

eMarket – Sample Program User Guide

Caveat:

**This example program is intended to serve as working example of how to access eMarket MUI Webservices through Java and C# Clients. It is not supported nor intended for production use. Also, it is not intended to serve as a tool for end users.**

**Furthermore, without modification, this example code will not work with eFTR, EES, OutageScheduler, or the Settlements Market System. The example does not implement behavior critical to the interaction with the aforementioned applications including: multi-part MIME, cookie handling, and capturing responses to a file.**

**It is expected that a competent developer of moderate skill and knowledge of Java and/or C# and the HTTP protocol would be able to use these examples as a guide for developing more sophisticated clients to interact with the eMarket MUI WebServices.**

Java – Sample Client

1. Java - Installation Prerequisites

These 3rd party software are required to compile and run the Java Sample Client Program.

* **Java JDK 6.0 or newer**
* **Apache Ant 1.7.0 ( newer should work as well )**
* **CXF 2.3.0, and the path where is CXF is installed will be needed during the configuration.**

NOTE: Newer versions of CXF have additional binding configuration when running the WSDL2Java tool that are not explained as part of setup.

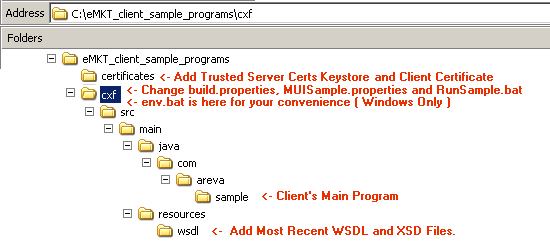
* **CXF 2.3.0 can be found at:** <https://archive.apache.org/dist/cxf/2.3.0/>
* **CXF Release Notes**[**http://cxf.apache.org/apache-cxf-230-release-notes.html**](http://cxf.apache.org/apache-cxf-230-release-notes.html)

1. eMKT\_client\_sample\_programs\_V8.zip

Download eMKT\_client\_sample\_programs\_V8.zip and unpack it into a local directory

For the remainder of this document assume it is downloaded to c:\eMKT\_client\_sample\_programs\”

Here is an overview of changes that will be covered in detail in the next few sections of this document.



# Obtain a current version of the Webservice WSDL and XSD

Both versions of the Sample Client Program are built from and are dependent on eMktMUI.wsdl and eMktMessages.xsd files. In an attempt to isolate this codeset from wsdl changes, these files are not included. These files are available through ISONE’s website.

<http://www.iso-ne.com/support/user_guides/index.html>

Obtain the latest copy of eMktMUI.wsdl and eMktMessages.xsd and place these two files at c:\eMKT\_client\_sample\_programs\cxf\src\main\resources\wsdl\

Currently this document is a zip file titled [*eMarket Web Service Definition Files*](http://www.iso-ne.com/support/user_guides/emkt_xsd_and_wsdl.zip)*.*

Future releases of the MUI may require you to obtain new versions of the WSDL and XSD files and would require the Sample Client Programs to be rebuilt against the modified WSDL/XSD.

1. Obtain and configure Client Certificate and Trusted Server ID.

To use these webservices from The Sample Client Program, you will first need to obtain the following from your designated Security Administrator ( if you do not know who this is, contact ISO-NE Market Support Services ).

1. Client Certificate(s) with Participant Name(s)
2. Webservice Endpoint Address
3. Exporting Client Certificate From Internet Explorer.

Once you have a Client Certificate installed on your browser you will need to do the following to convert that certificate to a form that the Sample Client Programs can access. Other browsers will have similar ways to export your Client Certificate

1. Launch the Explorer,
2. select “Tools->Internet Options" command from the menubar,
3. In the Internet Options window, select the tab “Content”.
4. Press button Certificates.
5. In the Certificates Window, Select tab “Personal”
6. Locate and click to select a certificate Issued by GlobalSign.

If the certificate has been renewed one or more times, select the most recent one.

1. Press button “Export” to open the Certificate Export Wizard.
2. Press button “Next”
3. Select “Yes, export the private key” and Press button “Next”
4. Check - Include all certificates in the certification path if possible
5. Check – Enable strong protection
6. Press Next button.
7. Enter a password for the Client Certificate.
8. Choose the following directory and file name for the export file.

c:\eMKT\_client\_sample\_programs\certificates\ClientCertificate.pfx

1. Obtaining Server ID's Signing Certificate From GeoTrust CA.

The Sample Client Programs must validate the identity of the webserver and need to have access to the root certificate of the Certificate Authority (CA) that signed the webserver's certificate. The Server ID for the webserver was signed by "GeoTrust Global CA" and can be downloaded from the following site.

<https://www.geotrust.com/resources/root-certificates/>

Download Root 2 – GeoTrust Global CA with Serial Number 23456.

To Save the file locally using Internet Explorer . . .

Right click the link>Save Target As>

File name = **c:\eMKT\_client\_sample\_programs\certificates\ca.crt**

Save as type = All Files.

Note: This SID is also distributed with most major internet web browsers, and can be exported from the “Trusted Root Certificate Authority”

1. Configuration Environment Variables

Setting Environment Variables.

As a convenience you may edit the file ( c:\eMKT\_client\_sample\_programs\cxf\env.bat ) to set up the following variables to match your local envirionment. These settings will be used to run keytool, build the client with ant and run the client with java.

JAVA\_HOME – set this environment variable to point at the root directory of the JDK installation.

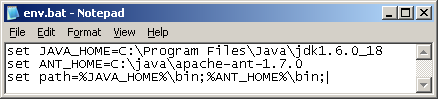
ANT\_HOME – set this environment variable to point at the root directory of the Ant Installation.

PATH – make sure that your PATH includes:

%JAVA\_HOME%\bin;%ANT\_HOME%\bin; (Windows)

$JAVA\_HOME/bin:$ANT\_HOME/bin: (UNIX)

Example: Variables in a Windows bat file to be called before building or running the Sample Client Program.



1. Java Only - Insert Trusted CA Certificate into Keystore
2. Use the JDK keytool to import the certificate into the default JDK Keystore using this command:

keytool -import -alias "GeoTrust Secure Certificate Authority" -file **c:\eMKT\_client\_sample\_programs\certificates\ca.crt** –keystore c:\eMKT\_client\_sample\_programs\certificates\TrustedServer.keystore

The keytool will then prompt you for a keystore passphrase. If you *do not* have an existing keystore, enter the passphrase you want to use to protect it. If you *have* simply to enter the passphrase you chose when you created it.

1. Type "yes" when the keytool displays the certificate information and prompts for your approval.
2. Configuration Files

Edit the following files under (c:\eMKT\_client\_sample\_programs\cxf\) to match your environment:

* MUISample.properties

The following entries must be configured.

|  |  |
| --- | --- |
| Entry | Description |
| client.key.file | This is a Client Certificate file supplied by ISO-NE Market Support Services in conjunction with your designated Security Administrator. It authenticates that you are a specific client.party.  You will need to export this file using a browser so it can be accessible to the Sample Client Program. |
| client.key.pswd | Password you entered when exporting the Client Certificate from the Browser. |
| client.party | You must select a Participant name that is authenticated by the certificate in the client.key.file  One place you could see these participant name is in the  eMarket User Interface Web Application.  Here is a view of the eMarket User Interface web app. In this example you could use client.party=ACME Inc |
| srvr.trust.kstr | This is a keystore that contains trusted Server IDs ( SIDs ). Our Server ID is signed by ‘GeoTrust Global CA’. As long as we include the certificate for ‘GeoTrust Global CA’ in this keystore, our SID will be trusted as well. |
| srvr.trust.pswd | Password for the keystore that holds trusted server ids. |
| endpoint.link | WebService endpoint address.  Obtained from ISO-NE Market Support Services. |

* RunSample.bat

|  |  |
| --- | --- |
| Entry | Description |
| -classpath | Tells what jars are included to run the program.  Include MUISample.jar  Include directory with jar files for CXF. This should be the lib directory under the CXF unzip directory. Be sure to add \\* after this directory to include all jars. |

* build.properties

|  |  |
| --- | --- |
| Entry | Description |
| build.apache.lib | lib directory under ant installation directory.  Example:  build.apache.lib=C:/java/apache-ant-1.7.0/lib |
| build.cxf.lib | Jars needed by CXF.  Example:  c:/java/apache-cxf-2.3.0/lib |

1. Java - Build and Run The Example

|  |  |
| --- | --- |
| Command | Description |
| ant all | Builds jar file. |
| RunSample.bat | Runs Sample. |

Commands to build and run ( Windows Environment )

>cd c:\eMKT\_client\_sample\_programs\cxf

c:\ eMKT\_client\_sample\_programs\cxf>env

c:\ eMKT\_client\_sample\_programs\cxf>ant all

c:\ eMKT\_client\_sample\_programs\cxf>RunSample

C# – Sample Client

This set of code can be built using either NAnt or Visual Studio 2008.

The code relies on generating the EnergyMarketMUIService.cs file by using the svcutil executable (it must be on your PATH system variable).

This codeset is delivered with a version of EnergyMarketMUIService.cs, but it will be re-generated by the build. The WSDL and XSD are expected to be placed in the top level directory.

The program uses a properties file for specifying various values needed at runtime. The MUISample.properties explains what each property is used for.

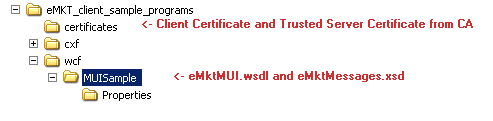
Many steps to setup the Sample Client Program are similar to what is done in Java.

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Here is an overview of changes that will be made to run the Java version of the Sample Client Program.



# Obtain a current version of the Webservice WSDL and XSD

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<http://www.iso-ne.com/support/user_guides/index.html>

Obtain the latest copy of eMktMUI.wsdl and eMktMessages.xsd and place these two files at c:\eMKT\_client\_sample\_programs\wcf\MUISample\

Future releases of the MUI may require you to obtain new versions of the WSDL and XSD files and would require the Sample Client Program to be rebuilt against the modified WSDL/XSD.

1. Obtain and configure Client Certificate and Trusted Server ID.

To use these webservices the Sample Client Program, you will first need to obtain the following from your designated Security Administrator ( if you do not know who that is, contact ISO-NE Market Support Services ).

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If the certificate has been renewed one or more times, select the most recent one.

1. Press button “Export” to open the Certificate Export Wizard.
2. Select “Yes, export the private key” and Press button “Next”
3. Check - Include all certificates in the certification path if possible
4. Check – Enable strong protection
5. Press Next button.
6. Enter a password for the Client Certificate.
7. Choose a location for the export file and note that location.
8. Obtaining Server ID's Signing Certificate From GeoTrust CA.

The Sample Client Programs must validate the identity of the webserver and need to have access to the root certificate of the Certificate Authority (CA) that signed the webserver's certificate. The Server ID for the webserver was signed by "GeoTrust Global CA" and can be downloaded from the following site.

<https://www.geotrust.com/resources/root-certificates/>

Download Root 2 – GeoTrust Global CA with Serial Number 23456.

To Save the file locally using Internet Explorer . . .

Right click the link>Save Target As>

File name = **c:\eMKT\_client\_sample\_programs\certificates\ca.crt**

Save as type = All Files.

Note: This SID is also distributed with most major internet web browsers, and can be exported from the “Trusted Root Certificate Authority”

The C# client will directly use this file.

1. C# - Configuration Environment Variables.

svcutil executable ( must be on your PATH system variable).

1. C# - Configuration File

Edit the following file under (c:\eMKT\_client\_sample\_programs\wcf\MUISample\) to match your environment:

* MUISample.properties

The following entries must be configured.

|  |  |
| --- | --- |
| Entry | Description |
| client.key.file | This is a Client Certificate file supplied by ISO-NE Market Support Services in conjunction with your designated Security Administrator. It authenticates that you are a specific client.party.  You will need to export this file using a browser so it can be accessible to the Sample Client Program. |
| client.key.pswd | Password you entered when exporting the Client Certificate from the Browser. |
| client.party | You must select a Participant name that is authenticated by the certificate in the client.key.file  One place you could see these participant name is in the  eMarket User Interface Web Application.  Here is a view of the eMarket User Interface web app. In this example you could use client.party=ACME Inc |
| srvr.trust.crt | The CA certificate for ‘GeoTrust Global CA’ that we need to trust. |
| endpoint.link | WebService endpoint address.  Obtained from ISO-NE Market Support Services. |

1. Running the Sample Client Program with NAnt.

At this point, you can run the application in VS2008.

The remaining instructions are to run the Sample Client Program in NAnt

Setting up NAnt

* Obtain NAnt version 0.91 from <http://sourceforge.net/projects/nant/files/nant/>

For installation and configuration, please follow the following link:

* <http://nant.sourceforge.net/release/0.91/help/introduction/installation.html>
* Download the latest NAnt binary distribution archive.
* Remove any previous versions of NAnt you may have installed.
* Extract the contents of the archive to the location you wish to install NAnt (eg: C:\Program Files\NAnt in windows)
* Depending on your environment, create a wrapper script to run NAnt as follows:
* Create a file called nant.bat in a directory that is included in the PATH system environment variable. (eg. C:\WINDOWS).
* Add the following to nant.bat:
* @echo off
* "C:\Program Files\NAnt\bin\NAnt.exe" %\*
* Open a new command prompt (shell) and type nant -help. If successful, you should see a usage message displaying available command line options.
* Optional - Download and install NAnt-contrib or other third party extensions to NAnt.
* Again make sure that scvutil is on your path.

Running NAnt

To Run With NAnt type the following at the cmd prompt.

cd c:\eMKT\_client\_sample\_programs\wcf\MUISample

c:\ eMKT\_client\_sample\_programs \wcf\MUISample>nant

Fully Stopping NAnt Launched Sample Client Program

Be aware that if you run using NAnt, then pressing enter or closing the command prompt will not fully exit the client program. You will also need to “End Process” for MUISample.exe in taskmanager.

