

MultiSpeak Version 3.0 Interoperability Assertion

Statement of Interoperable Functionality Between:

Vendor(s)	Product	Product Version	Role	Web Client Interfaces	Web Server Interfaces
National Information Solutions Cooperation (NISC)	iVUE	1.18	Customer Billing	CB Client	CB Server
Milsoft Utility Solutions	DisSPatch OMS	7.3	Outage Analysis Engineering Analysis	OA Client	OA Server EA Server

Summary:

Web Service interfaces using MultiSpeak standards were developed in order to provide NISC and Milsoft customers a way to keep the system databases synchronized without having to update and maintain data in both systems through manual processes. The integration also turns on two way real time requests for current customer financial data, current outage status, historical outage data, outage detection, outage alerts, disconnects for non-pay, phone updating, billing and service address updates, meter change notifications and other real time events. Real time data can be displayed from within NISC's iVUE and Milsoft's DisSPatch outage management screens.

Prerequisites:

- Service Locations or Service Location Map identifiers in iVUE must match the Milsoft circuit model element names known as the Engineering Analysis Location (EALoc) connectivity identifiers.
- Meter numbers and customer identifiers take precedence from iVUE.
- There must be a working network connection between iVUE and the Milsoft Web Server as well as the Milsoft Calls Manager clients (CSR) for real time phone and financial updates. The interface can be easily turned on by exchanging the URL's, user name and password of each other's MultiSpeak web server.
- Only one meter number per service location is supported within DisSPatch.
- Only one phone number per type is supported on a customer. An additional phone number per type and service location is supported.
- Substation element names in the Milsoft circuit model must match the iVUE substation description.
- Deleting Customers and Service Locations is not supported in iVUE, but they can be made inactive or a retired status.

Specific Vendor Assertions:

1) iVUE will notify DisSPatch 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 DisSPatch system by removing the need to manually enter or import a list of newly deployed AMR meters to DisSPatch.

How Achieved: When an in-stock meter is installed at a meter service location through either the iVUE CIS Service Order (New or Reconnect) a transaction history record is created for the meter installation 2). iVUE sends a MeterAddNotification to update the Milsoft circuit model without Milsoft user interaction.

2) iVUE will notify DisSPatch of exchanged AMR meters

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

How Achieved: A meter exchange is performed through the iVUE CIS Meter Exchange panel and a transaction history record is created for the meter exchange, and the out and in meters and statuses are picked up and passed to DisSPatch. iVUE sends a MeterRemoveNotification for the old meter and a MeterAddNotification for the new meter to update the Milsoft circuit model without Milsoft user interaction.

3) iVUE will notify DisSPatch 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 DisSPatch

How Achieved: When an installed meter is removed from a service location through either iVUE CIS Service Order (Disconnect), a transaction history record is created for the meter removal, which is picked up and the meter number and status is passed to DisSPatch. iVUE sends a MeterRemoveNotification if the meter is removed, or a MeterRetireNotification if the meter is retired, to update the Milsoft circuit model without Milsoft user interaction.

4) Meter disconnect operations performed in iVUE are carried over into the DisSPatch model in real-time.

Importance to user:

Users are able to disconnect meters from customers in iVUE for non-payment or inactive service. These changes are sent to DisSPatch to enable accurate prediction analysis, keep meter connectivity updated for real-time AMR outage detection using meter pinging and enhance customer relationship support by providing real time account data for customer service representatives.

How Achieved:

When a meter is disconnected and left installed as inactive through the iVUE CIS Service Order (disconnect) panel, a transaction history record is created for the disconnect order. iVUE notifies DisSPatch that the meter has been disconnected using the ConnectDisconnectChangeNotification method.

5) Meter reconnect operations performed in iVUE are carried over into the DisSPatch model in real-time.

Importance to user:

Users are able to reconnect inactive installed meters for customers in iVUE and these changes are sent to DisSPatch to enable accurate prediction analysis, keep meter connectivity updated for real-time AMR outage detection using meter pinging and enhance customer relationship support by providing real time account data for customer service representatives.

How Achieved:

When a meter is reconnected from an inactive installed status to an active status through the iVUE CIS Service Order (reconnect) panel, a transaction history record is created for the reconnect order. iVUE notifies DisSPatch that the meter has been reconnected using the ConnectDisconnectChangeNotification method.

6) iVUE clients are able to view outage history information from DisSPatch in real-time.

Importance to user: iVUE clients are able to request outage history from DisSPatch in real-time. iVUE clients are able to request when outages occurred, how long they were, the final action taken on the outage, and if the customer was responsible.

How Achieved: In iVUE the Outage History left navigation menu item will display outage history for the customer using the GetCustomerOutageHistory method. As these requests arrive at the Milsoft Web Server, the information is retrieved from the DisSPatch data store and returned to iVUE. iVUE then requests more detail on the returned customer outages using the GetOutageEvents method, then displays all the outage details on the Outage History panel.

7) iVUE clients are able to view real-time outage status information from DisSPatch.

Importance to user: iVUE clients are able to request if an outage is Verified, Restored, Assumed, Confirmed or Unknown from DisSPatch in real-time. Outage Alerts are automatically displayed to the user for all accounts selected in CIS, notifying the customer service representative with outage events. Additionally DisSPatch will return to iVUE if crews have been dispatched or are on site and the estimated time of restoration.

How Achieved: For every account that is selected for viewing in iVUE CIS an Outage Alert will display in the Alerts box. iVUE will automatically request Outage information from the Milsoft Web Server using the GetOutageEventStatusByOutageLocation method.

8) iVUE clients are able to create outages within DisSPatch.

Importance to user: iVUE clients are able to use the Auto-Outage button on the CIS toolbar to create outages in the DisSPatch system to be managed and worked.

How Achieved: Upon using the Auto-Outage button in iVUE, an ODEventNotification is sent to the Milsoft Web Server where it is parsed and generates an outage in the DisSPatch GUI.

9) iVUE clients are able to update up-line device connectivity for meters.

Importance to user: iVUE clients are able to update what feeders, substations, and phase a meter is connected to from DisSPatch.

How Achieved: iVUE users can use the MultiSpeak Import Process from the iVUE left navigation menu to retrieve the connectivity information for each meter connected to the substation using the GetMeterConnectivityBySubstation method. Provided that the substation identifiers match between DisSPatch and the iVUE reference table; Feeder, substation and phase data is automatically updated to iVUE.

10) Service Locations in DisSPatch are kept up to date by iVUE.

Importance to user: Details within DisSPatch about utility service such as when it was connected or disconnected, address information, special needs, and which customer and account are bound to that location are updated by iVUE in real-time.

How Achieved: If a property of a service location such as the account number, service map location, revenue class or billing cycle changes within iVUE, notification is sent to DisSPatch. iVUE will generate a ServiceLocationChangedNotification with the service location identifier as the MultiSpeak objectid of each serviceLocation object. DisSPatch will parse the notification and modify the service locations in the DisSPatch database.

11) Customer Information in DisSPatch is kept up to date by iVUE.

Importance to user: Details within DisSPatch about customers such as names, home phone numbers, and billing addresses are updated by iVUE in real-time.

How Achieved: If a property of a Customer record such as the mailing address or phone number changes within iVUE, notification is sent to DisSPatch. iVUE will generate a CustomerChangedNotification with the customer identifier as the MultiSpeak objectid of each customer object. DisSPatch will parse the notification and modify the customer information in the DisSPatch database.

12) DisSPatch Service Location phone numbers can be updated to iVUE Customer phone numbers.

Importance to the user: Customer Service Representatives using Milsoft's Calls Manager can update a customer's phone number and notify iVUE of the change in real-time. This allows for accurate outage detection using IVR or manual call entry and keeps the accounting system up-to-date with customer phone number changes.

How Achieved: The DisSPatch Calls Manager will send the updated phone number to iVUE using the ServiceLocationNetworkChangedNotification.

13) All Customer Billing addresses can be requested from iVUE to DisSPatch.

Importance to the user: The entire customer billing addresses can be sent to DisSPatch using web services. In the past this was typically done using batch processes. This allows the outage management system to have an up-to-date list of all billing addresses.

How Achieved: The DisSPatch clients can initiate a request for the Milsoft Web Server to obtain all customer billing addresses in iVUE using GetAllCustomers.

14) All Service Locations can be requested from iVUE to DisSPatch.

Importance to the user: The entire service location, service address, special needs, and other service location data can be sent to DisSPatch using web services. In the past this was typically done using batch processes. This allows the outage management system to have an up-to-date list of all service locations.

How Achieved: The DisSPatch clients can initiate a request for the Milsoft Web Server to obtain all service location data in iVUE using GetAllServiceLocations.

15) All Meters can be requested from iVUE to DisSPatch.

Importance to the user: The meter number and other meter data can be sent to DisSPatch using web services. In the past this was typically done using batch processes. This allows the outage management system to have an up-to-date list of all meters.

How Achieved: The DisSPatch clients can initiate a request for the Milsoft Web Server to obtain all meter data in iVUE using GetAllMeters.

16) DisSPatch can request realtime payment information from iVUE.

Importance to the user: When a CSR and/or dispatcher is using the DisSPatch Client or Calls Manager, information such as outstanding balances, balance history, payment dates, and shutoff dates can be requested from iVUE so they can more accurately work with customers.

How Achieved: When a user of the DisSPatch Client or Calls Manager locates a customer, changing to the financial tab displays real time financial data by performing a request to iVUE to retrieve the current billing information about that account using GetServiceLocationByAccountNumber.

17) DisSPatch can resolve iVUE codes for district and county at a service location.

How Achieved: Upon starting the Milsoft Web Server, a mapping of the codes to a more verbose meaning is established by calling GetDomainNames and GetDomainMembers. If one of these codes is present in upcoming messages from iVUE, it is substituted inline so DisSPatch stores and displays the more verbose description.

Products: Milsoft DisSPatch OMS and NISC iVUE platform

**Summary of Interoperability Test Results
CB Server → OA Client**

**Table 1
Required MultiSpeak Methods**

Method Name	Importance to User	Supported by Server¹ (CB)	Supported by Client² (OA)	Verified Inter-operable³
GetMethods	Requests a list of methods supported by the server.	X	X	X
PingURL	Verifies that the server is running and reachable.	X	X	X

**Table 2
Non-Required MultiSpeak Methods**

Method Name	Importance to User	Supported by Server¹ (CB)	Supported by Client² (OA)	Verified Inter-operable³
GetDomainMembers	Requests the members of a given domain (type of fixed information, such as all of the counties in the database).	X	X	X
GetDomainNames	Requests the domains (lists of fixed information, such as the counties served, or the acceptable statusCodes for this installation).	X	X	X
GetAllCustomers	Returns all required customer data for all customers.	X	X	X
GetAllMeters	Returns all required meter data for all meter.	X	X	X
GetAllServiceLocations	Returns all required Service Location data for all Service Locations.	X	X	X
ServiceLocationNetworkChangedNotification	Modifies a customer's phone number at a specific service location.	X	X	X
GetServiceLocationByAccountNumber	Returns service location data for a specific account number.	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.

Products: Milsoft DisSPatch OMS and NISC iVUE platform
Summary of Interoperability Test Results
OA Server → CB Client

Table 3
Required MultiSpeak Methods

Method Name	Importance to User	Supported by Server ¹ (OA)	Supported by Client ² (CB)	Verified Inter-operable ³
GetMethods	Requests a list of methods supported by the server.	X	X	X
PingURL	Verifies that the server is running and reachable.	X	X	X

Table 4
Non-Required MultiSpeak Methods

Method Name	Importance to User	Supported by Server ¹ (OA)	Supported by Client ² (CB)	Verified Inter-operable ³
ConnectDisconnectChangedNotification	Enable or disable service at a service location.	X	X	X
CustomerChangedNotification	Modify details of a customer.	X	X	X
GetCustomerOutageHistory	Return details about outage events a customer has experienced.	X	X	X
GetDomainMembers	The client requests from the server a list of names of domains supported by the server	X	X	X
GetDomainNames	Requests the domains (lists of fixed information, such as the counties served, or the acceptable statusCodes for this installation).	X	X	X
GetOutageDurationEvents	Return details about an outaged period.	X	X	
GetOutageEvent	Return the details of an outage.	X	X	X
GetOutageEventStatusByOutageLocation	Returns the outage status based on location information	X	X	X
GetOutageHistoryOnServiceLocation	Return the details about outage events that have occurred at a service location.	X	X	
GetOutageEventStatus	Returns the outage status based on outageID.	X	X	
MeterAddNotification	Add meters to the connectivity model.	X	X	X
MeterChangedNotification	Modify details of a meter in the connectivity model.	X	X	X
MeterExchangeNotification	Swap meters in the connectivity model.	X		
MeterRemoveNotification	Remove meters in the connectivity model.	X	X	X
MeterRetireNotification	Remove meters in the connectivity model.	X		
ODEventNotification	Modify an outage detection event.	X	X	X
ServiceLocationChangedNotification	Modify details of a location where service can exist.	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.

Products: Milsoft DisSPatch OMS and NISC iVUE platform
Summary of Interoperability Test Results
EA Server → CB Client

Table 5
Required MultiSpeak Methods

Method Name	Importance to User	Supported by Server ¹ (EA)	Supported by Client ² (CB)	Verified Inter-operable ³
GetMethods	Requests a list of methods supported by the server.	X	X	X
PingURL	Verifies that the server is running and reachable.	X	X	X

Table 6
Non-Required MultiSpeak Methods

Method Name	Importance to User	Supported by Server ¹ (EA)	Supported by Client ² (CB)	Verified Inter-operable ³
GetAllCircuitElements	Returns all circuit elements.	X		
GetChildCircuitElements	Returns circuit elements immediately fed by the given line section or node (eaLoc).	X		
GetDownlineCircuitElements	Returns all circuit elements downline from the given circuit element.	X		
GetDownlineMeterConnectivity	Returns the meter connectivity for all meters down line from a given meter	X		
GetModifiedCircuitElements	Returns all circuit elements that have been modified since the previous session identified			
GetParentCircuitElements	Returns circuit elements immediately upstream of the given line section or node (eaLoc).	X		
GetSiblingMeterConnectivity	Returns all meters on the same transformer as the given meter.	X		
GetSubstationNames	Returns all substation names	X		
GetUplineCircuitElements	Returns circuit elements in the shortest route to source from the given line section or node (eaLoc).	X		
GetUplineMeterConnectivity	Returns all meters from the first up line distribution transformer.	X		
GetMeterConnectivityBySubstation	Return upline device connectivity data for a collection of meters.	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.

Certified by:

For National Information Solutions Cooperative.



Name: Randy Schroder

E-Solutions Manager
Title

6/2/2011
Date : _____

For Milsoft Utility Solutions, Inc.



Name: Luis R. Malavé

Executive Vice President / CTO
Title

6/2/2011
Date : _____

Assertions Verified by:



Name: Hannu Huhdanpaa

MultiSpeak Testing Agent

Title

UISOL, Inc.
Testing Agent
6/2/2011

Date : _____

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