

Caplin Trader 1.3

Installing Permissioning Components

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1 Preface

1.1 What this document contains

This document describes how to install the Permissioning Auth Module and Permissioning DataSource adapter in an existing Caplin Trader installation.

Note: You do not need to install or configure these components if your installation of Caplin Trader is release 1.2.8 or later, as later releases include these permissioning components.

About Caplin document formats

This document is supplied in three formats:

- ◆ Portable document format (*.PDF* file), which you can read on-line using a suitable PDF reader such as Adobe Reader®. This version of the document is formatted as a printable manual; you can print it from the PDF reader.
- ◆ Web pages (*.HTML* files), which you can read on-line using a web browser. To read the web version of the document navigate to the *HTMLDoc_m_n* folder and open the file *index.html*.
- ◆ Microsoft HTML Help (*.CHM* file), which is an HTML format contained in a single file. To read a *.CHM* file just open it – no web browser is needed.

Restrictions on viewing *.CHM* files

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Microsoft Windows security restrictions may prevent you from viewing the content of *.CHM* files that are located on network drives. To fix this either copy the file to a local hard drive on your PC (for example the Desktop), or ask your System Administrator to grant access to the file across the network. For more information see the Microsoft knowledge base article at <http://support.microsoft.com/kb/896054/>.

1.2 Who should read this document

This document is intended for Technical Managers and System Administrators who want to integrate Caplin Trader with a Permissioning System.

1.3 Related documents

- ◆ **Caplin Trader: Architecture**
Describes the architecture of Caplin Trader. It focuses on the use of the Caplin Platform in trading applications. It also identifies the areas in which the Platform can be integrated with your company's own and third-party systems.
- ◆ **Caplin Liberator: Administration Guide**
Describes how to install and configure Caplin Liberator and discusses the authentication modules that are provided with the server.

◆ **Caplin Trader: Permissioning Overview and Concepts**

Introduces permissioning concepts and terms, and shows the permissioning components of the Caplin Trader architecture.

◆ **Caplin Trader: How To Create A Permissioning DataSource**

Describes how to create a Permissioning DataSource adapter using the Permissioning DataSource API. A Permissioning DataSource adapter is required to integrate Caplin Trader with a Permissioning System. The document also discusses the Demo Permissioning DataSource provided with the reference implementation of Caplin Trader from release 1.2.8.

◆ **Caplin Trader Client: How To Add Permissioning At The Client**

Describes how to add Permissioning to Caplin Trader Client.

◆ **Permissioning DataSource: API Reference**

The API reference documentation provided with the Permissioning DataSource SDK (Software Development Kit). The classes and interfaces presented by this API allow you to write a Java application that will integrate a Permissioning System with Caplin Trader.

◆ **Caplin Trader Client: API Reference**

The API reference documentation provided with Caplin Trader Client. The classes and interfaces of the `caplin.security.permissioning` package allow you to write JavaScript classes that extend the live permissioning capabilities of Caplin Trader Client.

◆ **KeyMaster: Administration Guide**

Describes how to configure and operate Caplin KeyMaster to provide a secure and reliable user authentication service.

1.4 Typographical conventions

The following typographical conventions are used to identify particular elements within the text.

Type	Uses
aMethod	Function or method name
<i>aParameter</i>	Parameter or variable name
<i>/AFolder/Afile.txt</i>	File names, folders and directories
<div>Some code;</div>	Program output and code examples
The value=10 attribute is...	Code fragment in line with normal text
Some text in a dialog box	Dialog box output
Something typed in	User input – things you type at the computer keyboard
XYZ Product Overview	Document name
◆	Information bullet point
■	Action bullet point – an action you should perform

Note: Important Notes are enclosed within a box like this.
Please pay particular attention to these points to ensure proper configuration and operation of the solution.

Tip: Useful information is enclosed within a box like this.
Use these points to find out where to get more help on a topic.

1.5 Feedback

Customer feedback can only improve the quality of our product documentation, and we would welcome any comments, criticisms or suggestions you may have regarding this document.

Please email your feedback to documentation@caplin.com.

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2 Installation and Configuration

In order to integrate Caplin Trader with a permissioning system, the Liberator server must be configured to use the services of a Permissioning Auth Module. You must also create and install a Permissioning DataSource adapter, and then configure the adapter to send permissioning data to the correct Liberator address and port number.

From release 1.2.8, the reference implementation of Caplin Trader Client is installed with a Permissioning Auth Module and Demo Permissioning DataSource adapter. This software is configured during the installation process. If you have an earlier release of Caplin Trader Client, then you must manually install and configure these components as described in the following sections.

Note: You do not need to install or configure these components if your installation of Caplin Trader Client is release 1.2.8 or later, as later releases include these permissioning components.

In the instructions that follow, file paths are relative to the directory in which you installed the reference implementation of Caplin Trader. This installation directory contains the following sub-directories.

- ◆ *apps*
- ◆ *doc*
- ◆ *kits*
- ◆ *licenses*
- ◆ *ssl_certs*

2.1 Checking the Liberator License

- Before you install the permissioning software, make sure that you have the correct license for Liberator. Open the file *licenses/license-rtpd.conf* in a text editor and search for the following line of text.

```
module          javaauth auth
```

If this line is missing then you do not have the correct license. Please contact Caplin Support before proceeding with the installation.

2.2 Installing the Permissioning Auth Module

- Locate the zipped Permissioning Auth Module and unzip it to the *apps/caplin/kits* directory. You received this zip file with the permissioning software.

```
cd apps/caplin/kits
unzip permissioning-auth-module.zip
```

When you unzip this file, the directory *apps/caplin/kits/permissioning-auth-module-*<version>** will be created (where *<version>* = version number).

- Now add two symbolic links that link this version of the Permissioning Auth Module to a "latest" version. This will make it easier to apply future upgrades.

First link the installed directory:

```
ln -s permissioning-auth-module-<version> permissioning-auth-module-latest
```

Now link the installed JAR file:

```
ln -s permissioning-auth-module-<version>/
permissioning-auth-module-<version>-jar-with-dependencies.jar
permissioning-auth-module-latest-jar-with-dependencies.jar
```

When you apply an upgrade, simply modify the symbolic links.

2.3 Configuring Liberator to use the Permissioning Auth Module

To configure Liberator to use the Permissioning Auth Module you must edit a number of files.

Enabling the Java Auth Module

- Open the file *apps/caplin/Liberator/etc/rtttd.conf* in a text editor.
Enable Java and instruct Liberator to use the Java Auth Module by adding the following lines.

```
java-file      java.conf
auth-module    javaauth
```

After you have added these lines, save and close the file.

Setting the path to JVM

- Open the file *apps/caplin/Liberator/etc/java.conf* in a text editor.
Add a line of text that sets *jvm-location* to the path of the Java Virtual Machine (JVM™). In the example below, the path to the JVM is

```
/usr/local/java/jre/lib/i386/server/libjvm.so.
```

```
jvm-location      /usr/local/java/jre/lib/i386/server/libjvm.so
```

Change this text to identify the path of your JVM, and then save and close the file.

Loading the Java Classes

- Open the file *apps/caplin/Liberator/etc/java.conf* in a text editor.

You must add some lines of text that will instruct Liberator to load the Java classes for the Permissioning Auth Module. In the example shown below, the path to the JAR file that contains the Permissioning Auth Module uses the symbolic link that we created in [Installing the Permissioning Auth Module](#)⁵.

```
add-javaclass
  class-name  com.caplin.permissioning.auth.PermissioningAuthModule
  class-id    authenticator
  classpath   %r/../kits/permissioning-auth-module-latest-jar-with
              -dependencies.jar
end-javaclass
```

After you have added these lines, save and close the file .

Identifying the Permissioning Auth Module

- Open the file *apps/caplin/Liberator/etc/javaauth.conf* in a text editor and add the following line of text (and optional comment line).

```
# Identifier for the class to load
javaauth-classid  authenticator
```

This will instruct the Java Auth Module to use the classes of the Permissioning Auth Module to authenticate users and user transactions (see [Loading the Java Classes](#)⁶). After you have added this line, save and close the file.

Adding Field Mappings

- Create a symbolic link to the field mappings that are used by the Permissioning Auth Module.

```
ln -s apps/caplin/kits/permissioning-auth-module-latest/
fields-permissioning.conf
apps/caplin/CommonConfig/fields-permissioning-latest.conf
```

- Now open the file *apps/caplin/CommonConfig/fields-caplintrader.conf* in a text editor and add the following line of text. This will configure Liberator with the same field mappings.


```
include-file    fields-permissioning-latest.conf
```

After you have added this line, save and close the file. The Permissioning DataSource that is included with the permissioning software is already configured with the same field mappings.

Configuring Liberator to work with KeyMaster

If you are using KeyMaster with Liberator, then you must make sure that Liberator is correctly configured. To do this you must make sure that:

- the KeyMaster public key is available to Liberator
- the Liberator configuration file (*apps/caplin/Liberator/etc/rtpd.conf*) has been modified for KeyMaster

If Liberator has been correctly configured for KeyMaster, the configuration file *rtpd.conf* will have an entry that looks like the following:

```
add-sigkey
  key-id          Caplin
  timeout         600
  keyfile         %r/etc/publickey.der
end-sigkey
```

For further information about configuring Liberator to work with KeyMaster, please refer to the **KeyMaster: Administration Guide**.

Configuring Liberator to connect to the Permissioning DataSource

- Open the file *apps/caplin/Liberator/etc/rtpd.conf* and add the following lines to add and configure the DataSource peer.

```
# permissioningsrc
add-peer
  remote-id          16
  remote-name        permissioningsrc
  label              permissioningsrc
end-peer
```

- Now add the following lines to add and configure the data service.

```
add-data-service
  service-name      permissioning-data
  include-pattern    ^/PERMISSIONS

  add-source-group
    required
    add-priority
      label    permissioningsrc
    end-priority
  end-source-group
end-data-service
```

See the **Caplin Liberator: Administration Guide** for further information about configuring peers and data services.

2.4 Installing the Permissioning DataSource

- Locate the zipped Permissioning DataSource and unzip it to the *apps/caplin/kits* directory. You received this zip file with the permissioning software.

```
cd apps/caplin/kits
unzip permissioning-datasource.zip
```

When you unzip this file, the directory *apps/caplin/kits/permissioning-datasource-**<version>*** will be created (where **<version>** = version number).

- Add a symbolic link that links this version of the Permissioning DataSource to a "latest" version. This will make it easier to apply future upgrades.

```
ln -s permissioning-datasource-<version> permissioning-datasource-latest
```

When you apply an upgrade, simply modify this symbolic link.

Creating a new directory for the Permissioning DataSource

- Create the directory *apps/caplin/PermissioningDataSource*. Navigate to this directory and then copy and link the following files and directories.

```
cp -R ../kits/permissioning-datasource-latest/conf/ conf
cp ../kits/permissioning-datasource-latest/start.sh start.sh
cp ../kits/permissioning-datasource-latest/stop.sh stop.sh

ln -s ../kits/permissioning-datasource-latest/lib/ lib
ln -s ../kits/permissioning-datasource-latest/permissioning.sh
permissioning.sh
```

The directory *apps/caplin/PermissioningDataSource* will now contain the following sub-directories and files.

- ◆ *conf* (configuration files)
- ◆ *lib* (library files)
- ◆ *logs* (log files will be placed here)
- ◆ *start.sh* (script to start the Demo Permissioning DataSource adapter)
- ◆ *stop.sh* (script to stop the Demo Permissioning DataSource adapter)
- ◆ *permissioning.sh* (a non Caplin Trader specific script to start the Demo Permissioning DataSource)

2.5 Configuring the Permissioning DataSource

To configure the Permissioning DataSource you must edit a number of files.

Modifying the application name and id to match the Liberator configuration

- Open the file *apps/caplin/kits/PermissioningDataSource/conf/DataSource.xml* in a text editor.
Find the first line of the XML file. The line contains the `appName` and `id` attributes and will look something like the following.

```
<dataSource xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
              appName="permissionsrc" id="1">
```

- Modify `appName` and `id` to match the `remote-name` and `remote-id` that you set up in [Configuring Liberator to connect to the Permissioning DataSource](#).
After making these changes the line will look something like the following.

```
<dataSource xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
              appName="permissioningsrc" id="16">
```

After you have made these changes, save and close the file.

Setting the Liberator connection address and port number

- Open the file *apps/caplin/kits/PermissioningDataSource/conf/DataSource.xml* in a text editor.
Search for the `<peer>` tag. The text that you find will look something like the following.

```
<peer>
  <destination address="liberator.example.com" port="44310" />
</peer>
```

- Change `destination address` to the hostname (or IP address) of Liberator, and `port` to the port number that Liberator listens on for peer connections (see the **Caplin Liberator: Administration Guide** for further information about obtaining and setting these values).
A typical entry after making these changes will look something like the following.

```
<peer>  
  <destination address="myliberator.mydomain.com" port="50100" />  
</peer>
```

After you have made these changes, save and close the file.

Modifying the scripts that start and stop Caplin Platform components

You can add text to the scripts that start and stop the components of the Caplin Platform, so that the Demo Permissioning DataSource starts or stops when the other components start or stop (see **Caplin Trader: How To Create A Permissioning DataSource** for further information about the Demo Permissioning DataSource).

- To modify the start script, open the file *apps/caplin/start-all-components.sh* in a text editor and add the following lines at the end of the file.

```
if [ -d PermissioningDataSource ]; then  
  cd PermissioningDataSource  
  echo "Starting PermissioningDataSource: "  
  ./start.sh  
  cd ..  
fi
```

- To modify the stop script, open the file *apps/caplin/stop-all-components.sh* in a text editor and add the following lines at the end of the file.

```
if [ -d PermissioningDataSource  
  -a -f PermissioningDataSource/permissioning-datasource.pid ]; then  
  cd PermissioningDataSource  
  echo "Shutting down PermissioningDataSource: "  
  ./stop.sh  
  cd ..  
fi
```

After you have made these changes, save and close the files.

2.6 Verifying the Installation

- When you have installed and configured the permissioning software, start the Demo Permissioning DataSource (see **Caplin Trader: How To Create A Permissioning DataSource**) and Liberator server.
- Now open your browser and navigate to the Liberator status page at
`http://<liberator.host>:<liberator.http.port>/status`
where `<liberator.host>` is the hostname and `<liberator.http.port>` the Liberator port number that you specified when you installed Caplin Trader.

A typical address would be:

`http://linux1.domain1.com:50180/status`

- When the Liberator login page is displayed, log in to Liberator with the following credentials:

Username: admin

Password: admin

The Liberator status page will be displayed.

- In the Data Services part of this page, look for a service with the name `permissioning-data`. If the Status of this service is OK, then the software has been successfully installed and configured.

```
Name: permissioning-data
Status: OK
Last Change: Jun 05 23:02:29
```

Extract from the Liberator status page

If you are unable to confirm that the software was successfully installed and configured, then the troubleshooting guide below will help you to resolve the problem.

Troubleshooting guide

Symptom	Issue	Action
The Liberator status page is unavailable.	Liberator has not started.	Check the Liberator console output for the reason.
The Liberator status page loads, but the following message is displayed: Sorry. You do not have the authorization to view live data from this source. Please contact the web site host if you have received this message in error.	Permissioning data did not reach the Liberator server.	<p>Check the process id to see that the Permissioning DataSource is still running.</p> <p>The process id for the Permissioning DataSource can be found in the file: <i>permissioning-datasource.pid</i> in the <i>apps/caplin/PermissioningDatasource</i> directory.</p> <p>Check <i>logs/stdout.log</i> and <i>logs/permissioningsrc.log</i>.</p> <p>If the logs are OK and the Permissioning DataSource is running, then there is a connection issue with Liberator. Check the packet logs on both sides of the connection. The section "Monitoring Performance" in the Caplin Liberator: Administration Guide describes how to check packet logs.</p>

3 Further Reading

If you would like an introduction to permissioning concepts and terms, or would like to know how to create a custom Permissioning DataSource adapter or how to add permissioning to Caplin Trader Client, then the following documents provide this information. You may also be interested in reading some of the other [Related documents](#).

An introduction to permissioning concepts and terms

The document **Caplin Trader: Permissioning Overview and Concepts** introduces permissioning concepts and terms, and shows the permissioning components of the Caplin Trader architecture.

How to create a Permissioning DataSource adapter

A Permissioning DataSource adapter is required to integrate Caplin Trader with a Permissioning System. The document **Caplin Trader: How To Create A Permissioning DataSource** describes how to create a custom Permissioning DataSource adapter by writing an application that uses the Permissioning DataSource API. The document also discusses the Demo Permissioning DataSource that is provided with the reference implementation of Caplin Trader from release 1.2.8.

How to add Permissioning at the Client

The appearance and behaviour of Caplin Trader Client can be tailored to match the permissions of the currently logged in user. You will find further information about how to do this in the document **Caplin Trader Client: How to Add Permissioning At The Client**.

4 Glossary of terms and acronyms

This section contains a glossary of terms, abbreviations, and acronyms used in this document.

Term	Definition
API	<u>A</u> pplication <u>P</u> rogramming <u>I</u> nterface
Caplin Platform	A suite of software products for on-line financial trading and Web delivery of real-time market data.
Caplin Trader	Caplin Trader is a complete platform and toolkit for building multi-product trading portals. It is built on the Caplin Platform .
Caplin Trader Client	Caplin Trader Client is a Web application written in Ajax that provides a rich trading workstation in a browser.
DataSource	DataSources are software adapters within the Caplin Platform that connect the Platform to external sources of real time data and external Permissioning Systems . In other Caplin documents DataSources are also called DataSource adapters.
Demo Permissioning DataSource	The Demo Permissioning DataSource is an example of a Permissioning DataSource application that gets its permissioning data from an XML file.
KeyMaster	Caplin KeyMaster integrates the Caplin Platform with any existing authentication system, so that end users or web applications do not need to explicitly log in to Liberator in addition to their normal login procedure.
Liberator	Caplin Liberator is a bidirectional streaming push server designed to deliver market data and trade messages over any network that supports Web traffic.
Permissioning Auth Module	One of several authentication modules that are supplied with Caplin Trader .
Permissioning DataSource	A DataSource adapter that acts as the interface between Caplin Trader and your Permissioning System .
Permissioning System	The source of the permissioning data that you want to integrate with Caplin Trader .
SDK	<u>S</u> oftware <u>D</u> evelopment <u>K</u> it
User	An end user of Caplin Trader Client .

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