IMP_MAN_0031

GUIDE

Power to Ontario.
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Web Based Message Exchange

Market Participant's Guide

Issue 6.0

This Guide provides Market Participants with the details of how they interact and interface with the Web based message exchange system for receiving dispatch messages.

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Document Change History

Issue	Reason for Issue	Date
1.0	First Issue	June 18, 2001
2.0	Updated for Baseline 9.1 - fixed some grammatical mistakes and updated old URL references	June 4, 2003
3.0	Name and logo changed to IESO	December 7, 2005
4.0	Update of file information for new version of MXAPI.jar and new JRE	June 27, 2006
5.0	Update of file list for what is included in the MXAPI file distribution	March 7, 2007
6.0	Updated the document to reflect the addition of the Obligation Indicator field	September 11, 2013

Related Documents

Document ID	**Document Title**

Table of Contents

Table of Changes

Reference (Section and Paragraph)	Description of Change
Section 1	Changed the introduction to reflect the current state of Message Exchange
Section 3	Changed the images to show the Obligation Indicator field.
Section 4	Changed the images to show the Obligation Indicator field. Added description about the Obligation Indicator.
Section 5	Changed the images to show the Obligation Indicator field.
Section 6	Added description about the Obligation Indicator.
Section 10	Added the VG_OI field.
Section 11	Changed the Energy Dispatch Message sample to show the VG_OI field.
Section 12	Changed the file size and information for MXAPI.jar and JRE changed.

1. Introduction

The Message Exchange function is used by the IESO to send dispatch instructions to the Market Participants, and as a means for the Market Participants to accept or reject dispatch instructions.

In order to interface with the Message Exchange, Market Participants can either connect over the private network (MPLS) or through the Internet. The dispatch messages are sent using two formatting protocols: ICCP and XML (formerly called Web).

The Message Exchange system can be accessed by a browser-based Graphical User Interface (GUI) or through an Application Programming Interface (API). For the latter, the IESO provides a "stub" Java application for Market Participants to build on.

When a new instance of the client is started, all displays are loaded with the current set of messages. Information for the New Messages display is loaded with any messages that have the Action ACCEPT and the Status DONE. New messages are added to these displays as they are subsequently received by the client. All Active messages are loaded onto the displays. The Resource Dispatch Message Log loads either the last 800 messages or the last seven days of messages, whichever is less. The message log for each Contract Management contract type loads the last 50 messages or the last seven days' worth of messages, whichever is less.

A participant will only receive a dispatch instruction if there is a significant change in the energy amount as compared to the previously issued instruction.

– End of Section –

2. Dispatch Workstations

For details of the Hardware and Software requirements of the Dispatch WorkStation, please refer to the 'Participant Technical Reference Manual' which is available on the *IESO*'s web site.

– End of Section –

3. Common Tools

This section describes a number of tools and procedures that are used in all Web-Based Message Exchange displays.

3.1 The Header Bar

At the top of all message displays is a header bar that contains a status box and a number of command buttons.

Connection Status

This status box shows the URL of the server and indicates the current status of the connection to the server: green for Up and red for Down.

Home

 Displays the client start-up screen.

Unfreeze

 Resumes acceptance of new information from the server after the **Freeze** button has stopped transmission

Freeze

 Stops the client from receiving data from the server. To resume the reception of data, click the **Unfreeze** button.

Back

 Returns to the screen previously displayed.

Search

 Opens a dialog box which allows the user to specify a search string and if necessary a column to be searched in the current display. (See *Searching* below.)

Options

 Opens a configuration options dialog box that allows the user to specify the location for log file and audio file for arrival of new messages

New Messages

Displays the New Messages screen.

Active Messages

Displays the Active Messages screen.

Resource Dispatch Message Log

Displays the Resource Dispatch Message Log screen.

Contract Management

Displays the Contract Management New/Active Messages screen.

Contract Management Log

Displays the Contract Management Log Messages screen.

Alarm

Displays the Alarm Log Messages screen.

Help

 Displays the introductory page of online Help, together with the Table of Contents for the Help facility.

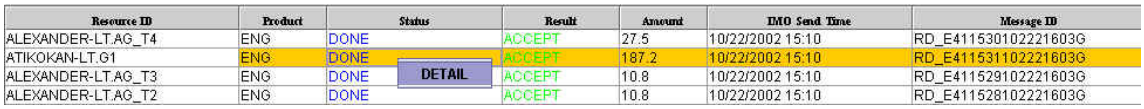
3.2 Viewing Message Details

3.2.1 General

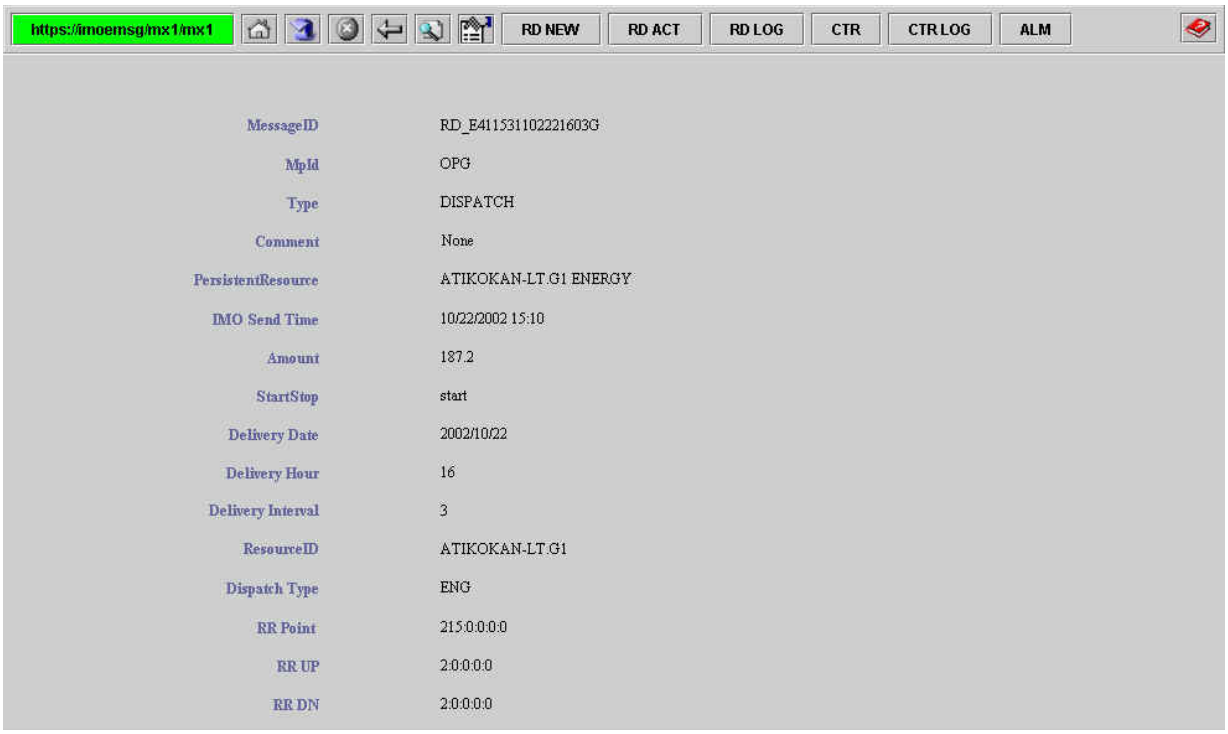
The user can examine the details of any message in any list, *except the Resource Dispatch Active Message display*, by the following procedure:

Select the message by clicking on it (left button) in the list.

Right-click on it to display the **Detail** button.



Click on the **Detail** button to display the details of the selected message:



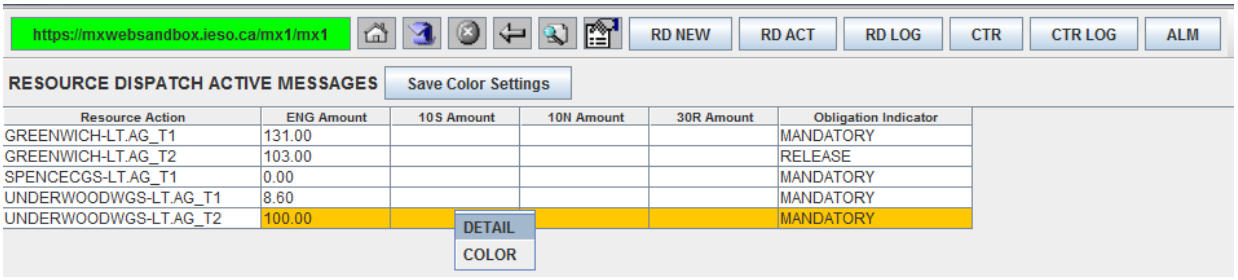
Click the **Back** () button in the header bar to return to the message list.

3.2.2 Active Message Display

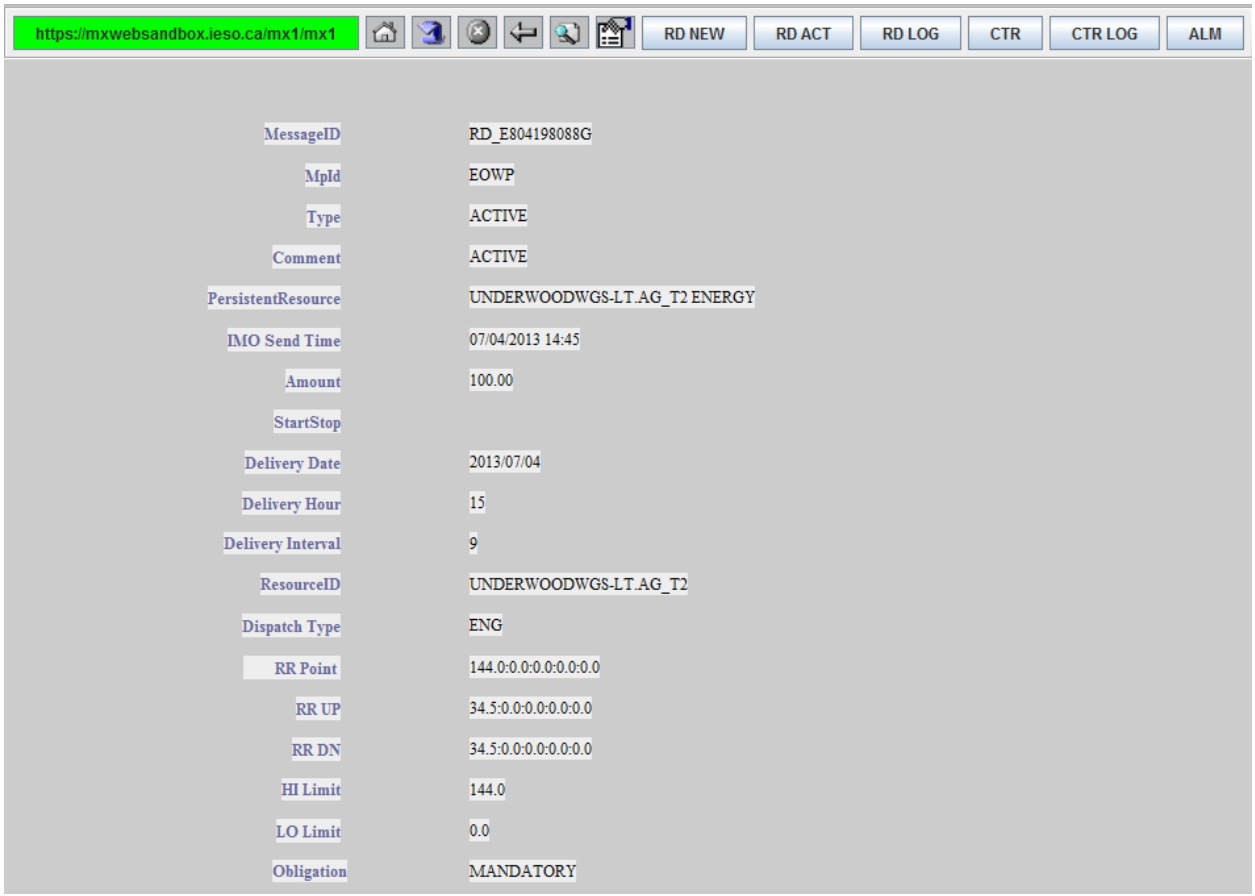
For the Resource Dispatch Active Message display the procedure is slightly different. Because each record in the list can represent as many as four messages, it is necessary to identify the message the details of which you want to examine:

Select the Resource record,

Right-click on any for the four product fields in that record that contains a value (including zero), and



Click on the **DETAIL** button to display the details of the message from which that value was drawn.

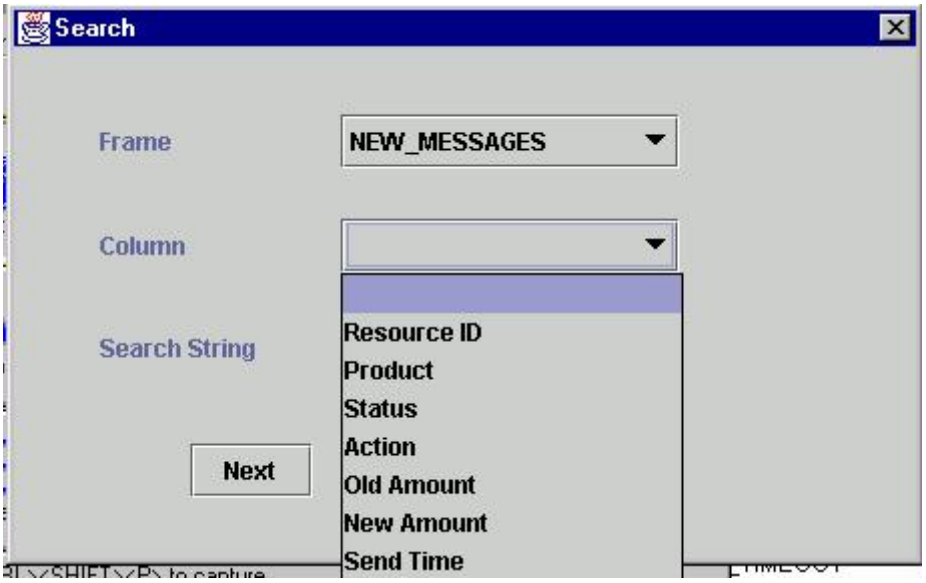


Click the Back button in the header bar to return to the message list.

3.3 Searching

If you click the Search () button in any display, a Search dialog appears:

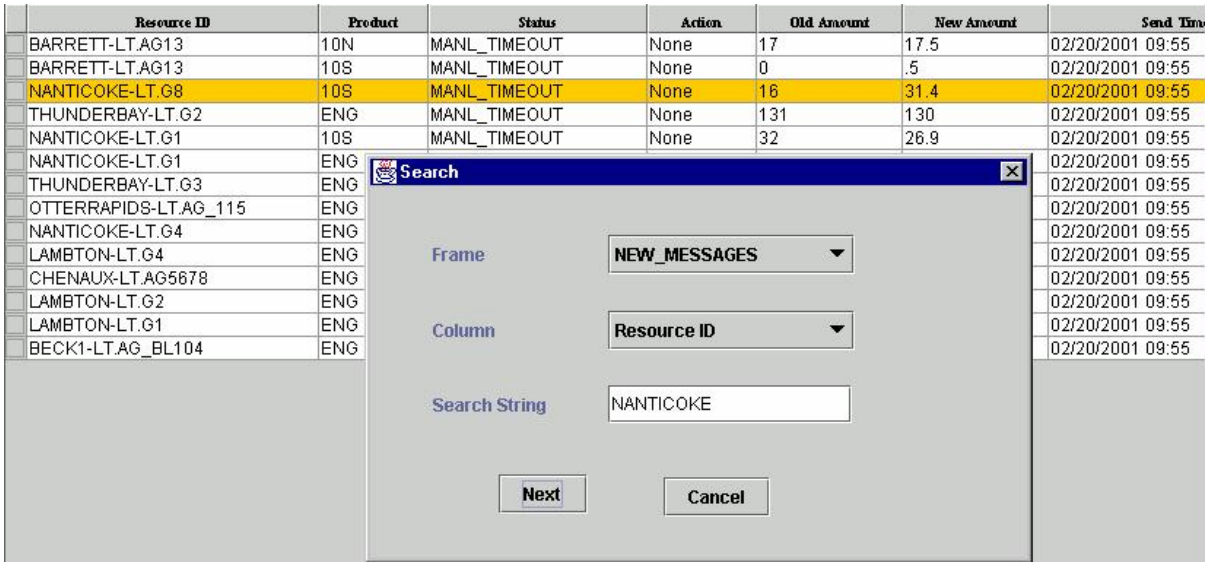
This dialog is tailored to the specific display, in this case New Messages. Click on the down arrow in the Column field to display a list of all the columns in the display -- that is, the fields in a New Message record.



You must select one of these fields. Simply entering a search string will return no results.

Having selected,say, Resource Id, enter the string "NANTICOKE" in the Search String field. The search is case-sensitive: "Nanticoke" won't work.

Now click **Next**.

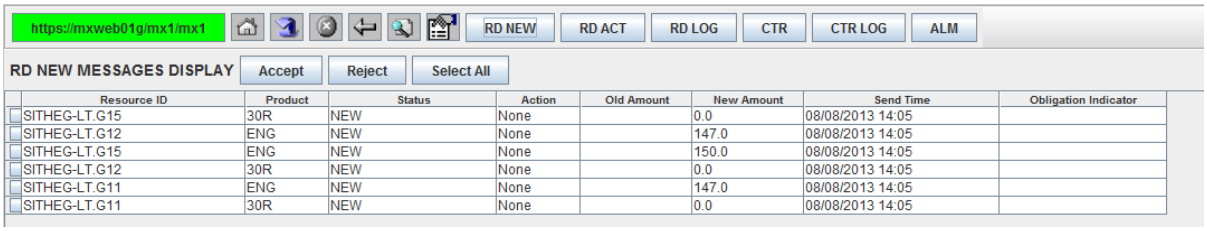


The first record containing the string is highlighted. If you click **Next** again, the next such record is highlighted.

– End of Section –

4. Resource Dispatch New Message Display

The Resource Dispatch New Message display is a scrolling list of all messages sent to the Market Participant from the MIS Resource Dispatch application. Messages for energy dispatch (ENG), operating reserve activation (ORA), and operating reserve products (10S, 10N and 30M operating reserve types) are displayed. Each message is stamped with the date and time when it was issued by the IESO server. The list is sorted by timestamp, with the most recent message at the top.



Resource ID	Product	Status	Action	Old Amount	New Amount	Send Time	Obligation Indicator
SITHEG-LT.G15	30R	NEW	None		0.0	08/08/2013 14:05	
SITHEG-LT.G12	ENG	NEW	None		147.0	08/08/2013 14:05	
SITHEG-LT.G15	ENG	NEW	None		150.0	08/08/2013 14:05	
SITHEG-LT.G12	30R	NEW	None		0.0	08/08/2013 14:05	
SITHEG-LT.G11	ENG	NEW	None		147.0	08/08/2013 14:05	
SITHEG-LT.G11	30R	NEW	None		0.0	08/08/2013 14:05	

When new messages arrive in the client, they are listed on this display with a Status of NEW and an Action of NONE. The client starts a timer upon receipt of the new message. If the timer times-out, the client changes the status to AUTO TIMEOUT and locks the message, preventing the user from accepting or rejecting it.

To accept or reject a new message (before the client AUTO TIMEOUT timer times-out):

select the message (either individually using the check box that accompanies the message or as a group with the **Select All** button); and

press the **Accept** button or the **Reject** button.

While the client issues the message response to the web server, the client changes the message Status to PENDING and starts a confirmation timer while waiting for confirmation from the server. When confirmation is received, the client changes the message Status from PENDING to DONE. If the client confirmation timer times-out before confirmation is received from the server, the message Status changes from PENDING to ERROR and the Action changes to NONE.

When the IESO accepts messages on behalf of the MP, a message is issued to the client and the display is updated to a Status of DONE and an Action of ACCEPT. Alternately, if neither the MP nor the IESO has accepted the message before the time-out period, the web server issues a time-out message to the client and the display is updated to a Status of MANUAL TIMEOUT and an Action of NONE.

Each ENG, 10S, 10N and 30M message is automatically removed from the Resource Dispatch New Message display five minutes after the client receives the message. An ORA message is removed from the display 10 minutes after the client receives the message. If a new message is received for a resource/product with an existing dispatch before the message is automatically purged from the display, the first message is removed from the display. For the purposes of removing messages from

the Resource Dispatch New Message display, ORA and ENG messages for a resource are equivalent. That is, if an ORA message is received for a resource with an existing ENG message, the ENG message is removed from the display, and vice-versa.

The User views the details associated with any message by placing the cursor above the relevant message in the display and right-clicking the mouse. A separate window appears listing the details of the message. Exiting this Details window returns the User to the Resource Dispatch New Message display.

Resource Id

The unique identification assigned by the IESO to the Resource.

Product

The market to which the message pertains. There are five products:

`ENG` all Energy dispatch except for Operating Reserve activation.

`ORA` Operating Reserve activation.

`10S` 10-Minute Spinning operating reserve.

`10N` 10-Minute Non-spinning operating reserve.

`30M` 30-Minute operating reserve.

Status

The current status of the message:

`NEW` a new message received by the client that has not received dispensation.

`PENDING` a message that has been acted upon by the User (that is, the User has accepted or rejected the message), but is awaiting confirmation from the IESO server.

`DONE` a message that has been accepted or rejected by the User, transmitted to the IESO server, confirmed by the IESO and confirmation received by the client, or a message that has been accepted or rejected by the IESO on behalf of the MP.

`AUTO TIMEOUT` a message for which acceptance/rejection has not been issued by the client before the IESO server timer for MP acceptance or rejection of the message has timed-out. The timer for this state is located in the client.

`MANUAL TIMEOUT` a message that has not been accepted by the IESO on behalf of the Market Participant before the IESO SCADA server timer for IESO acceptance/rejection of the message has timed-out

ERROR	error in accepting or rejecting the message (for example, communication failure, or confirmation has not been received by the client within a specified amount of time).

Action

The action taken by the user on the message:

NONE	the default state. When a NEW message is received or if the message status changes to TIMEOUT or ERROR, the Action field is NONE.
Accept	(lower case) the User has Accepted the message and the message status is PENDING
ACCEPT	(upper case) the User (or the IESO on behalf of the MP) has Accepted the message and the message status is DONE.
Reject	(lower case) the User has Rejected the message and the message status is PENDING.
REJECT	(upper case) the User (or the IESO on behalf of the MP) has Rejected the message and the message status is DONE.

Old Amount

The amount of energy specified in the immediately previous message, if any, to this Resource for this market (Product). This value is superseded by the New Amount.

New Amount

The amount of energy to be dispatched.

Send Time

The date and time when the message was sent by the IESO server.

Obligation Indicator (Variable Generators Only)

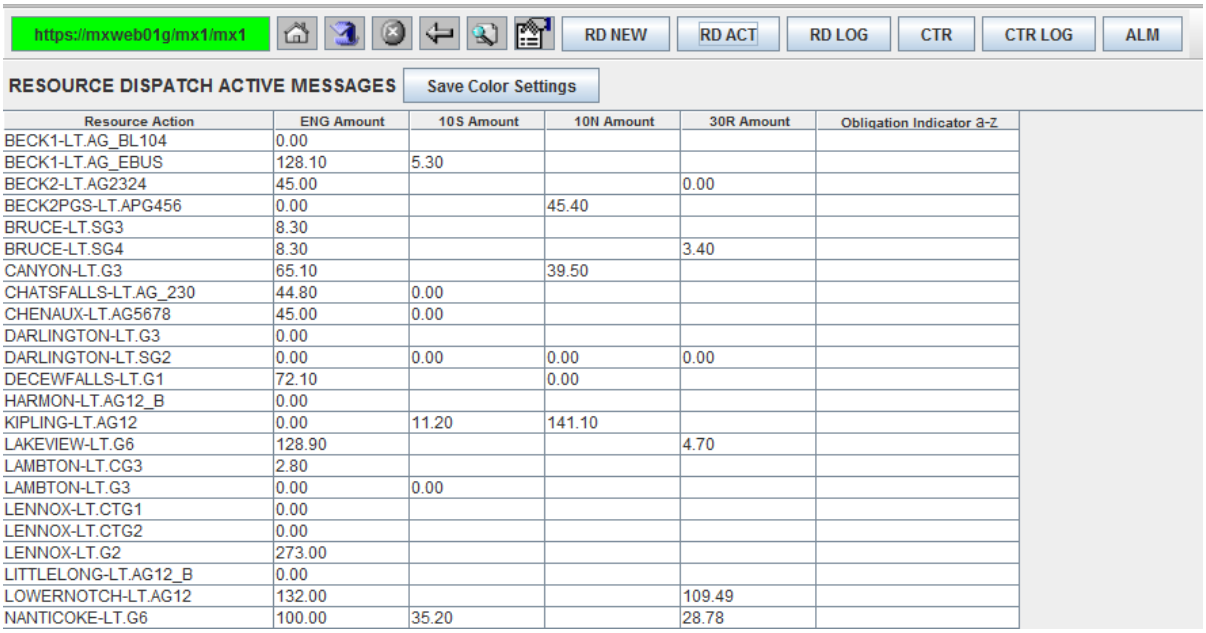
Indicates the action that the variable generation facility is required to take on the dispatch instruction:

MANDATORY	The energy output must be adjusted to the quantity specified in the dispatch instruction. These dispatch instruction must be actively acknowledged by confirming receipt and the intent to follow. If the variable generation facility is unable to comply with the dispatch instructions for these reasons, it has the option to reject them. Upon rejecting the dispatch instructions, a variable generator must follow up with a phone call to the IESO control room so alternate action can be taken.

RELEASE	The variable generator at the facility is released from the following specified dispatch instruction and that energy may be supplied as ambient fuel conditions allow. . The market participant is not required to generate to the target MW but to generate at whatever the fuel conditions allow. If the MP cannot achieve this target for reasons other than ambient weather conditions the MP is required to update the dispatch data to reflect the actual capability of the facility. This set of dispatch instructions must be actively acknowledged by confirming receipt and intent to follow.

– End of Section –

5. Resource Dispatch Active Message Display



Resource Action	ENG Amount	10S Amount	10N Amount	30R Amount	Obligation Indicator a-z
BECK1-LT.AG_BL104	0.00				
BECK1-LT.AG_EBUS	128.10	5.30			
BECK2-LT.AG2324	45.00			0.00	
BECK2PGS-LT.APG456	0.00		45.40		
BRUCE-LT.SG3	8.30				
BRUCE-LT.SG4	8.30			3.40	
CANYON-LT.G3	65.10		39.50		
CHATSFALLS-LT.AG_230	44.80	0.00			
CHENAUX-LT.AG5678	45.00	0.00			
DARLINGTON-LT.G3	0.00				
DARLINGTON-LT.SG2	0.00	0.00	0.00	0.00	
DECEWFALLS-LT.G1	72.10		0.00		
HARMON-LT.AG12_B	0.00				
KIPLING-LT.AG12	0.00	11.20	141.10		
LAKEVIEW-LT.G6	128.90			4.70	
LAMBTON-LT.CG3	2.80				
LAMBTON-LT.G3	0.00	0.00			
LENNOX-LT.CTG1	0.00				
LENNOX-LT.CTG2	0.00				
LENNOX-LT.G2	273.00				
LITTLELONG-LT.AG12_B	0.00				
LOWERNOTCH-LT.AG12	132.00			109.49	
NANTICOKE-LT.G6	100.00	35.20		28.78	

The Resource Dispatch Active Message display is a scrolling list of all resources for which the Market Participant receives dispatch instructions. Five columns accompany each resource – Energy (one column for the latest ENG or ORA dispatch quantity) and the three classes of Operating Reserve (10S, 10N and 30M).

There is a record for each Resource for which at least one dispatch instruction message has been sent. A record, therefore, can represent as many as four messages, one for each of the four Products (as above). The messages themselves can be viewed in the Resource Dispatch Log.

Quantities in the Resource Dispatch Active Message display are updated when the client accepts a new message and receives confirmation from the server (that is, the message on the Resource Dispatch New Message display has an Action of ACCEPT and a Status of DONE).

A unique message is associated with each quantity on this display. There will be up to four unique messages for a resource – the last accepted and confirmed message for each product. The User accesses message details associated with any quantity on this display by placing the cursor above the relevant quantity and right-clicking the mouse. A separate window will appear listing the details of the message. Exiting this Details window returns the User to the Resource Dispatch New Message display.

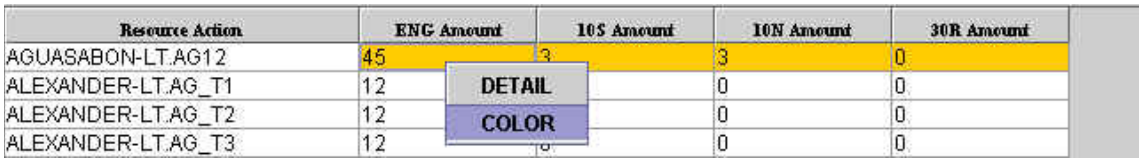
The list is ordered alphabetically by Resource ID.

5.1 Color Settings

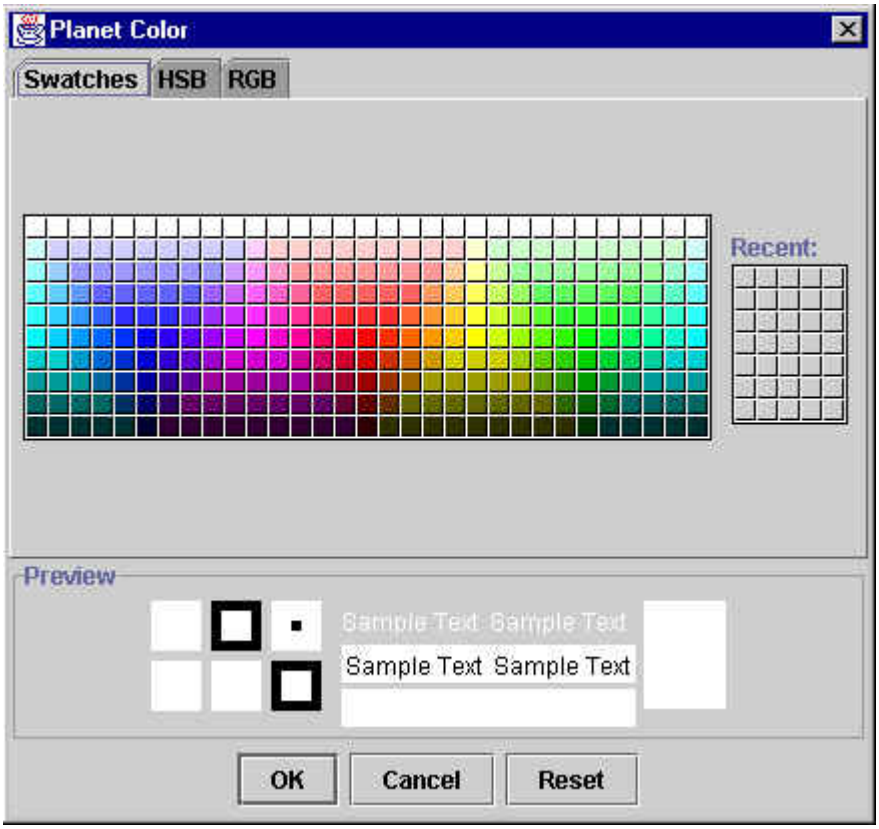
In the Active Message Display, the user can also define a specific color for any resource listed in this display. By doing this, the user can easily identify all the occurrences of that resource in the list by its color. The user can set the color of a resource by performing the following procedure:

Select the message by clicking on it (left button) in the list.

Right-click on it to display the selections.



Click on the **COLOR** selection to bring up the color panel window as shown below



Select the color from the Swatches color panel, the Preview section at the bottom is updated to represent an example of how the text and window will look like with the selected color.

Click OK to go back to the Active Message Display. After this, the user now sees the row for the selected resource is changed to the selected color.

To preserve the users settings for all the color changes, the user must click on the 'Save Color Settings' button on the Active Message Display. After clicking this button, the following dialog box will appear to confirm that the color settings are saved.

When the user logs in next time on to the system, he/she will see the resources with the same color settings that has been set the last time and saved.

– End of Section –

6. Resource Dispatch Message Log

Resource ID	Product	Status	Result	Amount	IMO Send Time	Message ID	ANSWERBY	Obligation Indicator
SITHEG-LT.G15	ENG	LOG	Not Send	110.00	07/22/2013 12:25	RD_E726000072231303G		
SITHEG-LT.G15	ENG	LOG	Not Send	95.00	07/22/2013 12:26	RD_E726027072231304G		
SITHEG-LT.G15	ENG	LOG	Not Send	80.00	07/22/2013 12:26	RD_E726041072231305G		
SITHEG-LT.G15	ENG	LOG	Not Send	55.00	07/22/2013 12:30	RD_E726068072231307G		
SITHEG-LT.G15	ENG	LOG	Not Send	75.00	07/22/2013 12:50	RD_E726053072231311G		
SITHEG-LT.G15	ENG	LOG	Not Send	120.00	07/22/2013 13:00	RD_E726128072231401G		
SITHEG-LT.G15	ENG	LOG	Not Send	160.00	07/22/2013 13:05	RD_E726154072231402G		
SITHEG-LT.G15	ENG	LOG	Not Send	195.00	07/22/2013 13:10	RD_E726205072231403G		
SITHEG-LT.G13	ENG	LOG	Not Send	88.45	07/22/2013 13:35	RD_E726303072231408G		
SITHEG-LT.G11	ENG	LOG	Not Send	93.54	07/22/2013 13:40	RD_E726277072231409G		
SITHEG-LT.G13	ENG	LOG	Not Send	85.00	07/22/2013 13:50	RD_E726351072231411G		
SITHEG-LT.G11	ENG	LOG	Not Send	85.00	07/22/2013 13:50	RD_E726350072231411G		
SITHEG-LT.G11	ENG	LOG	Not Send	88.59	07/22/2013 14:30	RD_E726478072231507G		
SITHEG-LT.G11	ENG	LOG	Not Send	85.00	07/22/2013 15:00	RD_E726561072231601G		
SITHEG-LT.G15	ENG	LOG	Not Send	104.99	07/23/2013 06:35	RD_E726806072330708G		
SITHEG-LT.G13	ENG	LOG	Not Send	82.00	07/23/2013 06:35	RD_E726805072330708G		
SITHEG-LT.G12	ENG	LOG	Not Send	82.00	07/23/2013 06:35	RD_E726804072330708G		
SITHEG-LT.G11	ENG	LOG	Not Send	82.00	07/23/2013 06:35	RD_E726803072330708G		
SITHEG-LT.G15	ENG	LOG	Not Send	89.99	07/23/2013 06:40	RD_E726847072330709G		
SITHEG-LT.G15	ENG	LOG	Not Send	133.53	07/23/2013 06:55	RD_E726894072330712G		
SITHEG-LT.G15	ENG	LOG	Not Send	118.53	07/23/2013 07:00	RD_E726960072330801G		
SITHEG-LT.G13	ENG	LOG	Not Send	91.88	07/23/2013 07:00	RD_E726590072330801G		

The Resource Dispatch Message Log can contain as many as a thousand messages, together with responses. When the log contains 1000 messages the oldest 200 are deleted from the display.

All messages received by the client and all responses issued by the client are continuously written to a file on the client dedicated to message exchange resource dispatch messages.

When a NEW message is received by the client and presented on the Resource Dispatch New Message display, the message is simultaneously added to the Resource Dispatch Message Log. Messages in the Resource Dispatch Message Log are ordered by timestamp in the client.

The User can only view the message log, which tracks actions taken by the user in the Resource Dispatch New Message display -- that is, Accept or Reject. In addition, the display updates the Status of the message as this changes.

If the user accepts or rejects a message but the message times-out or encounters an error, the Result column continues to register the action taken by the User. In this it differs from the New Message display, in which the Action is NONE.

Resource Id

The unique identifier assigned by the IESO to the resource.

Product

The market to which the message pertains. There are five products:

`ENG` all Energy dispatch except for Operating Reserve activation.

`ORA` Operating Reserve activation.

`10S` 10-Minute Spinning operating reserve.

10N 10-Minute Non-spinning operating reserve.

30M 30-Minute operating reserve.

Status

The current status of the message:

NEW a new message received by the client that has not received dispensation.

PENDING a message that has been acted upon by the User (that is, the User has accepted or rejected the message), but is awaiting confirmation from the IESO server.

DONE a message that has been accepted or rejected by the User, transmitted to the IESO server, confirmed by the IESO and confirmation received by the client, or a message that has been accepted or rejected by the IESO on behalf of the MP.

AUTO TIMEOUT a message for which acceptance/rejection has not been issued by the client before the IESO server timer for MP acceptance or rejection of the message has timed-out. The timer for this state is located in the client.

MANUAL TIMEOUT a message that has not been accepted by the IESO on behalf of the Market Participant before the IESO SCADA server timer for IESO acceptance/rejection of the message has timed-out

ERROR error in accepting or rejecting the message (for example, communication failure, or confirmation has not been received by the client within a specified amount of time).

Result

The result of the action taken by the MP in the NewMessage display. There are three possible Result states:

NONE the default state.

ACCEPT the User has accepted the message. If the message status changes to TIMEOUT or ERROR subsequent to the User accepting the message in the client, the Result remains ACCEPT (Note that this differs from the Action field in the New Message display.)

REJECT the User has rejected the message. If the message status changes to TIMEOUT or ERROR subsequent to the User rejecting the message in the client, the Result will remain REJECT (Note that this differs from the Action field in the New Message display.)

Amount

The amount of energy to be dispatched.

IESO Send Time

The date and time when the message was sent by the IESO server.

Message Id

The unique identification assigned to the message by the IESO server.

AnswerBy

If the Result is Accept or Reject, the agent who has accepted or rejected the dispatch instruction message: either the MP or the IESO Exchange Coordinator.

Obligation Indicator (Variable Generators Only)

Indicates the action that the variable generation facility is required to take on the dispatch instruction:

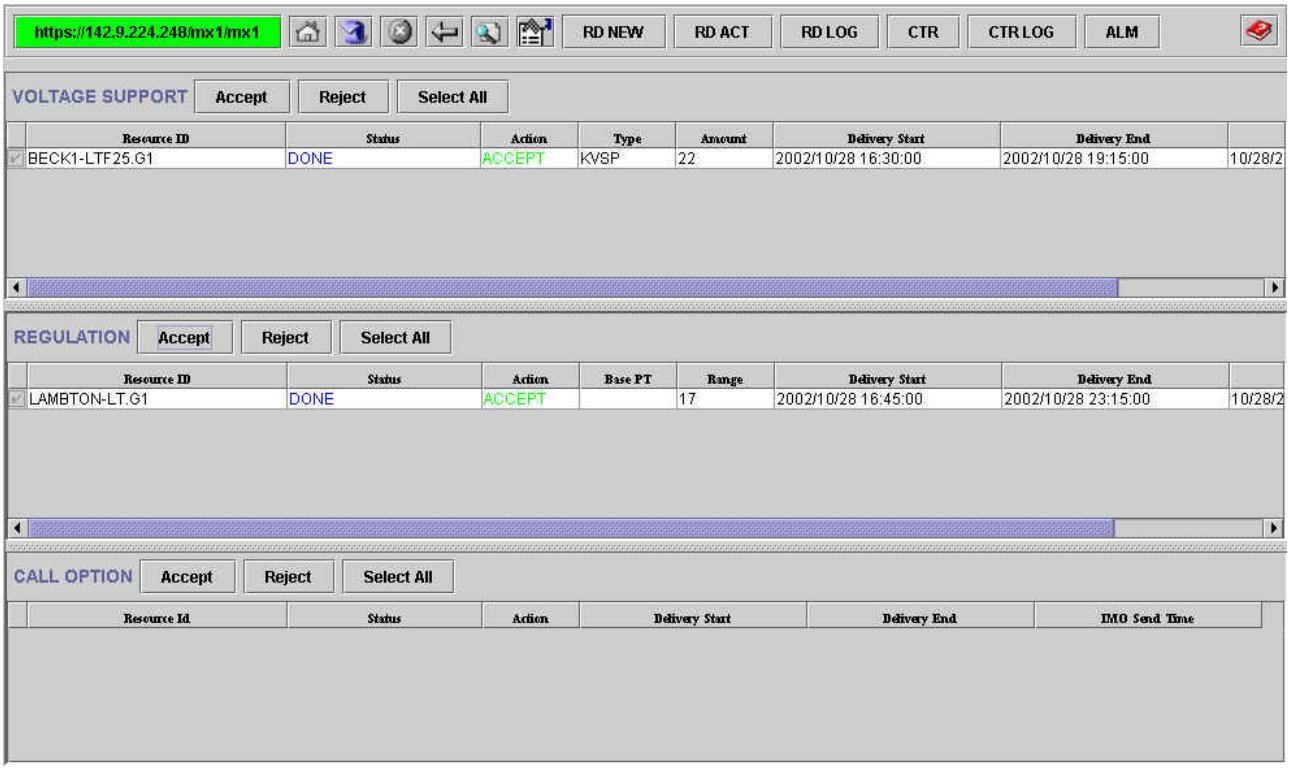
MANDATORY The energy output must be adjusted to the quantity specified in the dispatch instruction. These dispatch instruction must be actively acknowledged by confirming receipt and the intent to follow. If the variable generation facility is unable to comply with the dispatch instructions for these reasons, it has the option to reject them. Upon rejecting the dispatch instructions, a variable generator must follow up with a phone call to the IESO control room so alternate action can be taken.

RELEASE The variable generator at the facility is released from the following specified dispatch instruction and that energy may be supplied as ambient fuel conditions allow. . The market participant is not required to generate to the target MW but to generate at whatever the fuel conditions allow. If the MP cannot achieve this target for reasons other than ambient weather conditions the MP is required to update the dispatch data to reflect the actual capability of the facility. This set of dispatch instructions must be actively acknowledged by confirming receipt and intent to follow.

– End of Section –

7. Contract Management New/Active Messages

The Contract Management New/Active Message display consists of a set of scrolling lists containing all messages sent to the Market Participant by the MIS application Contract Management. The messages are stamped with the time when they are issued by the IESO server. Messages are sorted by the time-stamp, with the most recent message at the top.



There are currently three types of contract: voltage support, regulation and call option. The Contract Management New/Active Message display is subdivided to contain a separate list for each type. Each window is separately scrollable, and each has its own **Accept**, **Reject**, and **Select All** buttons.

Resizing Windows

The user can resize any window in the Contract Management New/Active Message display by:

1. placing the cursor over the bar separating two windows until the cursor becomes a vertical double-ended arrow,

2. pressing the left-hand mouse button and holding it down,

3. moving the cursor up or down as required, and

4. releasing the button when the window is the required size.

When a new message arrives it is listed on this display with a Status of NEW and an Action of NONE. If the timer times-out, the client changes the status to AUTO TIMEOUT and locks out the User, preventing him from Accepting or Rejecting the message.

Accepting or Rejecting Messages

To accept or reject a new message (before the client AUTO TIMEOUT timer times-out):

1. select the message either

- individually by means of the check box to the left of the message, or

- as a member of a group by means of the **Select All** button; and

2. press either the **Accept** or the **Reject** button.

While the client issues the message response to the web server, the client changes the message Status to PENDING and starts a confirmation timer while waiting for confirmation from the server.

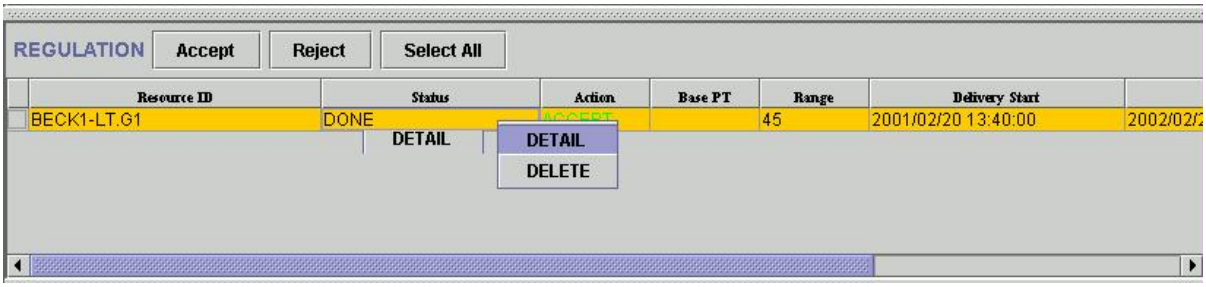
When confirmation is received, the client changes the message Status from PENDING to DONE. If the client confirmation timer times-out before confirmation is received from the server, the message Status will change from PENDING to ERROR and the Action changes to NONE.

When the IESO accepts messages on behalf of the MP, a message is issued to the client and the display is updated to a Status of DONE and an Action of ACCEPT.

If neither the MP nor the IESO has accepted the message before the time-out period, the web server issues a time-out message to the client and the display is updated to a Status of MANUAL TIMEOUT and an Action of NONE.

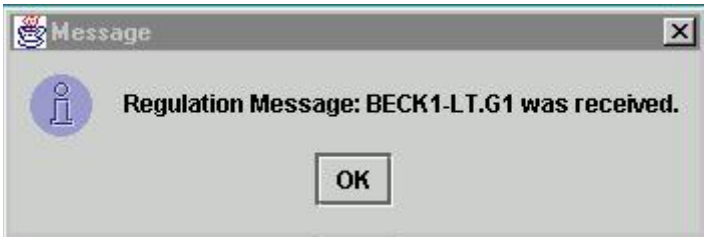
All messages with a Delivery End Date/Time are automatically removed from the Contract Management New/Active Message display when the Delivery End-Time is reached.

Some messages do not have an End-Time, but are superseded by a subsequent message. For example, a Regulation contract is re-issued for the same Resource and Period but with a different Range. Such messages are not automatically removed from the display. Instead, the user deletes the message by placing the cursor on the message record and right-clicking. A dialogue appears in which the user can choose either Delete or Details.



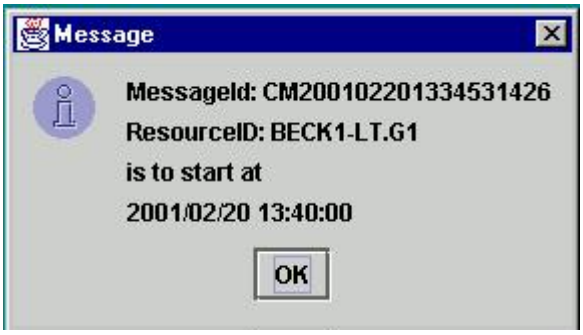
When the User chooses the Delete function, a confirmation box appears.

A pop-up window is generated upon receipt of a new Contract Management message, no matter which Web-MX window is currently displayed. The window alerts the user to the message and identifies the Resource and the type of contract (Voltage Support, Regulation, or Call Option).



Click OK to remove the window from the screen.

A pop-up window is generated in advance of the delivery start time to remind the user to prepare the unit for the upcoming contract. The pop-up window appears no matter which Message list is currently displayed. It contains the Message Id, the Resource Id, and the Delivery StartDate/Time.



Click **OK** to close the window.

7.2 Contract Types

7.2.1 Voltage Support

Resource Id

The unique identifier assigned by the IESO to the resource.

Status

The current status of the message:

`NEW` a new message received by the client that has not received dispensation.

`PENDING` a message that has been acted upon by the User (that is, the User has accepted or rejected the message), but is awaiting confirmation from the IESO server.

`DONE` a message that has been accepted or rejected by the User, transmitted to the IESO server, confirmed by the IESO and confirmation received by the client, or a message that has been accepted or rejected by the IESO on behalf of the MP.

`AUTO TIMEOUT` a message for which acceptance/rejection has not been issued by the client before the IESO server timer for MP acceptance or rejection of the message has timed-out. The timer for this state is located in the client.

`MANUAL TIMEOUT` a message that has not been accepted by the IESO on behalf of the Market Participant before the IESO SCADA server timer for IESO acceptance/rejection of the message has timed-out

`ERROR` error in accepting or rejecting the message (for example, communication failure, or confirmation has not been received by the client within a specified amount of time).

Action

The action taken by the user on the message:

`NONE` the default state. When a `NEW` message is received or if the message status changes to `TIMEOUT` or `ERROR`, the Action field is `NONE`.

`Accept` (lower case) the User has Accepted the message and the message status is `PENDING`

`ACCEPT` (upper case) the User (or the IESO on behalf of the MP) has Accepted the message and the message status is `DONE`.

`Reject` (lower case) the User has Rejected the message and the message status is `PENDING`.

`REJECT` (upper case) the User (or the IESO on behalf of the MP) has Rejected the message and the message status is `DONE`.

Type

KVSP (Voltage Set Point) or MVAR (MegaVAR).

Amount

The amount of energy contracted for delivery.

Delivery Start

The date and time at which delivery is to commence.

Delivery End

The date and time at which delivery is to end.

IESO Send Time

The date and time at which the message was sent by the IESO.

7.2.2 Regulation

The fields in a Regulation contract message are as above, except that the Type field is replaced by Base PT and Range.

Base PT (Point)

Either a numerical base point value in MW or , if there is a floating base point, no value.

Range

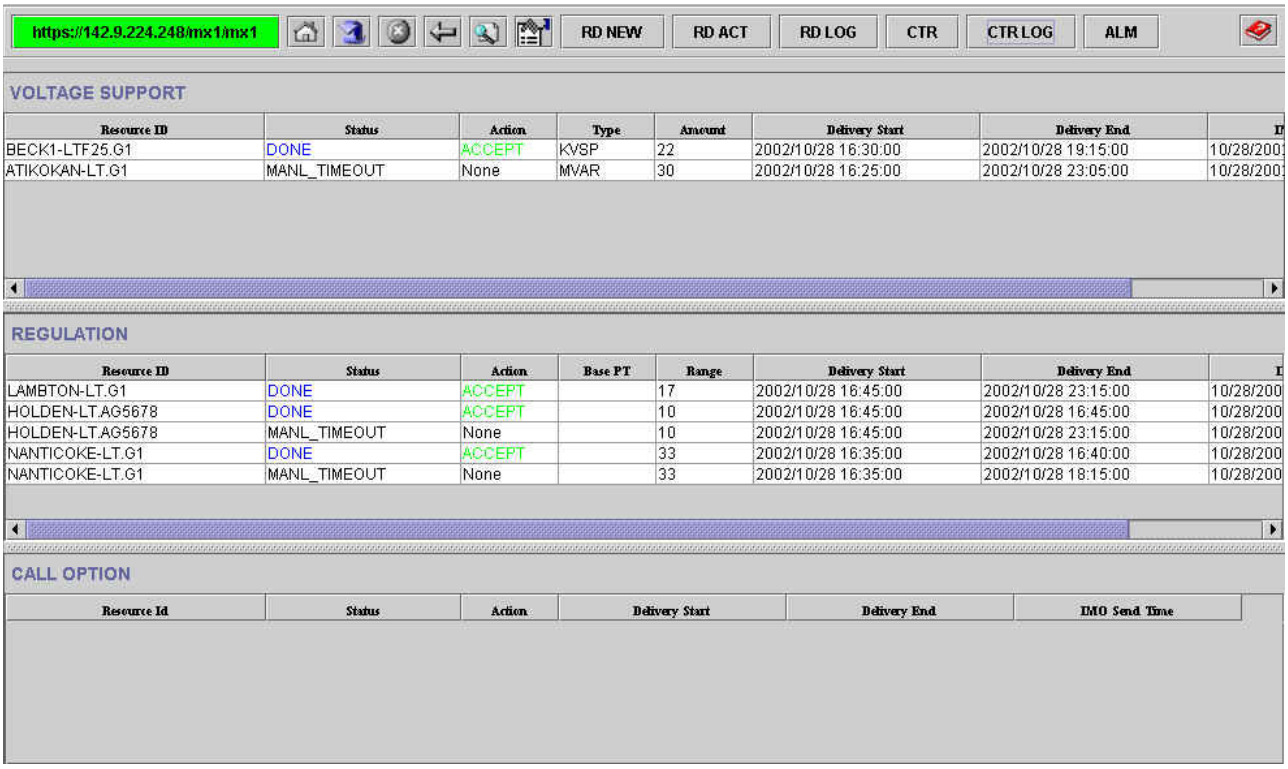
The acceptable plus or minus range from the MW base point.

7.2.3 Call Option

The fields in a Call Option contract message are all described above.

– End of Section –

8. Contract Management Message Log



The Contract Management Message Log does not have any limit for the number of messages that it may contain.

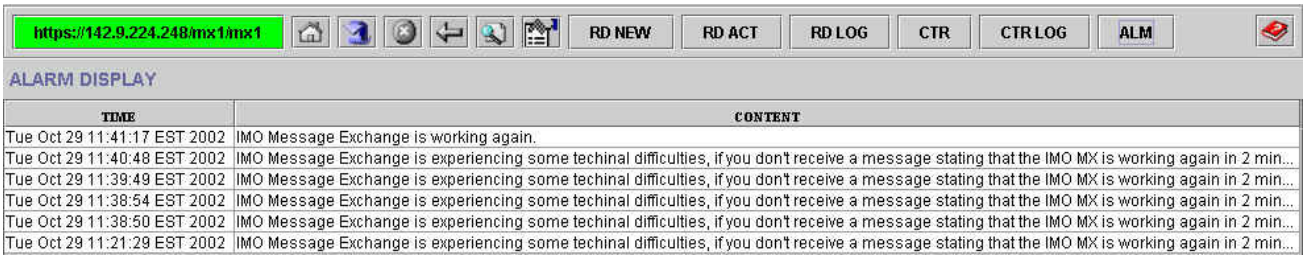
All messages received by the client and all responses issued by the client are continuously written to a file on the client

When a NEW message is received by the client and presented on the Contract Management New/Active Message display, the message is simultaneously added to the Contract Management Message Log. The messages in the Contract Management Message Log are ordered by timestamp in the client.

The User can only view the message log, which tracks actions taken by the user in the Contract Management New/Active Message display – that is, Accept or Reject. In addition, the display updates the Status of the message as it changes.

– End of Section –

9. Alarm Message Log



The Alarm Message Log screen logs the timestamp and a short description for each time there is an alarm generated from the server side.

The Alarm Message Log does not have any limit for the number of messages that it may contain. In addition, these Alarm messages are logged for the current session only and are not stored to any file on the client side.

– End of Section –

10. Dispatch Message Structure

10.1 General Structure of All Dispatch Messages

Dispatch messages are composed of a message header and a message body. The content of messages is not 'case sensitive'.

The message header identifies the message and is a common format for all messages. The *message header* is composed of the following fields:

- **MessageId** – Unique identifier assigned to the message. (text – maximum of 40 characters);
- **MpId** – Market participant short name. (text – maximum of 12 characters);
- **Type** – The type of message. Can be one of DISPATCH, HEARTOUT, HEARTIN, ACCEPT, REJECT, RECEIPT, CONFIRMATIONOK, OR CONFIRMATIONNOTOK. (text – maximum of 40 characters); and
- **Comment** – A free text field to insert a comment that is associated with the message. (text – maximum of 40 characters).

The content of the message body is dependent on the 'type' of message. The following fields can be included in a *message body*:

- **PersistentResource** – This string is used internally by the *IESO* to uniquely identify distinct *dispatches*. (text – maximum of 100 characters);
- **DISPATCH_TYPE** – Identifies the type of *dispatch* which dictates how each of the other fields in the message body are interpreted. (ENG for *energy*, RESV for reserve, ORA for reserve activation, RGR for *regulation* with *regulation* range, RGS for *regulation* with *regulation* range and set point, MVAR for voltage support based on MVAR, KVSP for voltage support based on voltage set point, and CALL for invocation of a call option on a contract). (text – maximum of 40 characters);
- **AMOUNT** – Value assigned to the *dispatch* (content is dependent on *dispatch* type) (floating point number);
- **REGULATION_RANGE** – *Regulation* range *dispatch* specified for *regulation dispatches* (floating point number);
- **Startstop** – Always contains the value ('start');
- **DELIVERY_DATE** – Date that the *dispatch* applies to. ('YYYY/MM/DD');
- **DELIVERY_HOUR** – Hour that the *dispatch* applies to. (number between 1 – 24);

- **DELIVERY_INTERVAL** – Five minute interval that the *dispatch* applies to. (number between 1 – 12);

- **RESOURCE_ID** – Short name for the resource that is being *dispatched*. (text – maximum of 32 characters);

- **RESERVE_CLASS** – Class of reserve being requested in the in a RESV type *dispatch* request. ('10S' – 10 minute spinning, '10N' – 10 minute non-spinning or '30R' – 30 minute reserve);

- **LIMIT_TYPE** – Type of manual limit applied to the resource. ('FIX' – resource is manually set, 'MAX' – resource limited to maximum *energy* output, 'MIN' - resource limited to minimum *energy* output, or 'OTD' - manual, on demand, one time *dispatch*);

- **RR_POINT** – Ramp Rate breakpoints specified as part of the selected *bid/offer*. A colon separates each of the break point values. (number set converted to text – maximum of 40 characters);

- **RR_UP** – Ramp Rates expected for increasing *energy dispatches*. A colon separates each of the specified ramp rates. (number set converted to text – maximum of 40 characters);

- **RR_DN** – Ramp Rates expected for reducing *energy dispatches*. A colon separates each of the specified ramp rates. (number set converted to text – maximum of 40 characters);

- **HI_LIMIT** – Maximum output of the resource based on the available *bids/offers*, unit limitations specified as *outages*, AGC requirements and manual constraints. (number);

- **LO_LIMIT** – Minimum output of the resource based on AGC requirements and manual constraints. (number);

- **DELIVERY_START_TIME** – Start time of the *dispatch* request. Start time requests are associated with *dispatches* for contract activation. ('YYYY/MM/DD HH:MN:SS'); and

- **DELIVERY_STOP_TIME** – Stop time of the *dispatch* request. Stop time requests are associated with *dispatches* for contract activation ('OPEN' – stop time was not specified or 'YYYY/MM/DD HH:MN:SS').

- **VG_OI** – Obligation Indicator for the dispatch instruction. OI is either Mandatory or Release for variable generators. It will be null for non-VGs.

10.1.1 Dispatch Message Body – Energy Dispatch

The *dispatch* message body of an *Energy DISPATCH* includes the following fields:

- PersistentResource

- DISPATCH_TYPE = 'ENG'

- AMOUNT = The total MW *dispatched* for the resource at the end of the DELIVERY_INTERVAL

- Startstop = ‘Start’
- DELIVERY_DATE
- DELIVERY_HOUR
- DELIVERY_INTERVAL
- RESOURCE_ID
- LIMIT_TYPE = Only if the resource has been manually constrained.
- RR_POINT
- RR_UP
- RR_DN
- HI_LIMIT
- LO_LIMIT
- VG_OI

10.1.2 Dispatch Message Body – Reserve Dispatch

The *dispatch* message body of a Reserve *DISPATCH* includes the following fields:

- PersistentResource
- DISPATCH_TYPE = ‘RESV’
- AMOUNT = The MW of capacity of RESERVE_CLASS that the resource is expected to be capable of supplying at the end of the DELIVERY_INTERVAL
- Startstop = ‘Start’
- DELIVERY_DATE
- DELIVERY_HOUR
- DELIVERY_INTERVAL
- RESOURCE_ID
- RESERVE_CLASS

10.1.3 Dispatch Message Body – Reserve Activation Dispatch

The *dispatch* message body of a Reserve Activation *DISPATCH* includes the following fields:

- PersistentResource
- DISPATCH_TYPE = ‘ORA’
- AMOUNT = The total MW *dispatched* for the resource at the end of the DELIVERY_INTERVAL
- Startstop = ‘Start’
- DELIVERY_DATE
- DELIVERY_HOUR
- DELIVERY_INTERVAL (No value for this field)
- RESOURCE_ID
- RR_POINT
- RR_UP
- RR_DN
- HI_LIMIT
- LO_LIMIT
- LIMIT_TYPE = ‘FIX’

10.1.4 Dispatch Message Body – Regulation with Range Dispatch

The *dispatch* message body of a *Regulation* with Range only *DISPATCH* includes the following fields:

- PersistentResource
- DISPATCH_TYPE = ‘RGR’
- Startstop = ‘Start’
- RESOURCE_ID
- REGULATION_RANGE = The *regulation* range in MW expected from the resource.
- DELIVERY_START_TIME

- DELIVERY_STOP_TIME

10.1.5 Dispatch Message Body – Regulation with Range and Set Point Dispatch

The *dispatch* message body of a *Regulation* with Range and Set Point *DISPATCH* includes the following fields:

- PersistentResource
- DISPATCH_TYPE = ‘RGS’
- Startstop = ‘Start’
- RESOURCE_ID
- AMOUNT = The fixed base point that the unit will operate at while on AGC.
- REGULATION_RANGE = The *regulation* range in MW expected from the resource.
- DELIVERY_START_TIME
- DELIVERY_STOP_TIME

10.1.6 Dispatch Message Body – MVAR Voltage Support Dispatch

The *dispatch* message body of a MVAR Voltage Support *DISPATCH* includes the following fields:

- PersistentResource
- DISPATCH_TYPE = ‘MVAR’
- Startstop = ‘Start’
- RESOURCE_ID
- AMOUNT = The amount of MVAR to be delivered by the resource at the specified DELIVERY_TIME.
- DELIVERY_START_TIME
- DELIVERY_STOP_TIME

10.1.7 Dispatch Message Body – Set Point Voltage Support Dispatch

The *dispatch* message body of a Set Point Voltage Support *DISPATCH* includes the following fields:

- PersistentResource
- DISPATCH_TYPE = ‘KVSP’
- Startstop = ‘Start’
- RESOURCE_ID
- AMOUNT = The kV Set point that the resource should be set to by the specified DELIVERY_TIME.
- DELIVERY_START_TIME
- DELIVERY_STOP_TIME

10.1.8 Dispatch Message Body – Call Option Dispatch

The body of a voltage support *DISPATCH* based on MVA includes the following fields:

- PersistentResource
- DISPATCH_TYPE = ‘CALL’
- Startstop = ‘Start’
- RESOURCE_ID
- DELIVERY_START_TIME
- DELIVERY_STOP_TIME

10.1.9 Other Messages

The HEARTOUT, HEARTIN, ACCEPT, REJECT, RECEIPT, CONFIRMATIONOK, AND CONFIRMATIONNOTOK only include the header information.

– End of Section –

11. Dispatch Messaging Samples

11.1 Heartbeat Message

The heartbeat message is used to make sure that the client is active and able to communicate with the message exchange.

Message Exchange will send the following to the Client:

```
<header>
<MessageId>None</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>HEARTOUT</Type>
<Comment>None</Comment>
</header>
```

Message Exchange expects the following message to be returned from the Client immediately upon receipt of the HEARTOUT message:

```
<header>
<MessageId>None</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>HEARTIN</Type>
<Comment>None</Comment>
</header>
```

11.2 Energy Dispatch Message

Message Exchange sends the following to the client to start an *energy dispatch* request. The <VG_OI> field is only seen by variable generators. It can be MANDATORY or RELEASE:

```
<header>
<MessageId>RD_E1090757003422813</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>DISPATCH</Type>
<Comment>None</Comment>
</header>
<Body>
<PersistentResource> AMARANTH-LT.AG_T1ENERGY</PersistentResource>
<Amount>18</Amount>
<Startstop>start</Startstop>
<DELIVERY_DATE>2013/04/30</DELIVERY_DATE>
<DELIVERY_HOUR>10</DELIVERY_HOUR>
<DELIVERY_INTERVAL>3</DELIVERY_INTERVAL>
<RESOURCE_ID> AMARANTH-LT.AG_T1</RESOURCE_ID>
<DISPATCH_TYPE>ENG</DISPATCH_TYPE>
```

```
<RR_POINT>12.5:25:0:0:0</RR_POINT>
<RR_UP>18.4:23:0:0:0</RR_UP>
<RR_DN>18.4:23:0:0:0</RR_DN>
<VG_OI> MANDATORY</VG_OI>
<HI_LIMIT>32</HI_LIMIT>
<LO_LIMIT>0</LO_LIMIT>
</Body>
```

Message Exchange expects the Client to respond with a receipt acknowledgement to the *dispatch instruction* that appears as follows. This message is used to notify Message Exchange that the Client received and understood the message and is currently awaiting processing:

```
<header>
<MessageId>RD_E1090757003422813</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>Receipt</Type>
<Comment>None</Comment>
</header>
```

The Client will then send a message to Message Exchange to specify a response to the message. The response message can be 'accept':

```
<header>
<MessageId>RD_E1090757003422813</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>accept</Type>
<Comment>None</Comment>
</header>
```

or 'reject':

```
<header>
<MessageId>RD_E1090757003422813</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>reject</Type>
<Comment>None</Comment>
</header>
```

After the client responds to the message the client will receive confirmation from the Message Exchange. 'ConfirmationOK' is used to indicate that the message was receive and accepted. 'ConfirmationNotOK' is used to indicate that the message was received but it was not received within the prescribed timing window and therefore was not accepted.

```
<header>
<MessageId>RD_E1090757003422813</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>ConfirmationOK</Type>
<Comment>None</Comment>
</header>
```

```
<header>
<MessageId>RD_E1090757003422813</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>ConfirmationNotOK</Type>
<Comment>None</Comment>
```

```
</header>
```

11.3 Reserve Dispatch Message

Reserve *dispatch* follows the same process as *energy dispatch* except that the initial message is different.

The initial message from Message Exchange to the client for reserve *dispatch* is as follows:

```
<header>
<MessageId>RD_R1091533007968759</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>DISPATCH</Type>
<Comment>None</Comment>
</header>
<Body>
<PersistentResource>AGUASABON-LT.G2 RESERVE10S</PersistentResource>
<Amount>15</Amount>
<Startstop>start</Startstop>
<DELIVERY_DATE>2000/04/30</DELIVERY_DATE>
<DELIVERY_HOUR>10</DELIVERY_HOUR>
<DELIVERY_INTERVAL>4</DELIVERY_INTERVAL>
<RESOURCE_ID>AGUASABON-LT.G2</RESOURCE_ID>
<DISPATCH_TYPE>RESV</DISPATCH_TYPE>
<RESERVE_CLASS>10S</RESERVE_CLASS>
</Body>
```

11.4 Reserve Activation Dispatch Message

Reserve Activation *dispatch* follows the same process as *energy dispatch* except that the initial message is different. Also the DELIVERY_INTERVAL field is empty for this type of dispatch message

Message Exchange sends the following to the client to start an reserve activation *dispatch* request:

```
<header>
<MessageId>RD_E1090757003422813</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>DISPATCH</Type>
<Comment>None</Comment>
</header>
<Body>
<PersistentResource>AGUASABON-LT.G2 ENERGY</PersistentResource>
<Amount>18</Amount>
<Startstop>start</Startstop>
<DELIVERY_DATE>2000/04/30</DELIVERY_DATE>
<DELIVERY_HOUR>10</DELIVERY_HOUR>
<DELIVERY_INTERVAL></DELIVERY_INTERVAL>
<RESOURCE_ID>AGUASABON-LT.G2</RESOURCE_ID>
<DISPATCH_TYPE>ORA</DISPATCH_TYPE>
```

```
<RR_POINT>25:0:0:0:0</RR_POINT>
<RR_UP>150:0:0:0:0</RR_UP>
<RR_DN>0:0:0:0:0</RR_DN>
<LIMIT_TYPE>FIXED</LIMIT_TYPE>
<HI_LIMIT>32</HI_LIMIT>
<LO_LIMIT>0</LO_LIMIT>
</Body>
```

11.5 Voltage Support Dispatch Message (MX)

Voltage Support *Dispatch* follows the same process as *Energy Dispatch* except that the initial message is different.

The initial message from Message Exchange to the client for voltage support *dispatch* (MX) is as follows:

```
<header>
<MessageId>CM200004300939551020</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>DISPATCH</Type>
<Comment>None</Comment>
</header>
<Body>
<PersistentResource>ARNPRIOR-LT.G1 MVAR SET PT</PersistentResource>
<RESOURCE_ID> ARNPRIOR-LT.G1</RESOURCE_ID>
<DISPATCH_TYPE>MVAR</DISPATCH_TYPE>
<Amount>10</Amount>
<Startstop>start</Startstop>
<DELIVERY_START_TIME>2000/04/30 09:40:00</DELIVERY_START_TIME>
<DELIVERY_STOP_TIME>OPEN</DELIVERY_STOP_TIME>
</Body>
```

11.6 Voltage Support Dispatch Message (kV)

Voltage Support *dispatch* follows the same process as *energy dispatch* except that the initial message is different.

The initial message from Message Exchange to the client for voltage support *dispatch* (kV) is as follows:

```
<header>
<MessageId>CM200004300939551020</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>DISPATCH</Type>
<Comment>None</Comment>
</header>
<Body>
<PersistentResource>ARNPRIOR-LT.G1 MVAR SET PT</PersistentResource>
<RESOURCE_ID> ARNPRIOR-LT.G1</RESOURCE_ID>
<DISPATCH_TYPE>KVSP</DISPATCH_TYPE>
```

```
<Amount>7.4</Amount>
<Startstop>start</Startstop>
<DELIVERY_START_TIME>2000/04/30 09:40:00</DELIVERY_START_TIME>
<DELIVERY_STOP_TIME>OPEN</DELIVERY_STOP_TIME>
</Body>
```

11.7 AGC Dispatch Message

AGC *dispatch* follows the same process as *energy dispatch* except that the initial message is different.

The initial message from Message Exchange to the client for AGC *dispatch* is as follows:

```
<header>
<MessageId>CM200004300942431022</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>DISPATCH</Type>
<Comment>None</Comment>
</header>
<Body>
<PersistentResource>BECK2-LT.G11 REG CONTROL</PersistentResource>
<RESOURCE_ID> BECK2-LT.G11</RESOURCE_ID>
<DISPATCH_TYPE>RGS</DISPATCH_TYPE>
<Amount>60</Amount>
<Startstop>start</Startstop>
<REGULATION_RANGE>20</ REGULATION_RANGE>
<DELIVERY_START_TIME>2000/04/30 09:40:00</DELIVERY_START_TIME>
<DELIVERY_STOP_TIME>OPEN</DELIVERY_STOP_TIME>
</Body>
```

11.8 Call Option Dispatch Message

Call Option *dispatch* follows the same process as *energy dispatch* except that the initial message is different.

The initial message from Message Exchange to the client for Call Option *dispatch* is as follows:

```
<header>
<MessageId>CM200004300942431022</MessageId>
<MpId>GENERIC_MP</MpId>
<Type>DISPATCH</Type>
<Comment>None</Comment>
</header>
<Body>
<PersistentResource>BECK2-LT.G11 REG CONTROL</PersistentResource>
<RESOURCE_ID> BECK2-LT.G11</RESOURCE_ID>
<DISPATCH_TYPE>CALL</DISPATCH_TYPE>
<DELIVERY_START_TIME>2000/04/30 09:40:00</DELIVERY_START_TIME>
<DELIVERY_STOP_TIME>OPEN</DELIVERY_STOP_TIME>
</Body>
```

– End of Section –

12. Application Programming Interface (API)

The Message Exchange Application Programming Interface (MXAPI) has been provided to allow *market participants* to write custom applications that can receive and respond to dispatch messages under program control. This application can be downloaded from the Technical Interfaces Page of IESO's web site

The MXAPI is coded in Java and requires the SUN Java 2 Runtime Environment (JRE). Details about the recommended Java Runtime Environment can be obtained from http://www.ieso.ca/imoweb/ti/ti_Supported-Client-Platform.asp . JRE can be downloaded from http://java.sun.com/javase/downloads/index.jsp

The MXAPI currently utilizes the HTTPS protocol to send XML formatted messages.

The following files are provided in the file distribution;

mxapi.jar	11 KB	Mar 23, 2006	MXAPI
MXAppTest.class	4 KB	July 31, 2001	Simple MXAPI test applet (rejects all messages)
MXAppTest.java	10 KB	July 31, 2001	Source Code for the MXAPI test applet
TestMXAPI.bat	1 KB	July 31, 2001	Bat file to start the simple test applet
JavaDoc.zip	32 KB	July 31, 2001	Documentation for MXAPI and the Test Applet "MXAppTest".
hosts	1 KB	July 31, 2001	Sample "hosts" file for Windows NT

1) The MXAPI interface will only function on PCs that are directly connected to the IESO Real Time Frame Relay Network.

2) Ensure the "hosts" file in the \WINNT\System32\drivers\etc is correctly configured with the following entry;

142.9.3.118 mxweb.ieso.com # IESO Message Exchange WEB Server

Note: The IP address and Host Name information is subject to change by the IESO.

3) Ensure the SUN Java Runtime Environment V1.5.0 is installed before continuing. Execute the command "java –version" at the dos command prompt. "Java version 1.5.0" should be displayed.

12.1 Installation

The installation of the MXAPI components is straight forward;

1) Create the directory C:\MXAPI.
Note: It is not critical that the directory name be "C:\MXAPI". Be aware that if you choose to place the code in a different directory, you will need modify the TestMXAPI.bat file.

2) Copy the complete file distribution to the C:\MXAPI directory

3) Ensure the SUN JRE is installed. Run the "java –version" at a dos command prompt to verify that JRE is installed.

4) Create the directory C:\MXAPI\Javadoc and use WinZip (or a similar utility) to unzip the javadoc.zip file to C:\MXAPI\javadoc. Use your internet browser to open the main index.html file.

12.2 Executing the MXAPI Test Applet

The "MXAppTest.class" Java Applet has been provided "as-is" to test the MXAPI components and to provide a simple coding example. The Applet was written and compiled using the Borland J Builder V4.0 environment.

The Applet starts by asking for connection information (Server Name, User ID and Password), makes a HTTPS connection to the WEB Server, and then logs on as the Market Participant. The test applet then goes into an endless loop polling for new messages and automatically "Rejecting" them.

1) Start a command window and execute the "TestMXAPI.bat" file. Note this bat file assumes you have followed the instructions above and have installed the MXAPI components to the C:\MXAPI directory. If this is not the case, simply modify the C:\MXAPI references in the bat file to point to the actual file locations.

Typical output is shown below:

```
C:\MxAPI>JAVA -cp .;C:\MXAPI\MXAPI.jar; MXAppTest
-> Debug (Y/N)?    : Y
-> Web host        : mxweb.ieso.ca
-> Web port (443 or 80)        : 443
-> Protocol (HTTPS or HTTP)        : HTTPS
-> Username             : FALCONBRIDGE
-> Password    : XXXXXX

***** MXRequest: Basic login
Logged-in user: FALCONBRIDGE
java.text.ParseException: MessageFormat parse error!
        at java.text.MessageFormat.parse(Unknown Source)
        at
com.abb.mpi.MXRequest.getMessageSrv(MXRequest.java:413)
```

```
        at com.abb.mpi.MXRequest.access$1(MXRequest.java:167)
        at
com.abb.mpi.MXRequest$start_thread.run(MXRequest.java:361)
        at java.lang.Thread.run(Unknown Source)

***** MXRequest: color=KIDDCREEK-LT.T4_LF:-6711040;FLCNBR29M1-
LT.T1_LF:-3342490; KIDDCREEK-LT.T3_LF: -
355648;;mxdir=C:\WINNT\Profiles\maloa\MX_log;mxaudio=D:\Dat
a\WAVES\thx.wav
```

Note: The exception shown in the above output is caused by the WEB Server automatically downloading the stored user preferences (Color Settings, Home Directory; Wave File Selection) for this Market Participant. This happens during the initial connection because the WEB Server assumes the client is the browser based Message Exchange Client. The MXAppTest applet does not handle this downloaded information correctly and therefore throws an exception.

Note: The MXAppTest applet is currently coded to automatically REJECT all dispatch orders.

Note: Answering 'Y' to the "`Debug (Y/N)?`" only causes the applet to dump out errors conditions that it encounters. It does not dump out any information about messages that it successfully processed. This functionality can be altered by modifying the source code and re-compiling with Borland J Builder V4.0 or V5.0.

12.3 Documentation

Documentation for both the MXAPI and the MXAppTest test applet are provided in html format. Use your browser to open "index.html" in the C:\MXAPI\javadoc directory.

12.4 Source Code

The MXAppTest.java file contains the source code for the test applet.

– End of Section –

References

Document Name	Document ID
Participant Technical Reference Manual	IMO_MAN_0024
Web Based Message Exchange API (MXAPI)	N/A
Renewable Integration Initiative Variable Generation Dispatch Detailed Design Summary	IESO_DES_XXXX

– End of Document –