

Stonehenge Metro StockTrader Installation Guide

Overview

This document is meant to serve as a guide for installing the Metro implementation of the [Stonehenge StockTrader Sample Application](#).



Note

This guide was written against Windows Server 2008 and there may be platform specific instructions. This guide assumes that you wish to create a single machine running all of the available implementations. If you are well versed in another platform not addressed by this guide, please feel free to provide alternative instructions where appropriate.

Table of Contents

- [Overview](#)
- [Prerequisites](#)
 - [Installing SQL Server Express 2008](#)
 - [Configuring an Existing Microsoft SQL Server Installation](#)
 - [Installing Java EE 5 SDK \(w/JDK and Glassfish\)](#)
 - [Installing Apache Ant](#)
 - [Installing Java Cryptography Extension \(JCE\) Unlimited Strength Jurisdiction Policy Files 6](#)
 - [Installing Jersey 1.1.5](#)
 - [Installing Metro 2.0](#)
 - [Installing a Subversion Client](#)
- [Installing the Apache Stonehenge StockTrader Application](#)
 - [Retrieving Source Code](#)
 - [Installing Final Prerequisites](#)
 - [Preparing the Database](#)
 - [Updating StockTrader Configuration](#)
 - [Configuring Active STS](#)
 - [Add Certificates to Java Key Store](#)
 - [Deploying StockTrader Sample Application](#)

Prerequisites

The following components are required for the Apache Stonehenge Metro StockTrader Sample Application to properly function.

- Ant-Contrib Tasks 1.0b3
- Apache Ant 1.7.1
- Apache Commons Beanutils 1.8.0
- Apache Commons Codec 1.3
- Apache Commons Collections 3.2.1
- Apache Commons Digester 2.0
- Apache Commons EL 1.0
- Apache Commons Logging 1.1.1
- Apache Jakarta Taglibs 1.1.2
- Apache log4j 1.2.15
- Facelets 1.0.14
- GlassFish 2.1
- Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files 6
- Java EE 5 SDK
- JDK 6
- Jersey 1.1.5
- JSF 1.2_03
- jTDS 1.2.2
- Metro 2.0
- Microsoft SQL Server Express 2005 or higher OR MySQL 5.1
- MySQL Connector/J 5.1.7
- RichFaces 3.3.1 GA

Installing SQL Server Express 2008

To install a Microsoft SQL Server Express 2008, follow the instructions in the [Installing Microsoft SQL Server Express 2008](#) document in the [Installing Common Prerequisites](#) section of this wiki.

Configuring an Existing Microsoft SQL Server Installation

To configure the Microsoft SQL Server installation, follow the instructions in the [Configuring Microsoft SQL Server 2008 Express](#) document in the [Installing Common Prerequisites](#) section of this wiki.

Installing Java EE 5 SDK (w/JDK and Glassfish)

To install Java EE 5 SDK (w/JDK and Glassfish)

1. Follow the instructions in the [Installing Java EE 5 SDK](#) document in the [Installing Common Prerequisites](#) section of this wiki.

To create aliases for the Glassfish domain in Windows:

1. Click the **Start** menu, type **notepad %windir%\system32\drivers\etc\hosts**, and then press **Enter**.
2. Add the following line to the bottom of the file:

```
127.0.0.1      apps.stonehenge.dev
```



Note

This domain name will now be resolved to the IP address 127.0.0.1 without an external DNS lookup.

3. Save the file, and then close **Notepad**.

Installing Apache Ant

Apache Ant is a Java based build tool that is relied upon extensively throughout the Metro implementation of the StockTrader sample.

To install Apache Ant:

1. Navigate to the [Apache Ant download page](#).
2. Download the **ZIP** archive listed at the bottom of the page.
3. Extract and copy the contents of the folder contained at the root of the ZIP archive to a path on your computer (e.g., C:\Ant)
4. Configure the following environment variable:

Name	Sample Value
ANT_HOME	C:\Ant



Note

This path will be the same path to which you extracted the zip file.

5. Add the following paths to your PATH environment variable:

Description	Example Path
Ant binaries folder	C:\Ant\bin

Installing Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files 6

To install Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files 6, follow the instructions in the [Installing Java Cryptography Extension \(JCE\) Unlimited Strength Jurisdiction Policy Files 6](#) document in the [Installing Common Prerequisites](#) section of this wiki.

Installing Jersey 1.1.5

Jersey is a JAX-RS reference implementation for building RESTful Web services.

To install Jersey 1.1.5:

1. Download the [Jersey 1.1.5 JAR archive](#).
2. Copy the archive to the **lib** folder of the **Glassfish** installation (e.g., C:\Sun\SDK\lib)

Installing Metro 2.0

Metro is a Java-based Web Services development framework that supports various W3C and WS-I standards for web services. Metro-based services can be deployed to, and hosted in GlassFish, a Java-based application server.

To install Metro 2.0:

1. Download the [Metro 2.0 ZIP archive](#).
2. Extract and copy the contents of the folder contained at the root of the ZIP archive to a path on your computer (e.g., C:\Installations\Metro)
3. At a command prompt, browse to the path to which you extracted the contents of the ZIP archive.
4. At the command prompt, type and execute the following commands:

```
asadmin stop-domain domain1
ant -Das.home=%AS_HOME% -f metro-on-glassfish.xml install
asadmin start-domain domain1
```

Note

This version of Glassfish comes bundled with an earlier version of Metro. This command will stop the Glassfish domain created during setup (if it is already running), and then upgrade the bundled version of Metro.

5. Create a folder named **endorsed** under %JAVA_HOME%\jre\lib.
6. Copy C:\Installations\Metro\lib\webservices-api.jar to %JAVA_HOME%\jre\lib\endorsed

Installing a Subversion Client

To install a Subversion client, follow the instructions in the [Installing a Subversion Client](#) document in the [Installing Common Prerequisites](#) section of this wiki.

Installing the Apache Stonehenge StockTrader Application

Retrieving Source Code

To retrieve the source code, follow the instructions in the [Retrieving the Source Code](#) document in the [Installing Common Prerequisites](#) section of this wiki.

Installing Final Prerequisites

To prepare a directory structure for final prerequisites:

1. Navigate to *stocktrader\metro* under the directory where you checked out the source code.
2. In this folder, create a new folder named **lib**.
3. Under the lib folder, create the folders shown in the table below (the **Final Contents** column can be used to verify that all prerequisites are in their proper locations after you have completed the [#Installing Final Prerequisites](#) section):

Folder Name	Final Contents
ant	ant-contrib-1.0b3.jar
commons	commons-beanutils-1.8.0.jar commons-codec-1.3.jar commons-collections-3.2.1.jar commons-digester-2.0.jar commons-el.jar commons-logging-1.1.1.jar
facelets	jsf-facelets.jar richfaces-api-3.3.1.GA.jar richfaces-impl-3.3.1.GA.jar richfaces-ui-3.3.1.GA.jar
javaee	javaee.jar
jsf	jsf-api.jar jsf-impl.jar jstl.jar
log4j	log4j-1.2.15.jar
metro	webservices-api.jar webservices-extra.jar webservices-extra-api.jar webservices-rt.jar webservices-tools.jar
mssql	jtds-1.2.2.jar
mysql	mysql-connector-java-5.1.7-bin.jar

To provide the required files from Ant Contrib:

1. Download the ZIP archive for [Ant-Contrib 1.0b3](#).
2. Extract **ant-contrib\ant-contrib-1.0b3.jar** from the archive to the **lib\ant** folder you created earlier.

To provide the required files from Apache Commons Beanutils 1.8.0:

1. Download the ZIP archive for [Apache Commons Beanutils 1.8.0](#).
2. Extract **commons-beanutils-1.8.0\commons-beanutils-1.8.0.jar** from the archive to the **lib\commons** folder you created earlier.

To provide the required files from Apache Commons Codec 1.3:

1. Download the ZIP archive for [Apache Commons Codec 1.3](#).
2. Extract **commons-codec-1.3\commons-codec-1.3.jar** from the archive to the **lib\commons** folder you created earlier.

To provide the required files from Apache Commons Collections 3.2.1:

1. Download the ZIP archive for [Apache Commons Collections 3.2.1](#).
2. Extract **commons-collections-3.2.1\commons-collections-3.2.1.jar** from the archive to the **lib\commons** folder you created earlier.

To provide the required files from Apache Commons Digester 2.0:

1. Download the ZIP archive for [Apache Commons Digester 2.0](#).
2. Extract **commons-digester-2.0\commons-digester-2.0.jar** from the archive to the **lib\commons** folder you created earlier.

To provide the required files from Apache Commons EL 1.0:

1. Download the ZIP archive for [Apache Commons EL 1.0](#).
2. Extract **commons-el-1.0\commons-el.jar** from the archive to the **lib\commons** folder you created earlier.

To provide the required files from Apache Commons Logging 1.1.1:

1. Download the ZIP archive for [Apache Commons Logging 1.1.1](#).
2. Extract **commons-logging-1.1.1\commons-logging-1.1.1.jar** from the archive to the **lib\commons** folder you created earlier.

To provide the required files from Facelets 1.0.14:

1. Download the ZIP archive for [Facelets 1.0.14](#).
2. Extract **facelets-1.0.14\jsf-facelets.jar** from the archive to the **lib\facelets** folder you created earlier.

To provide the required files from RichFaces 3.3.1 GA:

1. Download the ZIP archive for [RichFaces 3.3.1 GA](#).
2. Extract the contents of **richfaces-ui-3.3.1GA\lib** from the archive to the **lib\facelets** folder you created earlier.

To provide the required files from Java EE 5 SDK:

1. Copy the file **%AS_HOME%\lib\javaee.jar** to the **lib\javaee** folder you created earlier.

To provide the required files from JSF 1.2_03:

1. Download the ZIP archive for [JSF 1.2_03](#).
2. Extract **jsf-1.2_03-b09-FCS\lib\jsf-api.jar** and **jsf-1.2_03-b09-FCS\lib\jsf-impl.jar** from the archive to the **lib\jsf** folder you created earlier.

To provide the required files from Apache Jakarta Taglibs 1.1.2:

1. Download the ZIP archive for [Apache Jakarta Taglibs 1.1.2](#).



Note

The Jakarta Taglibs sub-project is now known as Apache Taglibs, a part of the Apache Tomcat project.

2. Extract **jakarta-taglibs-standard-1.1.2\lib\jstl.jar** from the archive to the **lib\jsf** folder you created earlier.

To provide the required files from Apache log4j 1.2.15:

1. Download the ZIP archive for [Apache log4j 1.2.15](#).
2. Extract **apache-log4j-1.2.15\log4j-1.2.15.jar** from the archive to the **lib\log4j** folder you created earlier.

To provide the required files from Metro 2.0:

1. Browse to the **lib** folder under the directory you extracted the Metro 2.0 (e.g., C:\Installations\Metro\lib).
2. Copy the following files from that directory to the **lib\metro** directory you created earlier:
 - webservices-api.jar
 - webservices-extra.jar
 - webservices-extra-api.jar
 - webservices-rt.jar

- webservices-tools.jar

To provide the required files from **JTDS 1.2.2**:

1. Download the ZIP archive for [JTDS 1.2.2](#).
2. Extract **jtds-1.2.2.jar** from the archive to the **lib\mssql** directory you created earlier.

To provide the required files from **MySQL Connector/J 5.1.7**:

1. Download the ZIP archive for [MySQL Connector/J 5.1.7](#).
2. Extract **mysql-connector-java-5.1.7\mysql-connector-java-5.1.7-bin.jar** from the archive to the **lib\mysql** directory you created earlier.

Preparing the Database

To initialize the database and create accounts:

1. Follow the instructions in the [Preparing the StockTrader Database](#) document in the [Installing Common Prerequisites](#) section of this wiki.

To update the service endpoints in the database:

1. On the **Start** menu, click **All Programs > Microsoft SQL Server 2008 > SQL Server Management Studio**
2. In the **Connect to Server** dialog, click the **Connect** button.
3. In **Object Explorer**, expand the **Databases > StockTraderDB > Tables** node.
4. In **Object Explorer**, right-click the **dbo.SERVICE** table, and then click **Edit Top 200 Rows**.
5. Update the URLs for the services shown in the table below:

Service Name	URL
METRO_BS	http://apps.stonehenge.dev:8080/business_service/TradeServiceWsas
METRO_OPS	http://apps.stonehenge.dev:8080/order_processor/OrderProcessor
METRO_OPSSEC	http://apps.stonehenge.dev:8080/order_processor/OrderProcessorSec

6. Close the **dbo.SERVICE** table.
7. Close **Microsoft SQL Server Management Studio**.

Updating StockTrader Configuration

To configure the Configuration Service endpoint:

1. In a text editor, open the file **C:\stonehenge\stocktrader\metro\resources\conf\TradeServiceConfig.properties**
2. Change the value of **org.apache.stonehenge.stocktrader.TradeConfigService.url** to the endpoint address of the configuration service that will be used (e.g., http://apps.stonehenge.dev:8080/config_service/ConfigService)



Note

You could use the configuration service from either the Metro or .NET implementation.

3. Save and close the file.

To configure the database location:

1. In a text editor, open the file **C:\stonehenge\stocktrader\metro\resources\conf\db.properties**
2. Modify the values of the properties contained within to be appropriate for your target environment.

Configuring Active STS

To configure the ActiveSTS endpoint:

1. In a text editor, open the file **C:\stonehenge\stocktrader\metro\trader_client\src\wsit-client.xml**.
2. Replace all instances of the text <http://apps.stonehenge.dev:1316> with <http://apps.stonehenge.dev:8080>.
3. Save the file.
4. In a text editor, open the file **C:\stonehenge\stocktrader\metro\etc\active_sts\ActiveSTS.wsdl**.
5. Replace all instances of the text <http://apps.stonehenge.dev:1316> with <http://apps.stonehenge.dev:8080>.
6. Save the file.

Add Certificates to Java Key Store

To add the certificates to the java key store:

1. Download the ZIP archive for the [pkcs12import utility](#).
2. Extract the files from the **pkcs12import\pkcs12import** directory in the archive to the a directory on your hard disk.
3. Open a command prompt at the directory that you extracted the files into.

4. Type and execute the following commands:

```
pkcs12import.bat -file C:\stonehenge\stocktrader\dotnet\setup_utilities\Util\BSLClient.pfx -pass yyy -  
keystore C:\stonehenge\stocktrader\metro\etc\key\stonehenge-truststore.jks -storepass changeit -keypass  
changeit -alias BSL  
pkcs12import.bat -file C:\stonehenge\stocktrader\dotnet\setup_utilities\Util\OPSHost.pfx -pass yyy -  
keystore C:\stonehenge\stocktrader\metro\etc\key\stonehenge-keystore.jks -storepass changeit -keypass  
changeit -alias OPS
```

Deploying StockTrader Sample Application

To deploy the web application on GlassFish:

1. At a command prompt, navigate to **C:\stonehenge\stocktrader\metro**
2. At the command prompt, type and execute the following command:

```
ant deploy
```

3. At the command prompt, type and execute the following command:

```
asadmin start-domain domain1
```