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English



SAP Mobile Platform – Mobile Application Certification(SMP-MA 2.3) Test Plan

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Preface

This document describes different tests performed during mobile solution certification using SAP Mobile Platform 2.3.

The compliance of the delivered mobile application with this test plan will be checked against SAP Mobile Platform 2.3, if applicable SAP® NetWeaver Gateway and appropriate Enterprise Information Systems (applications like SAP application or databases like DB2, SQL Server etc.).

How to read this document

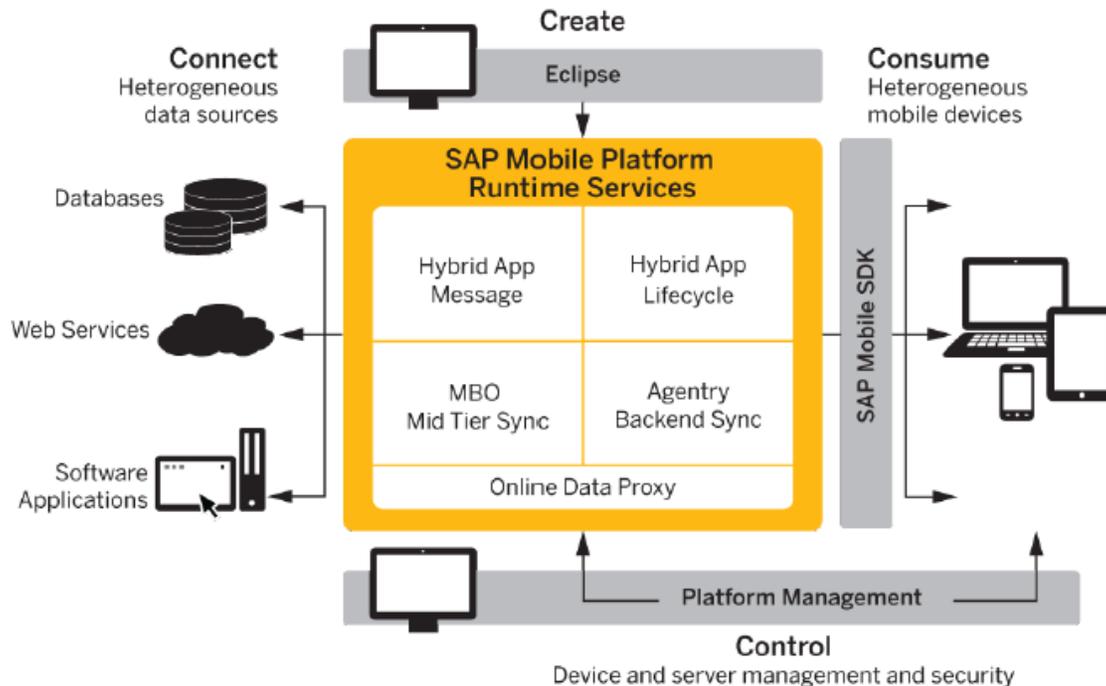
This document is meant to show an overview of the checkpoints for certification

Icons

Icon	Meaning
	Caution
	Example
	Note or Tip
	Recommendation
	Syntax
	Tool available

1 Introduction

1.1 Platform Overview



SAP Mobile Platform (SMP) provides an integrated platform solution to extend enterprise applications to mobile user.

SAP Mobile Platform acts as hub that connects enterprise information systems and data sources to mobile devices. Features for mobile application development, deployment, security, and ongoing mobile device and mobile application management (MDM/MAM) provide a complete end-to-end solution. The platform is made up of:

SAP Mobile SDK – The platform development tool set used to build mobile solutions that meet present day mobility needs.

- SAP Mobile WorkSpace provides an Eclipse-based, integrated development for modeling, designing, and deploying mobile applications.
- The Agency Editor provides an Eclipse-based, integrated development environment for developing Agency applications.
- Libraries are also provided to support building Object API, HTML5/JS Hybrid, and OData SDK mobile applications.

SAP Mobile Platform Runtime – The deployment, management architecture and services used to run and manage mobile applications. SAP Mobile Server is an engine that provides server-side runtime services, such as security, caching, and synchronization, to mobile applications and enables integration with the EIS.

- SAP Control Center, a key component of Runtime, is the web-based console that provides platform management and control, which includes mobile device and mobile application monitoring and management.

This solution allows you to:

Connect – During development and deployment, connect to your heterogeneous data sources and backend enterprise systems.

Create – Use the development tools included with the SAP Mobile SDK to build and test mobile applications that meet your mobility needs.

Control – Deploy to and manage SAP Mobile Platform Runtime, including the runtime environment, end-to-end security, and device applications.

Consume – Mobile applications install to devices allowing device users to work online and offline. Enterprise data is accessed from a variety of mobile devices.

Mobile Data Models

There are multiple ways to model enterprise data so that mobile applications can be developed to access data in an enterprise:

Mobile Business Objects using the SAP Mobile SDK,

OData using SAP NetWeaver Gateway, and

Object, Transaction, and Synchronization definitions using Agentry Editor.

Prior to defining data models, identify mobile application archetype for development, based on the mobile application category that meets user and data requirements.

Category	Mobile Application Archetype	Data Model
Offline applications	Native Objective API application Agentry application	Mobile Business Object (MBO) Agentry
Hybrid applications	HTML5/JS Hybrid applications	MBO or OData
Online applications	OData SDK application and REST API applications Agentry application	OData Agentry

Based on data model and business logic, the EIS interface must be defined. This process eventually involves adapting existing services exposing data from the EIS. Data models connect with EIS using these data services.

- **Mobile Business Objects**

Mobile Business Objects (MBOs) are developed to define the mobile data model to be used by Object API Applications (native) or HTML5/JS Hybrid Apps. MBOs are developed using Mobile WorkSpace graphical tool (comes with SAP Mobile SDK). These tools simplify and abstract EIS connections, and provide a uniform view of transactional objects. MBOs are reusable, allowing you to leverage them across multiple mobile device types.

- **OData and REST API**

The SAP NetWeaver Gateway exposes OData with extensions specific to SAP. Service documents, that describe service interaction and data, allow users to interact with the SAP application.

- **Agentry**

Agentry applications handle data modeling and development in a single task. Object, Transaction, and Synchronization definitions are defined within the application project using the Agentry Editor's 4GL development interface.

1.2 Migration

This section brief summarizes migration of existing mobile applications developed using SUP 2.2 and Agentry 6.0.x. For details on migration topic, please refer to product documentation.

1.2.1 Best practices for migrating applications

When upgraded to SAP Mobile Platform 2.3, client applications continue to run without migration. In some cases, adjustments are required to ensure the application runs correctly; and in cases where the client application is based on MBOs, the project needs to be started in the Mobile Application Diagram to automatically trigger migration steps. But overall, the client application continues to run and can synchronize with its enterprise information system. Any exceptions are noted in migration documentation.

A client application is compiled code that is based on its data model, and consists of a binary piece, and an SAP Mobile Server piece. This enables the application to execute on devices and in the server. Over time, features are added and improvements made to the SDK and SAP Mobile Server. To take advantage of these improvements, server upgrade or recent SDK version is required.

NOTE: *A best practice is to recompile your client application code after a major release, so that the binary and SAP Mobile Server versions are the latest. One strategy is to ensure the upgraded environment is stable, and then recompile.*

1.2.1.1 Migrate Agentry Applications

From a high level, the following main tasks are performed in order to migrate mobile application:

1. All application-specific resources stored on the Agentry 6.0.x Server is bundled together in a ZIP archive, with the exception of the business logic itself
2. The business logic is imported from the Agentry 6.0.x Server as a new project in the Eclipse workspace for the Agentry Editor in SAP Mobile Platform 2.3. This upgrades the business logic to the latest format.
3. The application is published to the Agentry Server running within SAP Mobile Platform 2.3. This updates the configuration sections for the application related to the defined system connections.
4. The ZIP archive containing the non-Agentry application-specific resources is imported using the SAP Control Center into the Agentry Server for the application within the SAP Mobile Platform 2.3.

For further details, please refer to migration document (Developer Guide: Migrating to SAP Mobile).

1.2.1.2 Migrate Mobile Business Objects

Complete the steps below to migrate Sybase Unwired Platform (SUP) 2.2 SP02 mobile business objects (MBOs) to SAP Mobile Platform version 2.3.

1. From Eclipse, point to the existing MBO project's workspace.
2. Ensure connection profiles referenced by the MBO projects are in place or imported, and enterprise information system (EIS) data sources associated with those connection profiles can be connected.
3. Once SAP Mobile WorkSpace is started, open the Mobile Application Diagram. This automatically triggers the Mobile Application project migration.

1.2.1.3 Migrate Object API Applications

No steps are required to migrate SUP 2.2 SP02 mobile applications to SMP 2.3.

1.2.1.4 Migrate Hybrid Web Container

No steps are required to migrate SUP 2.2 SP02 Hybrid Web Container projects to SMP 2.3.

1.2.1.5 Migrate OData Applications

No migration required for OData applications; however migration steps are required to take advantage of SMP 2.3 features.

1.2.1.6 Migrate REST API Applications

No migration changes are required for REST API applications.

1.3 Scope of certification

An enterprise mobile solution has three components:

1. Mobile application (running on mobile device).
2. SAP Mobile Platform objects.
3. Enterprise system (aka data source or backend system).

All the above components are in the scope of certification. Objects from each component must be packaged, deployed and functionally validated to successfully complete certification.

2 Technical requirements

2.1 Mobile application

Requirement

Packaged Mobile application shall be installed on mobile device during certification.
This requirement is mandatory for both online and offline scenarios.

Packaging

Based on vendor's choice of mobile device platform, mobile application must be packaged accordingly. Packaging shall be done prior to certification.

For example, Android application must be packaged as an ".apk" file, iOS must be packaged as an ".ipa" file, etc.

Deploy

Mobile application shall be installed on ICC's test mobile device during certification.

Tools

Native device tools must be used for installing mobile application. For example, use iTunes to deploy an iOS app.

Optional: Deployment of mobile application on mobile devices using Afarria is highly recommended.

Configure

Configuration details (like IP address of SAP Mobile server, device registration, access code) for the mobile application must be provided.

onboarding – The enterprise-level activation of an authentic device, a user, and an application entity as a combination on SAP Mobile server.

NOTE: *After successfully completing the certification, mobile application will be qualified for listing on SAP Store. Mobile application build (other than iOS) used for certification will be forwarded by ICC to SAP Store. Because iOS applications cannot be listed on the SAP Store, Partner will have to complete Apple's iOS application approval process and provide Apple store link to SAP Store.*

2.2 SAP Mobile Server

SAP Mobile Server is used for hosting, managing and administrating mobile packages. Mobile application packages are deployed on SAP Mobile Server.

Deploying is the process whereby whole or part of a mobile package is loaded onto SAP Mobile Server as one or more deployment units. SAP Mobile Server can then make these units accessible to users via a client application that is installed on a mobile device. The following mobile application packages can be deployed:

1. Mobile Business Objects (MBOs) package.
2. Hybrid App package.
3. Agentry package.

NOTE: *SAP Data Orchestration Engine (DOE)* is put into maintenance hence usage of DOE for modeling is not supported for certification.

2.2.1 Mobile Business Objects (MBOs) package

Requirement

All developed MBOs shall be packaged and deployed on SAP Mobile server during certification.

Packaging

MBOs shall be packaged as MBO package (which is .jar file) using Mobile SDK. It is possible to create one single package for all the developed MBOs or one package per MBO.

Deploy

Mobile application package shall be deployed using SAP Control Center (SCC).

Tools

SAP Control Center (SCC) shall be used for deploying mobile application package.

Configure

Connection profiles (to respective backend system) shall be configured for each MBO.

2.2.2 Hybrid Application packages

Hybrid Application packages support occasionally connected users and solve the replication and synchronization issues such users present with respect to data concurrency. Hybrid Application packages are similar to other package types and must be deployed on SAP Mobile Server so that it can be configured and made available to client devices.

For Hybrid Application package using MBOs, refer to [section 2.2.1](#).

For Hybrid Application package using OData access, refer to [section 2.2.4](#).

2.2.3 Agentry package

Requirement

All developed objects for Agentry application shall be packaged and deployed on SAP Mobile server during certification.

Packaging

Application developed using Agentry can be packaged as

.agp files – Agentry application definition files.

.agpz files – zip files containing Agentry application definition files and additional development artifacts.

.zip files – files that have been created from existing Agentry application definitions in SAP Control Center by downloading specific Agentry metadata.

Deploy

Mobile application package shall be deployed using SAP Control Center (SCC).

Tools

SAP Control Center (SCC) shall be used for deploying mobile application package.

Configure

Connection profiles (to respective backend system) shall be configured for the server components.

2.2.4 OData SDK and REST API applications

These applications leverage SAP NetWeaver Gateway for accessing SAP backend.

OData SDK is used for developing native mobile applications. It consists of a collection of runtime libraries and classes. The OData SDK supports Android, BlackBerry and iOS platforms and it is based on the native device platform SDKs. Native applications installed on the devices allow the client application to leverage the support provided by the given platform.

SMP REST API can be used to develop mobile applications using 3rd party tools or SDKs such as Sencha and PhoneGap, without using any SAP Mobile SDK or native client libraries. Applications developed using these 3rd party SDKs for any device platform, and using any programming language that supports sending and receiving HTTP messages, can use SMP REST APIs to call services provided by the SAP Mobile Platform Runtime.

Mobile application developed using OData SDK or REST API, leverage proxy connection to SAP backend via SAP NetWeaver Gateway. These applications do not require MBOs but rather inherits a service model from the service document published from SAP Gateway. These applications will require device and user registration on SMP server.

Requirement

MBO development is not required when using OData or REST API, so packaging is not required but using SAP Gateway generates ABAP objects, these objects shall be packaged using Add-on Assembly Kit (AAK) as a delivery package (.PAT). Please refer to [section 2.4.1.1](#) for further details.

2.3 SMP Cloud Ready (Optional)

This test is to validate readiness of mobile solution on SAP Mobile Platform on HANA Cloud.

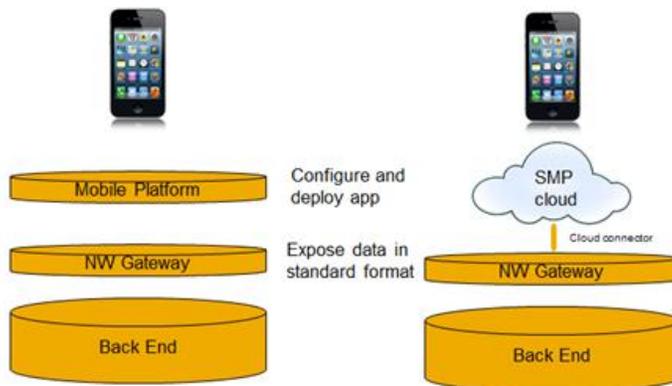
Requirement

SMP Cloud is focused on HTTP REST based online client application. Every HTTP REST based application that runs against SUP 2.2 (and higher) will also run against SMP cloud (and vice versa).

Deploy

SMP Cloud is an alternative deployment method of the mobile platform: the HTTP REST interfaces for core services exposed by the mobile platform in the cloud are identical to the REST APIs in SAP Mobile Platform onPremise (aka SUP 2.2 and later releases) so applications using the REST API can run on cloud and on-premise deployments.

Let's look at the both options side by side (onPremise and Cloud) – in a scenario where we are running against and SAP backend with NW Gateway on top:



2.4 Enterprise System (backend system)

It is possible to use either SAP Business Suite or non-SAP application (e.g. database or third party application/party or services) as backend for mobile applications.

2.4.1 SAP Business Suite

When using SAP Business Suite, following connectors shall be used

1. Java Connector (JCo)
2. Proxy (OData)
3. Enterprise Services/Web Services

It is possible to consume SAP standard functionality (calling BAPI or RFM or ES) or develop custom functionality (custom ABAP Add-On) or custom SAP Gateway services. When developing custom Add-On or custom SAP Gateway services, these must be packaged using AAK. Please refer to [section 2.4.1.1](#) for more details.

2.4.1.1 Custom ABAP Add-on

Delivering custom Gateway services or SAP backend functionality requires development in ABAP language; this is called as ABAP Add-on.

Requirements

Registering development namespace on SAP Service Market Place is required and developing Add-on using this namespace mandatory, delivery of Add-on in customer namespace is forbidden.

Packaging

Add-on shall be packaged using AAK.

Deploy

Delivery package (.PAT) shall be deployed on a sandbox system using standard SAP transaction SAINT (for initial package) or SPAM (for support packages).

2.4.2 Non-SAP backend

When using non-SAP backend like a database or third party application or service, the following connectors shall be used

1. JDBC
2. Web Services
3. RESful services

When using non-SAP backend, it will be used only for validating data.

2.5 Functional validation

Functional correction of the mobile solution is tested during the certification. Data used in the mobile application is always validated in backend system. Test plan for functional validation is mutually agreed between ICC and Partner.

2.6 Mobile applications security and authentication

Security aspects are very important while developing mobile solution. Please refer to the recommendation document (entitled “Mobile Solution Security Guidelines”) and implement at least one measure and document the same in technical product profile document.

2.7 Offline capabilities

Mandatory for mobile applications with offline capabilities.

2.7.1 Synchronization (Mandatory)

Mobile applications with offline capabilities will be tested in offline mode during certification. Mobile application is tested in offline mode either by disconnecting from the network or switching off WiFi and performing a transaction in offline mode. Upon finding network coverage or when the mobile comes online, mobile application should synchronize either manually or automatically with SMP server and backend system.

2.7.2 Conflict Management (Optional)

If a MBO performs an update operation, the device sends additional parameters to the server that contains the original values of the database columns mapped to the object's parameters. These original values are shared with the enterprise information system (EIS) server in specially-named arguments. Please refer to Sybase documentation for more technical details.

2.8 Other requirements

2.8.1.1 Logging and tracing (Mandatory)

Mobile application shall enable console logging, so that all the logs are reported to SCC. SCC will be used for verifying the logs.

Whenever there is an error either on SMP server or backend system, an appropriate error message should be displayed to the mobile user.

Error logging must be properly configured on SAP Mobile server, Gateway and client. Partner must show these logs during the certification test.

Please refer to document “SAP Control Center for SAP Mobile Platform”.

2.8.1.2 Internationalizing (Optional)

If the mobile application is delivered in multiple languages, then mobile application shall be test in all supported languages.

3 Appendix

3.1 Related documents

- Online Documentation for SAP Mobile Platform 2.3
 - <http://infocenter.sybase.com/help/index.jsp> → *SAP Mobile Platform 2.3*
- SAP HANA Cloud Portal
 - <http://scn.sap.com/community/hana-cloud-portal>
- SAP Mobile Platform, Enterprise Edition, Cloud version
 - <https://help.hana.ondemand.com/mobile/frameset.htm>
- SMP Cloud, Free trail
 - <https://help.hana.ondemand.com/mobile/frameset.htm?doc/html/mdw1361529553461.html>
- SAP NetWeaver Gateway documentation
 - http://help.sap.com/saphelp_gateway20sp02/helpdata/en/71/376ab03f824ea5bfd0a0e3a307205b/frameset.htm
- Online Documentation for SAP
 - <http://help.sap.com>
- SAP Integration and Certification Center
 - <http://scn.sap.com/community/icc>
- Gateway certification
 - <http://scn.sap.com/docs/DOC-25063>
- ABAP Certification
 - <http://scn.sap.com/docs/DOC-24912>

3.2 Hybrid Applications

A Hybrid Application includes both business logic (the data itself and associated metadata that defines data flow and availability), and device-resident presentation and logic. Hybrid Applications can be developed using third-party SDKs, enabling SAP Gateway to access SAP datasources through the Hybrid Web Container.

SAP Mobile Platform, development tools enables the following aspects of Hybrid Application development:

- Using Mobile Business Objects (MBOs), this option will allow connecting to non-SAP backend.
- Access OData sources from Hybrid Applications with the **Datajs** library.
- OData sources and MBOs can be used together in a Hybrid Application.

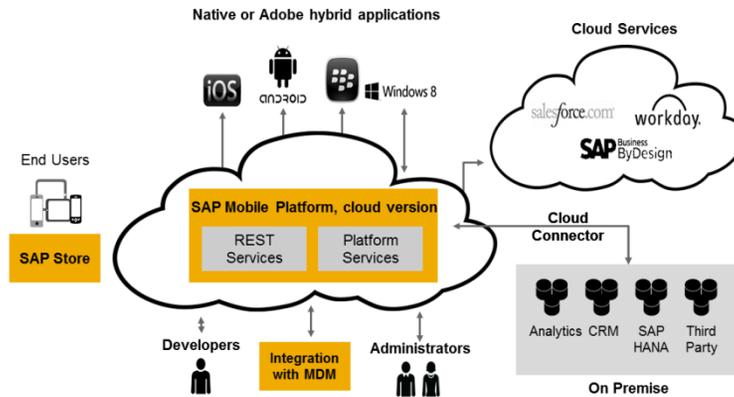
3.3 SAP Mobile Platform on HANA Cloud

Refer to the following link for further details on SAP Mobile Platform Cloud release announcement <http://scn.sap.com/community/mobile/blog/2013/03/29/sap-mobile-platform-on-hana-cloud-released>

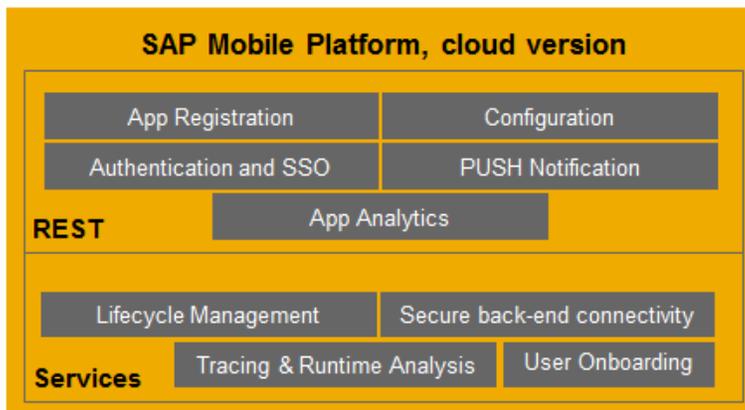
Excerpts from the blog:

The mobile platform in the cloud makes it simple to create, configure, and distribute mobile applications and to manage them end-to-end without having to install and maintain a platform

server on premise. Mobile as a Service hosted in the SAP HANA Cloud (former NetWeaver Cloud aka Neo).



The HTTP REST interfaces for core services exposed by the mobile platform in the cloud are identical to the REST APIs in SAP Mobile Platform on-premise (aka SUP 2.2 and later releases) so apps using the REST API can run on cloud and on-premise deployments. The following graphic provides an overview of the SMP cloud features and benefits:



1. Simple Administration of mobile apps
2. Usage reporting and app analytics
3. Integration with existing business applications via [Secure Cloud Connector](#) to [connect securely](#) to on-premise backends
4. Multi-platform support (iOS, Windows 8, Android, BlackBerry)
5. Standards-based protocols (HTTPs, OData)
6. Native or HTML5 applications via Cordova
7. Logging, tracing and error handling
8. Near-zero footprint
9. Security landscape integration (SAP portal, Siteminder, certificates)

3.4 Mobile devices

Please contact ICC consultant to get a list of available of mobile devices.