

## ADF Mobile Overview and Frequently Asked Questions

### Oracle ADF Mobile Overview

Oracle ADF Mobile is a Java and HTML5-based mobile application development framework that enables developers to build and extend enterprise applications for iOS and Android from a single code base. Based on a hybrid mobile architecture, ADF Mobile supports access to native device services, enables offline applications and protects enterprise investments from future technology shifts.

Oracle ADF Mobile is part of Oracle ADF, the strategic, standards based framework for Oracle Fusion Applications and Oracle Fusion Middleware.

### Key Components of Oracle ADF Mobile

- ADF Mobile-based application is consisted of the follow key components:
- Thin Native Framework for each supported platform
- PhoneGap libraries in the container to support device services integration
- HTML5 based UI Components that delivers device-native user experience
- A light weight Java VM is embedded to support the application logic written in Java
- An encrypted SQLite database engine
- Encrypted credential store and authentication/authorization services

### Other Options for Mobile Application Development

- Oracle ADF Faces Rich Client Components – For Online Web applications, where user interface implemented with ADF Faces (JSF) components is rendered to browsers running in desktop/laptops, tablets, and many of the smart phones on the market today. ADF Faces has been enhanced

to handle touch gestures, adapt to form factors, and support mobile-optimized components.

- Oracle ADF Mobile Browser – For Online Web applications, where user interface implemented with Apache Trinidad JavaServer Faces (JSF) components is rendered to mobile phone browsers. ADF Mobile browser is compatible with virtually all mobile phone browsers, and delivers mobile-optimized user experiences through CSS.

### Customer Benefits

- Develop Once, and Deploy to Apple iOS and Google Android devices.
- Reuse Your Development Skills and Tools – Development is done mostly in Java and web-based technologies such as CSS, using visual editors and wizards in Oracle JDeveloper.
- Deliver a Flexible Runtime Architecture –application can be constructed using a combination of the declarative ADF AMX UI components, local HTML5 developed using third party frameworks, and remote HTML pages.
- Support Mobile-optimized User Experiences, for both tablets and smart phones.
- Integrate with Device Native Services – such as on-device camera, location-based service, contact applications, etc, to support application functionality.
- Work offline – the entire application can run on-device against a local database.
- Secure – integrate with enterprise security infrastructure, and provide authentication and access control services. All data/credential stores and communication channels are encrypted.

## Frequently Asked Questions

### *Overall Solution Offerings and Licensing*

#### **What are the two types of Mobile Applications Oracle is Targeting?**

Oracle sees two types of mobile applications being built.

- On-device mobile applications – applications that reside on device, able to leverage device services, and can operate regardless of connectivity by leveraging local data store.
- Browser-based mobile applications – applications that are running on the server and deliver UI to the Web browser on the device.

#### **What's Oracle's Solution for on-device Mobile Applications development?**

Oracle ADF Mobile is Oracle's solution for on-device mobile applications development. ADF Mobile is used by Oracle application teams to build the next generation mobile applications. We are now making it available for all Oracle customers to develop on-device mobile applications.

#### **What are my options to develop mobile browser-based application?**

Oracle ADF Faces is supported on tablet devices (Currently iOS with support for Android is planned for a future release). Specific features for running on tablets include support for finger gestures, HTML 5 rendering for DVT, adaptive layout and more.

If you are targeting a smart phone - it is likely that you'll want to build a separate UI for mobile devices that takes into account the differences between mobile and desktop. You can use either ADF Faces or ADF Mobile browser (Apache Trinidad JSF components) in this scenario, but note that ADF Faces only supports iPhone currently.

You should take into consideration the different screen size and resolution as well as interaction patterns such as using a mouse vs. fingers, or having an on-screen keyboard.

#### **How does ADF Mobile enhance mobile-browser based applications?**

ADF Mobile supports multiple content types for the user interface layer. One such content type is Remote HTML. This means ADF Faces or ADF Mobile browser-based application can run inside the

ADF Mobile container, where ADF Mobile's UI would be delivered through these server-side web pages. When these remote HTML pages are running inside the ADF Mobile container, these pages can also access device-native services (such as camera) through PhoneGap's JavaScript interface. This means that an ADF Faces-based application can invoke device camera, take a picture, and upload the picture to the server.

With remote HTML, the mobile application can only operate while there is network connectivity. Furthermore, these remote HTML UIs are not optimized nor rendered on the device. Generally speaking, ADF Mobile AMX components provide the best overall user experience for mobile users.

#### **Can I mix different content types in one ADF Mobile application?**

Absolutely – this is a key advantage for using ADF Mobile. You may have an ADF Mobile application where some features are based on the declarative AMX components, mobile task flow, and on-device ADF model layer components. Some features can be based on remote HTML where content is generated on the server. Some feature may even be based on local HTML. You may even add a feature based on device-native code. All of these can run within the same application, and all of these features can communicate with each other.

#### **What's the platform support for the Oracle ADF Mobile?**

Both iOS (5.x and above) and Android (2.3.x and above) devices are supported. Furthermore, both the tablet and smart phones running these mobile operating systems are supported.

#### **How is ADF Mobile licensed?**

ADF Mobile is licensed as part of the Oracle Application Development Framework (ADF). Oracle ADF can be licensed either as "Oracle Application Development Framework and TopLink" item on the technology price list, or as part of the Oracle WebLogic licenses.

A named user plus license of ADF will entitle customer a single named user license of the ADF Mobile. A processor license of ADF will allow customer to deploy ADF Mobile-based application to unlimited number of devices.

## Development Environment

### Will I need to install Xcode/iOS SDK and/or Android SDK?

Yes these are needed, but you do not need to code your application using these tools. ADF Mobile design time in JDeveloper invokes Xcode and Android SDK Tools to package your application and enable deployment to the iOS Simulator/Android Emulator or to create the IPA/APK file which can be deployed to a mobile device. A temporary project in device SDK-native format is generated as part of the deployment process, which provides the developer complete flexibility to further enhance the application in device-native environment.

Furthermore, these device SDKs delivers mobile device simulators, which allows you to test the application prior deployment to devices. JDeveloper supports direct deployment to these device simulators.

### Will I need to code in native languages such as Objective C?

No you do not have to. However, you may choose to develop native modules or screens using device native languages, and add these modules to the ADF Mobile app. You would add these to the temporary SDK projects that are generated as part of the deployment process. However, please note that these device native screens or modules are not portable between different platforms.

### Is device simulator sufficient enough to test my ADF Mobile application?

Apple's iPhone Simulator provided by Apple's Xcode is intended to provide developers an environment to test Apple iOS applications on Apple iPhone, iPhone Retina (HD) and iPad without actually requiring the physical devices themselves. This is the same for Android emulators as well, as you can create emulator of different form factors and resolutions to simulate the devices you want to support.

However, the simulator does have limitations including lack of support for simulating certain device services. Furthermore, Android emulator performance is poor overall, and developer will find it time-consuming to rely on Android emulator alone. Oracle recommends customers as part of their overall testing strategy for Oracle ADF Mobile applications include testing on both the device simulator and the actual Apple iOS/Android devices on which the application will be deployed.

### If there are new releases of Xcode/iOS SDK and Android SDK released, does Oracle automatically support these new versions?

Generally speaking, when new versions of mobile operating system are released, Oracle will be able to support application running on these devices, as mobile operating system typically ensures basic backward compatibility. However, Oracle will be unable to automatically support new version of the mobile SDK/developer tools (such as new versions of Xcode). Mobile development tools generally do not maintain backward compatibility with their interfaces, and Oracle must specifically certify against new versions before they can be supported.

This means that customers can continue to develop using the supported version of mobile SDK, but can deploy to new versions of the mobile operating system as they become available.

## Runtime and Device Support

### How do features built using different content communicate with each other?

ADF Mobile offers the flexibility of supporting different content types as features within the same ADF Mobile application. To allow different features to invoke each other and pass state information, ADF Mobile supports application level APIs that are available in: Java (for invocation in AMX-based features), JavaScript (for invocation in remote or local HTML-based features), and native code (for native features). This allows developer to develop a single application consisted of many different contents.

### Does Oracle support and certify ADF Mobile against jail broken devices?

No.

### Can I always expect all device features to be available when I test/run the application?

Many of the device features can be disabled by the operating system. In turn not all devices support all features. As example Apple iOS Location Services can be turned on and off in the Settings page, and in turn the iOS Location Services aren't available on the iPad Wi-Fi version (but are on the iPad Wi-Fi/3G version). ADF Mobile can detect the availability of many of these device services and exposes them to the framework. If critical application functionality relies on

these device features, please add the code to check for the availability of these services.

### **Does Oracle support ADF Mobile running on pre-released or unofficial versions of mobile operating systems?**

Oracle cannot officially support beta versions of the mobile operating system, or unofficial versions/builds of the Android operating system. However, if you tested ADF Mobile against the beta version of the operating system, you are welcome to report any issues to Oracle technical support. This would help us provide proper support when the mobile operating system is officially released.

### **Why some Android devices are certified, while others are merely supported?**

Android devices are frequently being described as “fragmented”, which refers to the variety of devices, form factors, and customized versions of the Android operating system. Therefore, while Oracle generally was able to obtain and test against iOS devices, Oracle is unable to obtain all variations of Android devices. This means that Oracle can only certify a set of popular Android devices, while stating support for other devices that meets the minimum device specifications. This means support will make the best effort to support and diagnose customer issues, but will need customer’s assistance to provide devices for testing purposes.

### **Should I go with iOS or Android Devices?**

Oracle does not recommend a particular mobile operating system over another. Please follow Oracle’s recommendation for supported and certified devices and mobile operating systems.

### **Which Android devices should I pick?**

Oracle does recommend “certified” Android devices. All certified devices underwent extensive QA testing to ensure compatibility, and Oracle would document any limitations found while testing the device.

### **Does ADF Mobile provide same level of support between Android and iOS devices?**

ADF Mobile generally supports the parallel functionality across both Android and iOS devices. Furthermore, Oracle recognizes different capabilities of the mobile operating systems and differences between versions of the same operating system, and attempts to fill in missing functionality to provide comparable features.

However, one general exception is around Android support for HTML5. Older versions of the Android operating system provide limited support for HTML5, and therefore some of the Data Visualization components are not interactive in these older devices.

## *Server-side Services*

### **Does Oracle recommend Fusion Middleware and WebLogic to provide server-side services for ADF Mobile?**

Absolutely – Oracle development and QA team specifically certify against Oracle Fusion Middleware and WebLogic Servers. We ensure compatibility and provide proper documentation and expertise when customers choose to leverage Oracle server-side components.

### **Do I need to the exact same version of Fusion Middleware or WebLogic components as ADF Mobile?**

No, not at all. There are specific versions of JDeveloper where ADF Mobile is supported against, but ADF Mobile-based applications can support server-side services or applications built using any version of Oracle Fusion Middleware or WebLogic Server, as long as the services are exposed in one of ADF Mobile’s supported mechanisms. In other words, SOAP or REST based services.

This is true for Remote HTML content as well.

## *Deployment and Distribution*

### **Does developing with Oracle ADF Mobile changes any of Apple’s iOS Provisioning Portal or Android SDK conditions for distribution?**

No, Oracle customers who develop with Oracle ADF Mobile against Apple iOS or Android SDK must still adhere to all terms and conditions as detailed by Apple or the Android Developer Site, and follow the distribution terms and limits.

### **Can I distribute ADF Mobile-based Applications on Apple AppStore or Google Play?**

Yes, absolutely. ADF Mobile-based applications are delivered as a native application, and JDeveloper allows developers to sign applications with the appropriate certificates and distribution profiles. Therefore, as long as the application is signed properly, you may distribute the application through these app stores.

### **Would Apple or Google accept or reject my ADF Mobile-based application?**

All of the key components of the ADF Mobile framework are programmed to follow Apple iOS or Android application guidelines. For example, although there is an embedded JavaVM in the application, the VM is simply consisted of native libraries that are compiled along with the rest of the application.

We have also successfully submitted and obtained approval for an ADF Mobile-based application to the Apple AppStore – the application is called Hudson, and is used to monitor Hudson build jobs.

Nevertheless, Oracle cannot guarantee that Apple or other app store authority will accept your app. Developer-created features or screens can still violate App store guidelines. Furthermore, Apple or other authorities always retains the right to reject any app, and Oracle simply does not have control over these decisions.

### **How does Apple's Announcement around iPhone5 support for App Store Submission Impact ADF Mobile?**

Apple recently announced two key requirements in submitting new applications to the Apple AppStore. The requirement went into effect May 1<sup>st</sup>, 2013. Furthermore, Apple will no longer approve applications that accesses the device's UDID.

ADF Mobile 11.1.2.3 does not comply with these new requirements. However, the new 11.1.2.4 version does properly support the iPhone 5 Form Factor, as well as moving to a new version of Cordova that does not access device UDID. Therefore, any new submissions to the Apple App Store must be compiled with 11.1.2.4 version of JDeveloper, or it may be rejected by Apple.

ADF Mobile 11.1.2.4 has now been officially released.

### **What Mobile Device Management (MDM) solutions can I use to manage ADF Mobile-based applications?**

In general, ADF Mobile applications can be managed by third party MDM solutions. ADF Mobile generates native application binaries, and allows developers to sign application with enterprise or app store distribution certificates. MDM solutions typically rely on applications to be signed with enterprise certificates, which are supported by ADF Mobile.

Certain MDM solutions also support the option of additional application containers that, for example, directs network traffic to a

specific gateway for security purposes. Customers may choose to manipulate the temporary native SDK projects created during the application deployment process, and add these MDM specific libraries to the application. At this time, Oracle does not directly support such mechanisms.

### **Does Oracle embed or deliver a MDM solution with ADF Mobile?**

There are many great MDM solutions on the market today, and Oracle may in fact in the future add such a solution to our mobile support. However, at this time, Oracle recommends customer leveraging best of breed MDM solutions.

### **What server-side application and services are supported?**

Any backend applications and services are supported, as long as they provide ADF Mobile-supported interfaces, such as SOAP-based Web Services.



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