‘NS’, SO Status = ‘C’), which is picked up and the meter number and status is passed to Yukon.

Within Yukon, the Meter is removed from a “Disconnected Group” and placed back in the original collection group. The meter’s group setup can be viewed using Yukon’s Database Report.

**9) iVUE can initiate a new reading and request latest meter readings by meter number from Yukon.**

***Importance to user:***

The utility benefits because the Customer Service Representative doesn’t have to log in to a separate system to get the most recent meter reading information.

***How Achieved:***

This feature is intended to be used by Customer Service to assist in answering customer questions or in completing connect/disconnect orders.

*Method 1:* The CSR selects the “Read Now” button on the iVUE Reading Interval History panel which initiates a new reading for the specified meter number and when the reading is returned it is posted to the Interval/Daily Reading table. Yukon will perform a physical read of the meter and return the peak demand (if available) and current usage to the iVUE system. If a new reading is not

received within the timeout period set in iVUE, then iVUE will request the last available reading from Yukon and post that reading as a substitute.

*Method 2:* The CSR selects the reading “binoculars” button on the iVUE Service Order Connect/Disconnect Meter panel which initiates a new reading for the specified meter number and when the reading is returned it is posted to the Service Order reading field. Again, Yukon will perform a physical read of the meter and return the peak demand (if available) and current usage to the iVUE system. As with method 1, the latest available reading can be retrieved if no new reading is received.

#### **10) iVUE can request all AMR supported meters from Yukon.**

***Importance to user:*** The user can determine which consumers in the iVUE model have meters with Cannon AMR capabilities.

***How Achieved:*** iVUE calls the GetAMRSupportedMeters method on the MR-CB interface supported by Yukon. AMRType and TransponderID are updated in iVUE.

#### **11) Yukon requests the Customer data By Meter Number**

***Importance to user:*** The ability to view customer information associated with a Meter in Yukon provides useful information for the administration of the AMR system. The utility benefits from this integration by removing the necessity to log in to a separate system to look up customer data.

***How Achieved:***

When the user selects to view a meter in Yukon, they may then choose to get the customer specific details from iVUE. The results are displayed on the command meter screen.

#### **12) Yukon requests the Service Location data By Meter Number**

***Importance to user:*** The ability to view service location associated with a Meter in Yukon provides useful information for the administration of the AMR system. The utility benefits from this integration by removing the necessity to log in to a separate system to look up service location data.

***How Achieved:***

When the user selects to view a meter in Yukon, they may then choose to get the service location details from iVUE. The results are displayed on the command meter screen.

**Products: Yukon and iVUE**  
**Summary of Interoperability Test Results (#2A CB>MR)**

**Table 1**  
**Recommended MultiSpeak Methods**

Method Name	Importance to User	Supported by Server <sup>1</sup> (CB)	Supported by Client <sup>2</sup> (MR)	Verified Inter-operable <sup>3</sup>
GetMeterByAccountNumber	Returns the requested Meter(s) data given Account Number.	X		
GetMeterByMeterId	Returns the requested Meter data given meterID	X		
GetMeterByServLoc	Returns the requested Meter(s) data given Service Location.	X		
GetMeterByMeterNo	Returns the requested Meter data given Meter Number.	X		
GetAllCustomers	Returns all required customer data for all customers	X		
GetServiceLocationByCustId	Returns the requested Service Location data given Customer ID.	X		
GetServiceLocationByServLoc	Returns the requested Service Location data given Service Location ID	X		
GetCustomerByCustId	Returns the requested Customer if it exists.	X		
GetAllServiceLocations	Returns all required Service Location data for all Service Locations	X		
GetMeterByCustID	Returns the requested Meter(s) data given Customer ID	X		
GetServiceLocationByAccountNumber	Returns the requested Service Location data given Account Number	X		
GetAllMeters	Returns all required Meter data for all Meters	X		
GetMethods	Requests a list of web service methods supported by the AMR application	X	X	X
PingURL	Queries status of the AMR application.	X	X	X

1) Supported by Server means that the server has demonstrated in some interoperability test (not necessarily with this client) that it can support the method.

2) Supported by Client means that the client has demonstrated in some interoperability test (not necessarily with this server) that it can call the method.

3) Verified Interoperable means that both the client and server have demonstrated in this interoperability test that they can usefully transfer data using this method.



**Table 2  
Optional MultiSpeak Methods**

<b>Method Name</b>	<b>Importance to User</b>	<b>Supported by Server<sup>1</sup> (CB)</b>	<b>Supported by Client<sup>2</sup> (MR)</b>	<b>Verified Inter-operable<sup>3</sup></b>
GetCustomerByName	Returns the requested Customer(s) data given First and Last name			
GetServiceLocationByServiceType	Returns the requested Service Location(s) data given the Service Type			
GetModifiedMeters	Returns all required Meter data for all Meters that have been modified since the specified sessionID			
GetDomainNames	Enables systems to exchange information about application-specific or installation-specific lists of information, such as the lists of counties for this installation or the list of serviceStatusCodes used by the server	X		
GetCustomerByMeterNo	Returns the requested Customer data given a Meter Number	X	X	X
GetCustomerByDBAName	Returns the requested Customer given the Doing Business As (DBA) name			
ModifyCBDDataForMeter	Allows MR to Modify CB data for a single Meter.			
GetServiceLocationByLoadGroup	Returns the requested Service Location(s) data for a given Load Group			
GetServiceLocationByGridLocation	Returns the requested Service Location(s) data given a single Grid Location	X		
GetServiceLocationByMeterNo	Returns the requested Service Location data given the meter number of a meter served at that location	X	X	X
GetServiceLocationByShutOffDate	Returns the requested Service Location(s) data given the Service ShutOff Date			
HistoryLogChangedNotification	MR Notifies CB of a change in the History Log by sending the changed historyLog object			
ReadingChangedNotification	MR Notifies CB of a change in Meter Reads by sending the changed meterRead objects	X	X	X
GetDomainMembers	Enable systems to exchange information about application-specific or installation-specific lists of information, such as the lists of counties for this installation or the list of serviceStatusCodes used by the server	X		
GetModifiedServiceLocations	Returns all required Service Location data for all Service Locations that have been modified since the specified sessionID			
GetServiceLocationByPhaseCode	Returns the requested Service Location(s) data given the Phase			
GetServiceLocationByServiceStatus	Returns the requested Service Location(s) data given the Service Status			
ModifyCBDDataForCustomer	Allow MR to Modify CB data for a specific customer			
GetModifiedCustomers	Returns all required customer data for all customers that have been modified since the specified sessionID			
GetMeterByAMRType	Returns the requested Meter(s) data given AMR Type.			
ModifyCBDDataForServiceLocation	Allow MR to Modify CB data for the Service Location			

1) Supported by Server means that the server has demonstrated in some interoperability test (not necessarily with this client) that it can support the method.

2) Supported by Client means that the client has demonstrated in some interoperability test (not necessarily with this server) that it can call the method.

3) Verified Interoperable means that both the client and server have demonstrated in this interoperability test that they can usefully transfer data using this method.

**Products: Yukon and iVUE**  
**Summary of Interoperability Test Results (#2A MR>CB)**

**Table 3**  
**Recommended MultiSpeak Methods**

Method Name	Importance to User	Supported by Server <sup>1</sup> (MR)	Supported by Client <sup>2</sup> (CB)	Verified Inter-operable <sup>3</sup>
CustomerChangedNotification	CB Notifies MR of a change in the Customer object by sending the changed customer object		X	
GetAMRSupportedMeters	Returns all meters that have AMR	X	X	X
GetHistoryLogByMeterNo	Returns History Log Data for a given MeterNo and Date Range			
GetHistoryLogsByDate	Returns History Log Data for a all Meters Given a Date Range			
GetHistoryLogsByDateAndEventCode	Returns History Log Data for a all Meters Given the eventCode and a Date Range			
GetHistoryLogsByMeterNoAndEventCode	Returns History Log Data for a given MeterNo, eventCode and Date Range			
InitiateMeterReadByMeterNumber	CB requests a new meter reading from MR, on meters selected by meter number.	X	X	X
GetReadingsByDate	Returns Reading Data for All Meters Given a Date Range			
GetLatestReadingByMeterNo	Returns Meter Reading Data for a given MeterNo and Date Range	X		
GetReadingsByMeterNo	Returns Meter Reading Data for a given MeterNo and Date Range	X		
IsAMRMeter	Return true if given meterNo has AMR	X		
MeterAddNotification	CB Notifies MR to Add the associated Meter(s).	X	X	X
MeterChangedNotification	CB Notifies MR of a change in the Meter object by sending the changed meter object.		X	
MeterRemoveNotification	CB Notifies MR to remove the associated Meter(s).	X	X	X
ServiceLocationChangedNotification	CB Notifies MR of a change in the Service Location	X	X	X
GetMethods	Requests a list of web service methods supported by the Customer Billing program.	X	X	X
PingURL	Queries status of the Customer Billing program.	X	X	X

1) Supported by Server means that the server has demonstrated in some interoperability test (not necessarily with this client) that it can support the method.

2) Supported by Client means that the client has demonstrated in some interoperability test (not necessarily with this server) that it can call the method.

3) Verified Interoperable means that both the client and server have demonstrated in this interoperability test that they can usefully transfer data using this method.

**Table 4  
Optional MultiSpeak Methods**

<b>Method Name</b>	<b>Importance to User</b>	<b>Supported by Server<sup>1</sup> (MR)</b>	<b>Supported by Client<sup>2</sup> (CB)</b>	<b>Verified Inter-operable<sup>3</sup></b>
CancelDisconnectedStatus	CB Notifies MR of Meters that should be removed from disconnected status.(i.e. made active).	X	X	X
CancelPlannedOutage	Notify MR of Cancellation of Planned Outage Given a List of MeterNumbers			
CancelUsageMonitoring	Notify MR of Cancellation Of Zero Usage Monitoring.(ie Move Ins).	X	X	X
GetDomainMembers	enable systems to exchange information about application-specific or installation-specific lists of information, such as the lists of counties for this installation or the list of serviceStatusCodes used by the server			
GetDomainNames	enable systems to exchange information about application-specific or installation-specific lists of information, such as the lists of counties for this installation or the list of serviceStatusCodes used by the server.			
GetModifiedAMRMeters	Returns all meters that support AMR and that have been modified since the specified sessionID			
GetReadingsByBillingCycle	Returns all required Reading Data for a given BillingCycle and Date Range			
InitiateDisconnectedStatus	CB Notifies MR of Meters that have been disconnected and no AMR reading is expected.	X	X	X
InitiatePlannedOutage	Notify MR of Planned Outage Meters Given a List of MeterNumbers and Start and End Dates of the Outage			
InitiateUsageMonitoring	Notify MR of Meters Where Zero Usage is Expected.(ie Move outs).	X	X	X

1) Supported by Server means that the server has demonstrated in some interoperability test (not necessarily with this client) that it can support the method.

2) Supported by Client means that the client has demonstrated in some interoperability test (not necessarily with this server) that it can call the method.

3) Verified Interoperable means that both the client and server have demonstrated in this interoperability test that they can usefully transfer data using this method.

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Disclaimer:

The assertions made in this document are statements of the vendors offering the two products listed above. The Testing Agent has observed the software performing the tasks described in these vendor assertions.

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As used herein, the word *verify* shall mean an expression of the Testing Agent's professional opinion to the best of its information, knowledge and belief, and does not constitute a warranty or guarantee by NRECA or the Testing Agent.