



**Mobile Data Models: Using Data
Orchestration Engine**

Sybase Unwired Platform 2.1

ESD #2

DOCUMENT ID: DC01732-01-0212-01

LAST REVISED: February 2012

Copyright © 2012 by Sybase, Inc. All rights reserved.

This publication pertains to Sybase software and to any subsequent release until otherwise indicated in new editions or technical notes. Information in this document is subject to change without notice. The software described herein is furnished under a license agreement, and it may be used or copied only in accordance with the terms of that agreement.

Upgrades are provided only at regularly scheduled software release dates. No part of this publication may be reproduced, transmitted, or translated in any form or by any means, electronic, mechanical, manual, optical, or otherwise, without the prior written permission of Sybase, Inc.

Sybase trademarks can be viewed at the Sybase trademarks page at <http://www.sybase.com/detail?id=1011207>. Sybase and the marks listed are trademarks of Sybase, Inc. ® indicates registration in the United States of America.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world.

Java and all Java-based marks are trademarks or registered trademarks of Oracle and/or its affiliates in the U.S. and other countries.

Unicode and the Unicode Logo are registered trademarks of Unicode, Inc.

All other company and product names mentioned may be trademarks of the respective companies with which they are associated.

Use, duplication, or disclosure by the government is subject to the restrictions set forth in subparagraph (c)(1)(ii) of DFARS 52.227-7013 for the DOD and as set forth in FAR 52.227-19(a)-(d) for civilian agencies.

Sybase, Inc., One Sybase Drive, Dublin, CA 94568.

Contents

Getting Started with DOE-Based Application	
Development	1
What the SAP Data Orchestration Engine (DOE) Does for Your Application	1
Where a DOE-Based Application is Best	2
Application Architecture	3
Developer Roles	4
SAP Data Structure Customization	5
Development Task Flow	7
Identify or Create BAPIs and Encapsulate Them	8
Create a Software Component Version (SWCV)	8
Model Data Objects	9
Model Distribution Logic	9
Create, Generate, and Download the ESDMA Bundle	9
Convert the ESDMA Bundle into an Unwired Platform Package	10
Deploy the Unwired Platform Package	12
Develop Platform-Specific Device Code	12
Documentation Roadmap for Unwired Platform	13
Troubleshooting	15
Glossary	19
Index	21

Contents

Getting Started with DOE-Based Application Development

This developer guide provides information about using Sybase® Unwired Platform features to create DOE-based applications.

What the SAP Data Orchestration Engine (DOE) Does for Your Application

DOE is the short name for the SAP® Data Orchestration Engine, which is a component of Netweaver Mobile. DOE consolidates data from SAP back-end sources and distributes the data to mobile applications.

DOE is event driven middleware that receives data from the SAP back end, follows rules to calculate all the affected receivers, and prepares the data to be sent to the devices without waiting for the devices to connect. DOE uses messaging to transmit data to and from the devices.

DOE includes:

- An administration and monitoring component for managing and troubleshooting the data flow.
- A design-time component, the DOE Workbench, for defining data objects and data distribution.
- A runtime component that replicates, synchronizes, and distributes data between the system components.

DOE-based applications, working in conjunction with Sybase Unwired Platform, allow system designers to model and consolidate SAP mobile content in the middle tier, while separately layering distribution rules over this content. This approach is especially useful when back ends cannot provide a mobile interface that serves up mobile data, or if additional flexibility is required. Distribution rules can evolve separately from the content model, and different distribution rule sets can be used with the same content model.

When building a DOE-based application, the developer starts by using the DOE Workbench to describe back-end interaction and the application content model. After the content model is described and the distribution rules are configured the developer can create a package to be deployed to Unwired Server to allow devices to communicate with DOE.

Once the mobile package is deployed, the developer can generate device-side artifacts that form the basis of mobile application interactions with Unwired Platform services and data. One or more packages can be used within a single application. Package version information is

embedded in the device-side artifacts and is used to match the device application with the correct runtime package.

Where a DOE-Based Application is Best

DOE-based applications are good solutions when your application architecture requires that you do not connect directly to the SAP back end, or you are mobilizing data from multiple, inconsistent SAP back-end sources.

The Sybase Unwired Platform DOE deployment option provides additional flexibility, allowing the system designer to model and consolidate SAP mobile content in the middle tier and separately layer distribution rules over this content. This approach is especially useful where back ends cannot provide a mobile interface that serves up mobile data, or where additional flexibility is required. This approach allows distribution rules to evolve separately from the content model and for different distribution rule sets to be used with the same content model. Even customers can change the rules without rewriting client or back-end code, after actively deploying applications.

The technology to enable this behavior is built directly into the NetWeaver stack and is therefore best suited to SAP-only implementations or where third-party back-end integration is already provided through NetWeaver. This method specifies BAPI CRUD interfaces to adapt back-end suite datasources to the middleware data consolidation area.

The Sybase Unwired Platform DOE option consolidates all mobile data from the back-end SAP system, then uses rules to determine mobile distribution. The rules are fired on these events:

- New device is registered – initial receiver determination
- Back-end data or client data changes because of user updates or batch updates – staging are update
- Business change resulting in change of user subscriptions, for example, moving from region A to region B – device realignment

DOE-based applications are well suited to these situations:

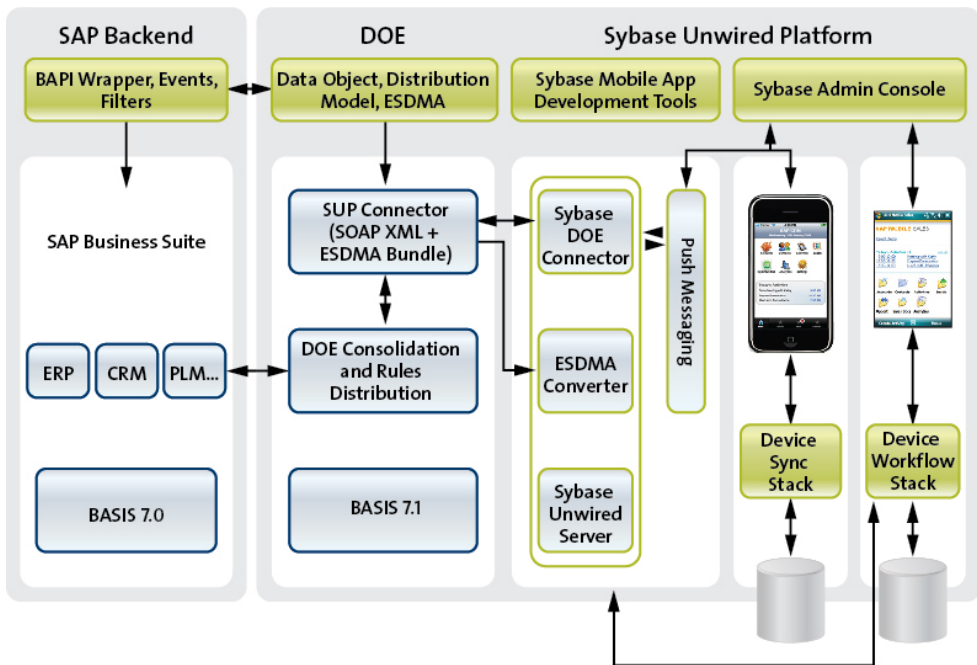
- The SAP back end cannot directly support mobile queries, or mobile queries place an unacceptable load on the back end.
- The design dictates that the data distribution take place in the middleware.
- A scenario requires flexibility in adapting to different back-end interfaces or versions without changing the mobile model.
- A scenario requires flexibility in changing the distribution rules without changing the mobile model and mobile application.
- A scenario requires a centralized in-box for error resolution by an administrator.

- Multiple customized SAP back ends must work with the same mobile application, for example, if the same mobile application is resold to multiple customers who use different distribution rules.
- A mobile solution is working primarily against the SAP back end.
- Customized conflict resolution is required within the mobile middleware, rather than in the back end.

Application Architecture

Understand the key software components supporting DOE-based applications, and how they interact.

The diagram below illustrates the system architecture of a DOE-based application. A description of the major system components and the flow of data between them follows.



The SAP back end is where the enterprise data resides, in the SAP Business Suite, running on top of the SAP Basis infrastructure.

BAPI wrappers, events, and filters that you create in the DOE Workbench make the data available for distribution and consolidation by Data Orchestration Engine (DOE), through data objects and a distribution model that you also create in the DOE Workbench, and output to Unwired Platform as an entity set definition for mobile applications (ESDMA) bundle.

On Sybase Unwired Platform, the ESDMA converter utility converts the ESDMA bundle into an Unwired Platform package that you deploy to Unwired Servers. You use the Sybase Mobile SDK and native integrated development environments to create the screens and business logic that ties the application together with a user interface, which you deploy to devices through the Sybase admin console, Sybase Control Center.

On user devices, the application communicates through push messaging with the Sybase DOE Connector, which relays data back and forth with the DOE. The DOE consolidation and distribution rules ensure that only the absolute minimum of data necessary to keep the device data and the SAP back end data in sync is transmitted.

Monitoring of Unwired Platform messages in the store and forward infrastructure takes place in Sybase Control Center.

Developer Roles

Different stages of DOE-based application development consist of three different types of tasks, involving three different skill sets. These correspond to three different developer roles.

In your organization, the same person may perform multiple roles.

SAP Expertise

Someone with an advanced knowledge of SAP systems must perform a considerable amount of work on the SAP back end to make the SAP data accessible to your mobile application.

The SAP back-end tasks are summarized in this document, and links to more detailed instructions in the SAP documentation are provided. See *Create a Software Component Version (SWCV)* on page 8.

Administrative Expertise

The final task on the SAP back end is to generate an ESDMA bundle. Before you can begin device platform-specific development, this ESDMA bundle must be converted to a Sybase Unwired Platform package, which is then deployed to one or more Unwired Servers. See *Model Distribution Logic* on page 9.

Device Platform-Specific Expertise

The remaining tasks for creating a DOE-based application include generating native code that is specific for the target device platform, then bundling that code with supporting compile-time and runtime components, to build a functioning application. See *Develop Platform-Specific Device Code* on page 12.

SAP Data Structure Customization

You can perform varying degrees of customization on the data that comes from the SAP back end.

There are several levels of customization of the original SAP data structure.

Customization	Tasks to Implement	Tasks to Upgrade
None.	Download the ESDMA bundle and deploy it on Unwired Server.	Subscribe a new device and start using the application.
Change the distribution pattern.	Change the distribution pattern, before or after downloading ESDMA bundle.	Unsubscribe and resubscribe old devices.
Add code-free extensions.	Add custom fields to dummy nodes on the SAP back end. Include code in the application to manage the dummy fields.	Users continue using the application without interruption.
Change the data model.	First release the SWCV for shipment. Then change the data object, enhance and regenerate the back-end adapter, and generate and download the ESDMA.	Generate a new application with a new ESDMA and deploy to Unwired Server in a new domain. Continue running both old and new applications in different domains and let users decide when to move to the new application in the new domain.

Development Task Flow

This section describes the end-to-end process of creating DOE-based applications on supported device platforms in the Sybase Unwired Platform environment

	Defining Back-End Interface	Defining Data Model and Data Distribution Logic	Developing Mobile Components	Deploying the Application
SAP Business Suite	1. Identify or create BAPIs and encapsulate them			
DOE		2. Create software component versions 3. Model data objects 4. Model distribution logic	5. Create, generate, and download ESDMA	
Sybase Unwired Platform			6. Convert ESDMA bundle to Unwired Platform package 7. Deploy package to Unwired Server	11. Deploy finished application
Platform-specific IDE			8. Generate initial code 9. Add code for screens and business logic 10. Test and debug	

1. *Identify or Create BAPIs and Encapsulate Them*

Use the BAPI Wrapper Wizard to identify or write BAPI wrappers that make the desired SAP data available to your application.

2. *Create a Software Component Version (SWCV)*

The SWCV is a shipment unit for design-time objects in the Data Orchestration Engine (DOE) repository. You must create SWCVs before you can create data objects.

3. *Model Data Objects*

To set up the data consolidation and distribution in DOE.

4. *Model Distribution Logic*

Tasks performed in the back-end SAP system, requiring system administrator expertise.

5. *Create, Generate, and Download the ESDMA Bundle*

The ESDMA bundle contains the SAP metadata in a form that you can import into the Sybase Unwired Platform environment on your developer workstation.

6. *Convert the ESDMA Bundle into an Unwired Platform Package*

Use the ESDMA Converter utility to convert your ESDMA bundle into an Unwired Platform package that you can deploy to Unwired Server.

7. *Deploy the Unwired Platform Package*

It is a good idea to deploy the Unwired Platform package to Unwired Server before you begin coding your application. You cannot test your coding until the Unwired Platform package has been deployed.

8. *Develop Platform-Specific Device Code*

The platform-specific tasks to complete development of a DOE-based application are covered in platform-specific developer guides.

Identify or Create BAPIs and Encapsulate Them

Use the BAPI Wrapper Wizard to identify or write BAPI wrappers that make the desired SAP data available to your application.

For detailed instructions, see the SAP documentation, *Creating BAPI Wrappers Using the Wizard*, at http://help.sap.com/saphelp_nwmobile71/helpdata/en/3e/1e6323e59a4dc1b236f4905960ccdd/content.htm

1. Identify the business scenario that you want to mobilize.
2. Define the flow of your application.
3. Use the BAPI Wrapper Wizard to identify or write BAPI wrappers.

Create a Software Component Version (SWCV)

The SWCV is a shipment unit for design-time objects in the Data Orchestration Engine (DOE) repository. You must create SWCVs before you can create data objects.

For detailed instructions, see the SAP documentation:

- *Transport Organizer (BC-CTS-ORG)*, at http://help.sap.com/saphelp_nwmobile71/helpdata/en/57/38dd4e4eb711d182bf0000e829fbfe/frameset.htm
- *Creating a Software Component Version*, at http://help.sap.com/saphelp_nwmobile71/helpdata/en/e2/cba40f77a144658f8bb5181371a5d8/content.htm

1. Create a transport organizer.
2. Log in to the SAP NetWeaver AS and open the Data Orchestration Engine Workbench.
3. Choose **Create SWCV**.
4. Fill in the information required to create the SWCV.

Model Data Objects

To set up the data consolidation and distribution in DOE.

For detailed instructions, see the SAP documentation:

- *Data Object Concepts*, at http://help.sap.com/saphelp_nwmobile711/helpdata/en/47/a991ef7dbd3376e1000000a421937/frameset.htm
- *Creating a Back-End Adapter*, at http://help.sap.com/saphelp_nwmobile71/helpdata/en/88/9e21142beb442b9eae5085e34e813c/frameset.htm
- *Customizing a Receiver Meta Model*, at http://help.sap.com/saphelp_nwmobile711/helpdata/de/48/74befbd1431b5ae1000000a42189c/frameset.htm

1. Create the data objects.
2. Create the back-end adapters.
3. Create the distribution patterns.
4. (Optionally) Customize the receiver meta model.

Model Distribution Logic

Tasks performed in the back-end SAP system, requiring system administrator expertise.

For detailed instructions, see the SAP documentation:

- *Concepts of Distribution*, at http://help.sap.com/saphelp_nwmobile71/helpdata/en/6b/b2edf8d0b9463fabbea2e50d088182/frameset.htm
- *Creating Distribution Models*, at http://help.sap.com/saphelp_nwmobile71/helpdata/en/6b/b2edf8d0b9463fabbea2e50d088182/frameset.htm

1. Create a distribution model.
2. Create a distribution dependency.
3. (Optionally) Add distribution rules to the distribution model.

Create, Generate, and Download the ESDMA Bundle

The ESDMA bundle contains the SAP metadata in a form that you can import into the Sybase Unwired Platform environment on your developer workstation.

For detailed instructions, see the SAP documentation, *Configuration Guide Gateway to SAP NetWeaver Mobile*, available from https://websmp202.sap-ag.de/~form/sapnet?_SHORTKEY=01100035870000729606&_SCENARIO=0110003587000000202&.

Development Task Flow

1. Create an ESDMA.
2. Assign data objects.
3. Assign a distribution model software component version (SWCV).
4. Define a design-time projection.
5. (Optional) Define runtime projections.
6. (Optional) Define a runtime header.
7. (Optional) Client-specific configuration of distribution model SWCV (DMSWCV).
8. (Optional) Add custom services.
For example, specify the back-end search BAPI for an ESDMA object.
9. Generate the ESDMA bundle.
10. Download the .zip file for the ESDMA bundle to a temporary location on your developer workstation.
11. Extract the contents of the ESDMA bundle .zip file to an *<ESDMA_dir>* directory on your developer workstation.

Note: The *<ESDMA_dir>* directory name cannot contain any spaces.

Convert the ESDMA Bundle into an Unwired Platform Package

Use the ESDMA Converter utility to convert your ESDMA bundle into an Unwired Platform package that you can deploy to Unwired Server.

1. Create a META-INF directory under the *<ESDMA_dir>* where you downloaded and extracted the ESDMA bundle for your application.
2. In the META-INF directory, create a file named sup-db.xml.
3. Use a text editor to open sup-db.xml, and copy these lines into it:

```
<package name="EXAMPLE" short-name="EXAMPLE" sup-name="EXAMPLE"
version="1.0"
  java-package="com.sybase.example.db" /* For Blackberry or
Application */
  cs-namespace="Sybase.Example.db" /* For Windows Mobile
Application */
  oc-namespace="example_db_"> /* For iOS Application */
  <!-- Update with new host and port, listener.url must end with /
doe/publish. -->
  <property name="listener.url" value="http://
<Unwired_Server_host>:<listener_port>/doe/publish" />
  <database name="example-database" />
  <database-class name="ExampleDatabase" />
  <personalization-parameter name="language" type="string"
owner="client" />
```

```
<include file="afx-esdma.xml" />
</package>
```

4. Replace the bolded values above as follows:
 - **EXAMPLE** – replace with your Sybase Unwired Platform package name. This value appears three times.
 - **com.sybase.example.db** – replace with the required Java namespace for BlackBerry application development.
 - **Sybase.Example.db** – replace with the required C# namespace for Windows and Windows Mobile application development.
 - **example_db_** – replace with the required Objective C namespace for iOS application development.
 - **http://<Unwired_Server_host>:<listener_port>/doe/publish** – replace with the Unwired Server hostname and listener port.

Note: The listener port must be followed by "/doe/publish", with no trailing "/".

The default value for the listener port is 8000.

- **example-database** – replace with the name of the required database file.
 - **ExampleDatabase** – replace with the name of the required database class.
5. (Optional) Add additional entity definitions not defined in the ESDMA.
This is necessary to define client-side data entities that have no relationship with entities defined in the ESDMA bundle.
 6. (Optional) In the <ESDMA_dir>\Resources directory, create a MetaMerge.xml file.

This file is used by the Unwired Platform code generation and deployment tools to adapt the ESDMA bundle, if necessary to, for example:

- Hide select data objects defined in the ESDMA.
 - Add supplementary indexes on data objects that can be used by the client.
7. Run the ESDMA converter utility to convert the ESDMA bundle resource metadata file to an Unwired Platform package.
See the *System Administration* guide, "esdma-converter Command" topic.
 8. After running the ESDMA converter utility, verify that these files have been created in the META-INF directory where you created the sup-db.xml file:
 - afx-esdma.xml
 - ds-doe.xml

Deploy the Unwired Platform Package

It is a good idea to deploy the Unwired Platform package to Unwired Server before you begin coding your application. You cannot test your coding until the Unwired Platform package has been deployed.

In the steps below you are prompted for each of the parameters for the deploy command. Alternatively, you may include the parameters when entering the command. See *deploy Command* in *System Administration*.

1. Start the SAP DOE Command Line Utility.

See *Starting the Command Line Utility Console* in *System Administration*.

2. At the **doec-admin** prompt, enter `deploy`, followed by the command parameters.

```
deploy -d|--domain domainName
-a|--applicationID appID
{-u|--technicalUser SAPUserAccount
-pw|--password SAPUserPassword} |
{-ca|--certAlias certificateAlias}
[-sc|--securityConfiguration securityConfigName]
[-dir|--deployFilesDirectory deploymentDirectory]
[-h|--help] [-sl|--silent]
```

Alternatively, enter `deploy`, then enter the parameters as prompted.

Develop Platform-Specific Device Code

The platform-specific tasks to complete development of a DOE-based application are covered in platform-specific developer guides.

The remaining tasks to complete your DOE-based application are platform-specific:

- Generate the initial code.
- Manually add code for screens and business logic.
- Test and debug the application.
- Deploy the finished application.

Continue with these tasks in the developer documentation for your specific platform:

- *Developer Guide: Android Object API Applications*
- *Developer Guide: iOS Object API Appli*
- *Developer Guide: Windows and Windows Mobile Object API Applications*

Documentation Roadmap for Unwired Platform

Sybase® Unwired Platform documents are available for administrative and mobile development user roles. Some administrative documents are also used in the development and test environment; some documents are used by all users.

See *Documentation Roadmap* in *Fundamentals* for document descriptions by user role. *Fundamentals* is available on the Sybase Product Documentation Web site.

Check the Sybase Product Documentation Web site regularly for updates: access <http://sybooks.sybase.com/nav/summary.do?prod=1289>, then navigate to the most current version.

Troubleshooting

Determine the causes of problems and apply the recommended solutions.

Problem	Resolution
<p>SAP user sees Password logon no longer possible - too many failed attempts and is locked out after too many failed login attempts</p>	<ol style="list-style-type: none"> 1. Log in to SAP with a different user account. 2. In the Transaction Code field, enter su01. 3. In the User field, enter the ID of the user who is locked out. 4. Click the Lock icon. 5. If the Lock User dialog indicates that the user is Locked due to incorrect logins. click the Unlock icon. <p>If the dialog in step 5 indicates the user is not locked, the system has automatically unlocked the user account after a set period of time has passed.</p>
<p>Unable to parse error in DOE-C logs</p>	<p>Possible causes:</p> <ol style="list-style-type: none"> 1. Duplicate SyncKey – verify that the failed XML uses unique SYNCKEY_MMW values across all nodes. 2. Metadata mismatch – verify: <ul style="list-style-type: none"> • The DOE configuration for ESDMA is as expected. • If the ESDMA has been regenerated, the older ESDMA is undeployed from Sybase Unwired Platform and the new one is deployed.

Problem	Resolution
<p>Packet dropped state with message, Request Entity Too Large</p> <p>Three consecutive entries in the log contain the text shown below – in the first entry, <i><actual_byteSize></i> is larger than <i><max_byteSize></i>.</p> <pre>... Detected a packet-dropped candidate message - size <actual_byte- Size>, maximum <max_byteSize></pre> <pre>... DOE-C MESSAGE ID: 554 CODE: 413 MESSAGE: Request Entity Too Large</pre> <p>...is now in a packet-dropped state. The DOE-C will no longer push messages to this subscription.</p>	<p>Use the setEndpointProperties command in the Sybase SAP DOE Connector Command Line Utility (CLU) to make the <code>doePacketDropSize</code> larger than the <i><actual_byteSize></i> in the first error log entry above.</p> <pre>setEndpointProperties {-i --in inputXmlFile} {-d --domain domainName {-a --all -ps --packageNames nameAndVersionList} {-u --technicalUser SAPUserAccount -pw --password SAPUserPassword} {-ca --certAlias certificateAlias} [-ds --doePacketDropSize byteSize] [-ew --doeExtractWindow maxNumMsgs] [-t --soapTimeout seconds] [-h --help] [-sl --silent]</pre> <p>Note: When you increase <code>doePacketDropSize</code> you should also increase the JVM heap size.</p> <p>For more details on setEndpointProperties, see <i>setEndpointProperties Command</i> in <i>System Administration Guide</i>.</p>
<p>User cannot get application through the SAP portal</p>	<p>The SAP portal must be configured to allow users to get DOE-based applications without administrator assistance.</p> <ol style="list-style-type: none"> 1. Ask your SAP basis team to apply note 1250795 to the portal server, which enables the challenge popup. See https://websmp230.sap-ag.de/sap/support/notes/1250795. 2. Have users enter a URL in SUP that is something like this: <code>http://<portalUrl:port>/redirect/redirect?url=/irj/portal</code>.

Problem	Resolution
<p>Subscription times out</p>	<p>Possible causes:</p> <ol style="list-style-type: none"> 1. During import, there are exceptions in processing the message. For example, Parsing Error, ADS Exception. 2. <code>importResult</code> is not being generated (Check <code>JMSBridge</code>). 3. The DOE server is sending all messages with <code>SER_MSG_ID = 0</code> (visible in SOAP dumps). This causes DOE-C to drop messages as duplicates. <p>Possible solutions:</p> <ul style="list-style-type: none"> • For Parsing errors, identify the data causing the parsing failure (for example, causing a Duplicate Sync Key error) and re-subscribe.

Glossary

Defines terms used in DOE-based application development.

You should be familiar with these software components and concepts before beginning DOE-based application development.

- **BAPI** – business application program interface; generally referring to a BAPI "wrapper." Contains the parameters required to synchronize the device data and the SAP back-end data.
- **CDS** – the consolidated data store. The SAP DOE middleware component where data is consolidated by the DOE.
- **CUD requests** – create, update, delete requests. All transactions from the application to DOE are called CUD requests.
- **Data synchronization** – the process by which the DOE reconciles changes in data on the device and data on the SAP back end.
- **DOE** – Data Orchestration Engine. The SAP component that supports data exchange between SAP back-end systems and mobile devices.
- **DOE-C** – the Sybase SAP DOE Connector. The Sybase component that connects applications running on Sybase Unwired Platform with the DOE.
- **ESDMA** – entity set definition for mobile applications. Contains the external metadata definition of a SWCV that you can use to construct a client that can interact with the DOE.
- **ESDMA converter** – the Sybase Unwired Platform utility that converts an ESDMA bundle into an Unwired Platform package that can be deployed to Unwired Servers.
- **Gateway for Netweaver Mobile** – Add-on that is installed on top of DOE to provide integration with Sybase Unwired Platform.
- **Messaging framework** – the messaging functionality provided by the Sybase SAP DOE Connector to connect the SAP DOE with devices.
- **Mobile data model** – relates the SAP back-end data and the data that ends up on the device.
- **Persistence layer** – the collection of database files, containing tables, that is available on the device through the Sybase Client Object API.
- **Request/response requests** – search queries sent to the DOE by the client application to retrieve data that is not delivered as part of the subscription data set.
- **Subscription** – defines how data is transferred between a user's mobile device and Unwired Server. Subscriptions notify a device user of data changes, then the updates are pushed to the user's mobile device.
- **SWCV** – software version component. A shipment unit for design-time objects in the DOE repository.

Glossary

- **Sybase Unwired Platform package** – converted from an ESDMA by a Sybase Unwired Platform utility for deployment to Unwired Server, which makes the data available to client devices.

Index

A

application architecture 3

B

back-end adapter 9

BAPIs 8

D

data model 9

developer roles 4

development task flow 7

distribution logic

 modeling 9

documentation roadmap 13

E

ESDMA bundle

 convert to Unwired Platform package 10

 creating, generating, and downloading 9

G

getting started with DOE-based application

 development 1

glossary 19

M

modeling data 9

P

platform-specific device code 12

R

receiver meta model 9

S

SAP data structure customization 5

software component version (SWCV)

 creating 8

T

task flow

 development 7

troubleshooting 15

U

Unwired Platform package

 converting from ESDMA bundle 10

 deploying to Unwired Server 12

W

where DOE-based application is best 2

