

Ozone Widget Framework

Quick Start Guide

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1 Introduction

1.1 Objectives

This guide provides an introduction to the Ozone Widget Framework (OWF). OWF consists of an environment and a set of tools used for organizing and displaying Web applications (widgets) in a single browser window. The guide explains how to use OWF, set up an OWF environment on a user's local machine and navigate OWF security.

1.2 Document Scope

This guide is not an exhaustive reference. It is intended for widget users, developers and administrators seeking a quick introduction on how to deploy, launch and use OWF. For information about specific areas, see the relevant documentation included with the OWF bundle.

In this document, the term **“Store”** refers both **Marketplace** and **AppsMall**. Both applications share features described in this guide and both may be configured to OWF.

The OWF Bundle ships with Tomcat 7.0.21 which requires JDK 1.6 or higher. If running OWF with a web server other than Tomcat, please see that Web server's documentation for requirements. OWF supports Internet Explorer 7 and higher and Firefox 3.6 and higher. OWF is tested against the following browsers:

Table 1: Tested Browsers

Browsers	Versions
Internet Explorer	7 & 9
Firefox	17
Chrome	25

1.3 Related Documents

Document	Purpose
User's Guide	Understanding the OWF user interface ; adding, deleting, modifying widgets . and using widget intents ; accessing and using the Store ; creating, deleting, adding, switching, modifying dashboards ; using stacks ; defining accessibility features such as high-contrast themes and keyboard navigation

Administrator's Guide	Understanding administrative tools : adding, deleting, and editing widgets, users, groups, stacks and group dashboards; creating default content for users, groups and group dashboards
Developer's Guide	Creating Widget applications and integrating existing applications into OWF ; widget upgrade instructions; walkthroughs for creating widgets; adding the following components to widgets: intents, descriptor URLs, preference API; logging and launching API API
Configuration Guide	Overview of basic architecture and security ; OWF installation instructions; instructions for modifying default settings; database set up and logging guidance; framework and theme customization instructions; OWF upgrade instructions ; directions for adding and deleting help content
Quick Start Guide	Walkthrough of basic OWF functions such as using widgets, dashboards and stacks; instructions for setting up a local instance of OWF , unpacking the OWF Bundle and installing security certificates ; Truststore/Keystore changes

2 OWF Components

This is an overview explaining how to start using the Ozone Widget Framework. Find detailed information in the OWF User's Guide.

2.1 Toolbar



Figure 1: Toolbar



Favorites Menu: Use it to find and launch widgets.



Switcher: Use it to change dashboards or stacks.



The Store: Search and add widgets from associated Stores. (If OWF is not configured for the Store, the icon will not appear.)



Metrics: Launch the Metrics Service. (If not configured for Metrics, the icon will not appear.)



Settings: Use it to create/edit dashboards, change themes or show/hide/delete/rename/group widgets in the Favorites Menu.



Administration: Use it to approve widgets, create group dashboards, and edit users, groups, and widgets. (Icon will only appear to those with Administrator privileges.)




Online Help: Repository of OWF guides and tutorials.

2.2 Widgets

Widget: A lightweight, single-purpose Web application that offers a summary or limited view of a larger application. In OWF, a widget is a global description for a piece of Web content that can be configured by the user and displayed within a dashboard.

2.2.1 Launching a Widget

- 1) Click the  in the toolbar to open the Favorites Menu.
- 2) Launch the widgets using any of the following methods:

- a) Double-click the widget.
 - b) Select a widget and click the Launch button at the top of the menu.
 - c) Highlight the widget and press the Enter key.
- 3) Selecting a widget will automatically open the Switcher. Select a dashboard where the widget will open by either double clicking the dashboard icon or by highlighting the dashboard and pressing Enter. The widget will automatically open in the selected dashboard.

Note: The Switcher will not open for widgets dragged and dropped from the Favorites Menu into the current dashboard. In this case, the widget will automatically open in the current dashboard.

Note: Users can launch multiple instances of a widget unless the widget is a Singleton. In that case, only one instance of the widget will launch per dashboard.

2.2.1.1 Widget Intents (Widgets Launching Widgets)

Widget intents are the instructions for carrying out a widget's intentions. One widget requests an action (Think of actions as verbs like view, share, edit, etc.) then another widget receives the request and performs the action. Intents build on OWF's publish/subscribe feature by allowing users to choose the widget(s) that will use data. This binding capability enables two widgets to enhance each other's functionality.


If a widget uses intents, the Favorites Menu will pop up when a user makes a choice that triggers an intent. The Favorites Menu will only display widgets that can use the data for an intended purpose (graphing, displaying, etc.).

Note: For a complete overview, see the OWF User's Guide.

2.2.1.2 Eventing Widgets

OWF has a built in publish/subscribe feature that enables specially designed widgets to send and receive data.

Users can test this functionality with the Channel Listener and Channel Shouter sample widgets that an administrator can add to the user's instance of OWF. If those widgets are available in the Favorites Menu, follow these steps to experience eventing:

1. Launch the Channel Listener and Channel Shouter widgets.
2. In Channel Shouter, enter a channel name.
3. In Channel Listener, subscribe to the channel that was created in step 2. To do this: Type the channel name into the text box and click Add Channel or drag the  icon from Channel Shouter to Channel Listener.
4. After subscribing to the channel, type a message in Channel Shouter and click Broadcast. The message should appear in the Channel Listener activity log.

2.3 Dashboards

Dashboard: A user-defined layout used to organize and display widgets. Users can include multiple layouts on one dashboard using the Dashboard Designer. See the OWF User's Guide for more information.


Users can create their own dashboards and receive group dashboards from administrators. Group dashboards provide identical dashboards for each member of a group. While a group member can customize their instance of a group dashboard, the changes will not affect any other group member's version of the group dashboard.

There are five dashboard layout types:

- **Tabbed** layouts display one widget per screen. Like browser tabs, the tabs at the top of the screen switch from one widget to another.
- **Portal** layouts offer a column-oriented layout that organizes widgets of varying heights. Each new widget loads above the first one on the screen. The user drags a dividing bar to specify widget height. The widgets and the OWF window scroll.
- **Accordion** layouts display widgets in equal horizontal panes. When a widget is added to the dashboard, all the widgets are resized to display equally in the accordion layout. The whole accordion layout will not scroll. Each individual widget will scroll using its own scroll bar.
- **Desktop** layouts, similar to the desktop on most personal computers, allow the user to place widgets freely in the window and minimize them on a taskbar.
- **Fit** layouts allow a user to place a single widget on the screen. A launched widget shows no border or chrome and will occupy the full size of the available framework. If a user wishes to launch an additional widget, they will be notified that the initial widget will be replaced by the new one.




Note: Some widgets are automatically launched by other widgets. In these cases, the widgets will “float” on top of the dashboard.

2.3.1 Selecting/Switching Dashboards

1. Click the  button in the toolbar to open the Switcher.
2. If the dashboard is part of a stack, click the stack to display its dashboards.
3. Select a dashboard. The display will automatically change to the new dashboard.

2.3.2 Create a Dashboard


1. Click the  button in the toolbar to open the Switcher.

2. Select the  button at the bottom of the window. This launches the Create Dashboard window.
 3. Name and describe the dashboard. To create a new dashboard, proceed to step 4. To copy a dashboard, select one of the following radio buttons:
 - Create from existing, then select from the drop-down list
 - Import, then upload a saved dashboard JSON file
 4. Click OK. The Dashboard Designer will open. Edit the dashboard by dragging dividers and layout types to the dashboard template. Then click Save.
- Note: Instructions about locking a dashboard are found in the User's Guide.*
5. The dashboard will open and appear as one of the choices under the  button in the toolbar. To add widgets to it, click  to open the Favorites Menu, and then drag widgets to the dashboard.


2.4 Stacks

A stack is a collection of dashboards and widgets. Administrators use stacks to provide users with several dashboards and widgets that can be easily restored with one click. Stacks appear in the Switcher.

2.4.1 Using Stacks


A user's list of stacks appears intermingled with dashboards under the  button on the toolbar. When a user selects a Stack, a list of dashboards associated with that stack appears below it. If an administrator removes a dashboard from a stack or deletes the stack, the user's copy of the stack, including its dashboards and widgets will disappear from the user's instance of OWF. If a user deletes the stack from their instance of OWF, its dashboards and widgets will be removed unless the stack is assigned to one of the user's groups. In that case, the user cannot remove the stack.

2.4.2 Switching Stacks

Open the Switcher by clicking the  button on the toolbar, click a stack to select it. Then, click one of the dashboards from the stack. The dashboard will automatically open.

2.5 Themes

OWF provides a default theme and three high contrast themes for accessibility. To select a theme:

1. Click the  button in the toolbar, and then select Themes. The Theme Settings window will open and display the current theme in the right column.
2. Select a theme from the left column. Click Apply, this automatically changes the theme.

2.6 Sign Out

To sign out of OWF: Mouse over the drop-down User Menu in the toolbar and select Sign Out.

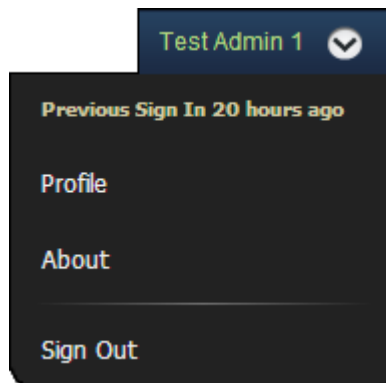


Figure 2: Drop-down User Menu

3 The OWF Bundle

OWF is normally distributed as **OWF-bundle-7-GA.zip**. This bundle contains the three main components needed to deploy, run and develop widgets for the framework. They are as follows:

- A Tomcat Web server which runs the supplied **WAR** files.
- An **owf.war** file which contains both **HTML** and **JavaScript** files. These files make up the OWF user interface and the server backend which handles persistence of the user, user preferences, widget definitions and dashboards.
- An optional file **cas.war** implements the Central Authentication Service (CAS). If CAS security is not required, **cas.war** can be removed. To run OWF in a local (development) environment, execute the following steps:

*Note: The following is a summary. Expanded details begin in the section, **Unzipping and Starting OWF**.*

1. Unzip **OWF-bundle-7-GA.zip**.
2. From a command-line, run start.sh or start.bat from within the **apache-tomcat-7.0.21** directory.
3. In a supported browser, navigate to **https://localhost:8443/owf**.
4. Authenticate access to OWF by entering username “testAdmin1” and password “password.” Alternatively, install the testAdmin1.p12 (see Installing a User Certificate for details) certificate from **apache-tomcat-7.0.21\certs** into the browser as a certificate.

3.1 Unzipping and Starting OWF

A user can start the OWF server by unpacking the **OWF-bundle-7-GA.zip** into the directory from where it will be run, and activating the start script. This requires the use of a ZIP utility. Detailed steps for each operation are shown below.

The following is an example of how to copy, unzip and launch OWF in *nix

```
mkdir /opt/OWF
cp OWF-bundle-7-GA.zip/opt/OWF
cd /opt/OWF
unzip OWF-bundle-7-GA.zip
cd apache-tomcat-7.0.21
./start.sh
```

The following example shows how an administrator might unpack OWF from the bundle on Windows operating systems:

- Right-click on the **OWF-bundle-7-GA.zip**. Using a **ZIP** utility, select “Extract to [folder name].” If the **ZIP** utility does not support this feature, manually create a sub-directory and extract the **ZIP** contents into that directory.

The use of the bundled deployment archive provides all of the necessary mechanisms to deploy and run the Tomcat Web container on any JDK 1.6 enabled system.

3.2 Authenticating to OWF

Users must be authenticated by the system before they can access OWF services. This can be achieved by installing a certificate into the user’s Web browser or via authentication with the Central Authentication Service (CAS).

3.2.1 Using a User Certificate

In order to take advantage of the X.509 PKI user authentication mechanism, the **testUser1** or **testAdmin1** certificate for localhost must be installed in a user’s browser. These certificates can be found under the **apache-tomcat-7.0.21\certs** directory where **OWF-bundle-7-GA.zip** was deployed. See screenshots on the pages that follow for general instructions on importing certificates.

Note: The password for the user certificate is “password.”

3.2.2 Installing a User Certificate

When using Internet Explorer, navigate to Tools → Internet Options → Content → Certificates → Personal. Click the Import button and navigate to the **apache-tomcat-7.0.21\certs** directory where **OWF-bundle-7-GA.zip** was deployed. Select the testUser1 certificate and click OK. Click Next and enter “password” as the password when prompted. Click Finish. A dialog box should display, stating that the import was successful.

Note: The default dialog filter for a particular browser may be set for CER or CRT files. If this is the case, the drop-down for file type must be set for .p12. Once .p12, is selected, the certificate will show up as being available for importing.

Note: Some Intranets may require additional customization.

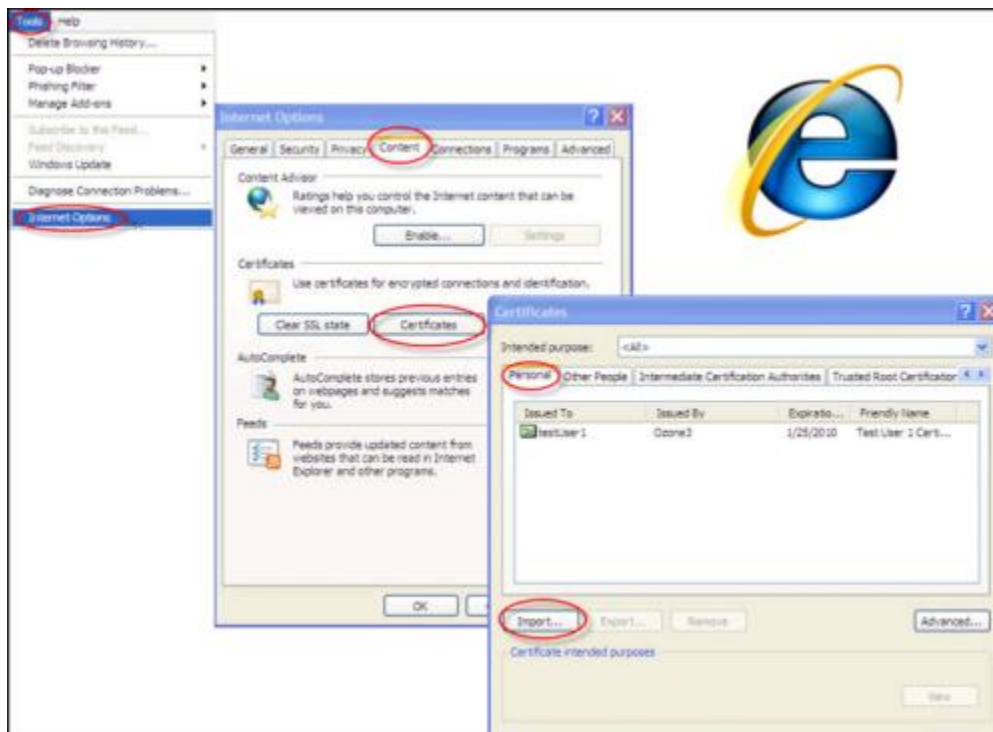


Figure 3: Internet Explorer User-Certification Dialog

Note: In certain versions of Internet Explorer, certificate/connection failures are shown, despite a successful import of the testUser1 certificate. If this is the case, follow the directions above and select the X.509 from the dropdown and import the certificate titled ca.crt.

When using Firefox, navigate to Tools->Options->Advanced->Encryption->View Certificate->Your Certificates. Click the import button and navigate to the **apache-tomcat-7.0.21\certs** directory where **OWF-bundle-7-GA.zip** was deployed. Select the **testUser1** certificate, click OK and enter password as the password when prompted. Click Finish. A dialog box should display, stating that the import was successful.

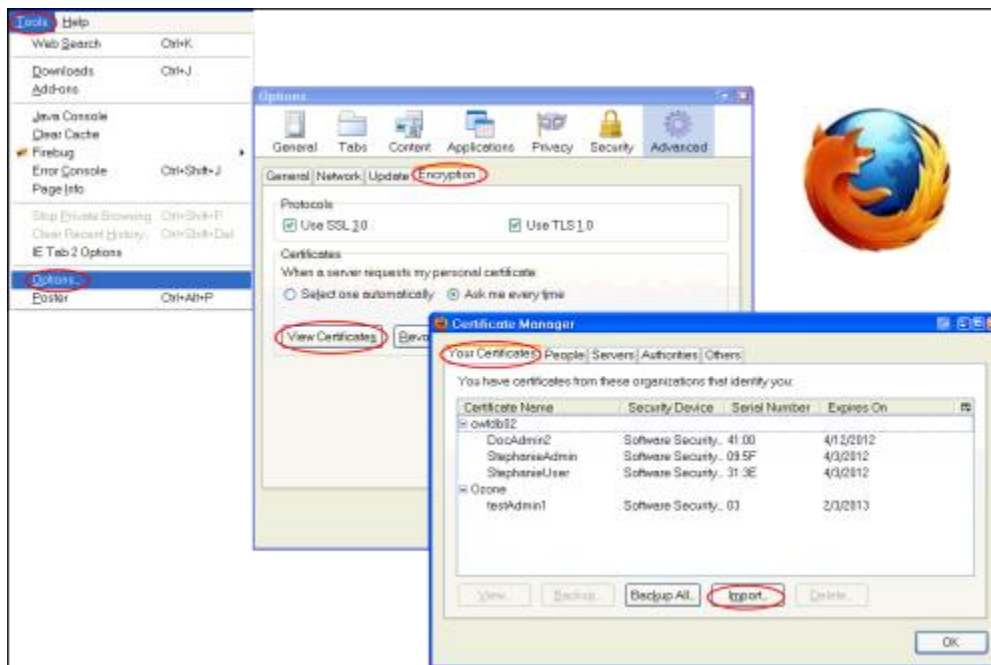


Figure 4: Firefox User-Certificate Dialog

3.2.3 Using the Central Authentication Service (CAS)

The CAS authentication server is located at <https://localhost:8443/cas>. It can be accessed by preventing the Web browser from transmitting a user certificate to the OWF server. (This can be achieved by clicking the cancel button when asked for certificate authentication.)

The screenshot shows the CAS Sign-in Screen. It has a dark header with the word 'Login'. Below the header, there are two input fields: 'User ID:' and 'Password:'. Below the 'Password:' field, there is a checkbox labeled 'Warn me before logging me into other sites.' and an 'OK' button.

Figure 5: CAS Sign-in Screen

By default, the bundle is configured so that CAS will recognize the username **testUser1** or **testAdmin1** with the password of "password." Once logged in via CAS, the browser will redirect the user to OWF.

3.3 Accessing OWF

The Tomcat instance, located in the directory where **OWF-bundle-7-GA.zip** was deployed, must be started (**start.bat** or **start.bat**) before OWF will become accessible. When the Tomcat server finishes initializing, OWF can be launched by navigating to **https://servername:port/owf/**. In the default OWF installation, the URL is **https://localhost:8443/owf**. To modify the default location, see section **4 Allowing Remote Access to OWF**.

Note: OWF is configured to redirect to a secure connection using https. Should a non-secure connection be attempted via http, the user may need to grant a browser level security exception depending on the browser's security settings.

The first time that **testUser1** accesses OWF using the aforementioned methods, they will be presented with a dashboard containing a few sample widgets. The user can then immediately configure and organize widgets or change to a different dashboard.

4 Allowing Remote Access to OWF

To run OWF remotely, and NOT from a localhost environment, execute the following steps:

1. Identify a server name.
2. Generate a server certificate.
3. Install the server certificate.
4. Modify configuration files.

4.1 Identifying a Server Name

The server name can be chosen arbitrarily and entered into the users' HOST files, or it can be obtained from DNS. This quick start guide will refer to the selected server name as **servername** and to OWF as **https://servername:port/owf/**.

4.2 Generate a Server Certificate

The certificates that ship with OWF are configured with a domain (**servername**) of **localhost**. If the domain name is changed, new certificates are required. The server certificate must reflect the **servername**.

Navigate to the **\etc\tools** folder and execute **create-certificates.bat** or **.sh**, depending on the operating system in use. Once this is done, the default user p12 certificates (**testUser1** and **testAdmin1**) will no longer be compatible. To correct this, create new user certificates using **create-certificates.bat** (or **.sh**).

Follow the prompts on screen and create the necessary certificates for the installation.

4.2.1 Install the Server Certificate

The OWF start script, located at **apache-tomcat-7.0.21\bin\setenv.bat** (**apache-tomcat-7.0.21\bin\setenv.sh** on ***nix** systems) must be edited to point to the new keystore (defined while answering the prompts discussed in section **2 Generate a Server Certificate**) file found in **setenv.bat/setenv.sh**. Edit the **servername** domain (found in lines 1 and 2 in the code below) to reflect the certificate.

```
1 set CATALINA_OPTS=-
Djavax.net.ssl.trustStore="%CATALINA_HOME%\certs\servername.jks" -
2 Djavax.net.ssl.keyStore="%CATALINA_HOME%\certs\servername.jks"
-
3 Djavax.net.ssl.keyStorePassword=changeit -
Djavax.net.ssl.trustStorePassword=changeit server -
```

```
4 Xmx1024m -Xms512m -XX:PermSize=128m -XX:MaxPermSize=256m
%JAVA_OPTS%
```

The Tomcat configuration file, located at **apache-tomcat-7.0.21\conf\server.xml**, must also be edited to point to the new Keystore file. This section can be found below the “Define a SSL...” section of the **XML** file:

```
<Connector port="8443" protocol="HTTP/1.1" SSLEnabled="true"
            maxThreads="150" scheme="https" secure="true"
            keystoreFile="certs/servername.jks"
keystorePass="changeit"
            truststoreFile="certs/servername.jks"
truststorePass="changeit"
            clientAuth="want" sslProtocol="TLS" />
```

4.3 Modify the Externalized Configuration Files

In order to access OWF from remote computers, externalized configuration files must point to the correct location. This is done by changing a properties file that is referenced by the following two configuration files:

• **apache-tomcat-7.0.21\lib\OwfConfig.groovy** •
etc\override\CASSpringOverrideConfig.xml

1. By default, the configuration files allow access from localhost but not from other locations. To access other locations:
2. Copy **CASSpringOverrideConfig.xml** from the **etc\override** to **apache-tomcat-7.0.21\lib**. By default, **OwfConfig.groovy** is located on the classpath. Therefore, it does not need to be moved.
3. In the **apache-tomcat-7.0.21\lib\OzoneConfig.properties** file, replace **localhost** with **servername** for the **ozone.host** property.
4. Restart the server.

5 Adding the Store or Metrics Service to OWF

OWF is flexible and scalable, which allows the Store or the Metrics Service to be included in OWF's deployment. This allows a user to develop with the products working together, without having to activate multiple ports via configuration. To include the Store or Metrics Service in the OWF Bundle, do the following:

1. Unpack the zipped bundles containing the applications to be included. Navigate to **apache-tomcat-7.0.21/webapps** in each unpacked bundle.
2. Copy the appropriate **WAR** files into the **apache-tomcat-7.0.21/webapps** directory where OWF was deployed.
3. Restart the OWF server.

Note: If using a Marketplace release earlier than 5.0, see the OZONE Store Configuration Guide regarding additional setup requirements.

Appendix A Contact Information

A.1 Discussion Group

For information about OZONE or access to its resources, please open a ticket regarding the AppsMall Service at <http://www.intelink.ic.gov/ticket/secure/CreateIssue!default.jspa> and then, email the team at AppsMall@intelink.gov.