

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
C3-ilex, LLC	C3-ilex EOscada	8.0.16.0	SCADA		OA→SCADA	SCADA→OA
Milsoft Utility Solutions	DisSPatch	7.3	OA		SCADA→OA	
Milsoft Utility Solutions	Milsoft Web Server	7.3	OA			OA→SCADA

Summary:

C3-ilex EOscada is capable of providing SCADA data to Milsoft's DisSPatch Outage Management System in several different ways.

First of all, DisSPatch is able to request a list of SCADA points from C3-ilex EOscada. The DisSPatch user can then map each SCADA point to the appropriate corresponding circuit element in DisSPatch. This is necessary in order to ensure that and SCADA data DisSPatch receives from C3-ilex EOscada are associated with the correct circuit elements in the electrical model.

The interesting data C3-ilex EOscada can send to DisSPatch are: breaker operations (known as SCADA status) and substation voltages and currents (known as SCADA analogs). When the Milsoft Web Server is used, C3-ilex EOscada may publish a changed SCADA status or a changed SCADA analog directly to the outage system as soon as the event occurs. This will immediately appear in DisSPatch as a new outage event or a restoration.

Alternatively, the DisSPatch user may request an individual SCADA status or a SCADA analog for some particular circuit element. C3-ilex EOscada sends the requested information to DisSPatch and it is immediately available to the DisSPatch user for viewing or (in the case of fault current data) to run the Fault Locator utility.

Prerequisites:

DisSPatch must have a valid subscription to at least one C3-ilex EOscada server. Likewise, C3-ilex EOscada must have a valid subscription to the Milsoft Web Server and be accessible from DisSPatch.

EOscada system points are to be made available to DisSPatch on-demand according to categorical access as specified in the C3-ilex system's AofRVisibility file. This file assigns or denies accessibility of the point via MultiSpeak on the basis of the point's Area of Responsibility (AofR) setting.

EOscada points that are to be published to DisSPatch upon change of state must be configured in the designated subscriber file. This file also contains other information such as the URL of the Milsoft web services. As of 5/14/2010 obtaining fault currents are not currently supported by C3-ilex EOscada.

Specific Vendor Assertions:

- 1) **C3-ilex EOscada published detected breaker outage reports to DisSPatch which automatically creates verified outage/restored records.**

Importance to user: Outage/restored records are generated in real-time, with a high degree of certainty.

How Achieved: When C3-ilex EOscada detects a change in a subscribed status point, it calls the SCADAStatusChangedNotification method on the Milsoft Web Server to publish the change to DisSPatch.

- 2) **C3-ilex EOscada published detected analog changes to DisSPatch which automatically creates verified outage/restored records.**

Importance to user: Outage/restored records are generated in real-time, with a high degree of certainty.

How Achieved: When C3-ilex EOscada detects a change in a subscribed analog point, it calls the SCADAAnalogChangedNotification method on the Milsoft Web Server to publish the change to DisSPatch.

3) DisSPatch requests a list of SCADA points from C3-ilex EOscada.

Importance to user: SCADA points are mapped to DisSPatch circuit elements, thereby associating SCADA points with circuit model devices.

How Achieved: The DisSPatch user chooses “Get Real-time SCADA Points” from the SCADA menu. DisSPatch then calls the GetAllSCADAPoints method on the C3-ilex EOscada server. The resulting list of SCADA points is displayed to the DisSPatch user in a list. The SCADA point IDs in this list can be dragged into the empty fields on the SCADA page of the Circuit Element Editor for the appropriate DisSPatch circuit elements. This process creates the mapping between SCADA point IDs and DisSPatch circuit elements.

4) DisSPatch requests SCADA analog values from C3-ilex EOscada.

Importance to user: SCADA analog values, such as fault currents and feeder currents, can be used by the dispatcher to locate a fault.

How Achieved: After SCADA point IDs have been assigned to their appropriate DisSPatch elements, the DisSPatch user can click the “Read SCADA Analogs” or the “Read SCADA Fault Currents” button on the SCADA page of the Circuit Element Editor of the devices they wish to read. DisSPatch then calls GetSCADAAnalogBySCADAPointId method on the C3-ilex EOscada server. The returned SCADA analog values are displayed in the Circuit Element Editor. If fault current analog data is available from SCADA, then a fault current analysis study can be performed using these values in order to locate the suspected fault.

5) DisSPatch requests SCADA status values from C3-ilex EOscada.

Importance to user: The state of a SCADA status point is used to determine the state of a circuit model device.

How Achieved: Once SCADA point IDs have been assigned to their appropriate DisSPatch circuit elements, the DisSPatch user can click the “Read SCADA Status” button on the SCADA page of the Circuit Element Editor of the device they wish to read. DisSPatch then calls the GetSCADAStatusByPointId method on the C3-ilex EOscada server. The returned SCADA status(es) (possibly more than one if multiple phases are desired) are displayed in the Circuit Element Editor.

Products: C3-ilex EOscada and Milsoft's DisSPatch

Summary of Interoperability Test Results Interface #9 SCADA→OA

**Table 1
Recommended MultiSpeak Methods**

Method Name	Importance to User	Supported by Server ¹ (SCADA)	Supported by Client ² (OA)	Verified Inter-operable ³
GetMethods	Requests a list of methods supported by the server.	X	X	X
GetAllSCADAPoints	Returns a list of SCADA Point definitions.	X	X	X
GetPublishMethods	Requests list of methods to which this server can publish information.			
GetRegistrationInfoByID	Requests the return of existing registration information (that is to say the details of what is subscribed on this subscription) for a specific registrationID.			
GetSCADAAnalogBySCADAPointID	Returns a specific SCADA Analog by SCADAPointID.	X	X	X
GetSCADAStatusBySCADAPointID	Returns a specific SCADA Status by SCADAPointID.	X	X	X
PingURL	Verifies that the server is running and reachable.	X	X	X
RegisterForService	Establishes a subscription using a previously requested registrationID.			
RequestRegistrationID	Requests of the publisher a unique registration ID that would subsequently be used to refer unambiguously to that specific subscription.			
UnregisterForService	Deletes a previously established subscription (registration for service) that carries the registration identifier listed in the input parameter registrationID.			

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: C3-ilex EOscada and Milsoft's DisSPatch

Table 2
Optional MultiSpeak Methods

Method Name	Importance to User	Supported by Server¹ (SCADA)	Supported by Client² (OA)	Verified Inter-operable³
GetAllSCADAAnalog	Returns all SCADA Analogs.			
GetAllSCADAStatus	Returns all SCADA Status data.			
GetDomainMembers	Returns a list of members of a specific domain supported by the server.			
GetDomainNames	Returns a list of domain names supported by the server.			
GetModifiedSCADAPoints	Returns a list of SCADA Point definitions that have changed since the session identified by sessionID.			

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**Summary of Interoperability Test Results
Interface #9 OA→SCADA**

**Table 3
Recommended MultiSpeak Methods**

Method Name	Importance to User	Supported by Server ¹ (OA)	Supported by Client ² (SCADA)	Verified Inter-operable ³
GetMethods	Requests a list of methods supported by the server.	X	X	X
GetPublishMethods	Requests list of methods to which this server can publish information.			
GetRegistrationInfoByID	Requests the return of existing registration information (that is to say the details of what is subscribed on this subscription) for a specific registrationID.			
PingURL	Verifies that the server is running and reachable.	X	X	X
RegisterForService	Establishes a subscription using a previously requested registrationID.			
RequestRegistrationID	Requests of the publisher a unique registration ID that would subsequently be used to refer unambiguously to that specific subscription.			
SCADAPointChangedNotification	Publisher notifies OA of changes in SCADA point definitions by sending an array of changed scadaPoint objects.			
SCADAStatusChangedNotification	Publisher notifies OA of changes in point status by sending an array of changed scadaStatus objects.	X	X	X
UnregisterForService	Deletes a previously established subscription (registration for service) that carries the registration identifier listed in the input parameter registrationID.			

- 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.
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Table 4
Optional MultiSpeak Methods

Method Name	Importance to User	Supported by Server ¹ (OA)	Supported by Client ² (SCADA)	Verified Inter-operable ³
GetActiveOutages	Returns the outageEventIDs for all active outage events.	X		
GetAllActiveCalls	Returns all active calls that have been processed by the outage management system.			
GetAllActiveOutageEvents	Returns all of the outageEvent(s) for all active outages.	X		
GetAllCrews	Returns all crews or all active crews that are available for dispatching.			
GetCallsReceivedOnOutage	Returns all calls that have been processed by the outage management system.			
GetCustomerCallHistory	Returns all calls that have been processed by the outage management system for a given customer account and service location.			
GetCustomerCallsOnServiceLocation	Returns all calls that have been processed by the outage management system for a given service location.			
GetCustomerOutageHistory	Returns all outage duration events that have been processed by the outage management system for a given customer account and service location.	X		
GetCustomersAffectedByOutage	Returns all customers that are affected by a specific outage of interest, given the outageEventID.	X		
GetDomainMembers	Returns a list of members of a specific domain supported by the server.	X		
GetDomainNames	Returns a list of domain names supported by the server.	X		
GetOutageDurationEvents	Returns all outage duration events that have been processed by the outage management system for a given outage.	X		
GetOutageEvent	Returns the outageEvent for the given outageEventID.	X		
GetOutageEventStatus	Returns the current status of an outage event, given the outageEventID.	X		

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Table 4
Optional MultiSpeak Methods Continued

Method Name	Importance to User	Supported by Server ¹ (OA)	Supported by Client ² (SCADA)	Verified Inter-operable ³
GetOutageEventStatusByOutageLocation	Returns the current status of an outage event, given the outage location.	X		
GetOutageHistoryOnServiceLocation	Returns all outage duration events that have been processed by the outage management system for a given service location.	X		
SCADAAnalogChangedNotification	Publisher notifies OA of changes in analog values by sending an array of changed scadaAnalog objects.	X	X	X
SCADAAnalogChangedNotificationByPointID	Publisher notifies OA of changes in a specific analog value, chosen by scadaPointID, by sending a changed scadaAnalog object.	X		
SCADAAnalogChangedNotificationForPower	Publisher notifies OA of changes in a specific analog value, limited to power analogs, by sending an array of changed scadaAnalog objects.	X		
SCADAAnalogChangedNotificationForVoltage	Publisher notifies OA of changed analog values, limited to voltage analogs, by sending an array of changed scadaAnalog objects.	X		
SCADAPointChangedNotificationForAnalog	Publisher notifies OA of changes in SCADA point definitions, limited to Analog points, by sending an array of changed scadaPoint objects.			
SCADAPointChangedNotificationForStatus	Publisher notifies OA of changes in SCADA point definitions, limited to Status points, by sending an array of changed scadaPoint objects.			
SCADAStatusChangedNotificationByPointID	Publisher notifies OA of changes in point status by sending an array of changed scadaStatus objects.	X		
SetOutageElementStatus	This method allows a dispatcher or operator to verify or restore any circuit element by phase.			
UnassignCrewsFromOutage	Unassigns crew(s) from an outage given the outageEventID.			
UnassignOutagesFromCrew	Unassigns outages(s) from a crew given the crew ID.			

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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 C3-ilex, LLC:

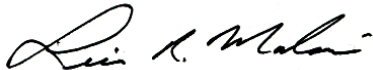


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Disclaimer:

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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