Oracle Real-Time Scheduler

Mobile Application Installation and Deployment Guide

Release 2.2.1.0

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Oracle Real-Time Scheduler Mobile Application Installation and Deployment Guide Release 2.2.1.0

Contents

Preface

This guide describes how to install the mobility module of Oracle Real-Time Scheduler. This preface contains these topics:

- Audience
- Related Documents
- Conventions
- Acronyms and Definitions

Audience

This guide is intended for system administrators installing the mobility module of Oracle Real-Time Scheduler.

To complete this installation, you should have:

- Experience installing and configuring development environment for mobile applications, application servers and other software.
- Administrative privileges on the host where you are installing, building and deploying the software.

Related Documents

The following is the complete set of documentation available with this release.

Installation, Configuration and Release Notes

- *Oracle Real-Time Scheduler Release Notes*
- *Oracle Real-Time Scheduler Quick Install Guide*
- *Oracle Real-Time Scheduler Server Installation Guide*
- *Oracle Real-Time Scheduler Mobile Application Installation and Deployment Guide*
- *Oracle Real-Time Scheduler Mobile Application Implementation and Developer Guide*
- *Oracle Real-Time Scheduler DBA Guide*
- *Oracle Real-Time Scheduler Configuration Guide*

User Guides

- *Oracle Real-Time Scheduler Server Application User's Guide*
- *Oracle Real-Time Scheduler Mobile Application User's Guide*

Map Editor Installation and User Guides

- *Oracle Real-Time Scheduler Map Editor User's Guide*
- *Oracle Real-Time Scheduler Map Editor Installation Guide*

Framework Guides

- *Oracle Utilities Application Framework V4.2.0.2 Business Process Guide*
- *Oracle Utilities Application Framework V4.2.0.2 Administration Guide*
- *Oracle Utilities Application Framework V4.2.0.2 Release Notes*

Supplemental Documents

- *Oracle Real-Time Scheduler Server Administration Guide*
- *Oracle Real-Time Scheduler Batch Server Administration Guide*
- *Oracle Real-Time Scheduler Security Guide*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Acronyms and Definitions

The following text conventions are used in this document:

Convention	Meaning
ORS	Oracle Real-Time Scheduler
WLS	Weblogic Server
SDK	Software Development Kit
NPM	Node Package Manager
CLI	Apache Cordova Command Line Interface
OUI	Oracle Universal Installer
iOS	Apple mobile operating system
Android	Google mobile operating system

Chapter 1

Installation Overview

This chapter includes:

- Installation Overview

Installation Overview

Follow these steps to install, build and deploy the Oracle Real-Time Scheduler mobile application:

1. Install and configure Oracle Real-Time Scheduler server application as described in *Oracle Real-Time Scheduler Server Application Installation Guide*.
2. Review the mobile application architecture as described in *Oracle Real-Time Scheduler Mobile Application Implementation and Development Guide*.
3. Understand the requirements and supported build and runtime platforms for installing, building and deploying the application as described in the section Build Environments vs Runtimes.
4. Review and prepare for the download and installation of required Oracle and third-party software as described in the section Pre-requisite Software.

   Note: Please review proxy settings setup as described in Appendix Configurations.
5. Plan your installation and prepare configuration properties for project and plug-ins as described in Appendix Configurations.
6. Determine the type of installation and follow the instructions in the chapter Installing the Oracle Real-Time Scheduler Mobile Application corresponding to that type of installation.
7. Setup project and build the mobile application. Follow the instructions in the chapter Building the Mobile Application corresponding to the selected runtime platform.
8. Deploy the mobile application. Follow the instructions in the chapter Deploying the Mobile Application corresponding to the selected runtime platform.

Chapter 2

Supported Platforms and Hardware Requirements

This chapter includes:

Supported Environments and Platforms

The mobile application is supported for iOS, Android as well as web-based deployment.

Hardware Requirements

The following are the hardware requirements for the mobile application:

iOS

iOS devices running iOS 8.1.x

Android

Android device running Android 4.4 or greater

Application Server

For information on the application servers supported by this release, refer to the section "Operating Systems and Application Servers" in the *Oracle Real-Time Scheduler Server Installation Guide.*

Pre-requisite Software

The following software must be installed and configured prior to installation of the mobile application of Oracle Real-Time Scheduler:

- Node.js (v0.10.29 or above) a platform built on Chrome's JavaScript runtime for building fast, scalable network applications.
- Git (v1.9.4) a repository which offers all of the distributed revision control and source code management functionality in order to have the mobile standard plugins.
- Apache Ant (v1.9.4) or above for automating the software build processes.
- Ant contrib (v1.0b2)
- Java Development Kit (v1.6 or above) with Java Standard Edition for compiling the Ant tasks and builds.
- Cordova (v3.6.3-0.2.13) is a mobile development framework for enabling programmers to develop applications in HTML5, Javascript and CSS3 instead of relying on platform-specific APIs like those in iOS or Android. Cordova enables wrapping up of HTML, CSS and Javascript code depending upon the platform of the device.
- Weblogic 11g for deploying the HTML5 applications as the war file
- Android SDK for creating new applications for the Android operating system. The recommended level is Android SDK Level 19 (Android version of 4.4.2).
- XCode 6.1 or greater and Apple Developer ID for iOS 8.x devices for developing the applications using iOS SDK.
- jQuery (version 2.1.0) is a fast, small, and feature-rich JavaScript library. It simplifies HTML document traversal and manipulation, event handling, animation and Ajax, with an easy-to-use API that works across a multitude of browsers.
- jQuery Mobile (version 1.4.2) the jQuery mobile framework for designing a single highly-branded responsive web site or application that works on all popular smart phone, tablet, and desktop platforms.
- jSignature (version 2) - a JavaScript widget for simplifying the creation of a signature capture field in a browser window, allowing a user to draw a signature using mouse, pen or finger.
- knockout.js (version 3.1.0) a JavaScript library for creating rich, responsive display and editor user interfaces with a clean underlying data model.

- Oracle MapViewer HTML5 API - Javascript API for building highly-interactive map views that provide a rich user experience.

Build Environments vs Runtimes

A build environment is a desktop or laptop on which the pre-requisite software (such as Apache Cordova Command Line Interface) and the mobile integrated development environments (Android SDK, iOS XCode and Weblogic Server) are installed.

Build environments allow for the customizing and packaging of mobile applications (such as .apk and .ipa files).

Examples of build environments are:

- Windows
- Mac OS X
- Linux Environments

Runtimes are mobile devices where the generated artifacts like .apk and .ipa files are deployed. Runtimes have underlying operating systems such as Android and iOS.

Examples of runtimes are:

- iOS devices running iOS 8.1.x
- Android devices running Android 4.4 or greater

Build Environment\ Runtime	**iOS device**	**Android device**	**Online Client**
Windows	No	Yes	Yes
Mac OS X	Yes	Yes	Yes
Linux	No	Yes	Yes

Chapter 3

Installing Pre-Requisite Software

This chapter describes the steps to install the pre-requisite software for various environments such as:

- Windows Environment
- Mac OS X Environment
- Linux Environment

Windows Environment

The iOS runtime is not supported on Windows. Only Android runtime is supported on Windows.

The following procedure describes the steps to install the pre-requisite software on your Windows environment.

1. Download and install Node.js (http://nodejs.org).
   a. To ensure that npm is working from the command line, execute the below command:
   ```
   npm -version
   ```
2. Download and install Git client (http://git-scm.com)
   a. Set the path variable as below, if Git is not in the path
   ```
   SET PATH=<Git Installed path>/bin;%PATH%
   ```
3. Verify whether the installation system is behind a corporate proxy. If yes, refer to the section Proxy Settings in this guide.
4. Install the Cordova module using the npm utility of Node.js. The Cordova module is automatically downloaded by the npm utility.
   ```
   npm install -g cordova@3.6.3-0.2.13
   ```
   Note: Ensure that the Cordova command executes successfully from any directory from command line after installation.
5. Download and install JDK 1.6 (http://www.oracle.com/technetwork/java/javase/downloads/index.html) or above
   a. Configure the variable as JAVA_HOME
   b. Add JAVA_HOME\bin to the path variable according to the environments
   c. Once JDK is installed, Apache Ant runs successfully
6. Download Apache Ant 1.9.x version (http://ant.apache.org/bindownload.cgi)
   a. Unzip the Ant at any preferred location.

   b. Set the following environment variables.

      ```
      SET ANT_HOME=<unzipped path>
      ```

   c. Add the bin directory to the path variable

      ```
      SET PATH=%ANT_HOME%/bin;%PATH%
      ```

   d. Ensure that Ant command executes successfully by running:

      ```
      ant -version
      ```

7. Download ant-contrib.jar version (1.0b2 or later) from http://sourceforge.net/projects/ant-contrib/files/ant-contrib/ and copy the jar under the **ANT_HOME/lib** directory.

8. Download Android SDK (http://developer.android.com/sdk/index.html)

   a. Based on the platform, the appropriate zip file is automatically downloaded from the Content Delivery Network.

   b. Unzip the Android SDK and set the following environment variables in the path.

   c. Set the following environment variables.

      ```
      SET PATH= <Unzipped Loc>/tools;%PATH
      SET PATH= <Unzipped Loc>/platform-tools;%PATH%
      ```

   d. Once Android is downloaded, ensure that the compatible target of Android for the Cordova version is set, for example Cordova 3.5 supports Android 19.

   e. Refer to the section Installing the Android Targets and install the android targets.

9. Download and install Weblogic11g (http://www.oracle.com/technetwork/middleware/weblogic/downloads/wls-main-097127.html) with basic features in order to support the deployment of the web client application on the server.

Mac OS X Environment

The following procedure describes the steps to install the pre-requisite software on your Mac OS X environment.

1. Download and install the Node.js (http://nodejs.org) and ensure node and npm are working from the command line.

2. Git client (http://git-scm.com) is pre-configured in Mac OS X environment. Ensure that the version is compatible with that of the information provided in the Pre-requisite Software section.

3. Verify whether the installation system is behind a corporate proxy. If yes, refer to the section Proxy Settings in this guide.

4. Install the Cordova module using the npm utility of Node.js. The Cordova module is automatically downloaded by the npm utility.

   a. Ensure the “g” option is provided while installing the Cordova projects from anywhere in the system.

      ```
      sudo npm install -g cordova@3.6.3-0.2.13
      ```

   b. Provide the password of the user when prompted

   c. Ensure that the Cordova command runs from any directory in the command line

5. Download and install JDK 1.6 or above

   a. Accept the license agreement and download the file.

   b. From either the Downloads window of the browser, or from the file browser, double click the .dmg file to launch it.

   c. A **Finder** window appears containing an icon of an open box and the name of the .pkg file. Double click the package icon to launch the Install app.

   d. The **Install** app displays the Introduction window. Click **Continue**.

   e. Note that, in some cases, a **Destination Select** window appears. This is a bug, as there is only one option available. If you see this window, select **Install for all users of this computer** to enable the **Continue** button. Click **Continue**.

   f. The **Installation Type** window appears. Click **Install**.

   g. A window appears with the message, "Installer is trying to install new software. Type your password to allow this." Enter the Administrator login and password and click **Install Software**.

   h. The software is installed and a confirmation window appears. Click the **ReadMe** for more information about the installation.

   i. After the software is installed, delete the dmg file if you wish to save disk space.

6. Download Apache Ant 1.9.x version.

   a. Change directory to Downloads folder

   ```
   cd ~/Downloads
   ```

   b. Extract the tar.gz file in the downloads folder.

   c. Ensure that the /usr/local directory already exists. By default this directory exists out-of-the-box in Mac OS X

   ```
   sudo mkdir -p /usr/local
   ```

   d. Copy the extracted ant folder into the below location

   ```
   sudo cp -rf apache-ant-1.9.4-bin /usr/local/apache-ant
   ```

   e. Add the new version of Ant to future terminal sessions

   ```
   echo 'export PATH=/usr/local/apache-ant/bin:"$PATH"' >> ~/
   .profile
   ```

7. Download ant-contrib.jar version (1.0b2 or more) and copy the jar under the /usr/local/apache-ant /lib set in step 4.

8. Download XCode (https://developer.apple.com/xcode/downloads/)

   a. Download the XCode file. Accept the License agreement.

   b. Open the **Finder** window and go to the **Downloads** folder.

   c. In the downloads window, double click the .dmg folder and the pop up launches.

   d. Drag the XCode icon to the Applications folder.

   e. Once Xcode is installed, click on the icon the dock folder and set it as fix to the Dock for convenience.

Linux Environment

The following procedure describes the steps to install the pre-requisite software on your Linux environment.

> **Note**: The below commands assume a Bash shell. If you use shells other than Bash in your Linux environment, please use appropriate commands.

1. Create a directory where the Linux user has all the access permissions as well as the ownership of the folder created as follows.

   ```
   mkdir <MOBILEAPPS_DIR>
   For example mkdir /spl/MobileApps
   echo 'export PROGRAMS=/spl/MobileApps' >> ~/.bashrc
   source ~/.bashrc
   ```

2. Check if the Linux is installed with Python version greater than 2.6, else install by downloading the Python version 2.7 or above and follow these steps:

   a. Extract the python jar to the downloaded folder

      ```
      tar -xvf Python-2.7.5.tgz
      ```
   b. Copy the extracted folder to the $PROGRAMS folder

      ```
      cp -R Python-2.7.5 $PROGRAMS
      ```
   c. Change directory to the $PROGRAMS directory

      ```
      cd $PROGRAMS/Python-2.7.5
      ```
   d. Configure as pre-requisite step for installing

      ```
      ./configure --prefix=$PROGRAMS/python27
      ```
   e. Execute the make command

      ```
      make
      ```
   f. Execute the below command to install.

      ```
      make install
      ```
   g. Execute the below commands to ensure that the path entries are set for the user.

      ```
      echo 'export PATH=$PROGRAMS/python27/bin:"$PATH"' >> ~/.bashrc
      source ~/.bashrc
      ```
3. Install JDK

   a. Go to installs folder where the jdk installable is downloaded and install JDK.

   b. Copy jdk1.6.0_<xx> to $PROGRAMS

      ```
      cp -R jdk1.6.0_<xx> $PROGRAMS
      ```
   c. Execute the commands to ensure the path is set for the user

      ```
      echo 'export PATH=$PROGRAMS/jdk1.6.0_<xx>/bin:"$PATH"' >> ~/
      .bashrc
      source ~/.bashrc
      ```
4. Install Apache Ant 1.9.x or above.

   a. Extract the ant tar folder to the downloaded folder

      ```
      tar -xvf apache-ant-1.9.4-bin.tar.gz
      ```
   b. Copy the folder to $PROGRAMS folder

      ```
      cp -R apache-ant-1.9.4 $PROGRAMS
      ```
   c. Change directory to the $PROGRAMS directory

      ```
      cd $PROGRAMS
      ```
   d. Rename the shortened version for convenience

      ```
      mv apache-ant-1.9.4 apache-ant
      ```
   e. Execute these commands to ensure the path is set for the user.

      ```
      echo 'export ANT_HOME=$PROGRAMS/apache-ant' >> ~/.bashrc
      echo 'export PATH=$PROGRAMS/apache-ant/bin:"$PATH"' >> ~/
      .bashrc
      source ~/.bashrc
      ```
5. Download ant-contrib.jar version(1.0b2 or more) and copy the jar file under the $PROGRAMS/apache-ant/lib directory.

6. Install nodejs

   a. Extract the node-v0.10.33.tar.gz file.

      ```
      tar -xvf node-v0.10.33.tar.gz
      ```
   b. Change directory to the extracted folder.

      ```
      cd node-v0.10.33/
      ```

c. Configure with the prefix value in order to ensure the write permission as well as ownership of the folder you target to.

```
./configure --prefix=$PROGRAMS/nodejs
```

d. Execute the make command

```
make
```

e. Execute the make install command

```
make install
```

f. Ensure that the path is set for the user by executing the below commands

```
echo 'export PATH=$PROGRAMS/nodejs/bin:"$PATH"' >> ~/.bashrc
source ~/.bashrc
```

7. Install Cordova

   Before proceeding, verify if the installation system is behind a corporate proxy. If yes, refer to the section Proxy Settings in this guide.

   a. Run the command with the version of Cordova you wish to install

   ```
   npm install -g cordova@3.6.3-0.2.13
   ```

8. Download and install Android SDK (http://developer.android.com/sdk/index.html)

   a. The appropriate zip file for the Linux platform will be downloaded for e.g. adt-bundle-linux-x86_64-20131030.zip

   b. Execute the following commands:

   ```
   unzip adt-bundle-linux-x86_64-20131030.zip -d .
   mv adt-bundle-linux-x86_64-20131030 Android
    cp -R Android $PROGRAMS
   ```

   c. Execute the below commands to set the Android SDK path

   ```
   echo 'export PATH=$PROGRAMS/Android/sdk/tools:"$PATH"' >> ~/
   .bashrc
   echo 'export PATH=$PROGRAMS/Android/sdk/platform-tools:"$PATH"'
   >> ~/.bashrc
   source ~/.bashrc
   ```

   d. Please refer to the section Installing the Android Targets and install the android targets.

9. Download and install Weblogic 11g (http://www.oracle.com/technetwork/middleware/weblogic/downloads/wls-main-097127.html) with basic features in order to support the deployment of the web client application on the server.

Chapter 4

Installing the Oracle Real-Time Scheduler Mobile Application

This chapter explains the steps to install the Oracle Real-Time Scheduler Mobile Application using the Oracle Universal Installer.

This chapter includes:

- Installing the Mobile Application

Installing the Mobile Application

To install the mobile application, perform these steps:

1. Download the Oracle Real-Time Scheduler v2.2.1.0 Mobile Application Multiplatform.zip from the Oracle Software Delivery Cloud.
2. Unzip the file in a temporary directory <TEMPDIR>.
3. Upon extracting the zip file, a jar file called Mobile_Application_Installer.jar is created in the <TEMPDIR> directory.
4. Set the JAVA_HOME and PATH variables as shown in the examples below:

   Note: The minimum recommended version of JDK is 1.7.0_65 in order to launch the Oracle Universal Installer.

   Windows:

   ```
   set JAVA_HOME=<JAVA_INSTALL_LOCATION>\jdk1.7.0_65
   set PATH=%JAVA_HOME%\bin;%PATH%;.
   ```

   Linux:

   ```
   export JAVA_HOME=<JAVA_INSTALL_LOCATION>/jdk1.7.0_65
   export PATH=${JAVA_HOME}/bin:$PATH
   ```

   Mac OS X:

   ```
   export JAVA_HOME=<JAVA_INSTALL_LOCATION>/jdk1.7.0_65
   export PATH=${JAVA_HOME}/bin:$PATH
   ```

5. Execute the following command:

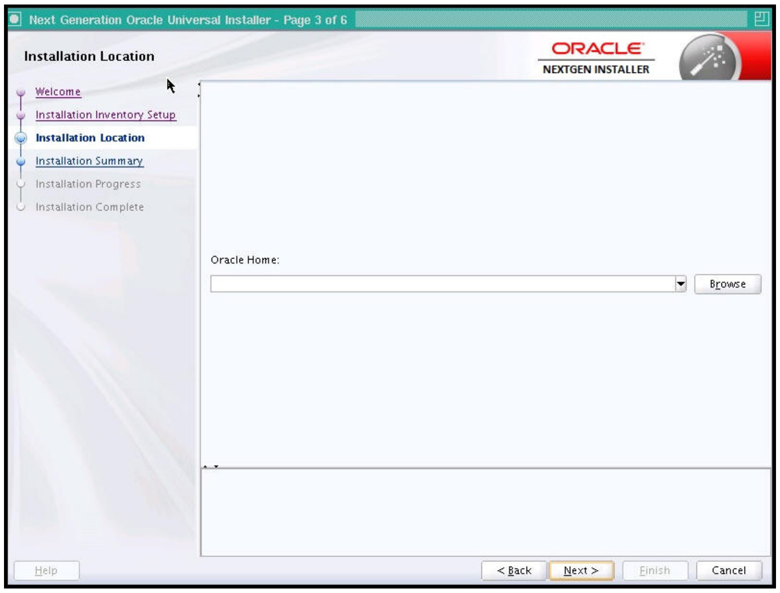
```
    java -jar <TEMPDIR>/Mobile_Application_Installer.jar -logLevel
finest
```

   The **Next Generation Oracle Universal Installer** is launched.

6. Click **Next** on the **Welcome** page of the Next Generation Oracle Universal Installer.
7. On the **Installation Inventory Setup** page, specify a directory where the installation metadata files are to be stored in the **Inventory Directory** field and click **Next**.

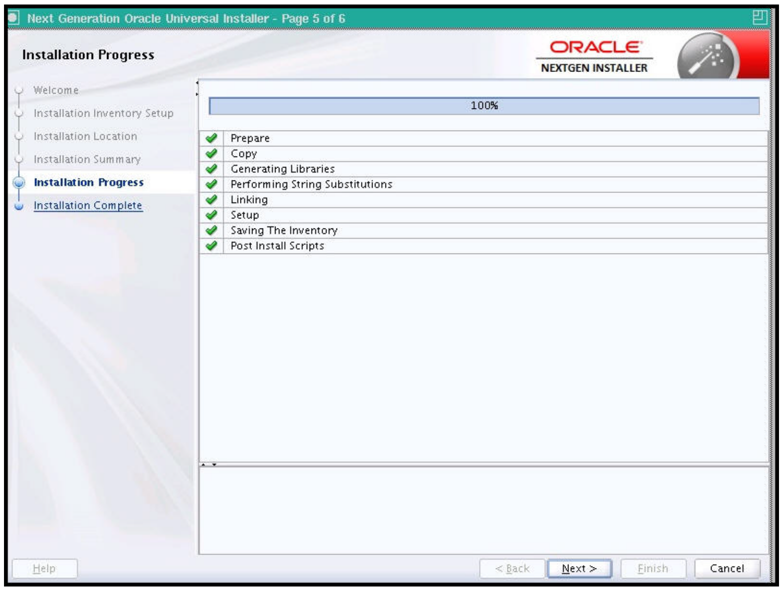
   Note: The **Installation Inventory Setup** page only appears for a first-time installation on your machine through **Oracle Universal Installer**.

8. On the **Installation Location** page, browse and point to a local folder where you wish to install the mobile application (this is known as the <ORACLE_HOME>) and click **Next**.



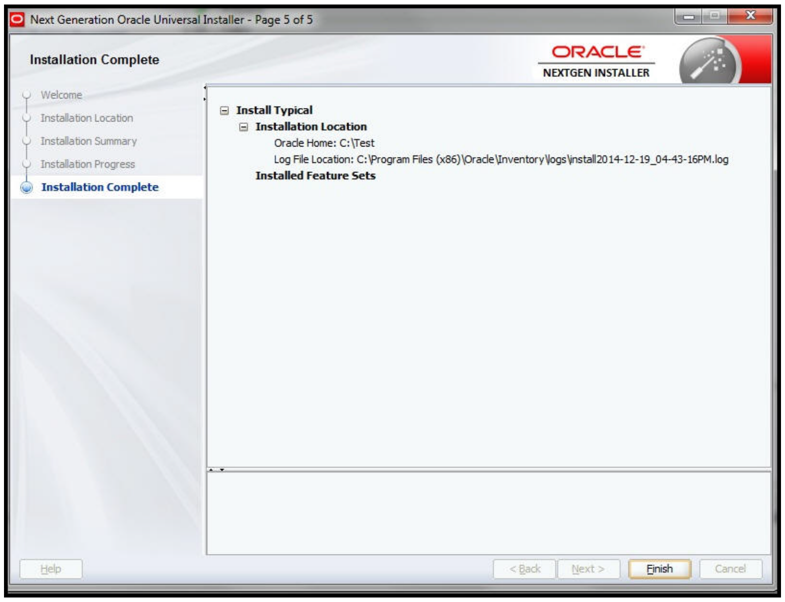
The **Installation Progress page** launches and displays the progress of the installation.

9. Click **Next** on the Installation Progress page, once the installation is shown as 100%.



✓ Prepare
✓ Copy
✓ Generating Libraries
✓ Performing String Substitutions
✓ Linking
✓ Setup
✓ Saving The Inventory
✓ Post Install Scripts

The **Installation Complete** page launches.



Install Typical
Installation Location
Oracle Home: C:\Test
Log File Location: C:\Program Files (x86)\Oracle\Inventory\logs\install2014-12-19_04-43-16PM.log
Installed Feature Sets

10. Click **Finish** on the **Installation Complete** page.

This completes the installation of the mobile application.

Post-installation Steps

For Max OS X and Linux environments, an additional post-installation step is required to set permissions to build the mobile application.

> **Note**: The <PRODUCT_HOME> is defined as:
>
> **<PRODUCT_HOME>=<ORACLE_HOME>/MobileLibrary**

Mac OS X Environment

Run the following commands to set the permissions:

```
cd <PRODUCT_HOME>
sudo chmod -R 755 *
```

Linux Environment

Run the following command to set the permissions.

```
cd <PRODUCT_HOME>
chmod -R 755 *
```

Chapter 5

Building the Mobile Application

This chapter describes the following steps for building the mobile application:

- Downloading Javascript and CSS Libraries to the Installed Location
- Pre-build Configuration Updates
- Creating Apache Cordova Project
- Preparing SDKs for Building the Mobile Application (for iOS)
- Building the Mobile Application on Apache Cordova Project

Downloading Javascript and CSS Libraries to the Installed Location

The following section describes the steps to be followed to download various Javascript and CSS libraries used for building the application, to the installed location.

Under the <PRODUCT_HOME>/source/www location, create the 'libs' folder:

1. jQuery Libraries
   a. Create folder <PRODUCT_HOME>/source/www/libs/jquery
   b. Download jQuery js file version 2.1.0 (https://code.jquery.com/jquery/)
   c. Copy the jquery-2.1.0.min.js file into <PRODUCT_HOME>/source/www/libs/jquery
2. jQuery Mobile Libraries
   a. Create folder <PRODUCT_HOME>/source/www/libs/jquery/mobile
   b. Download jQuery mobile library version 1.4.2 (http://jquerymobile.com/download/all/)
   c. Copy the js and css files and the images folder from the jQuery mobile downloaded location into <PRODUCT_HOME>/source/www/libs/jquery/mobile
3. jSignature Libraries
   a. Create folder <PRODUCT_HOME>/source/www/libs/jSignature
   b. Download and copy jSignature (http://willowsystems.github.io/jSignature)
   c. Copy the jSignature.min.js file from the downloaded location to PRODUCT_HOME>/source/www/libs/jSignature
4. Knockout libraries
   a. Create folder <PRODUCT_HOME>/source/www/libs/knockout
   b. Download knockout version 3.1.0 (http://knockoutjs.com/downloads/) and rename the js file to "knockout.js"
   c. Download the knockout js mapping plugin (http://knockoutjs.com/documentation/plugins-mapping.html) and rename the js file to "knockout.mapping.js".
   d. Copy the knockout and knockout mapping js files from the downloaded location to <PRODUCT_HOME>/source/www/libs/knockout
5. Oracle Maps
   a. Create folder <PRODUCT_HOME>/source/www/libs/oraclemaps/v2
   b. Download the Standalone Javascript V2 (HTML5) API library for Oracle Fusion Middleware MapViewer version 11g ps6 (11.1.1.7.3) (http://www.oracle.com/technetwork/middleware/mapviewer/downloads/index.html)
   c. Copy the contents of the downloaded zip files v2 folder to <PRODUCT_HOME>/source/www/libs/oraclemaps/v2
   d. You can delete the apidoc and tutorials folders to reduce the size of the generated native application

Pre-build Configuration Updates

Theme/styles extension placeholder files

Placeholder files need to be created for theme/styles extension. These files can be used to add custom content for customizing themes/styles for the application

a. Create <PRODUCT_HOME>/source/www/cm/themes

b. Create the following files without any content and add them to the above mentioned directory

   - cm.jquery.theme.min.css
   - jquery.mobile.icons.min.css
   - cm.styles.css

Creating Apache Cordova Project

The Apache Cordova project is used to create native applications for different mobile operating systems. The same Apache Cordova project can be used to create native applications for different mobile operating systems.

1. Configure the properties mentioned in the Appendix Configurations.

   There are two types of installation

   - Silent Installation - If all the properties in Appendix Configurations are provided, then the installation proceeds in silent mode.
   - Interactive Installation - If any of the properties are not provided in the properties file, then you are allowed to enter values in interactive mode.

2. Create the Cordova project at the location provided as input parameter or as input properties.

   Go to the location where the product has been extracted (<PRODUCT_HOME>) and run the following command:

   ```
   cd <PRODUCT_HOME>/bin
   ant -f InstallCreateProject.xml
   ```

   This command by default takes all the values from the product_config.properties file.

   If you wish to use a different properties file, run the following command:

```
     ant -f InstallCreateProject.xml -DproductProperties=<Different
Location>/product_config_<xyz>.properties
```

The creation of Apache Cordova Project does the following:

- Executes the Cordova commands through ant utility to create the project at desired location as CORDOVA_HOME.
- Creates the Apache Cordova project with the project name provided in the configuration file.
- Adds the Android and iOS platforms for the Cordova project, based on the flag set in the configuration file.
- Gets the plugins from Git repository and installs under the Cordova plugins directory.
- Creates the custom plug-ins, if any, onto the Cordova plugins directory.

Preparing SDKs for Building the Mobile Application (for iOS)

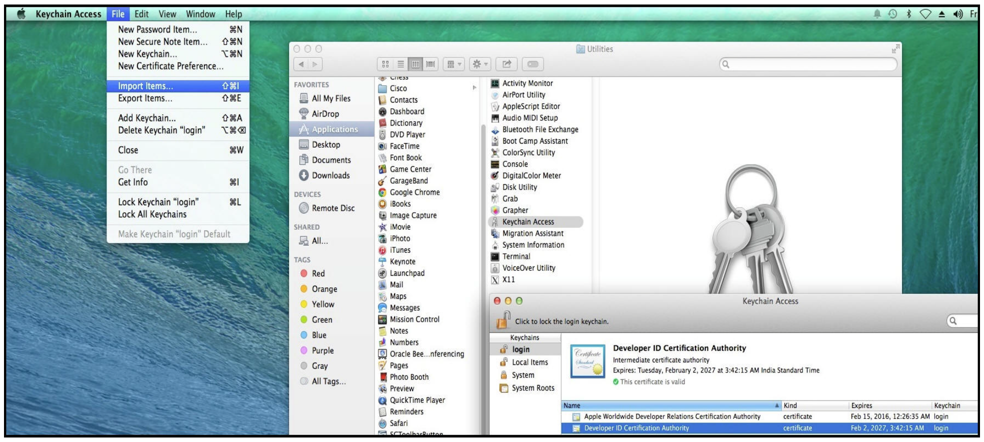
This section describes the steps required to prepare SDKs for building the mobile application for iOS.

Refer to the **iOS Developer Library** -> **App Distribution Guide** for more information about application distribution.

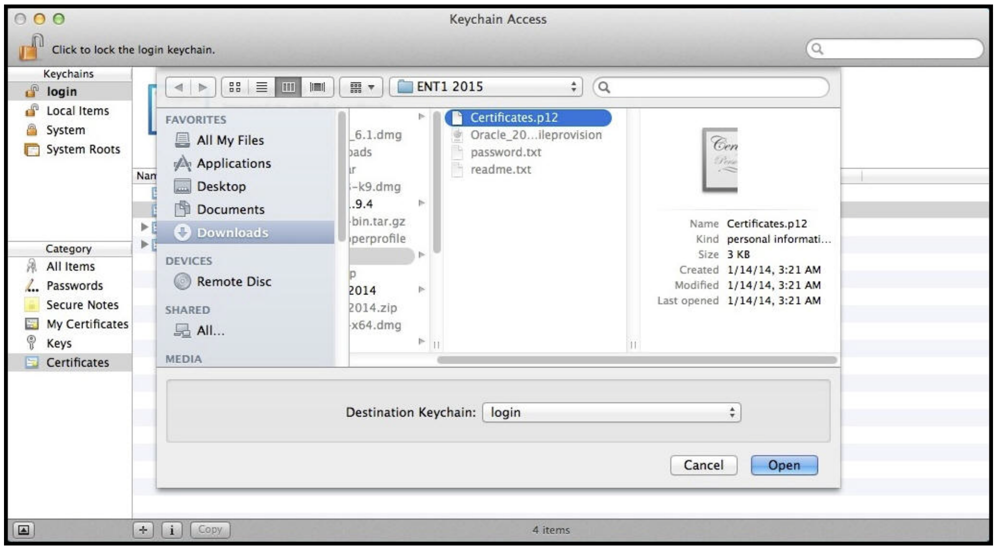
Registration of Certificate

1. From the **Finder** screen select **Go** -> **Applications** -> **Utilities** -> **Keychain Access.**
2. Ensure that the login key chain is the default.
3. Double-click **Keychain Access.**

   The **Keychain Access** page opens.
4. Select the login keychain and from the **Main Menu**, select **File** -> **Import Items**.



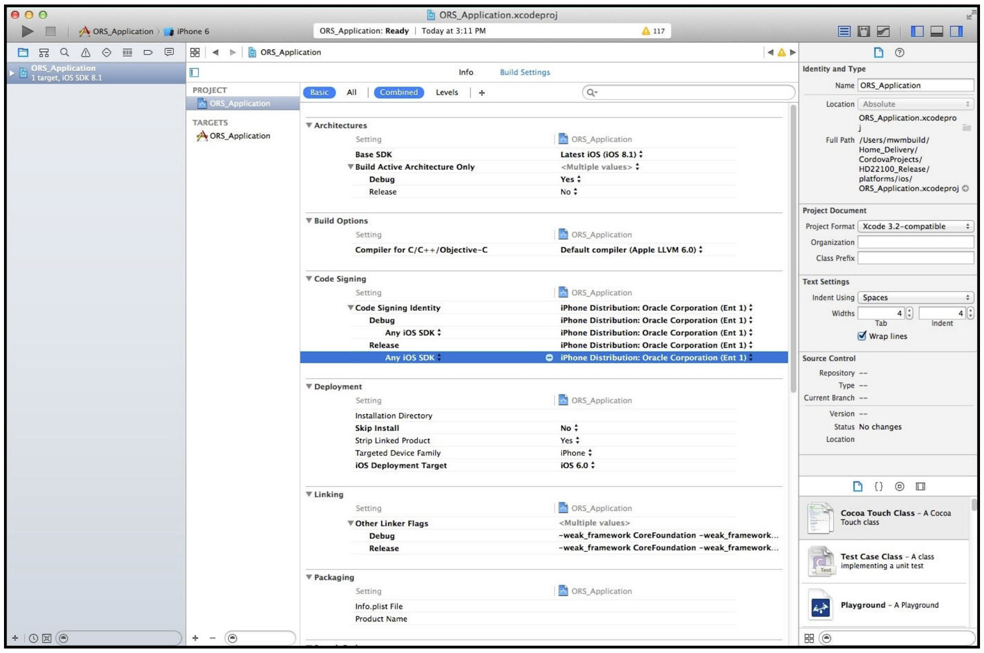
5. In the **Import** dialog, select the <Name of Certificate>.p12 file from the unpacked zip and click **Open**.



6. When prompted, enter the password that you received from the certifying authority.

   The certificate is now registered on the machine.

7. Right click the newly-added certificate **iPhone Distribution: <Your Company> (Ent1)** and click on "**Evaluate iPhone Distribution: <your Company> (Ent1)**"


ORS_Application.xcodeproj
ORS_Application: Ready | Today at 3:11 PM
117
ORS_Application
iPhone 6
ORS_Application
1 target, iOS SDK 8.1
PROJECT
TARGETS
Info
Build Settings
Basic
All
Combined
Levels
Cocoa Touch Class - A Cocoa Touch class
Test Case Class - A class implementing a unit test
Playground - A Playground

```
▼ Architectures
    Setting                                   ORS_Application
    Base SDK                                  Latest iOS (iOS 8.1)
  ▼ Build Active Architecture Only            <Multiple values>
      Debug                                   Yes
      Release                                 No

▼ Build Options
    Setting                                   ORS_Application
    Compiler for C/C++/Objective-C            Default compiler (Apple LLVM 6.0)

▼ Code Signing
    Setting                                   ORS_Application
  ▼ Code Signing Identity                     iPhone Distribution: Oracle Corporation (Ent 1)
      Debug                                   iPhone Distribution: Oracle Corporation (Ent 1)
         Any iOS SDK                          iPhone Distribution: Oracle Corporation (Ent 1)
      Release                                 iPhone Distribution: Oracle Corporation (Ent 1)
         Any iOS SDK                          iPhone Distribution: Oracle Corporation (Ent 1)

▼ Deployment
    Setting                                   ORS_Application
    Installation Directory
    Skip Install                              No
    Strip Linked Product                      Yes
    Targeted Device Family                    iPhone
    iOS Deployment Target                     iOS 6.0

▼ Linking
    Setting                                   ORS_Application
  ▼ Other Linker Flags                        <Multiple values>
      Debug                                   -weak_framework CoreFoundation -weak_framework...
      Release                                 -weak_framework CoreFoundation -weak_framework...

▼ Packaging
    Setting                                   ORS_Application
    Info.plist File
    Product Name
```

```
Identity and Type
          Name  ORS_Application
      Location  Absolute
                ORS_Application.xcodepro
                j
     Full Path  /Users/mwmbuild/
                Home_Delivery/
                CordovaProjects/
                HD22100_Release/
                platforms/ios/
                ORS_Application.xcodeproj
Project Document
Project Format  Xcode 3.2-compatible
  Organization
  Class Prefix
Text Settings
  Indent Using  Spaces
        Widths  4 Tab   4 Indent
                ☑ Wrap lines
Source Control
    Repository  --
          Type  --
Current Branch  --
       Version  --
        Status  No changes
      Location
```

8. In the **Certificate Assistant** page that opens, select **Code Signing** and click **Continue**.

9. On the **Certificate Assistant** page, under **Specify Certificates to be Viewed and Evaluated**, check the option **Include certificates from my keychains** and click **Done**.

   This profile can now be used for building the Oracle Real-Time Scheduler mobile application project.

Code Signing of Project

1. Launch the XCode application.
2. Click **Open another project.**
3. Browse to the directory where the XCode project (henceforth in this guide, the project name will be referred as **ORS_Application)** is created and select the XCode project name and click **Open**.
4. In the **Project Navigator**, click on the XCode project name.
5. Under **Project**, select XCode project name and click **Build Settings**.
6. Under **Code Signing** section in the **Build Settings,** ensure that all the entries under the "**Code Signing Identity**" are pointing to "**iPhone Distribution:<Your Company>**" entry.

   This completes the code signing of the project.

Adding an Account for the Project

1. Select the **ORS Application**, select the **General** tab.
2. In the **Identity** section, select the **Team** option as **Add an account**.
3. In the dialog that pops up, enter the Apple ID and Password for the account and click **Add**.

Adding the Device Orientation

1. Select the **ORS Application**, select the **General** tab.
2. In the **Deployment Info** section, select the **Device Orientation** as:
   - Portrait

- Upside Down
- Landscape Left
- Landscape Right

Building the Mobile Application on Apache Cordova Project

This section describes how to build the mobile application using Apache Cordova.

Go to the location where the product has been extracted and run the following command:

```
    cd <PRODUCT_HOME>/bin
    ant -f InstallBuildProject.xml
```

OR

If you wish to build the project using a different properties file, run the following command:

```
        ant -f InstallBuildProject.xml -
DproductProperties=<DifferentLocation>/product_config_<xyz>.properties
```

This script performs the following:

- Copies code artifacts that are developed are copied from PRODUCT_HOME to CORDOVA_HOME.
- Compiles the internally developed and the Cordova provided plugins, with the Cordova build utility invoked by our ant wrapper scripts.
- Generates the xcodeproject and apk files through the Cordova build command, based on the flag set in the properties file.
- Creates the WAR File which is deployable on Weblogic server.
- If “Deploy on Weblogic Server” is opted, then the application is deployed on the Weblogic server mentioned.

Chapter 6

Deploying the Mobile Application

This chapter describes the steps for deploying the mobile application and includes:

- Android Deployment
- iOS Deployment
- Web Application

Android Deployment

Android application (APK) file is generated after you follow the steps in Building the Mobile Application on Apache Cordova Project. The application (APK) file is created in the Cordova project under the folder <PRODUCT_HOME >/output or any other output folder as specified in the properties file. The file created is ORS_Application-release-signed_<timestamp>.apk and can be installed on Android devices.

1. To install the APK file on Android device, make sure the option to install apps from unknown sources is checked in your device. This option is under **Settings -> Security** under Android ICS.
2. Copy the APK file to your device by connecting it to the PC using a USB cable.
3. Browse to the APK location using **File Manager** and open and install the APK.

   If File browser is not available on the device, you can install it from Google Play e.g. ES File Explorer File Manager.

iOS Deployment

The iOS application has to be built from the Xcode IDE. The section Building the Mobile Application on Apache Cordova Project creates the Xcode project which in turn can be used to create the iOS application (IPA) file.

1. Through **Finder**, navigate to the <Cordova project>/platforms/ios folder and double click the ORS_Application.xcodeproj. This opens the project in Xcode.
2. Xcode can be used to test the application in iOS Simulator or to build the archive (IPA) file which can be installed on iOS device using iTunes.
3. To test the application on Simulator in Xcode, select the iPad/iPhone simulator and click **Run**.

   This opens the application in the simulator. You may test the application.
4. Change the active scheme to **iOS Device** or to the iPhone name which is connected to Mac.

5. Select the **ORS Application** -> **Build Settings** -> **Code Signing** section, ensure you select **iPhone Distribution for Enterprise** option for both **Debug** and **Release** options.
6. Select **Product** -> **Archive**.
7. Enter the password for the pop-ups like keychain login.

   This launches the **Organizer** which displays the current and past builds.
8. Select the latest build and click **Export**.
9. On the **Select a Method for Export** screen, select **Save for Ad-Hoc Deploymen**t and click **Next**.
10. Select an appropriate development team to use for provisioning and click **Choose**.
11. On the **Summary** screen, click **Export**.

    You are prompted to enter a name for the ipa file.
12. Enter the name as ORS_Application and browse to the directory where you wish to save this ipa file.
13. Click **Export**.

    This generates the ipa file.
14. Connect your iOS device to the machine and launch **iTunes**.
15. Under your device -> **Apps** tab, the ORS_Application is displayed and can be installed by clicking **Install**.

    This completes the installation of the application on the device.

Web Application

The web application should be installed into the same domain/host where the Oracle Real-Time Scheduler server application (REST services) is installed.

When the InstallBuildProject command is executed:

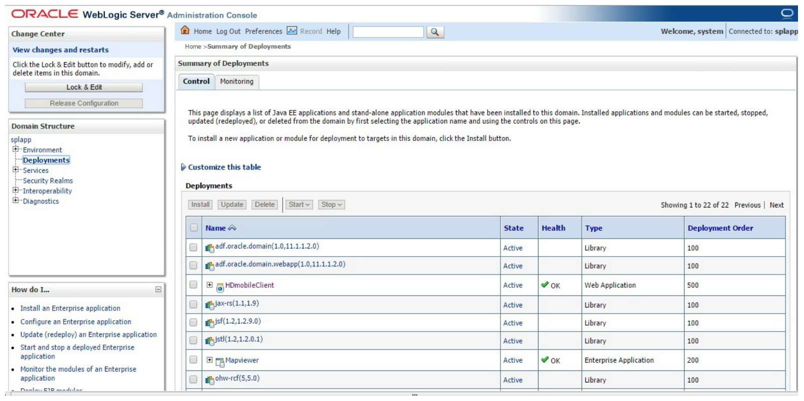
- The war file is created.
- The script reads the values for the user name and password (MOB_CLIENT_WL_USER and MOB_CLIENT_WL_PWD) from the product_config.properties file.
- For security purposes, the script creates the Weblogic User configuration files and removes these entries for user name and password from the product_config.properties file.
- If the "install.web.application" option is set as 'y', the bundled war file is deployed on the server with the properties provided.

The build script ensures that the web application is deployed on the Weblogic instance on the configured target server.

In order to verify whether the application is installed on the server, follow these steps:

1. Launch the **Oracle Weblogic Server Administration Console**.
2. Click the **Deployments** link.

3. Click the selected mobile client to view the details of the deployed application.



ORACLE WebLogic Server® Administration Console
Home Log Out Preferences Record Help
Welcome, system Connected to: splapp
Change Center
View changes and restarts
Lock & Edit
Release Configuration
Domain Structure
splapp
Environment
Deployments
Services
Security Realms
Interoperability
Diagnostics
How do I...
Install an Enterprise application
Configure an Enterprise application
Update (redeploy) an Enterprise application
Start and stop a deployed Enterprise application
Monitor the modules of an Enterprise application
Home >Summary of Deployments
Summary of Deployments
Control
Monitoring
Customize this table
Deployments
Install
Update
Delete
Start
Stop
Showing 1 to 22 of 22 Previous | Next

Click the Lock & Edit button to modify, add or delete items in this domain.

This page displays a list of Java EE applications and stand-alone application modules that have been installed to this domain. Installed applications and modules can be started, stopped, updated (redeployed), or deleted from the domain by first selecting the application name and using the controls on this page.

To install a new application or module for deployment to targets in this domain, click the Install button.

	Name	State	Health	Type	Deployment Order
☐	adf.oracle.domain(1.0,11.1.1.2.0)	Active		Library	100
☐	adf.oracle.domain.webapp(1.0,11.1.1.2.0)	Active		Library	100
☐	HDmobileClient	Active	✓ OK	Web Application	500
☐	jax-rs(1.1,1.9)	Active		Library	100
☐	jsf(1.2,1.2.9.0)	Active		Library	100
☐	jstl(1.2,1.2.0.1)	Active		Library	100
☐	Mapviewer	Active	✓ OK	Enterprise Application	200
☐	ohw-rcf(5,5.0)	Active		Library	100

4. In the **Overview** tab, take a note of the context root.

5. Open a browser and enter the URL as "http://<hostname>:<portnumber>/<contextroot>" to the context root and enter it in your browser as your URL.

   This launches the Oracle Real-Time Scheduler web client application.

Appendix A

Configurations

This appendix serves as a reference for the various configurations for building the Oracle Real-Time Scheduler mobile application, including:

- Project Configurations
- Plugin Configurations
- Installing the Android Targets
- Proxy Settings

Project Configurations

The extracted folder or etc/config consists of the following configurable items:

- **internal_product_config.properties** - These properties are internal properties which are **not** intended to be changed. Oracle does not recommend you to change any of these entries.
- **product_config.properties** - The tables below describe the configurable properties in this file.

Common Properties

Property	Description	Example
cordova.project.directory	Creates the Apache Cordova Project	C\:/ORS_Application/ CordovaProjects/ HD22100_Release
install.android.application	Option to create the android platform for the Apache Cordova Project	y for Yes n for No
install.ios.application	Option to create the iOS platform for the Apache Cordova Project. However, the iOS platform is supported only on Mac OS.	y for Yes n for No
install.web.application	Supports installation of the Online Client web war	y for Yes n for No

projectId	Used to create the projects on devices. It is the package name of the application as well.	com.oraclecorp.internal.mwm.orsapplication
projectName	Name of the project to be generated.	ORS_Application
REST_SERVICES_WEB_WLHOST	Host where the REST services reside. It is highly recommended to set this to be the same server where client war is installed.	xxxx.oracle.com
REST_SERVICES_WEB_WLPORT	Port number where the REST services deployed listens.	9999

Web Properties

Property	**Description**	**Example**
MW_HOME	Middleware home where you wish to deploy the application. This property is valid when install. web.application is set as y	C:/Oracle/Middleware
WL_HOME	Weblogic Home	wlserver_10.3 for 11g
MOB_CLIENT_WAR_FILE	File name of the Mobile Client war file	${PRODUCT_HOME}/ output/HDmobileClient.war
MOB_CLIENT_WEB_CONTEXT_ROOT	Context Root of the Mobile Application	/mobility
MOB_CLIENT_WAR_APP_NAME	Application Name	HDmobileClient
MOB_CLIENT_WEB_WLHOST	Host where Mobile Client is to be installed. **Note**: This must be installed into the same domain/host where the Oracle Real-Time Scheduler server application (REST services) is installed.	xxxx.oracle.com
MOB_CLIENT_WEB_WLPORT	Port where the mobile client is to be installed	9999
MOB_CLIENT_WLS_SVRNAME	Targeted Managed server on the machine	ManagedServer1 or AdminServer

Android Properties

Property	Description	Example
key.store	Key store location for signing the apk file	${PRODUCT_HOME}/ output/ ${projectName}.keystore
key.storepass	Password for keystore	Password for key store pass
key.alias	The name by which the certificate is referred	ORS
key.pass	Password for the key that is stored in the keystore	Password for the key
common.name	Name used for storing the key	ORS
org.unit	Unit of the Organization	XXX
Org	Organization	Oracle
Country	Country Name	US

Plugin Configurations

Plugins are used by the mobile applications in order to use native features e.g. camera, video recording etc. Apache Cordova comes with a default set of plugins available which are called core plugins. The list of core plugins is available in the Apache Cordova documentation.

Besides the core plugins, implementers can also develop their own plugins or use other available plugins.

The Apache Cordova plugins that are needed to be added for the mobile application can be configured using the <Installed Location>/etc/config/plugins.xml file. While creating the Cordova project, if the install attribute of the respective plugin element is set to “yes”, then the plugin is installed.

> **Note**: For creating the Cordova project for iOS platforms, set the install=”no” for "${PRODUCT_HOME}/plugins/ com.oraclecorp.internal.mwm.security.crypto" plugin

The following is a sample of the plugins.xml file.

```
<plugins xmlns="http://ouml.cordova.plugins.oracle.com">
   <plugin name="https://git-wip-us.apache.org/repos/asf/cordova-
   plugin-device.git#r0.2.12" install="yes"/>

   <plugin name="https://git-wip-us.apache.org/repos/asf/cordova-
   plugin-camera.git#r0.3.2" install="yes"/>

   <plugin name="https://git-wip-us.apache.org/repos/asf/cordova-
   plugin-file.git#r1.3.1" install="yes"/>

   <plugin name="https://git-wip-us.apache.org/repos/asf/cordova-
   plugin-geolocation.git#r0.3.10" install="yes"/>

   <plugin name="https://git-wip-us.apache.org/repos/asf/cordova-
   plugin-inappbrowser.git#r0.5.2" install="yes"/>

   <plugin name="https://git-wip-us.apache.org/repos/asf/cordova-
   plugin-network-information.git#r0.2.11" install="yes"/>
```

```
    <plugin name="https://github.com/wildabeast/BarcodeScanner"
    install="yes"/>

    <plugin name="https://github.com/brodysoft/Cordova-SQLitePlugin"
    install="yes"/>

    <plugin name="https://github.com/katzer/cordova-plugin-background-
    mode" install="yes"/>

    <plugin name="${PRODUCT_HOME}/plugins/
    com.oraclecorp.internal.mwm.security.crypto" install="yes"/>

</plugins>
```

The following table describes these plugins.

Plugin	Plugin name in XML	Description
org.apache.cordova.device	https://git-wip-us.apache.org/repos/asf/cordova-plugin-device.git#r0.2.12	Defines a global device object, which describes the device's hardware and software.
org.apache.cordova.camera	https://git-wip-us.apache.org/repos/asf/cordova-plugin-camera.git#r0.3.2	Provides an API for taking pictures and for choosing images from the system's image library. Takes a photo using the camera, or retrieves a photo from the device's image gallery. The image is passed to the success callback as a base64-encoded String, or as the URI for the image file.
org.apache.cordova.plugin.file	https://git-wip-us.apache.org/repos/asf/cordova-plugin-file.git#r1.3.1	Implements a File API allowing read/write access to files residing on the device.
org.apache.cordova.geolocation	https://git-wip-us.apache.org/repos/asf/cordova-plugin-geolocation.git#r0.3.10	Provides information about the device's location, such as latitude and longitude. Common sources of location information include Global Positioning System (GPS) and location inferred from network signals such as IP address, RFID, WiFi and Bluetooth MAC addresses, and GSM/CDMA cell IDs.
org.apache.cordova.inappbrowser	https://git-wip-us.apache.org/repos/asf/cordova-plugin-inappbrowser.git#r0.5.2	Provides a web browser view that displays when calling window open.
Cordova-Plugin-network-information	https://git-wip-us.apache.org/repos/asf/cordova-plugin-network-information.git#r0.2.11	Provides information about the cellular and Wi-Fi connectivity devices, and whether the device must connect to the Internet.
BarcodeScanner	https://github.com/wildabeast/BarcodeScanner"	Cross-platform BarcodeScanner for Cordova

Plugin	Plugin name in XML	Description
Cordova-SQLitePlugin	https://github.com/brodysoft/Cordova-SQLitePlugin	A Cordova/PhoneGap plugin to open and use SQLite databases on Android/iOS/WP(8) with HTML5 Web SQL API
cordova-plugin-background-mode	https://github.com/katzer/cordova-plugin-background-mode	A bunch of background mode plugins for Cordova 3.x.x

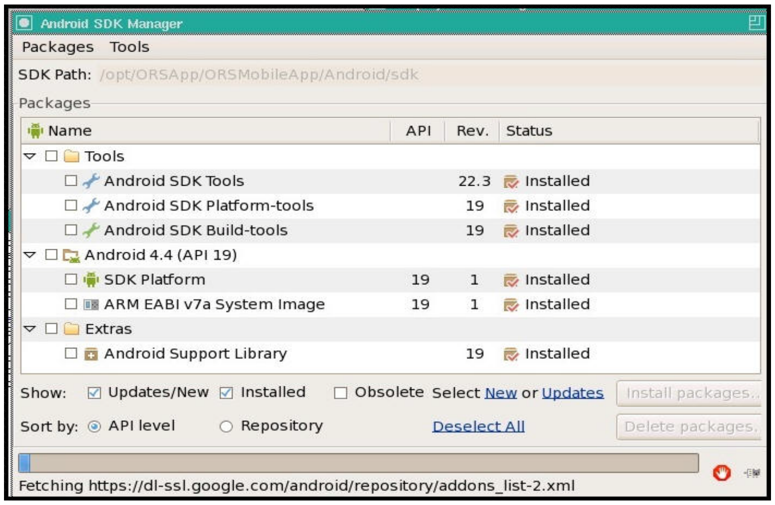
Table 1: Plugin Descriptions

Installing the Android Targets

1. Launch the Android SDK Manager using the following command:

```
android
```

The Android SDK Manager launches.



Android SDK Manager

Packages Tools

SDK Path: /opt/ORSApp/ORSMobileApp/Android/sdk

Packages

Name	API	Rev.	Status
Tools			
Android SDK Tools		22.3	Installed
Android SDK Platform-tools		19	Installed
Android SDK Build-tools		19	Installed
Android 4.4 (API 19)			
SDK Platform	19	1	Installed
ARM EABI v7a System Image	19	1	Installed
Extras			
Android Support Library		19	Installed

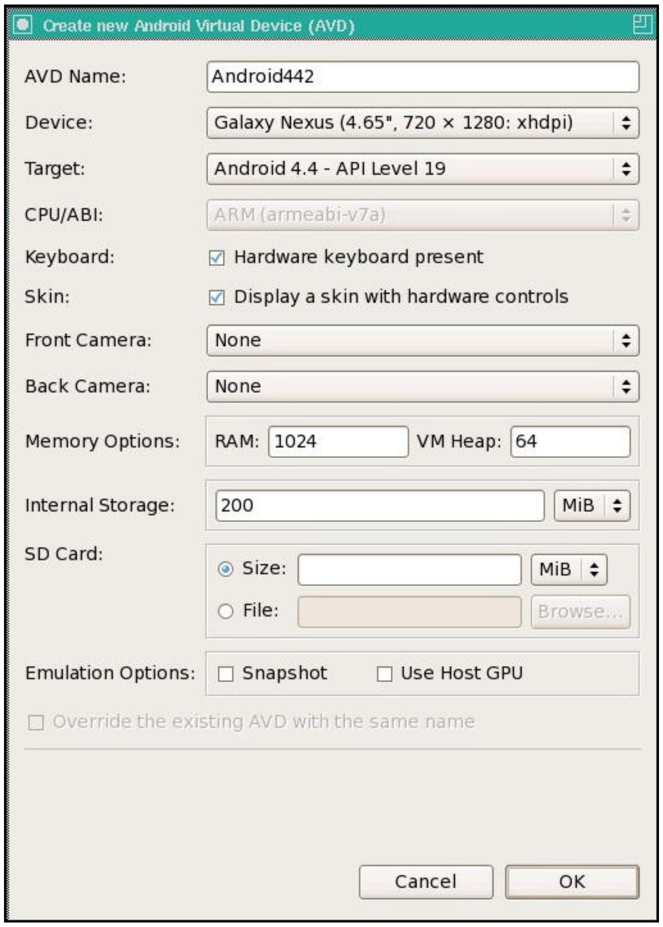
Show: ☑ Updates/New ☑ Installed ☐ Obsolete Select New or Updates

Sort by: ● API level ○ Repository Deselect All

Fetching https://dl-ssl.google.com/android/repository/addons_list-2.xml

2. Ensure that the SDK Platform and ARM EABI v7a System Images are installed with the revision of 19 as depicted above.
3. If the system is behind the corporate proxy, please refer to section Proxy Settings.
4. Ensure that the compatible Android API is selected for that of the compatible version of the Cordova version that is installed. Here in this scenario for Cordova 3.6.x, the targeted version is Android 4.4 API 19.
5. Create the Android Virtual Device by navigating through the **Tools** -> **Manage AVDs**

6. Configure the values as below.



AVD Name: Android442
Device: Galaxy Nexus (4.65", 720 × 1280: xhdpi)
Target: Android 4.4 - API Level 19
CPU/ABI: ARM (armeabi-v7a)
Keyboard: ☑ Hardware keyboard present
Skin: ☑ Display a skin with hardware controls
Front Camera: None
Back Camera: None
Memory Options: RAM: 1024 VM Heap: 64
Internal Storage: 200 MiB
SD Card: ◉ Size: MiB ○ File: Browse...
Emulation Options: ☐ Snapshot ☐ Use Host GPU
☐ Override the existing AVD with the same name

7. Click **OK.**

   The Android environment is ready for building the Cordova applications for Android platform.

Proxy Settings

This section describes the configurations that are needed in order to bypass the corporate proxy for the following applications:

Node js

Run the below commands from Command line interface to bypass the npm entries:

```
npm config set proxy http://<<proxy-host>>:<<proxy-port>>
npm config set https-proxy http:// <<proxy-host>>:<<proxy-port>>
```

While running the commands, if you face any issues please create the directory

```
<Users-directory>\AppData\Roaming\npm
```

Git

For by passing the git entries, run the below commands from Command Line interface

```
    git config --global http.proxy http:// <<proxy-host>>:<<proxy-
port>>
```

```
   git config --global https.proxy http:// <<proxy-host>>:<<proxy-
port>>
```

In order to ensure that the below commands are successfully executed, go to the users folder.

Windows: - `C:/Users/<user-name>`
Linux: - `/usr/<user-name>`

Ensure that the .npmrc and .gitconfig files are present. Ensure that the proxy host and proxy port details are defined for http and https protocols.

Android SDK

1. Launch the **SDK Manager**.
2. Select **Tools → Options**.

   The **Settings** page launches.
3. Enter values for the **Http Proxy Server** and **Http Proxy Port** fields.

Mac OS X

1. In order to set the proxy settings for the Mac OS X, go to the **Apple** Icon → **System Preferences.**
2. Click the **Network** Icon
3. Select the type of connection you have chosen and click **Advanced.**
4. Select the **Proxies** tab.
5. Enter the values for **Web Proxy** and **Secure Web Proxy**.