

iWay

Omni-Patient™ Management Central Installation and Configuration Guide

Version 2.3.x

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Preface

This documentation provides the installation and configuration instructions for installing new releases of Omni-Patient™ Management Central (OPMC). In this release, OPMC includes the Omni-Patient 360 Viewer application. This manual is intended for Omni-Patient administrators and data stewards.

How This Manual Is Organized

This manual includes the following chapters:

	Chapter/Appendix	Contents
1	Overview: Omni-Patient Management Central	Provides an overview for Omni-Patient™ Management Central (OPMC).
2	Prerequisites for Omni-Patient Management Central	Describes prerequisites for Omni-Patient Management Central (OPMC), specifically Omni-Patient 360 Viewer.
3	Installing Omni-Patient Management Central on Windows Platforms	Provides installation and configuration instructions on Windows platforms for Omni-Patient Management Central (OPMC).
4	Deploying the Remediation Server	Describes how to deploy the Remediation Server.
5	Installing Omni-Patient Management Central on Linux Platforms	Provides installation and configuration instructions on Linux platforms for Omni-Patient Management Central (OPMC), specifically Omni-Patient 360 Viewer.
6	Configuring Users and Roles	Describes how to configure users and roles for Omni-Patient Management Central (OPMC).
7	Configuring User Authentication	Describes how to configure user authentication for Omni-Patient Management Central (OPMC).

	Chapter/Appendix	Contents
8	Installing the Data Dictionary	Describes how to install the Data Dictionary.
A	Upgrading to a New Release Checklist	Provides a summarized list of steps to be followed when implementing a new OPMC release on a new host.

Documentation Conventions

The following table lists and describes the documentation conventions that are used in this manual.

Convention	Description
THIS TYPEFACE or this typeface	Denotes syntax that you must type exactly as shown.
<i>this typeface</i>	Represents a placeholder (or variable), a cross-reference, or an important term. It may also indicate a button, menu item, or dialog box option that you can click or select.
<u>underscore</u>	Indicates a default setting.
Key + Key	Indicates keys that you must press simultaneously.
{ }	Indicates two or three choices. Type one of them, not the braces.
	Separates mutually exclusive choices in syntax. Type one of them, not the symbol.
...	Indicates that you can enter a parameter multiple times. Type only the parameter, not the ellipsis (...).
.	Indicates that there are (or could be) intervening or additional commands.

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Help Us to Serve You Better

To help our consultants answer your questions effectively, be prepared to provide specifications and sample files and to answer questions about errors and problems.

The following table lists the environment information that our consultants require.

Platform	
Operating System	
OS Version	
JVM Vendor	

JVM Version	
--------------------	--

The following table lists the deployment information that our consultants require.

Adapter Deployment	
Container	
Version	
Enterprise Information System (EIS) - if any	
EIS Release Level	
EIS Service Pack	
EIS Platform	

The following table lists iWay-related information needed by our consultants.

iWay Adapter	
iWay Release Level	
iWay Patch	

The following table lists additional questions to help us serve you better.

Request/Question	Error/Problem Details or Information
Did the problem arise through a service or event?	
Provide usage scenarios or summarize the application that produces the problem.	
When did the problem start?	

Request/Question	Error/Problem Details or Information
Can you reproduce this problem consistently?	
Describe the problem.	
Describe the steps to reproduce the problem.	
Specify the error messages.	
Any change in the application environment: software configuration, EIS/database configuration, application, and so forth?	
Under what circumstance does the problem <i>not</i> occur?	

The following is a list of error and problem files that might be applicable.

- Input documents (XML instance, XML schema, non-XML documents)
- Transformation files
- Error screen shots
- Error output files
- Trace files
- Service Manager package to reproduce problem
- Custom functions and agents in use
- Diagnostic Zip
- Transaction log

For information on tracing, see the *iWay Service Manager User's Guide*.

User Feedback

In an effort to produce effective documentation, the Technical Content Management staff welcomes your opinions regarding this document. Please use the Reader Comments form at the end of this document to communicate your feedback to us or to suggest changes that will support improvements to our documentation. You can also contact us through our website, <http://documentation.informationbuilders.com/connections.asp>.

Thank you, in advance, for your comments.

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1 Overview: Omni-Patient Management Central

This section provides an overview for Omni-Patient Management Central (OPMC).

Topics:

- Overview

Overview

Omni-Patient™ Management Central (OPMC) is a browser-based application that provides a central interface for managing specialized data management and data viewing applications for Omni-Patient™.

OPMC provides three data management web applications and an administrative metadata management console that is used to define data views presented throughout OPMC applications. It is a browser-based web application, which is deployed and run in an Apache Tomcat application server.

OPMC provides an integrated platform for the:

- ❑ **Omni-Patient 360 Viewer**, which provides a 360 degree view of the records in an Omni-Patient database.
- ❑ **Omni Data Dictionary**, an application that provides a dictionary of code sets, code set mappings, and also provides search and view capability for database objects (including Omni-Patient database objects and Reporting Data Mart views).
- ❑ **Omni-Patient Remediation** is an application that provides a Remediation server for the remediation of records in an Omni-Patient database.

2 | Prerequisites for Omni-Patient Management Central

This chapter provides prerequisite information for Omni-Patient™ Management Central (OPMC).

Topics:

- ❑ Prerequisites
- ❑ Infrastructure Requirements for the Installation Environment

Prerequisites

Before installing Omni-Patient Management Central (OPMC), ensure that the client system contains the following prerequisites:

Windows Deployment

- ❑ Microsoft Windows Version 7 (64-bit)
- ❑ 4 GB RAM
- ❑ 2 Processor Cores
- ❑ SQL Server 2012
- ❑ SQL Server Management Studio
- ❑ Java SDK Version 1.7
- ❑ Apache Tomcat Version 7.0
- ❑ Microsoft Internet Explorer Version 9 or 10

Linux Deployment

- ❑ Linux Version xxxxx
- ❑ 2 GB RAM
- ❑ 2 Processor Cores
- ❑ PostgreSQL (Postgres) Version xxxxx
- ❑ The pgAdmin GUI administration tool for PostgreSQL or phpPgAdmin, a web-based administration tool for PostgreSQL.
- ❑ Java SDK Version 1.7
- ❑ Apache Tomcat Version 7.0
- ❑ Microsoft Internet Explorer Version 9 or 10

Infrastructure Requirements for the Installation Environment

How to:

Download Apache Tomcat

Install the Windows Service Distribution of Apache Tomcat

Install Apache Tomcat on a Different Port

Install the Non-Windows Service Distribution of Apache Tomcat

Before installing Omni-Patient Management Central (OPMC), you must verify that Apache Tomcat Version 7.xx is available on the system where OPMC will be installed.

Use one of the following options to verify the availability of Apache Tomcat Version 7.xx on your system:

- ❑ Right-click *Command Prompt* and select *Run as Administrator*.

When the Command Prompt opens, enter the following command:

```
netstat -a -b
```

- ❑ Open the Windows Control Panel and select *Programs and Features*. Browse through the list of installed programs to determine if Apache Tomcat is installed.
- ❑ Perform a general search across your file system(s) for Apache Tomcat.

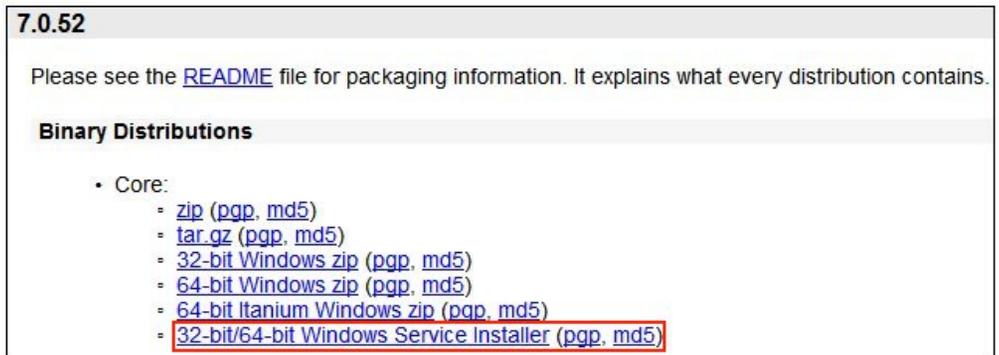
If not, then install Apache Tomcat Version 7.0 as a service on the OPMC host system.

Procedure: How to Download Apache Tomcat

1. Enter the following URL in your web browser (Microsoft Internet Explorer):

```
http://tomcat.apache.org/download-70.cgi
```

The Apache Tomcat 7 Downloads page opens, as shown in the following image.



2. Download the *32-bit/64-bit Windows Service Installer* distribution.

Note: The recommended download is the 32-bit/64-bit Windows Service Installer distribution because the additional setup and configuration tasks are automatically performed during the installation of Apache Tomcat. The Apache Tomcat Host Manager and Web Application Manager are also included with the installation.

Procedure: How to Install the Windows Service Distribution of Apache Tomcat

The following procedure can be used for the Windows service installation distribution of Apache Tomcat.

1. Install Apache Tomcat Version 7.xx on the appropriate server.

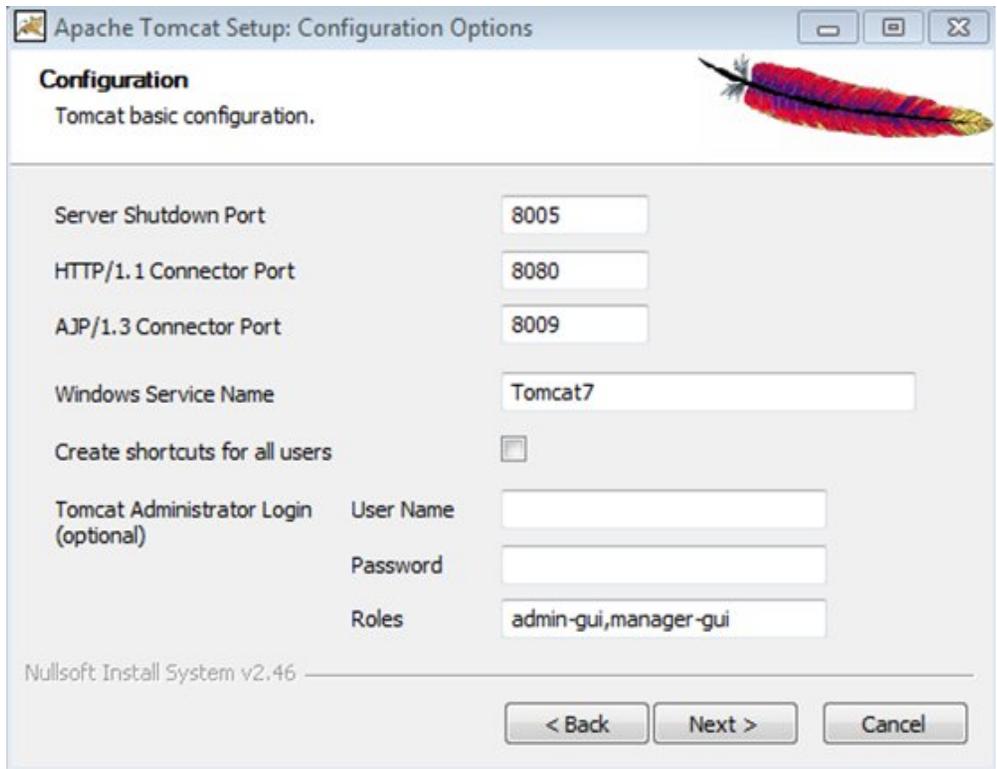
By default, the Apache Tomcat installation installs the following Apache Tomcat home directory:

```
C:\Program Files\Apache Software Foundation\Tomcat 7.0
```

This location is defined as, and referred to as <CATALINA_HOME>, and also in this documentation, as [Tomcat_Home].

2. During the Apache Tomcat installation, choose the components to install.

3. Specify the site-specific properties in the Configuration pane, as shown in the following image.



Apache Tomcat Setup: Configuration Options

Configuration
Tomcat basic configuration.

Server Shutdown Port: 8005

HTTP/1.1 Connector Port: 8080

AJP/1.3 Connector Port: 8009

Windows Service Name: Tomcat7

Create shortcuts for all users:

Tomcat Administrator Login (optional)

User Name:

Password:

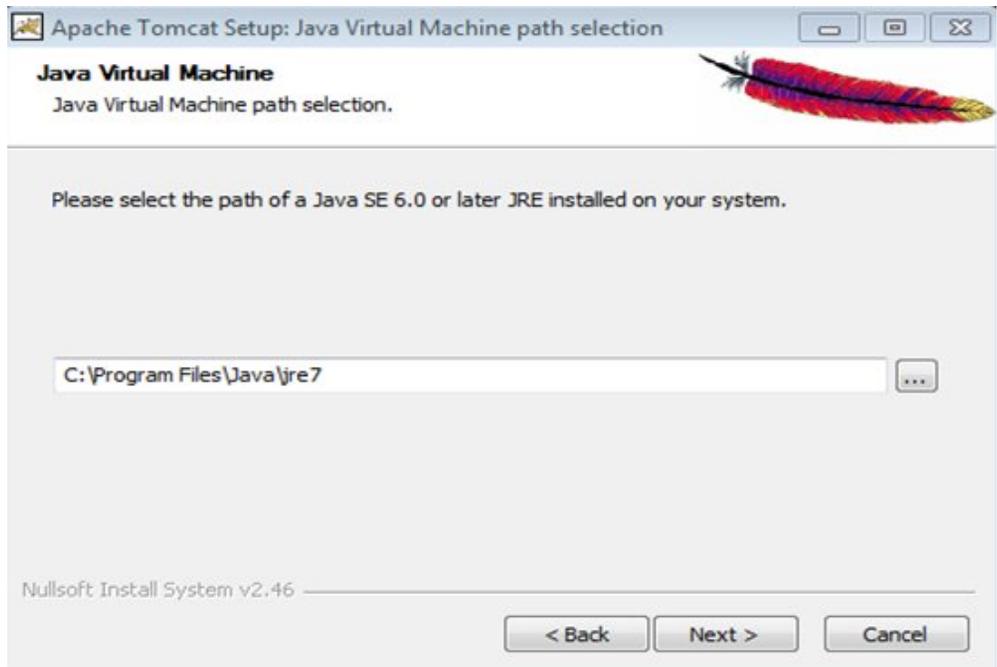
Roles: admin-gui,manager-gui

Nullsoft Install System v2.46

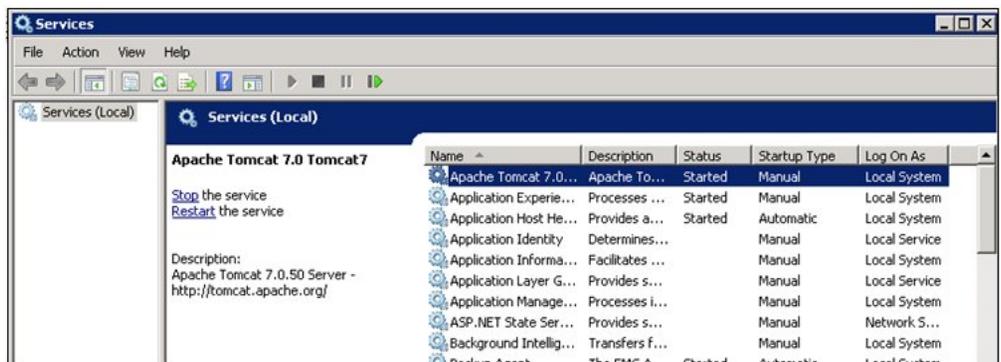
< Back Next > Cancel

4. Click Next.

5. Specify the path to Java Version 1.7 on your system in the Java Virtual Machine pane, as shown in the following image.



6. Click Next and complete the remaining steps in the Apache Tomcat installation.
7. Open the Services utility on Windows through the Control Panel and start the Windows service for Apache Tomcat, as shown in the following image.



8. Perform the following steps to verify that Apache Tomcat was installed correctly and starts successfully.
 - a. Enter the following URL in your web browser (Microsoft Internet Explorer):


```
http://localhost:8080
```
 - b. On the Apache Tomcat startup page, confirm that the following message is displayed:

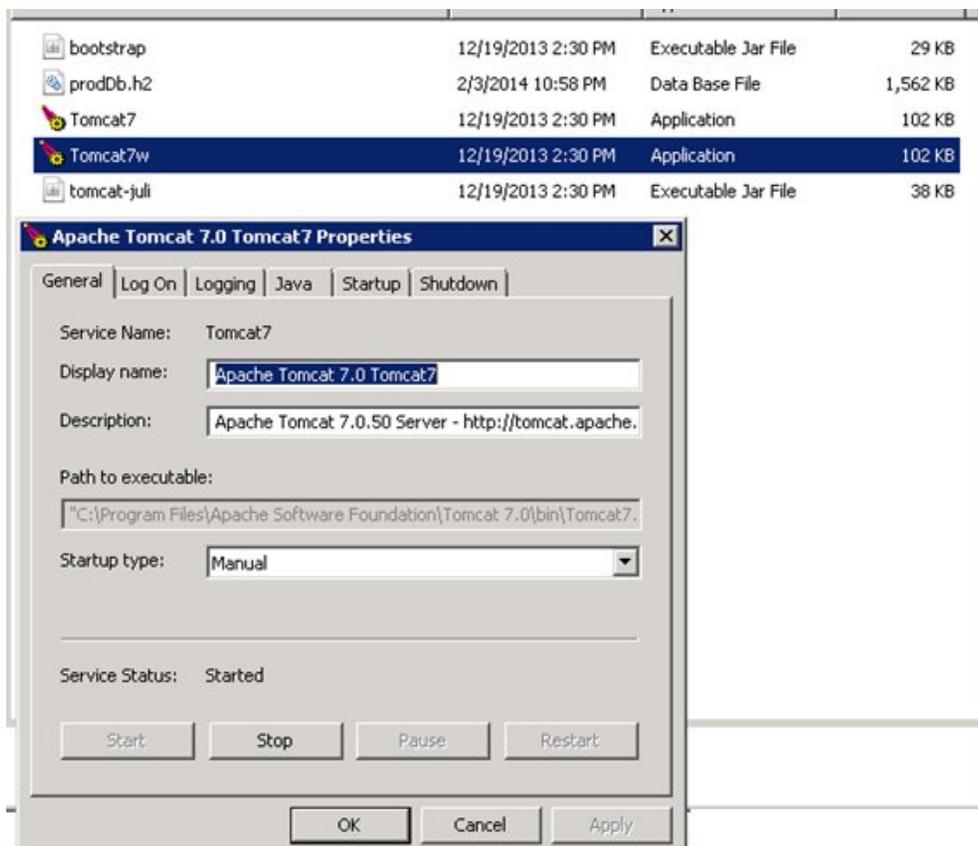

```
If you're seeing this, you've successfully installed Tomcat.
          Congratulations!
```

For example:

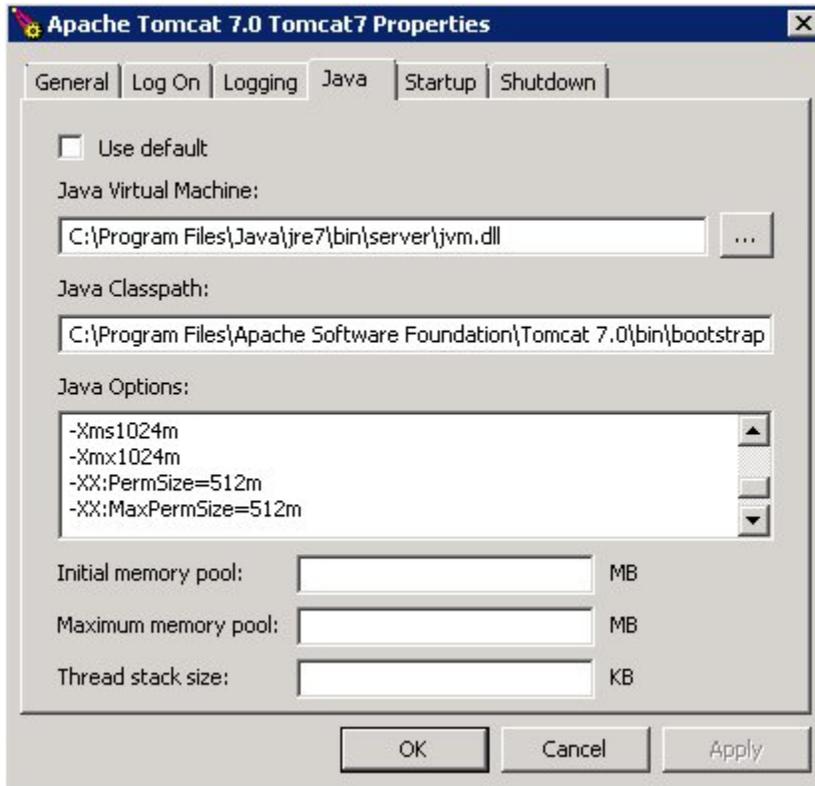
The screenshot shows the Apache Tomcat 7.0.50 startup page. At the top, there is a navigation bar with links: Home, Documentation, Configuration, Examples, Wiki, Mailing Lists, and Find Help. Below the navigation bar, the page title is "Apache Tomcat/7.0.50" and the Apache Software Foundation logo is visible. A large green banner contains the message: "If you're seeing this, you've successfully installed Tomcat. Congratulations!". Below the banner, there is a "Recommended Reading" section with links to "Security Considerations HOW-TO", "Manager Application HOW-TO", and "Clustering/Session Replication HOW-TO". To the right of these links are three buttons: "Server Status", "Manager App", and "Host Manager". Below this is a "Developer Quick Start" section with links for "Tomcat Setup", "Realms & AAA", "Examples", and "Servlet Specifications". The page is divided into three main content boxes: "Managing Tomcat", "Documentation", and "Getting Help".

9. Return to the Services utility on Windows through the Control Panel and stop the Windows service for Apache Tomcat.
10. Navigate to the `[tomcat_home]\bin` directory and run the `Tomcat7w` application to update Apache Tomcat properties.

The Apache Tomcat 7.0 Tomcat 7 Properties dialog box opens, as shown in the following image.



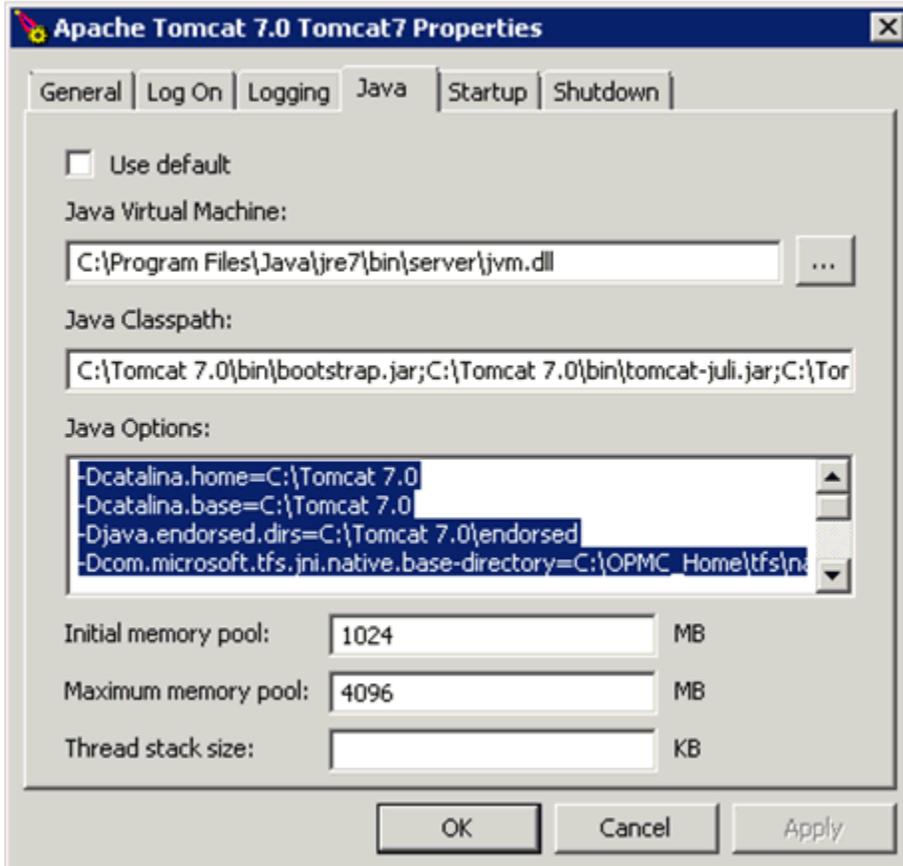
- 11.** Click the Java tab to update the Java settings used by Apache Tomcat.



- 12.** Add the following Java settings in the Java Options area:

```
-Dcatalina.home=C:\Tomcat 7.0
-Dcatalina.base=C:\Tomcat 7.0
-Djava.endorsed.dirs=C:\Tomcat 7.0\endorsed
-Dcom.microsoft.tfs.jni.native.base-directory=C:\OPMC_Home\tfs\native
-Djava.io.tmpdir=C:\Tomcat 7.0\temp
-Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager
-Djava.util.logging.config.file=C:\Tomcat 7.0\conf\logging.properties
-XX:PermSize=1024m
-XX:MaxPermSize=2048m
```

For example:



- 13.** Click *OK*.
- 14.** Return to the Services utility on Windows through the Control Panel and restart the Windows service for Apache Tomcat.
- 15.** Verify that Apache Tomcat starts successfully by entering the following URL in your web browser (Microsoft Internet Explorer):
<http://localhost:8080>
- 16.** Stop the Windows service for Apache Tomcat.

Procedure: How to Install Apache Tomcat on a Different Port

If you need to run the Omni-Patient Management Central (OPMC) application in Apache Tomcat on a port other than 8080 (for example, to avoid conflicts with another HTTP listener, application, or server), perform the following steps:

1. Ensure that the new port number you want to specify for the HTTP listener used by Apache Tomcat is not currently in use.

You can enter the following command to check for ports that are currently in use:

```
netstat -a
```

2. Stop Apache Tomcat.
3. Edit the server.xml file, which is located in the following directory:

```
<Catalina_Home>\conf
```

4. Change the value of *xx* to the desired port number (for example, 8082).
5. Using WinZip, open the OmniDomain.war file.
6. Go to WEB-INF \classes, edit the domains.xml file, and look for the section that begins with <Connector name="">.
7. Edit the two URLs, as shown in the following sample:

```
<connector name="OmniService">
  <type>ODATA</type>
  <odata_url>http://localhost:8082/OmniService/OmniPatient/</odata_url>
  <about_url>http://localhost:8082/OmniService/about.jsp</about_url>
  <queryString>$format=xml</queryString>
</connector>
```

8. Ensure the port number you choose is not currently in use.

Procedure: How to Install the Non-Windows Service Distribution of Apache Tomcat

The following procedure can be used for the non-Windows service installation distribution of Apache Tomcat.

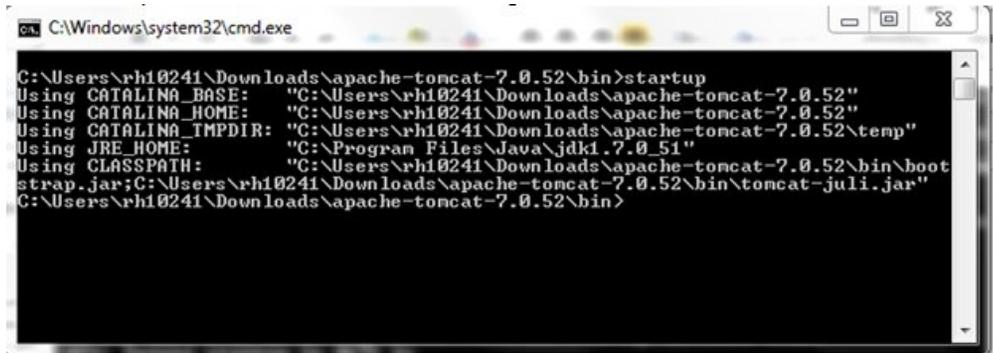
1. Unzip the Apache Tomcat distribution to an appropriate drive on your file system (for example, C:\).

Apache Tomcat will be installed into the following directory:

```
C:\apache-tomcat-7.0.xx
```

The Apache Tomcat home directory, also referred to as *[CATALINA_HOME]*, will point to this directory.

2. Navigate to `[CATALINA_HOME]\bin` and open a Command Prompt window.
3. Enter `startup` in the first line to start Apache Tomcat, as shown in the following image.



```
C:\Windows\system32\cmd.exe
C:\Users\rh10241\Downloads\apache-tomcat-7.0.52\bin>startup
Using CATALINA_BASE:   "C:\Users\rh10241\Downloads\apache-tomcat-7.0.52"
Using CATALINA_HOME:   "C:\Users\rh10241\Downloads\apache-tomcat-7.0.52"
Using CATALINA_TMPDIR: "C:\Users\rh10241\Downloads\apache-tomcat-7.0.52\temp"
Using JRE_HOME:        "C:\Program Files\Java\jdk1.7.0_51"
Using CLASSPATH:       "C:\Users\rh10241\Downloads\apache-tomcat-7.0.52\bin\bootstrap.jar;C:\Users\rh10241\Downloads\apache-tomcat-7.0.52\bin\tomcat-juli.jar"
C:\Users\rh10241\Downloads\apache-tomcat-7.0.52\bin>
```

4. Perform the following steps to verify that Apache Tomcat was installed correctly and starts successfully.
 - a. Enter the following URL in your web browser (Microsoft Internet Explorer):

<http://localhost:8080>

- b. On the Apache Tomcat startup page, confirm that the following message is displayed:

If you're seeing this, you've successfully installed Tomcat.
Congratulations!

For example:

5. Return to the Command Prompt window that was used to start Apache Tomcat (step 3) and enter `shutdown`.
6. Navigate to `[CATALINA_HOME]\bin` and edit the `catalina.bat` file using a text editor.
7. Add the following line, which allocates additional JVM memory:


```
set CATALINA_OPTS=-XX:MaxPermSize=256M
```
8. Save the `catalina.bat` file.

3 | Installing Omni-Patient Management Central on Windows Platforms

This section describes how to perform a new installation of Omni-Patient Management Central (OPMC) on Windows platforms. It also describes how to upgrade an existing version of OPMC when required. These instructions also include any configuration operations that are required.

Topics:

- ❑ Overview
- ❑ Installing and Configuring the WS02 Identity Server
- ❑ Installing a New Version of Omni-Patient Management Central
- ❑ Uploading Metadata
- ❑ Upgrading an Existing Version of Omni-Patient Management Central

Overview

How to:

Install Omni-Patient Management Central on Windows / Apache Tomcat

Omni-Patient Management Central (OPMC) is distributed as a .zip archive (for example, OPMC_2.3.3.2.zip). The release .zip file contains:

- ❑ Web Archive Files:
 - ❑ omni360.war
The web archive for the user interface (UI).
 - ❑ OmniDomain.war
RESTful Domain layer services.
 - ❑ OmniService.war
RESTful JPA services.
 - ❑ RemediationService.war
The Remediation Server, which includes an embedded iWay Service Manager (iSM) server.
 - ❑ OmniDictInstall.war
A web application for loading database objects on a Windows/SQL Server instance.
- ❑ OmniDictInstall_lx.war
A web application for loading database objects on a Linux/Postgres instance.
- ❑ MData.xml
Pre-defined screen layout definition metadata (templates). The templates are defined in the MData.xml file, which is located in:

`omni360.war\WEB-INF\classes`

Unless a file named prodDB.h2.db is already present in the `[catalina_home]` directory, it will be created as follows.

After starting Apache Tomcat with the OPMC war set deployed, when the first user with a System_Administrator role logs in, that user will be prompted to upload metadata. For more information, see [Uploading Metadata](#) on page 40.

In subsequent Apache Tomcat startups, if the prodDB.h2.db file already exists in the `[catalina_home]\bin` directory, the defaults in the existing or new MData.xml file are not accessed or loaded. Rather the definitions in the prodDB.h2.db file are used.

❑ **OmniDictImport.zip**

This archive contains the following dictionary builder components for the Data Dictionary application:

❑ **OmniDictDeployAndOperate.pdf**

Instructions on installing the Data Dictionary application.

- ❑ Other Omni Data Dictionary loading artifacts and the OMNI_HOME/ directory folders with scripts and other documents that can be used to load customer-specific, custom RDM Database Objects into the Data Dictionary.

Procedure: How to Install Omni-Patient Management Central on Windows / Apache Tomcat

Note that this configuration of Omni-Patient Management Central (OPMC) through version 2.3.3.2 requires that the five OPMC .war file all be deployed on the same Windows system and same Tomcat\webapps folder. Many installation and configuration references specify *localhost* as part of a URL or property description. Use *localhost* not the host name, unless otherwise instructed to explicitly use the host name *opmc_hostname*.

The OMNI and OPMC databases, as well as Omni-Patient Server, can exist on the same system or separate systems.

- 1.** Extract the *opmc_version.zip* file (for example, *opmc_2.3.3.2.zip*) to the root location on your drive.

The following root directory is created:

```
drive:\OPMC_2.3.x
```

- 2.** Perform the steps in [Installing and Configuring the WS02 Identity Server](#) on page 30 to install and configure the WS02 Identity Server (WS02 IS).
- 3.** Perform the steps in [How to Configure Apache Tomcat/OPMC to Access the WS02 Identity Server](#) on page 34 to connect Apache Tomcat and its OPMC web applications to the WS02 Identity Server.
- 4.** Perform the steps in [Installing a New Version of Omni-Patient Management Central](#) on page 35 to install and configure Omni-Patient Management Central (OPMC).

Installing and Configuring the WS02 Identity Server

How to:

Install a New WS02 Identity Server

Build and Install a WS02 Keystore and a Java Security Certificate

Configure Apache Tomcat/OPMC to Access the WS02 Identity Server

This section describes how to install and configure the WS02 Identity Server.

Procedure: How to Install a New WS02 Identity Server

A preconfigured, pre-upgraded version 4.6 of the WS02 Identity Server (WS02 IS) is supplied in the OPMC delivery archive. This upgraded version contains patches to allow proper LDAP authentication, and uppercase/lowercase user name submission.

1. Use WinZip to extract the `c:\opmc_2.3.x\wso2.zip` file into the root directory on the selected root drive.

The following root directory is created:

```
drive:\wso2_is
```

2. Open a command line window, and enter the following command:

```
cd \wso2_is\bin
```

3. Type `wso2isServer` and press Enter.

The server will come up while logging progress on this WS02 Identity Server console. When completed, you should see the following message:

```
xacml policy schema loaded successfully
```

4. You should stop this WS02 Identity Server running in the command window using CTRL+C.

Procedure: How to Build and Install a WS02 Keystore and a Java Security Certificate

Creating the certificate involves three steps:

1. Creating a new Certificate for WS02 Identity Server (WS02 IS).
2. Validating the new Certificate.
3. Configuring the RemediationService Client Machine.

Step 1: Creating a New Certificate for WS02 IS

The first procedure is to create a new certificate for the WSO2 IS with the `opmc_hostname` in it (not necessarily the same as the `wso2_hostname`). Perform the following steps:

1. In the following directory, rename the `wso2carbon.jks` file to `wso2carbon.original.jks`:

```
drive:\wso2_is\repository\resources\security
```

If the new keystore build fails, then you can always return to the original version.

2. Open a command prompt window (or unix shell).
3. Type the following command:

```
cd \wso2_is\repository\resources\security
```

4. Run the `keytool` command, which may be on your PATH. This command is normally in the `Java/jdk/bin` folder.

Only if the `Java/jdk/bin` folder is not in your path, then type:

```
path=%java_home%\bin;%path%
```

5. Enter the following command in the command prompt window:

```
keytool -genkey -keyalg RSA -alias wso2carbon -keystore wso2carbon.jks  
-storepass wso2carbon -validity 720 -keysize 2048
```

You will now be prompted for several pieces of information that you need to provide:

```
What is your first and last name?
```

```
[Unknown]: Your server name, e.g. myhost.abc.co
```

```
What is the name of your organizational unit?
```

```
[Unknown]: MHS
```

```
What is the name of your organization?
```

```
[Unknown]: MHS
```

```
What is the name of your City or Locality?
```

```
[Unknown]: Kansas City
```

```
What is the name of your State or Province?
```

```
[Unknown]: New York
```

```
What is the two-letter country code for this unit?
```

```
[Unknown]: US
```

```
Is CN=myhost.abc.com, OU=MHS, O=MHS, L=Kansas City, ST=New York, C=US  
correct?
```

```
[no]: yes
```

The first and last name prompt is where you type the host name of the server where WSO2 IS is running (so, do not always use the above values). All of the other parameters can have any values that you prefer.

6. When you confirm the settings by answering yes to the last question, you will be prompted for the key password:

```
Enter key password for <wso2carbon>
(RETURN if same as keystore password): wso2carbonRe-enter new password:
wso2carbon
```

Enter the values shown in **bold**. These values will not echo back to the screen.

7. You now have a new file called *wso2carbon.jks*.
8. From the same command prompt, export your public certificate from the keystore and import it into the trust store. Type:

```
keytool -export -alias wso2carbon -keystore wso2carbon.jks -storepass
wso2carbon -file wso2carbon.pem
```

Then type:

```
keytool -import -alias wso2carbon -file wso2carbon.pem -keystore
client-truststore.jks -storepass wso2carbon
```

9. (Optional) In case you receive an error that a certificate with such an alias name already exists, just delete it from the keystore by typing the following command:

```
keytool -delete -noprompt -alias wso2carbon -keystore
client-truststore.jks -storepass wso2carbon
```

Note: The name of the keystore and storepass could vary.

Import the Certificate Into the Host of the Apache Tomcat JVM

10. In the command prompt change directory to the keystore folder of the JDK:

```
..\Java\jdk1.7.0_45\jre\lib\security
```

11. Import the public key generated above (*wso2carbon.pem*) in step 5, to the JDK keystore (cacerts):

- a. Copy the generated file (*wso2carbon.pem*) from the
 \wso2_is\repository\resources\security folder to the current folder
 ...\Java\jdk1.7.0_45\jre\lib\security

- b. From the same command prompt, type:

```
keytool -import -alias wso2carbon -file wso2carbon.pem -keystore
cacerts -storepass changeit
```

12. Restart WSO2 IS.

In the command prompt window, type:

```
Cd \wso2_is\bin
```

Then type:

`wso2server`

Step 2: Validating the New Certificate

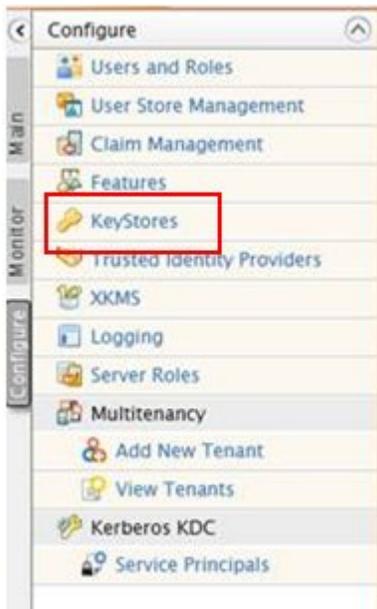
Perform the following steps when the WSO2 IS has started:

1. Open a browser and start the WSO2 Admin Console.

Use the full server name (not localhost), and log on. For example:

<https://myserver.abc.com:9443/carbon>

2. Go to Configure and select *KeyStores*, as shown in the following image.



Only one keystore should be listed (`wso2carbon.jks`), as shown in the following image.

Name	Type	Actions
wso2carbon.jks	JKS	Import Cert View Delete

3. Click on the *View* action. If you performed all of the steps correctly, then you should see the certificate you just created, as shown in the following image.

Certificate of the Private Key

Alias	IssuerDN	NotAfter	NotBefore	SerialNumber	SubjectDN	Version
wso2carbon	CN=ni-43ps4r1.emea.ibi.com, OU=Information Builders, O=Information Builders, L=New York, ST=New York, C=US	04/05/2015	09/05/2014	1399619018	CN=ni-43ps4r1.emea.ibi.com, OU=Information Builders, O=Information Builders, L=New York, ST=New York, C=US	3

Import Cert Finish

If this information appears correct, then you have finished configuring the WS02 Identity Server (WS02 IS).

Step 3: Configuring the RemediationService Client Machine

The server running the RemediationService must have the client certificate for accessing the WS02 Identity Server (WS02 IS) over the SSL protocol. Java handles the connection but, by default, assumes it already has the client certificate. If it does not, then it will fail to connect.

- 1.** Attached in the release distribution .zip is a .zip file containing two Java classes. Unzip this .zip file into c:\installCerts on the machine that must connect to WS02 IS.
- 2.** Open a command prompt and navigate to this folder (c:\installCerts).
- 3.** Enter the following command:

```
Java InstallCert <hostname>:<port>
```

where:

```
<hostname>:<port>
```

Correspond to the WS02 IS.

In our example above, this would be as follows:

```
java InstallCert rhwapp371a:9443
```

The certificate is retrieved and you are asked if you want to add it.

- 4.** Press Enter (and ignore the Java exception, which is normal).
The utility has created a file called *jssecacerts* for you, which now contains the certificate.
- 5.** Copy this file to the *security* folder in your Java runtime (usually *java/jre/lib/security*).
- 6.** Restart iSM (or Apache Tomcat).

Procedure: How to Configure Apache Tomcat/OPMC to Access the WS02 Identity Server

To enable OPMC web applications that are deployed to Apache Tomcat to connect to the WS02 Identity Server, you must update the JNDI properties in the *<Tomcat_Home>\conf\context.xml* file.

- 1.** Use a text editor to modify the *<Tomcat_Home>\conf\context.xml* file to point to the new WS02 Identity Server.

2. Copy and paste the following XML fragment inside the <Context> element:

```
<Environment override="true" type="java.lang.String"
value="https://195.160.232.136" name="is.wso2.url"/>
<Environment override="true" type="java.lang.String" value="admin"
name="is.wso2.username"/>
<Environment override="true" type="java.lang.String" value="admin"
name="is.wso2.password"/>
```

In this example, you must substitute the host name or IP address of your WSO2 server for 195.160.232.136. During initial setup, it is recommended to leave the password set to *admin*.

3. Save your changes to the <Tomcat_Home>\conf\context.xml file.

Installing a New Version of Omni-Patient Management Central

How to:

Install a New Version of Omni-Patient Management Central
Configure iSM Embedded in the Remediation Server

This section describes how to install a new version of Omni-Patient Management Central (OPMC).

Procedure: How to Install a New Version of Omni-Patient Management Central

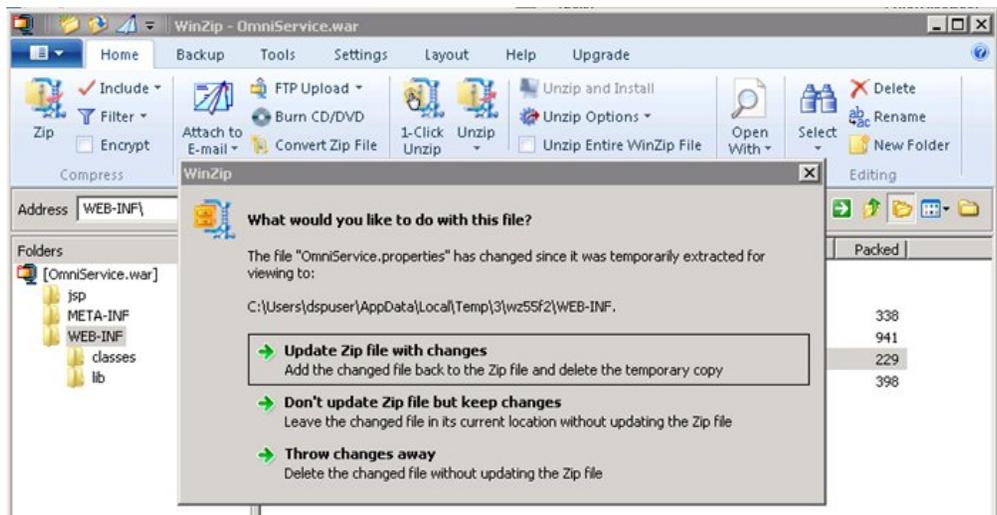
1. Copy the four .war files (omni360.war, OmniDomain.war, OmniService.war, and RemediationService.war) from *drive:\OPMC_2.3.x* to *[catalina_home]\webapps*.
2. Use WinZip or WinRar to open the OmniService.war file, which has been copied to *[catalina_home]\webapps*.
3. In the OmniService.war file, edit the OmniService.properties file (located in WEB INF\ using a text editor.
4. Specify the JDBC driver, location, and access properties that are specific to each: the Omni-Patient database, the OmniWorkflow database, and the Omni (Data) Dictionary database.

Modify the jdbc.url, jdbc.username, and jdbc.password properties, as shown in the following example.

```
#- Omni
#workflow.jdbc.driverClassName=net.sourceforge.jtds.jdbc.Driver
#workflow.jdbc.url=jdbc:jtds:sqlserver:etc
#workflow.jdbc.username=sa
#workflow.jdbc.password=testpwd
#workflow.jdbc.tableCreation=none
```

5. Save the changes to the OmniService.properties file and close the text editor.

WinZip displays the following prompt:



6. Select *Update Zip file with changes*.
7. Create the following folder at the root of your drive:
`C:\OPMC_Home\Workflow`
8. Copy the omni_home folder (and all of its subfolders and files in those folders) into the following folder:
`C:\OPMC_Home\Workflow`
9. Open the RemediationService.properties file with a text editor (for example, Notepad, WordPad, and so on). The RemediationService.properties file is located in the following folder:

```
C:\OPMC_Home\Workflow\omni_home\properties\
```

- 10.** Configure the Remediation Service.properties file as described in [Deploying the Remediation Server](#) on page 45.
- 11.** Edit the <Catalina_Home>\conf\context.xml as described in [Deploying the Remediation Server](#) on page 45.
- 12.** Start the Apache Tomcat service from the Windows Service window.
- 13.** Configure the iSM embedded in the Remediation Server.

Procedure: How to Configure iSM Embedded in the Remediation Server

Previously, the RemediationService.war file was copied into the Tomcat 7.0.x\webapps folder from which it could be, and now has been, deployed. The RemediationService.war file contains an embedded iWay Service Manager (iSM) instance, which serves as the Remediation Server. iSM requires a user name and password that is valid for Windows OS level access to the Windows OS, which is hosting the OPMC Remediation Server. A pre-configured user name and password is shipped in iSM, within the RemediationService.war file. Until that user name and password is changed to a valid user name and password on the Windows machine, the Remediation Server will generate an error when invoked due to denied access to an invalid user name and password.

To modify the embedded iSM Data Provider user name, password, and URL of the Remediation Server:

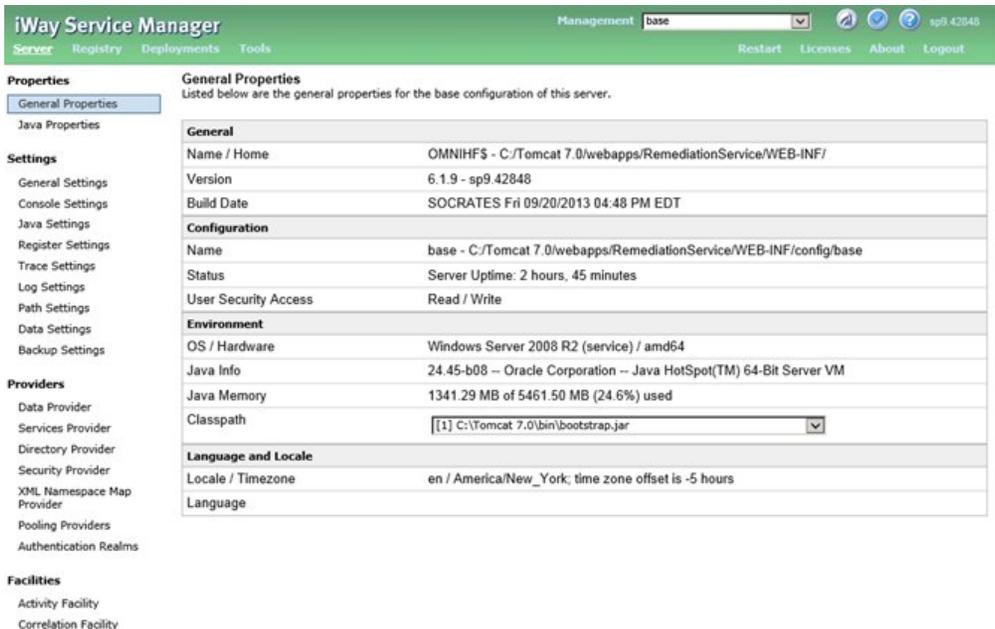
- 1.** Enter the following URL in your web browser:

[http://\[opmc_hostname\]:8080/RemediationService](http://[opmc_hostname]:8080/RemediationService)

An iSM console logon dialog displays and prompts you for the iSM user name and password, as shown in the following image.



2. Type *iway* for the user name, *iway* for the password, and then click *OK*.
The iSM Administration Console opens, as shown in the following image.

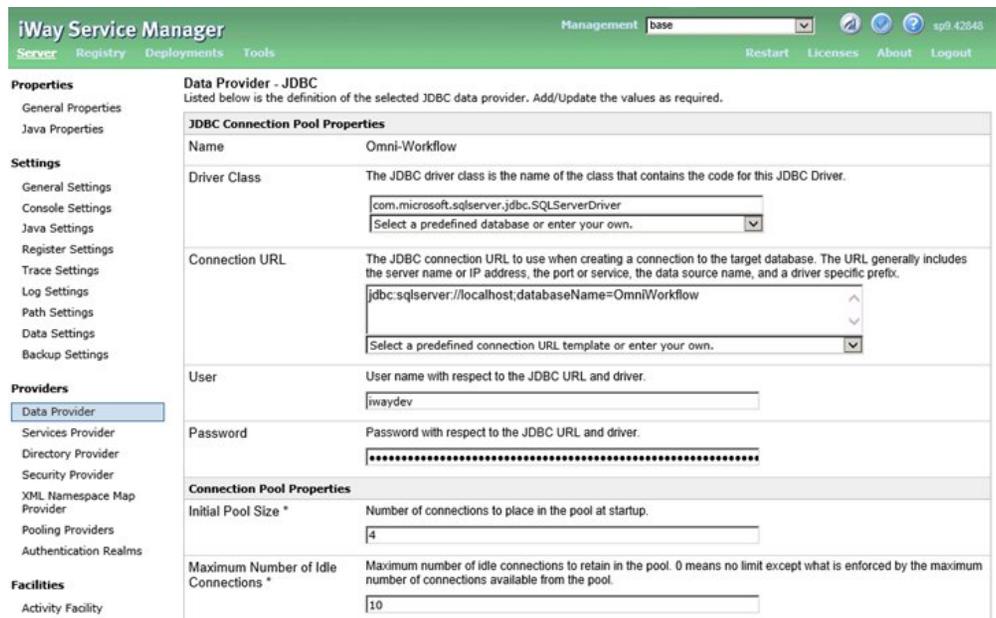


- In the Providers category on the left pane, click *Data Provider*.

The Data Provider pane opens.

- In the JDBC Connections table, which lists the available JDBC Data Providers that have been configured, click *Omni-Workflow*.

The Data Providers - JDBC pane opens for the selected provider (Omni-Workflow), as shown in the following image.



- Enter the valid values for the User, Password, and Connection URL parameters, where User is the user name, Password is the password, and Connection URL is the URL that specifies the name (and sometimes instance name) of the workflow database for the Remediation Server, typically named OmniWorkflow.
- Examine the Driver Class parameter value, and ensure that it is set to:
`com.microsoft.sqlserver.jdbc.SQLServerDriver`
- Scroll down to the bottom of the pane where the Update and Test buttons are located.
- Click *Test*.

This will test the JDBC connection you specified for the User, Password, and Connection URL parameters that you specified. If these parameter values are valid, then a *success* message is displayed in red text, as shown in the following image.

Data Provider - JDBC
Listed below is the definition of the selected JDBC data provider. Add/Update the values as required.

PROBLEM	
success	success
JDBC Connection Pool Properties	
Name	Omni-Workflow
Driver Class	The JDBC driver class is the name of the class that contains the code for this JDBC Driver. <input type="text" value="com.microsoft.sqlserver.jdbc.SQLServerDriver"/> <input type="button" value="Select a predefined database or enter your own."/>
Connection URL	The JDBC connection URL to use when creating a connection to the target database. The URL generally includes the server name or IP address, the port or service, the data source name, and a driver specific prefix. <input type="text" value="jdbc:sqlserver://rhwdb368d\prd_sql_bi_5;databaseName=OmniWorkflow"/> <input type="button" value="Select a predefined connection URL template or enter your own."/>
User	User name with respect to the JDBC URL and driver. <input type="text" value="iwayadmin"/>
Password	Password with respect to the JDBC URL and driver. <input type="password" value="....."/>

Note that when database names also include instance names (schemas), then the JDBC Connection URL string has the following syntax:

```
jdbc:sqlserver://rhwdb368d\prd_sql_bi_5;databaseName=OmniWorkflow
```

The following is another JDBC driver sample (relationships):

```
driverClassName="com.microsoft.sqlserver.jdbc.SQLServerDriver"  
url="jdbc:sqlserver://rhwdb368d\prd_sql_bi_5;databaseName=OmniWorkflow  
"maxActive="10" maxIdle="10" initialSize="75"/>
```

Uploading Metadata

How to:

- Update the Metadata
- Upload New Metadata During an Omni-Patient Management Central Upgrade

After the initial startup of OPMC and its web applications, a user with the System_Administrator role (Administrator) must log on to the OPMC Administration Console and upload the metadata templates which define the OPMC web application screens.

Procedure: How to Update the Metadata

1. Enter the following URL in your web browser:

`http://hostname:8080/omni360`

2. Log on as *Administrator*, with password *Admin123*, as specified during the installation and configuration of the WS02 Identity Server.

Since no database of screen templates currently exists, the initial Administrator logon will prompt for the metadata to upload.

You are prompted to upload metadata and a Browse option is displayed.

3. Click *Browse*, navigate to *drive:\OPMC_V1252_mm_dd*, and select the *MData.xml* file.
4. Leave the Verify check box selected.
5. Click *Upload Metadata*.

This procedure may take several minutes, and will create the following file for runtime definition of the pre-configured screen templates:

`[Catalina_Home]\ prodDB.h2.db`

Procedure: How to Upload New Metadata During an Omni-Patient Management Central Upgrade

Perform the following steps only when instructed to in a new release.

1. Select the *Administration* choice in the top menu pane.
2. Click *Upload Metadata* at the bottom of any screen.
3. You will be prompted to Upload metadata with a Browse control.
4. Click *Browse* and navigate to *drive:\OPMC_V1252_mm_dd\MData.xml*.
5. Leave the Verify check box selected.
6. Click *Upload*.

Upgrading an Existing Version of Omni-Patient Management Central**How to:**

Upgrade an Existing Version of Omni-Patient Management Central

If you are upgrading an earlier version of Omni-Patient Management Central (OPMC), unless specified in the release notes, the Screen display templates described in *MData.xml* and in the `[Tomcat_Home]\prodDB.H2.db` do not need to be changed.

Procedure: How to Upgrade an Existing Version of Omni-Patient Management Central

1. Backup and then remove the omni360, OmniDomain, OmniService, RemediationService folders, and the same .war files from the following directory if they exist:

[Tomcat_Home]\webapps

2. Repeat steps 2 through 7 in [Overview](#) on page 28.
3. Start Apache Tomcat.

The following property files should be checked whenever the upgrade includes a new .war file, as shown below.

OmniWorkflow References

File Name	Folder
Context.xml	Tomcat 7.0\conf
OmniService .xml	Tomcat 7.0\Webapps
iSM Data Providers	(iSM configuration above)

Context.xml

```
<!-- Workflow JNDI DATA SOURCE TOMCAT -->
  <Resource name="jdbc/Omni-WorkflowTomcat" auth="Container"
    type="javax.sql.DataSource" username="iwayadmin"
    password="cr#ev0Uy"

    driverClassName="com.microsoft.sqlserver.jdbc.SQLServerDriver"
    url="jdbc:sqlserver://rhwdb368d\prd_sql_bi_5;databaseName=OmniWorkflow"

    maxActive="10" maxIdle="10" initialSize="75"/>
<!-- END add for OPMC -->
```

Sample OmniService.properties

```
#- Workflow
workflow.jdbc.driverClassName=net.sourceforge.jtds.jdbc.Driver
workflow.jdbc.url=jdbc:jtds:sqlserver://rhwdb368D/OmniWorkflow;
instance=PRD_SQL_BI_5
omni.jdbc.username=iwayadmin
omni.jdbc.password=cr#ev0Uy
omni.jdbc.tableCreation=none
```

iSM Data Provider

Connection String:

```
jdbc:sqlserver://rhwdb368d\prd_sql_bi_5;databaseName=OmniWorkflow
```

```
Found in base.xml
```

```
Tomcat 7.0/WebApps/RemediationService/WEB-INF/Config/Base
```


4 | Deploying the Remediation Server

This section describes the installation, configuration, and deployment of the Remediation Server (RemediationService.war) in Apache Tomcat.

Topics:

- ❑ Defining JNDI Properties
- ❑ Sample Remediation.properties File
- ❑ Externalize Data Source
- ❑ TFS Native Libraries in Apache Tomcat

Defining JNDI Properties

How to:

Define JNDI Properties

This section describes how to define JNDI properties in Apache Tomcat for Windows platforms.

Procedure: How to Define JNDI Properties

1. Edit the context.xml file, which is located in the <TOMCAT_HOME>/conf directory, and add the following XML:

```
<Environment override="true" type="java.lang.String"
value="C:/OPMC_HOME/" name="Omni.Home" />
```

In the *value=* section, specify the location of the OPMC_HOME folder, including drive name. It is strongly recommended that you use C:/OPMC_HOME.

2. If this is a new installation of Omni-Patient Management Central (OPMC), then extract the opmc_home_mm_dd.zip file into the root of your OPMC drive (for example, into C:\).

This will create a folder named OPMC_HOME with a tree of sub-folders and files.

Skip to Step 5.

3. If this is an update of an existing OPMC instance, then create the following folder:

```
C:\opmc_home_mm_dd
```

where:

```
mm_dd
```

Is the month and date of the OPMC release.

4. Use WinZip or WinRar to extract the opmc_home_mm_dd.zip file into the folder created in step 3 (C:\opmc_home_mm_dd).
5. Edit the remediation.properties file.
 - a. If this is a new installation, then navigate to the *drive:\OPMC_HOME\Workflow\omni_home\properties* folder and open the remediation.properties with a text editor.

- b.** If this is an update to an existing OPMC/OPMC_HOME instance, then compare the new remediation.properties file in the C:\omni_home_mm_dd\OPMC_HOME\Workflow\omni_home\properties folder with the existing remediation.properties file in the C:\OPMC_HOME\Workflow\omni_home\properties folder.

Note: New OPMC releases will contain a list of any changes (additions) that you must make to your existing remediation.properties file, and/or any new files or folders that must be copied from omni_home_mm_dd.

- c.** Edit the proper values for your system.

Normally, you will leave most properties as they are set in the released file. However, closely examine and provide your site-specific values for certain properties, especially:

- ❑ Line 4, the port value.

This is the port number on your system where the Remediation Server listens for input data and instructions from the Omni-Patient system.

- ❑ Line 23, the SMTP URL.

This is the URL for the SMTP system that the Remediation Server will use to send notification e-mails as specified.

- ❑ Line 38+, WSO2 Identity Server information.

This is the URL user name and password for the WSO2 Identity Server (WSO2 IS), which interfaces with your Active Directory through LDAP, and provides user authentication and role-based user authorizations for OPMC.

- ❑ Line 54+, TFS Access information.

The URL and other values that must be defined to provide (optional) connection to your Team Foundation Server.

Notice that there are two general .scxml files in the OPMC_HOME tree. The general_tsf.scxml is for HFHS.

Sample Remediation.properties File

This section provides a sample Remediation.properties file for reference purposes.

```
# Remediation Service Properties, Version 1.0, March 18, 2014 - current
May 20, 1921
# The Remediation Service Http Listener port number
http.port=9280
# test UI document root. Users are recommended to update with their test
scenarios.
http.docroot=C:/OPMC_Home/Workflow/omni_home/ui
# system used sql queries. Do NOT change.
workflow.sql=C:/OPMC_Home/Workflow/omni_home/sql/
# the domain translator http url. Change to the one you want to invoke.
flow.domain.url=http://localhost:8080/OmniDomain/v2/workflow.svc/translate/domain
# the default case owner.
workflow.case.owner=colin@ibi.com
# the dictionary file location
workflow.route.file=C://OPMC_Home/Workflow/omni_home/dictionary/MyOmniWorkflow.xml
# the scxml file location.
#
flow.scxml.cleansingurl=file:///C:/Remediation/config/scxml/cleansing.scxml
# flow.scxml.matchingurl=file:///C:/Remediation/config/scxml/matching.scxml
# flow.scxml.generalurl=file:///C:/Remediation/config/scxml/general.scxml
workflow.cleansing=cleansing.scxml
workflow.matching=matching.scxml
workflow.general=general.scxml
# the email smtp server url
flow.smtp.url=ibismtp.ibi.com
# email sender
flow.email.sender=no_reply@ibi.com
# GlassFish jndi values (context is empty)
# workflow.db.jndi=jdbc/Omni-WorkflowGlassFish
# workflow.db.context=
# Tomcat jndi values (context is empty)
# workflow.db.jndi=java:comp/env/jdbc/Omni-WorkflowTomcat
# workflow.db.context=com.ibi.jndi.XDInitialContextFactory
# iSM jndi values--- The Tomcat data source is not work, so use ISM data
provider until the issue resolved.
workflow.db.jndi=jdbc/Omni-Workflow
workflow.db.context=com.ibi.jndi.XDInitialContextFactory
# workflow file path
workflow.path=C:/OPMC_Home/Workflow/omni_home/
# wso2 connection
wso2.user.url=https://omnihf.ibi.com:9443/wso2/scim/Users
wso2.groups.url=https://omnihf.ibi.com:9443/wso2/scim/Groups
wso2.user=admin
wso2.password=admin
```

```
# integration layer http url call
action.ActionSubmitMatching.url=http://localhost:6199/remediation/MatchOverride
action.ActionSubmitMatching.method=POST
action.ActionSubmitCleansing.url=http://localhost:6199/remediation/PropertyOverride
action.ActionSubmitCleansing.method=POST
# FindGroupSupervisor properties
action.FindGroupSupervisor.groupname=Supervisor
action.FindGroupSupervisor.groupprefix=group.
#
# Send to TFS properties
action.SendToTFS.url=http://omniretail:8080/tfs/OmniTest
action.SendToTFS.username=administrator
action.SendToTFS.password=iway45!
action.SendToTFS.project=TestTeamProject
action.SendToTFS.template=C:/OPMC_Home/Workflow/omni_home/templates/TFS_description.txt
# removed 05-20
C:/Remediation/config/workflows/templates/TFS_description.txt
action.SendToTFS.type=Task
```

Externalize Data Source

To define your data source in Apache Tomcat, you must add the following to the context.xml file:

```
<Resource name="jdbc/Omni-WorkflowTomcat" auth="Container"
type="javax.sql.DataSource" username="sa" password="password"
driverClassName="com.microsoft.sqlserver.jdbc.SQLServerDriver"
url="jdbc:sqlserver://localhost:1443;databaseName=OmniWorkflow"
maxActive="10" maxIdle="10" initialSize="75"/>
```

Note: You must supply your own parameters for the actual database location, credentials, and so on.

Note: Omni-Patient Management Central (OPMC) is currently not supported with the GlassFish application server.

TFS Native Libraries in Apache Tomcat

Perform the following steps to modify the Apache Tomcat JAVA OPTIONS to add the TFS native libraries to the JVM.

1. Open the Tomcat7w program in the following directory:

```
<Tomcat7.0>\bin
```

2. Select the *Java* tab.

- 3.** At the bottom of the options window, enter the following:

```
-Dcom.microsoft.tfs.jni.native.base-directory=C:\get real info  
development\TFS\native"
```

5 Installing Omni-Patient Management Central on Linux Platforms

This section provides installation and configuration instructions on Linux platforms for Omni-Patient Management Central (OPMC), specifically Omni-Patient 360 Viewer.

Topics:

- ❑ Deploying Omni-Patient Management Central
- ❑ Undeploying Omni-Patient Management Central
- ❑ Redeploying Omni-Patient Management Central

Deploying Omni-Patient Management Central

How to:

Deploy a New Version of Omni-Patient Management Central

Omni-Patient Management Central (OPMC) is packaged with the following web archive files:

- ❑ omni360.war
- ❑ OmniDomain.war
- ❑ OmniService.war
- ❑ RemediationService.war
- ❑ OmniDictInstall.war

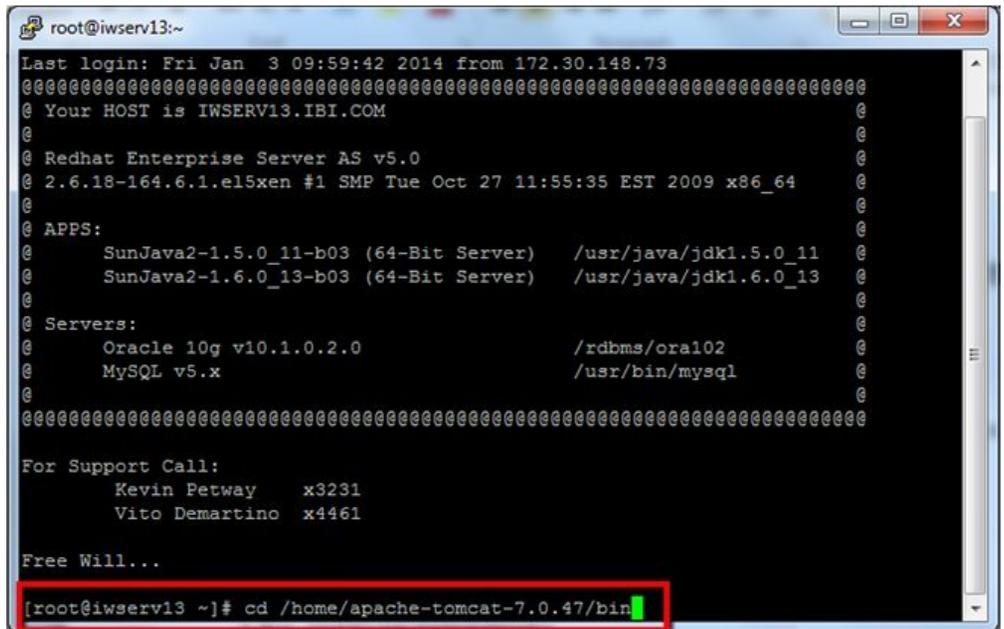
A copy of this *Omni-Patient Management Central Installation and Configuration Guide* is included. In addition, a backup copy of the default database is also included, which holds templates of the Omni-Patient 360 Viewer screen definition metadata.

Procedure: How to Deploy a New Version of Omni-Patient Management Central

1. Using a terminal emulator (for example, Putty), connect to the Linux system where OPMC will be deployed.
2. Navigate to the /bin directory where Apache Tomcat is installed. For example:

```
/home/apache-tomcat-7.0.47/bin
```

The following image shows a terminal emulator window that is connected to a Linux system and where the `cd` command is being used to navigate to the `/bin` directory where Apache Tomcat is installed.

A terminal emulator window titled 'root@iwserv13:~' showing system information. The output includes the last login time, host name (IWSERV13.IBI.COM), Redhat Enterprise Server AS v5.0 details, installed Java applications (SunJava2-1.5.0_11-b03 and SunJava2-1.6.0_13-b03), and installed servers (Oracle 10g v10.1.0.2.0 and MySQL v5.x). At the bottom, support contact information is listed. The current prompt is '[root@iwserv13 ~]# cd /home/apache-tomcat-7.0.47/bin' with a green cursor at the end of the command.

```
root@iwserv13:~  
Last login: Fri Jan 3 09:59:42 2014 from 172.30.148.73  
#####  
@ Your HOST is IWSERV13.IBI.COM  
@  
@ Redhat Enterprise Server AS v5.0  
@ 2.6.18-164.6.1.el5xen #1 SMP Tue Oct 27 11:55:35 EST 2009 x86_64  
@  
@ APPS:  
@   SunJava2-1.5.0_11-b03 (64-Bit Server)   /usr/java/jdk1.5.0_11  
@   SunJava2-1.6.0_13-b03 (64-Bit Server)   /usr/java/jdk1.6.0_13  
@  
@ Servers:  
@   Oracle 10g v10.1.0.2.0                 /rdbsms/ora102  
@   MySQL v5.x                             /usr/bin/mysql  
@  
#####  
For Support Call:  
   Kevin Petway      x3231  
   Vito Demartino    x4461  
  
Free Will...  
[root@iwserv13 ~]# cd /home/apache-tomcat-7.0.47/bin
```

3. Run `./startup.sh` to start Apache Tomcat application server if it has not been started.
4. Launch the Apache Tomcat web console in your browser.

5. Click *Manager App*, as shown in the following image.

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Apache Tomcat/7.0.47

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If you're seeing this, you've successfully installed Tomcat. Congratulations!

 Recommended Reading:
[Security Considerations HOW-TO](#)
[Manager Application HOW-TO](#)
[Clustering/Session Replication HOW-TO](#)

Server Status
Manager App
Host Manager

Developer Quick Start

[Tomcat Setup](#) [Realms & AAA](#) [Examples](#) [Servlet Specifications](#)
[First Web Application](#) [JDBC DataSources](#) [Tomcat Versions](#)

Managing Tomcat

For security, access to the [manager webapp](#) is restricted. Users are defined in:

```
#CATALINA_HOME/conf/tomcat-users.xml
```

In Tomcat 7.0 access to the manager application is split between different users. [Read more...](#)

[Release Notes](#)
[Changelog](#)
[Migration Guide](#)
[Security Notices](#)

Documentation

[Tomcat 7.0 Documentation](#)
[Tomcat 7.0 Configuration](#)
[Tomcat Wiki](#)

Find additional important configuration information in:

```
#CATALINA_HOME/RUNNING.txt
```

Developers may be interested in:

[Tomcat 7.0 Bug Database](#)
[Tomcat 7.0 JavaDocs](#)
[Tomcat 7.0 SVN Repository](#)

Getting Help

[FAQ and Mailing Lists](#)

The following mailing lists are available:

- announce@tomcat.apache.org
Important announcements, releases, security vulnerability notifications. (Low volume).
- users@tomcat.apache.org
User support and discussion
- taolibs-user@tomcat.apache.org
User support and discussion for [Apache Taolibs](#)
- dev@tomcat.apache.org
Development mailing list, including commit messages

Other Downloads: [Tomcat Connectors](#), [Tomcat Native](#), [Taolibs](#), [Deployer](#)

Other Documentation: [Tomcat Connectors](#), [mod_ik Documentation](#), [Tomcat Native](#), [Deployer](#)

Get Involved: [Overview](#), [SVN Repositories](#), [Mailing Lists](#), [Wiki](#)

Miscellaneous: [Contact](#), [Legal](#), [Sponsorship](#), [Thanks](#)

Apache Software Foundation: [Who We Are](#), [Heritage](#), [Apache Home Resources](#)

- Log in as required and then browse to the Deploy area of the console, as shown in the following image.

/host-manager	None specified	Tomcat Host Manager Application	true	0	<input type="button" value="Start"/> <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/> <input type="button" value="Expire sessions"/> with idle < 30 minutes
/manager	None specified	Tomcat Manager Application	true	1	<input type="button" value="Start"/> <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/> <input type="button" value="Expire sessions"/> with idle >= 30 minutes
/omni360	None specified	/omni360-development-0.1	true	0	<input type="button" value="Start"/> <input type="button" value="Stop"/> <input type="button" value="Reload"/> <input type="button" value="Undeploy"/> <input type="button" value="Expire sessions"/> with idle >= 30 minutes

Deploy

Deploy directory or WAR file located on server

Context Path (required):

XML Configuration file URL:

WAR or Directory URL:

WAR file to deploy

Select WAR file to upload No file chosen

Diagnostics

Check to see if a web application has caused a memory leak on stop, reload or undeploy

This diagnostic check will trigger a full garbage collection. Use it with extreme caution on production systems.

- Click *Choose File*, navigate to the location where the omni360.war file is located, and then select this file.
- Click *Deploy*.
- Click *Choose File*, navigate to the location where the OmniService.war file is located, and then select this file.

Note: If the database connection settings need to be changed, edit the OmniService.xml file in the OmniService.war file (\\OmniService\\WEB-INF\\OmniService.xml) and provide the correct settings before deploying this file. For example:

```

#- Excigen
jdbc.driverClassName=org.postgresql.Driver
jdbc.url=
jdbc.username=
jdbc.password=
jdbc.tableCreation=none
    
```

- Click *Deploy*.

- 11.** Click *Choose File*, navigate to the location where the OmniDomain.war file is located, and then select this file.
- 12.** Click *Deploy*.

Omni-Patient Management Central (OPMC), including the Omni-Patient 360 Viewer application is now deployed to the Apache Tomcat application server.

Undeploying Omni-Patient Management Central

How to:

Undeploy an Existing Version of Omni-Patient Management Central

If required, you can undeploy the following web archive files for Omni-Patient Management Central (OPMC):

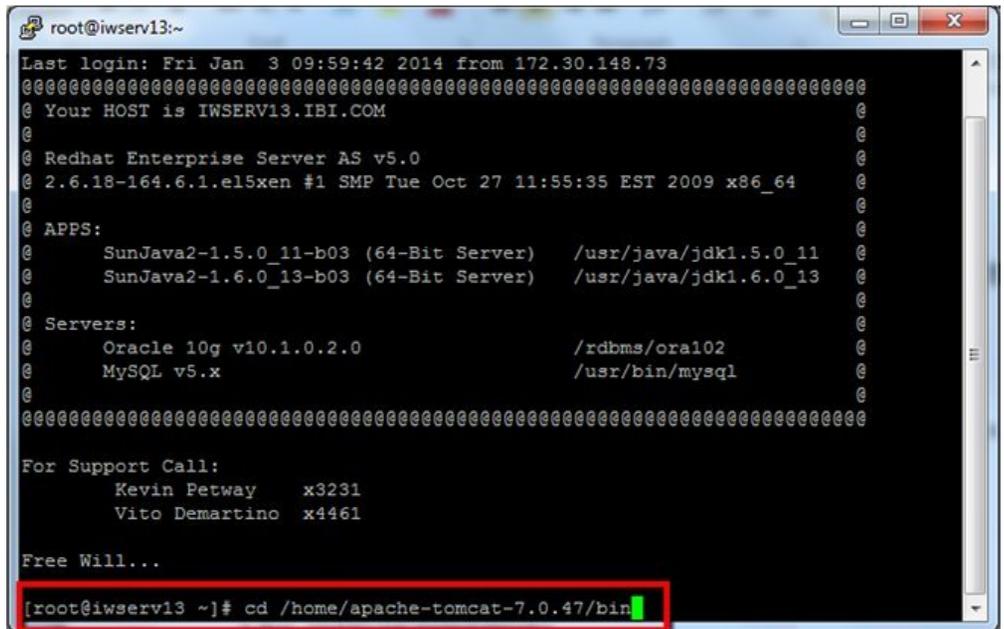
- omni360.war
- OmniDomain.war
- OmniService.war
- RemediationService.war

Procedure: How to Undeploy an Existing Version of Omni-Patient Management Central

- 1.** Using a terminal emulator (for example, Putty), connect to the Linux system where OPMC will be undeployed.
- 2.** Navigate to the /bin directory where Apache Tomcat is installed. For example:

`/home/apache-tomcat-7.0.47/bin`

The following image shows a terminal emulator window that is connected to a Linux system and where the `cd` command is being used to navigate to the `/bin` directory where Apache Tomcat is installed.

A terminal window titled 'root@iwserv13:~' showing system information. The output includes the last login time, host name 'IWSERV13.IBI.COM', Redhat Enterprise Server AS v5.0 details, installed Java applications (SunJava2-1.5.0_11-b03 and SunJava2-1.6.0_13-b03), and servers (Oracle 10g v10.1.0.2.0 and MySQL v5.x). At the bottom, support contact information for Kevin Petway and Vito Demartino is listed. The terminal prompt is '[root@iwserv13 ~]# cd /home/apache-tomcat-7.0.47/bin' which is highlighted with a red box.

```
root@iwserv13:~
Last login: Fri Jan  3 09:59:42 2014 from 172.30.148.73
#####
@ Your HOST is IWSERV13.IBI.COM
@
@ Redhat Enterprise Server AS v5.0
@ 2.6.18-164.6.1.el5xen #1 SMP Tue Oct 27 11:55:35 EST 2009 x86_64
@
@ APPS:
@   SunJava2-1.5.0_11-b03 (64-Bit Server)  /usr/java/jdk1.5.0_11
@   SunJava2-1.6.0_13-b03 (64-Bit Server)  /usr/java/jdk1.6.0_13
@
@ Servers:
@   Oracle 10g v10.1.0.2.0                /rdbms/ora102
@   MySQL v5.x                            /usr/bin/mysql
@
#####
For Support Call:
   Kevin Petway      x3231
   Vito Demartino    x4461

Free Will...

[root@iwserv13 ~]# cd /home/apache-tomcat-7.0.47/bin
```

3. Run `./startup.sh` to start Apache Tomcat application server if it has not been started.
4. Enter the following URL in a web browser:

<http://iwserv13.ibi.com:8080/>

The Apache Tomcat web console opens.

5. Click *Manager App*, as shown in the following image.

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Apache Tomcat/7.0.47

The Apache Software Foundation
<http://www.apache.org/>

If you're seeing this, you've successfully installed Tomcat. Congratulations!

 Recommended Reading:
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Managing Tomcat

For security, access to the [manager webapp](#) is restricted. Users are defined in:

```
#CATALINA_HOME/conf/tomcat-users.xml
```

In Tomcat 7.0 access to the manager application is split between different users. [Read more...](#)

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Find additional important configuration information in:

```
#CATALINA_HOME/RUNNING.txt
```

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- users@tomcat.apache.org
User support and discussion
- taolibs-user@tomcat.apache.org
User support and discussion for [Apache Taolibs](#)
- dev@tomcat.apache.org
Development mailing list, including commit messages

Other Downloads: [Tomcat Connectors](#), [Tomcat Native](#), [Taolibs](#), [Deployer](#)

Other Documentation: [Tomcat Connectors](#), [mod_ik Documentation](#), [Tomcat Native](#), [Deployer](#)

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Apache Software Foundation: [Who We Are](#), [Heritage](#), [Apache Home Resources](#)

- Log in as required and then locate the deployed components for the Omni-Patient 360 Viewer application, as shown in the following image.

/	None specified	Welcome to Tomcat	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
OmniDomain	None specified	Omni360Meta	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
OmniService	None specified	Todos	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/docs	None specified	Tomcat Documentation	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/examples	None specified	Servlet and JSP Examples	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/host-manager	None specified	Tomcat Host Manager Application	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/manager	None specified	Tomcat Manager Application	true	1	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
omni360	None specified	/omni360-development-0.1	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
Deploy					
Deploy directory or WAR file located on server					

- Click Stop for each deployed component.

8. Click *Undeploy* for each deployed component, as shown in the following image.

/	None specified	Welcome to Tomcat	true	0	Expire sessions with idle ≥ 30 minutes
/OmniDomain	None specified	Omni360Meta	true	0	Start Stop Reload Undeploy
/OmniService	None specified	Todos	true	0	Start Stop Reload Undeploy
/docs	None specified	Tomcat Documentation	true	0	Start Stop Reload Undeploy
/examples	None specified	Servlet and JSP Examples	true	0	Start Stop Reload Undeploy
/host-manager	None specified	Tomcat Host Manager Application	true	0	Start Stop Reload Undeploy
/manager	None specified	Tomcat Manager Application	true	1	Start Stop Reload Undeploy
/omni360	None specified	/omni360-development-0.1	false	0	Start Stop Reload Undeploy

Deploy

Deploy directory or WAR file located on server

Context Path (required):

XML Configuration file URL:

WAR or Directory URL:

Omni-Patient Management Central (OPMC), including the Omni-Patient 360 Viewer application is now undeployed from the Apache Tomcat application server.

Redeploying Omni-Patient Management Central

How to:

Redeploy an Undeployed Version of Omni-Patient Management Central

If you are required to redeploy Omni-Patient Management Central (OPMC), including the Omni-Patient 360 Viewer application, you must first undeploy the following web archive files and then perform the steps that are described in this section:

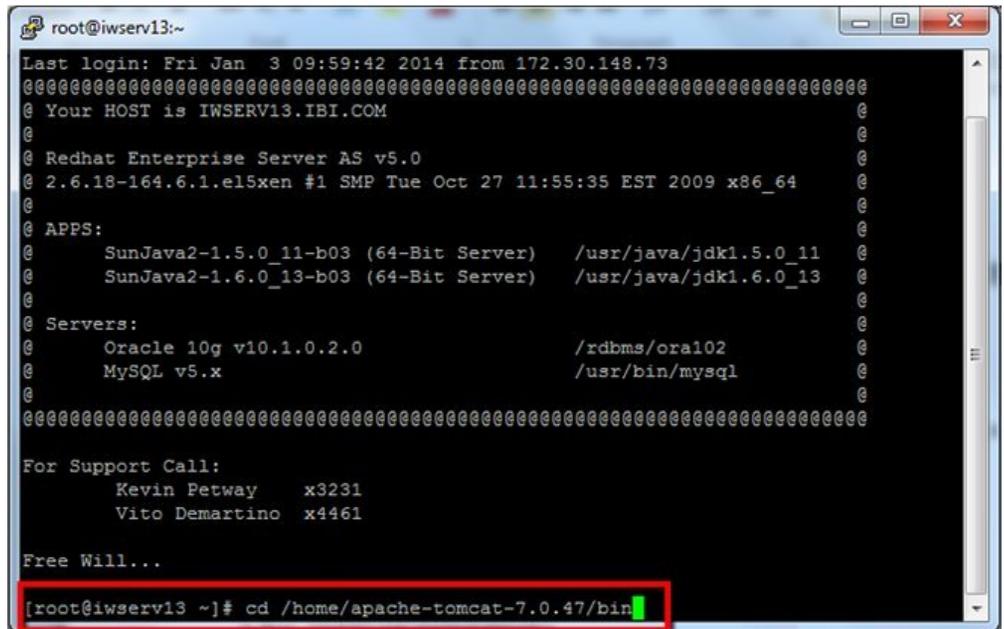
- ❑ omni360.war
- ❑ OmniDomain.war
- ❑ OmniService.war

Procedure: How to Redeploy an Undeployed Version of Omni-Patient Management Central

1. Using a terminal emulator (for example, Putty), connect to the Linux system where OPMC will be redeployed.
2. Navigate to the /bin directory where Apache Tomcat is installed. For example:

```
/home/apache-tomcat-7.0.47/bin
```

The following image shows a terminal emulator window that is connected to a Linux system and where the `cd` command is being used to navigate to the /bin directory where Apache Tomcat is installed.



```

root@iwserv13:~
Last login: Fri Jan  3 09:59:42 2014 from 172.30.148.73
#####
@ Your HOST is IWSERV13.IBI.COM
@
@ Redhat Enterprise Server AS v5.0
@ 2.6.18-164.6.1.el5xen #1 SMP Tue Oct 27 11:55:35 EST 2009 x86_64
@
@ APPS:
@   SunJava2-1.5.0_11-b03 (64-Bit Server)  /usr/java/jdk1.5.0_11
@   SunJava2-1.6.0_13-b03 (64-Bit Server)  /usr/java/jdk1.6.0_13
@
@ Servers:
@   Oracle 10g v10.1.0.2.0                /rdbms/ora102
@   MySQL v5.x                            /usr/bin/mysql
@
#####
For Support Call:
   Kevin Petway      x3231
   Vito Demartino    x4461

Free Will...

[root@iwserv13 ~]# cd /home/apache-tomcat-7.0.47/bin

```

3. Run `./shutdown.sh` to stop Apache Tomcat application server if it is currently started.
4. Enter the following command to delete the `devDb.h2.db` file:

```
rm devDb.h2.db
```
5. Run `./startup.sh` to start Apache Tomcat application server.
6. Deploy the following web archive files for Omni-Patient Management Central (OPMC), including the Omni-Patient 360 Viewer application:
 - ❑ `omni360.war`
 - ❑ `OmniDomain.war`

- ❑ OmniService.war

For more information, see [Deploying Omni-Patient Management Central](#) on page 52.

6 | **Configuring Users and Roles**

This section describes how to configure users and roles for Omni-Patient Management Central (OPMC).

Topics:

- ▣ Adding a New User and Assigning a Role

Adding a New User and Assigning a Role

How to:

Add a New User and Assign a Role

Users and roles are registered into the WS02 Identity Server (WS02 IS). For more information, see [Installing and Configuring the WS02 Identity Server](#) on page 30.

Procedure: How to Add a New User and Assign a Role

Users will be brought down into the WS02 Identity Server (WS02 IS) repository from the LDAP/Active Directory. Only roles must be assigned. From the WS02 Admin Console:

1. Navigate to *Configure, Users and Roles*, and then *Users*.
2. Check the roles that the user should have.

Each user must belong to a group, where groups are defined by a role prefixed by *group*.

3. Click *Finish*.

7 | **Configuring User Authentication**

This section describes how to configure user authentication for Omni-Patient Management Central (OPMC).

The following user authentication methods are currently supported by OPMC:

- ❑ Locally stored user name and password authentication repository.
- ❑ Authentication through LDAP and Active Directory.
- ❑ Authentication through Open LDAP.

Topics:

- ❑ Configuring Locally Stored Authentication
- ❑ Configuring Authentication and Authorization Through LDAP and Active Directory

Configuring Locally Stored Authentication

Local authentication is accomplished by storing users and roles in the WS02 Identity Server (WS02 IS). These user names and their roles are used only to complete the initial Omni-Patient Management Central (OPMC) installation and configuration. That configuration includes setting up the actual production database of user names that are registered in the customer-specified Active Directory, and then assigning roles to these temporary user name/password pairs. After the true user names are extracted from the Active Directory through LDAP, these temporary, locally stored user name/password pairs are disabled.

For more information, see [Configuring Users and Roles](#) on page 63.

Configuring Authentication and Authorization Through LDAP and Active Directory

The following is an example of WS02 console steps used to configure the LDAP connection between the WS02 Identity Server (WS02 IS) and the Active Directory system of the customer.

[In progress. To be supplied.]

8 | Installing the Data Dictionary

This section describes how to install the Data Dictionary.

Topics:

- ❑ Overview
- ❑ Architecture
- ❑ Component Services
- ❑ Deploying and Configuring the Data Dictionary
- ❑ Using the Data Dictionary

Overview

A data dictionary is a collection of information about data, or metadata. Omni Dictionary, one of the applications in the Omni suite of applications, is delivered with metadata descriptions for Omni data elements and provides users with the ability to annotate and load metadata descriptions about data elements in third party applications.

For the latter case, subject matter experts populate and save a structured Excel workbook with descriptive entries about third party application data objects, then place a copy of the workbook in a designated Omni Dictionary input folder. An iWay Service Manger (iSM) process imports and saves information in the Omni Dictionary database. Users then view this information using online screens and reports.

Architecture

Omni Dictionary is comprised of several integrated technologies that run on various host platforms. iSM and Data Quality Center (DQC) can reside on a Windows or Linux host. Excel and Microsoft SQL Server require a Windows host. Postgres as well as other supported database engines can be hosted on non-Windows computers.

Core components of the Omni Dictionary application are the Omni 360 Viewer and Omni Dictionary Database. iSM and DQC components are responsible for loading Excel dictionary metadata into the system. The Omni 360 Viewer is a browser based application that runs under Tomcat or Glassfish application servers.

Subject matter experts or data stewards are responsible for maintaining metadata information in the Excel workbook and loading the data by dropping a copy of the workbook into the Omni Dictionary import folder. Services of a Database Administrator (DBA) are necessary for the initial database deployment and helpful in resolving rare unforeseen issues.

Component Services

The Omni Dictionary application is available to the user when using the Omni 360 viewer. This portion of the application utilizes a browser based presentation layer with RESTful service connections to the Omni Dictionary database.

The other part of this system is Omni Dictionary Import which is responsible for populating the database with descriptive metadata from a structured Excel workbook. Only designated users (operators) would utilize this process, it is not available to the general population of Omni users.

Omni Dictionary Import is comprised of structured dictionary folders, an iSM channel, DQC plan, Excel workbook, SQL scripts, Omni Dictionary properties file and Omni Dictionary database. Additionally, iSM and DQC services are packaged into a WAR file which is deployed under a Tomcat or Glassfish application server.

Deploying and Configuring the Data Dictionary

How to:

Deploy and Configure the Data Dictionary

This section describes how to deploy and configure the Data Dictionary.

Procedure: How to Deploy and Configure the Data Dictionary

To successfully deploy the Omni Dictionary Import process, the following must be available and performed in order.

- 1.** Locate the OmniDictImport.zip file from the Omni installation media.
- 2.** Identify the database server to host the Omni Dictionary database.
 - a.** The following database engine versions are supported:
 - Microsoft SQL Server 2012 and 2008
 - Postgres 9.3.1
 - b.** Obtain access to a database management tool that has ability to:
 - Create a database.
 - Execute SQL scripts.
 - c.** Obtain a user/role with DBA privileges to:
 - Create a database.
 - Execute SQL scripts.
- 3.** Identify a Tomcat or Glassfish application server to host the Omni Dictionary Import process.
 - a.** Access to an experienced application server support personnel.
 - b.** Obtain a user/role with privileges to deploy a WAR file for an application.
- 4.** Identify a file server for the OMPC_HOME folder which is accessible from/to:
 - a.** OmniDictImport application server.
 - b.** Subject Matter Expert (SME) or data steward that is responsible for dictionary metadata.

- c.** Unzip the OmniDictImport.zip into a temporary folder at the root level (for example, C:\temp).

After unzipping, the folder structure should be as follows:

- ❑ Temp
 - ❑ OMPC_HOME
 - ❑ dictionary
 - ❑ excel_templates
 - ❑ property_templates
 - ❑ db_scripts
 - ❑ mssql
 - ❑ oracle
 - ❑ postgres
 - ❑ dqc_plans
 - ❑ mssql
 - ❑ oracle
 - ❑ postgres
 - ❑ ism_dqc_in
 - ❑ dqc_in
 - ❑ ism_dqc_results
 - ❑ properties
 - ❑ OmniDictImport.war

- 5.** Using the database management tool of your choice, locate and follow the instructions in the 1OD_INSTALL_README.TXT file, which is located in the following folder

<OMPC_HOME>/dictionary/db_scripts/dbengine

where:

dbengine

Is mssql or postgres.

- a.** Create the OmniDictionary database.
 - b.** Create OmniDictionary tables.
- 6.** The OmniDictImport application requires environment-specific settings.
 - a.** Locate the sample .properties files in the `<OMPC_HOME>/dictionary/_property_templates` folder:
 - `OmniDictionary_mssql.properties`
 - `OmniDictionary_postgres.properties`
 - b.** Copy and rename the `OmniDictionary_dbengine.properties` file that matches your database engine name to:
`<OMPC_HOME>/dictionary/properties/OmniDictionary.properties`
- 7.** Modify `OmniDictionary.properties` file attributes for your environment.
 - a.** Set the listener input folder location:
`lstnr.od.in.location=OMPC_HOME/dictionary/ism_dqc_in`
 - b.** Set the listener results folder location:
`lstnr.od.results.location=OMPC_HOME/dictionary/ism_dqc_results`

- c.** Set data source attributes. These attributes automatically modify the iSM Data Provider.
 - ❑ **SQL Server**
 - ❑ ds.od.driver=com.microsoft.sqlserver.jdbc.SQLServerDriver
 - ❑ ds.od.url=jdbc:sqlserver://<host>:<port>;databaseName=OmniDictionary
 - ❑ ds.od.username=<user>
 - ❑ ds.od.password=<password>
 - ❑ db.od.migrate.target=sqlserver
 - ❑ db.od.sql.scripts=OMPC_HOME/dictionary/db_scripts/mssql/
 - ❑ **Postgres**
 - ❑ ds.od.driver=org.postgresql.Driver
 - ❑ ds.od.url=jdbc:postgresql://<host>:<port>/OmniDictionary
 - ❑ ds.od.username=<user>
 - ❑ ds.od.password=<password>
 - ❑ db.od.migrate.target=postgres
 - ❑ db.od.sql.scripts=OMPC_HOME/dictionary/db_scripts/postgres/

- d.** Set DQC parameters.
 - ❑ **SQL Server**
 - ❑ dq.od.config_pathfile=OMPC_HOME/dictionary/dqc_plans/mssql/runtimeCfg_mssql.xml
 - ❑ dq.od.plan_pathfile=OMPC_HOME/dictionary/dqc_plans/mssql/excel_import_mssql.plan
 - ❑ dq.od.sql.scripts=OMPC_HOME/dictionary/dqc_plans/mssql/
 - ❑ **Postgres**
 - ❑ dq.od.config_pathfile=OMPC_HOME/dictionary/dqc_plans/postgres/runtimeCfg_postgres.xml
 - ❑ dq.od.plan_pathfile=OMPC_HOME/dictionary/dqc_plans/postgres/excel_import_postgres.plan
 - ❑ dq.od.sql.scripts=C:/OMPC_HOME/dictionary/dqc_plans/postgres/

- 8.** Locate and modify Data Quality Center attributes in:

```
<OMPC_HOME>/dictionary/dqc_plans/dbengine/runtimeCfg_dbengine.xml
```

where:

```
dbengine
```

Is mssql or postgres.

- a.** Modify the <dataSource> node.

SQL Server

```
<dataSources>
<dataSource
driverclass="com.microsoft.sqlserver.jdbc.SQLServerDriver"
name="OmniDictionary" user="<user>" password="<userpass>"
url="jdbc:sqlserver://<host>:<port>;databaseName=OmniDictionary"/>
</dataSource>
</dataSources>
```

Postgres

```
<dataSources>
<dataSource driverclass="<driver>" name="OmniDictionary"
user="<user>" password="<userpass>"
url="jdbc:postgresql://<host>:<port>/OmniDictionary"/>
</dataSource>
</dataSources>
```

- 9.** Deploy the OmniDictImport.war application to the application server.
- a.** On Apache Tomcat, verify that the following nodes in <TOMCAT_HOME>/webapps/manager/WEB-INF/web.xml are set to accept a 220 megabyte WAR file:

```
<max-file-size>220694377</max-file-size>
<max-request-size>220694377</max-request-size>
```

- b.** On Glassfish, verify that the following node is in <GLASSFISH>/:

```
<to do />
```

- c.** Deploy, start, and verify that the OmniDictImport.war application is running.

- 10.** Set the OmniDictImport application property file location.

- a.** Open the OmniDictImport application.
- b.** Enter *ipay* for the user ID.
- c.** Enter *ipay* for the password.
- d.** Click *Register Settings* in the ISM console.

- e. Select the *odprops* register.
- f. Replace the contents in the Value field with the following:
`<OMPC_Home>/dictionary/properties/OmniDictionary.properties`
- g. Click *Update*.
- h. Restart the OmniDictImport application.

Using the Data Dictionary

In this section:

Loading Omni Dictionary With Omni-Patient Metadata

Loading Omni Dictionary With User Metadata

Workbook Drop Location

Determining Successful Data Load

Using SQL Scripts to Verify Data Load

Using SQL Scripts to Clear All Dictionary Data

Using SQL Scripts to Selectively Clear Dictionary Data

Clearing Data Load Results

Once the OmniDictImport application has been successfully deployed, configured, and is running under the application server, you can now use the process to load dictionary metadata from structured Excel workbooks.

A template copy of the structured Excel workbook is located in:

`<OMPC_HOME>/dictionary/_excel_templates/RDM_DictionaryMart_Template_v1_3.xlsx`

Loading Omni Dictionary With Omni-Patient Metadata

Some customer installations will receive a Zip file containing a series of Excel workbooks. These are copies of the template workbook populated with Omni metadata. Specific instructions will be included with the Zip file on how to process these.

Loading Omni Dictionary With User Metadata

Using the template, Subject Matter Experts (SMEs) would populate and save one or more uniquely named workbooks, usually based on the system they represent. The first sheet in the workbook has instructions how to populate it with metadata. It is important to save a copy of the workbook under a different name and location from the template folder, usually on the company's file server.

Workbook Drop Location

Workbooks that are populated with user metadata and are ready for upload to Omni Dictionary would place a copy of the workbook in the following folder:

```
<OMPC_HOME>/dictionary/ism_dqc_input
```

More than one workbook can be copied to this location at a time.

Determining Successful Data Load

To determine that workbook metadata was successfully loaded, find an open for XML file names similar to `od_data_loaded_timestamp.xml` with a recent date/time value in the following folder:

```
<OMPC_HOME>/dictionary/ism_dqc_results
```

You can view contents of the file with a browser or editor. It will list the number of tables and columns recorded in Omni Dictionary.

Using SQL Scripts to Verify Data Load

Using the database query tool for your database engine, load and run the `s_load_report.sql` file, which is located in the following folder:

```
<OMPC_HOME>/dictionary/db_scripts/dbengine
```

A report containing the number of tables and columns recorded in Omni Dictionary is returned.

Using SQL Scripts to Clear All Dictionary Data

Executing the following script will remove **all** metadata from the Omni Dictionary database. Do **not** use this script unless you are certain that removing all data is your intention. Using the database query tool for your database engine, load and run the `s_clear_data.sql` file, which is located in the following folder:

```
<OMPC_HOME>/dictionary/db_scripts/dbengine
```

Using SQL Scripts to Selectively Clear Dictionary Data

Prior to executing the following script, identify the name and version of the system you wish to remove. This information is located in the System table of Omni Dictionary database.

Executing the following script will remove **all** metadata from the Omni Dictionary database. Do **not** use this script unless you are certain that removing all data is your intention. Using the database query tool for your database engine, load and run the s_clear_data.sql file, which is located in the following folder:

`<OMPC_HOME>/dictionary/db_scripts/dbengine`

Clearing Data Load Results

After verifying that all metadata workbooks have been loaded into the database, it is recommended that XML files in the following folder are deleted:

`<OMPC_HOME>/dictionary/ism_dqc_results`

A Upgrading to a New Release Checklist

This appendix provides a summarized list of steps to be followed when implementing a new OPMC release on a new host.

Topics:

- ❑ Quick Start Guide for a New Installation of OPMC Version 2.3.x

Quick Start Guide for a New Installation of OPMC Version 2.3.x

Perform the following steps to perform a quick, new Installation of OPMC Version 2.3.x:

- 1.** Install WSO2 Identity Server according to the instructions in the *OmniPatient Management Central Installation and Configuration Guide*.
- 2.** Create and import certificates for the WSO2 Identity Server according to the instructions in the *OmniPatient Management Central Installation and Configuration Guide*.
- 3.** Copy the four .war files (omni360.war, OmniDomain.war, OmniService.war, and RemediationService.war) that are packaged into the following folder:

`<Tomcat Home>webapps`

- 4.** Using WinZip to access the OmniService.war file, modify the following properties file using a text editor according to your database configuration:

`OmniService.war/WEB-INF/OmniService.properties`

- 5.** Use a text editor to configure the Remediation Servers OPMC and OP connections in the following properties file:

`OPMC_HOME\Workflow\omni_home\properties\RemediationService.properties`

- 6.** Use RemediationService.war to configure the Data Provider in the embedded iWay Service Manager (iSM) server.
- 7.** Use a text editor to copy and paste the XML snippet from the *OmniPatient Management Central Installation and Configuration Guide*.

`<Tomcat_Home>\conf\context.xml`

- 8.** Import OPMC metadata by logging into OPMC as an administrator, and specifying the location.
- 9.** Load Data Dictionary/Database objects. Restore Data Dictionary from SQL Server backup, or Postgres backup.
- 10.** (Optional) WSO2 as a service. Use the yajsw.zip file and follow the instructions in the *OmniPatient Management Central Installation and Configuration Guide*.
- 11.** (Optional) LDAP users. Use the WSO2 Identity Server Console to connect and use Active Directory user names for a specific environment through LDAP.
- 12.** (Optional) Load RDM objects into the Data Dictionary. Use the OmniDictImport.war file and the conversion procedures.

Reader Comments

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