



Siebel Store-and-Forward Messaging Guide

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1

Overview of Siebel Store-and-Forward Messaging

The following topics are included in this section:

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- [“Overview of Siebel Store-and-Forward Messaging Architecture” on page 8](#)
- [“Overview of Siebel Store-and-Forward Messaging Client Modules” on page 11](#)
- [“About IBM WebSphere MQe” on page 11](#)
- [“Overview of Siebel Store-and-Forward Messaging Administration” on page 12](#)
- [“Overview of Siebel Store-and-Forward Messaging in the Siebel Handheld Applications” on page 13](#)
- [“Using Store-and-Forward Messaging with the Siebel Service Handheld Application” on page 14](#)
- [“Overview of Asynchronous Query on the Handheld Device” on page 15](#)
- [“Using Asynchronous Query with the Siebel Service Handheld Application” on page 16](#)

Overview of Siebel Store-and-Forward Messaging Functionality

Siebel Store-and-Forward Messaging and Siebel Handheld applications work together allowing you to perform critical business processes. For instance, a mobile technician using the Siebel Service Handheld application together with Siebel Store-and-Forward Messaging can receive a dispatched activity, acknowledge the activity, update the activity’s status, move parts, or debrief the assigned activity. During this process, Siebel Store-and-Forward Messaging enables the mobile user to communicate all information, in real or near-real time, with the back-end Siebel application server.

Siebel Store-and-Forward Messaging provides push-based information delivery between Siebel eBusiness applications and Siebel Handheld applications. Using Siebel Store-and-Forward Messaging, a Siebel eBusiness application can dispatch information such as an activity and its associated data to a mobile user with a Siebel Handheld application. The changes made by the mobile user on the Siebel Handheld application are delivered to the Siebel application server through Store-and-Forward Messaging. If the handheld device is connected to the Siebel application server, the information is delivered immediately; if the device is disconnected, the information is queued up in either the server or the client side and is delivered as soon as the device is reconnected to the server. Siebel Store-and-Forward Messaging uses the IBM WebSphere MQ Everyplace queuing system to make sure data is delivered and delivered only once. The MQe queuing system is supported on wireless or wired networks that can provide TCP/IP connections.

Additionally, Siebel Store-and-Forward Messaging provides asynchronous query, which allows a Siebel Handheld application user to access data not available in the Siebel Handheld application's local database. For example, if a mobile user would like to access information on a particular part which is not available in his Service Handheld database, the mobile user can send a query to the Siebel Application Server and the query result is delivered to his Service Handheld application by way of Siebel Store-and-Forward Messaging.

Siebel Store-and-Forward Messaging is available as part of the Siebel Service Handheld application, and can be configured to support other Siebel Handheld applications.

NOTE: Store-and-Forward Messaging is supported for Direct Server Synchronization mode, but not for Companion Synchronization.

For a list of supported handheld devices, see *System Requirements and Supported Platforms* on Siebel SupportWeb.

Overview of Siebel Store-and-Forward Messaging Architecture

Siebel Store-and-Forward Messaging consists of server components, client modules and the IBM MQe queuing system, which is responsible for queuing messages and delivering messages over a variety of wireless or wired networks.

Store-and-Forward Messaging Logical Architecture

Figure 1 displays the logical architecture for Siebel Store-and-Forward Messaging.

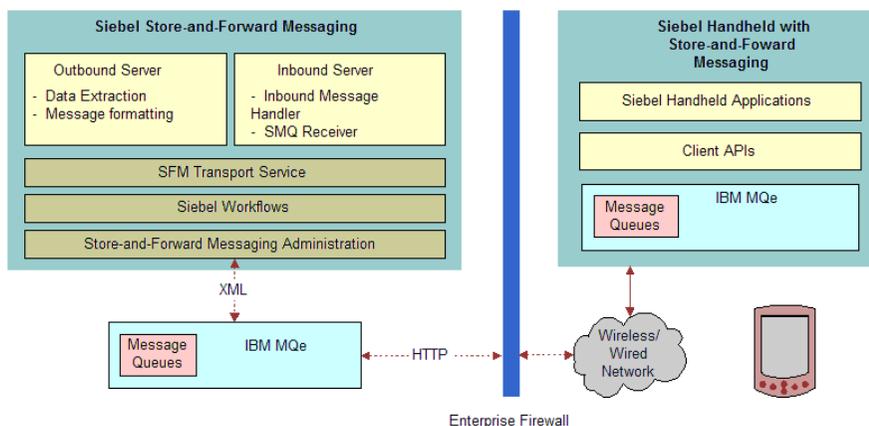


Figure 1. Store-and-Forward Messaging Logical Architecture

The Siebel Store-and-Forward Messaging Server includes an outbound server component to construct and send outbound messages to the server outbound queues; an inbound server component to retrieve and process inbound messages; transport service to deliver messages between the Siebel application server and server queues; Siebel workflows to orchestrate the inbound and outbound server components; and Store-and-Forward Messaging administration to manage or administer the Store-and-Forward Messaging server. On the handheld client side, Store-and-Forward Messaging client modules are integrated with Siebel Handheld applications.

Store-and-Forward Messaging Server Components

Figure 2 displays the server components for Siebel Store-and-Forward Messaging.

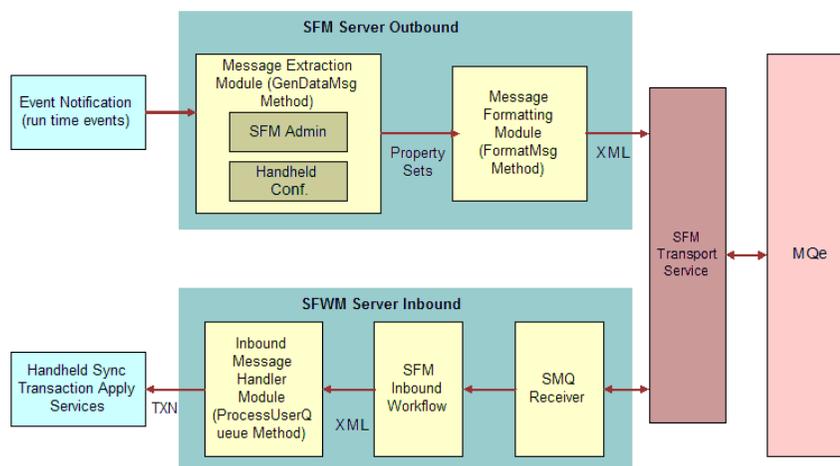


Figure 2. Siebel Store-and-Forward Messaging Server Components

A Siebel application server with Store-and-Forward Messaging enabled can support multiple Siebel Handheld applications. Store-and-Forward Messaging includes the following services and server components.

Store-and-Forward Messaging Message Service (SMQ Message Service)

The Store-and-Forward Messaging Message Service is called SMQ Message Service. SMQ stands for Siebel Messaging and Queuing. The SMQ Message Service consists of the following methods:

- 1 GenDataMsg method is used to extract data messages based on Siebel Handheld application definition. For example, if the Action business component defined for a Siebel Service Handheld application includes activity status and activity description, the method extracts activity status and activity description data based on the application definition. The extracted data is delivered to a Service Handheld application by way of a data message.
- 2 FormatMsg method is used to convert Siebel data into well-formed XML data or to convert XML data to Siebel data.

- 3 ProcessUserQueue method is used to receive and process server inbound messages. The method calls the Siebel Handheld Synchronization engine if the inbound message is a transaction-type message.

Store-and-Forward Messaging Transport Service (SMQ Transport Service)

The Store-and-Forward Messaging Transport Service (SMQ Transport Service) is a bidirectional transport service which interacts with the MQe queuing system. The transport service sends or receives messages to and from the server queues, provides data encryption or decryption and performs data compression or decompression. Data is encrypted with the RC4 cipher and compressed with a suitable compression algorithm such as GZIP.

The SMQ Receiver

The SMQ Receiver is a server component which polls the server inbound queues by way of the transport service. Server inbound queues consist of two-level queues, the main application queue and individual queues. For each Siebel Handheld application with Store-and-Forward Messaging enabled, there is one main application inbound queue; for each application user, there is one individual inbound queue. SMQ Receiver dispatches messages from the main application queue into the individual user queues and it starts an inbound workflow task for each user to process the inbound messages in each individual queue. The inbound workflow calls the inbound message handler ProcessUserQueue method, which processes the message based on the message type. For example, if the message is a transaction message, the message is passed to the Handheld Sync Transaction Apply Services.

Outbound Workflows

Siebel Store-and-Forward Messaging comes with three sample outbound workflows: SMQ Outbound Activity to One Recipient, SMQ Outbound Activity to Primary Owned By, and SMQ Outbound Activity to Team. These workflows are defined below.

- The SMQ Outbound Activity to One Recipient is a basic workflow. It is based on the Action business object. This workflow's main function is to generate a message, format the message, send the message to a server outbound queue, and update the message history table.
- The SMQ Outbound Activity to Primary Owned By workflow uses the SMQ Outbound Activity to One Recipient workflow as a subworkflow. This workflow is triggered by the WriteRecordUpdated runtime event in the Action business component. If an activity is assigned to a mobile user or an activity owned by a mobile user is updated, the workflow sends a data message to the mobile user with the updated activity information and its associated data.
- The SMQ Outbound Activity to Team workflow also uses the SMQ Outbound Activity to One Recipient as a subworkflow. The workflow allows you to send a same activity message to all the service technicians on the same team.

Inbound Workflow

Siebel Store-and-Forward Messaging comes with one sample inbound workflow, SMQ Process User Queue. This workflow picks up server inbound messages from each individual inbound queue and processes them.

For greater detail, see [“Siebel Store-and-Forward Messaging Sample Workflows” on page 57](#). In addition, these workflows can be examined using Siebel Tools. For more information see, *Siebel Business Process Designer Administration Guide*.

Overview of Siebel Store-and-Forward Messaging Client Modules

Store-and-Forward Messaging client modules include client inbound and outbound queues, client APIs, and a connectivity management module. Client inbound and outbound queues communicate with Store-and-Forward Messaging server inbound and outbound queues to transmit messages.

The connectivity management module periodically monitors the client connectivity and setup connections by way of the Pocket PC Connection Manager. You can, for example, set up a time interval that instructs the client module to check whether a connection exists each time the specified time interval is hit. If, at the time of checking, the device is connected, the client module transfers messages (if any) in both directions then it goes to sleep; if the device is disconnected, the client module calls the Pocket PC Connection Manager to set up a connection. The connectivity module does not function if the handheld device or the wireless modem equipped with the handheld device does not use the Pocket PC Connection Manager to manage connectivity.

Messages are transmitted between the client inbound and outbound queues and the Store-and-Forward Messaging Server inbound and outbound queues. The client module is responsible for transmitting all messages including transactions, asynchronous query requests, and registration requests to the server. The client also processes server responses as well as server outbound data messages, such as Activity dispatches and updates. The MQe implementation requires that the client polls the server periodically to transmit messages. The interval at which polling occurs can be configured in the Siebel Handheld installation setup.ini file.

About IBM WebSphere MQe

Siebel Store-and-Forward Messaging transmits messages to and from Siebel Handheld applications using IBM WebSphere MQ Everyplace (MQe) as a secure transport. A single instance of MQe is called a queue manager. An MQe queue manager contains numerous queues that hold messages being passed between the Siebel server and the Siebel Handheld applications. Both the Siebel Server and Siebel Handheld applications, which run on Pocket PC devices, communicate with the queue manager to exchange messages.

Overview of Siebel Store-and-Forward Messaging Administration

You can administer Siebel Store-and-Forward Messaging from the Administration—Store-and-Forward screen in a Siebel Web Client.

The Administration—Store-and-Forward screen has the following five views:

- Message List
 - Store-and-Forward Applications
 - Store-and-Forward Message Timeout
- Store-and-Forward Message History
- User List
 - Device Administration
 - Store-and-Forward User Message History

Store-and-Forward Device Administration View

The Device Administration view displays mobile users and their user device's name, mobile application, sync node ID, address type, as well as device address information. This view is populated for a user when the user synchronizes a Siebel Handheld application with the Siebel Server for the first time.

Table 1 explains the field in the Store-and-Forward Device Administration view.

Table 1. Store-and-Forward Device Administration View Fields

Field	Description
Device Name	Description of the registered handheld device.
Mobile Application	The name of the Siebel Handheld application.
Sync Node ID	An ID used by Handheld Sync Server to uniquely identify a device.
Address Type	The queuing system used by the Siebel Handheld application, which is IBM MQe.
Device Address	The device's inbound queue name.

Store-and-Forward Applications View

The Store-and-Forward Applications view displays how the data messages are constructed. The view allows you to review Message Objects, Message Components, and Fields. Based on the Siebel Handheld application definition, all the information is generated when a user synchronizes his Siebel Handheld application with the server for the first time. Not all the data messages listed in the Message Objects applet are enabled for Store-and-Forward Messaging. By default, only the ActionSHCE data message is enabled for the Siebel Service Handheld application. The ActionSHCE message object corresponds to the ActionSHCE business object defined for Service Handheld application; its Store-and-Forward Message Components map to the business components defined for the ActionSHCE business object; the fields for a particular Message Component map to the fields defined for the corresponding business component.

Store-and-Forward Message Timeout View

The Store-and-Forward Message Timeout view allows you to specify three message timeout parameters to make sure messages are delivered in a timely manner. For more information on these parameters, see ["Setting Outbound Data Message Timeout Parameters" on page 39](#).

The Store-and-Forward Message History Views

There are two message history views: Store-and-Forward User Message History and Store-and-Forward Message History. These two views provide administrative information for each inbound or outbound message. The Store-and-Forward User Message History View displays the message information for a particular user and the Store-and-Forward Message History View displays the message information for all the users. These views allow you to view such characteristics of inbound or outbound messages as the unique message ID, the application that was used for the message, the message direction, the time a message was sent or received, the message size, the message status, and so on. From these views, you can track all the inbound and outbound messages for any user in your system and use this information to troubleshoot or monitor the application or system usage.

Overview of Siebel Store-and-Forward Messaging in the Siebel Handheld Applications

Siebel Store-and-Forward Messaging is set up for Service Handheld Application and can be configured for other Siebel Handheld applications. To set up Store-and-Forward Messaging for a Siebel Handheld application, see ["Process of Setting Up Siebel Store-and-Forward Messaging on a Siebel Handheld Application" on page 43](#).

Using Store-and-Forward Messaging with the Siebel Service Handheld Application

If a Siebel Service Handheld application is enabled with Store-and-Forward Messaging, three icons appear on the top-right corner of the screen. They are the Inbound Message Icon, Asynchronous Query Icon, and Outbound Message Icon. Figure 3 displays the Store-and-Forward Messaging and Asynchronous Query icons.

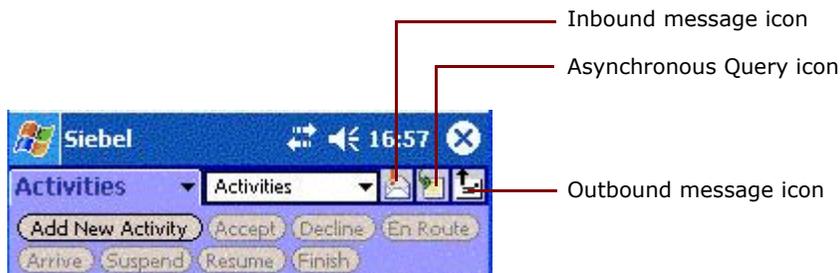


Figure 3. Detail of Siebel Store-and-Forward Messaging and Asynchronous Query Icons

- **Inbound Message Icon.** As soon as an inbound message arrives at the Siebel Handheld application, a beep sound sounds and the Inbound Message icon starts to blink. Tapping the icon stops the icon blinking and opens the Wireless Alerts List view, which displays the inbound messages received by the application in reverse chronological order. When the inbound message icon flashes, it means that the information delivered by the message has been stored in the local database of the application.
- **Asynchronous Query Icon.** For more information, see [“Overview of Asynchronous Query on the Handheld Device”](#) on page 15.

- **Outbound Message Icon.** As soon as an outbound message is created and inserted into a user's outbound queue on his device, the icon begins blinking. The icon stops blinking when all the messages in the user's device outbound queue have been delivered to the server inbound queue.

For example, an activity can be dispatched to a Service Handheld user with Store-and-Forward Messaging. Once the activity arrives at the user's Siebel Handheld application, a beep sounds and the Inbound Message icon starts flashing. The user taps the icon to open the Wireless Alerts List view, which provides a list of alerts indicating that inbound messages have arrived at the device and the time when the messages were received. Closing the window navigates the user back to the previous screen or view. If the user makes an update to an activity on the Service Handheld application, changing the activity status, for example, a message is created and inserted to the user's outbound queue on the device and the Outbound Message Icon starts flashing. As soon as the outbound message is delivered to the server inbound queue, the Outbound Message Icon stops blinking.

NOTE: After a user performs a handheld synchronization, all the data in the Wireless Alerts List view is removed. [Figure 4](#) displays the Wireless Alerts List view.



Figure 4. Wireless Alerts List View

Overview of Asynchronous Query on the Handheld Device

Asynchronous Query allows a Siebel Handheld application user to access data not available in the Siebel Handheld application's local database. Asynchronous Query utilizes Siebel Store-and-Forward Messaging to transmit data, and allows you to access data not available in the Siebel Handheld application's local database. If a user cannot find desired information on a Handheld application's local data store, the user can send a query in a format of a request message to the target server. The server receives the request message, performs the query, and returns the query results in a data message to the requesting Siebel Handheld application. Later on, the data message arrives at the Siebel Handheld application and its information is inserted into a temporary table on the Siebel Handheld application. The user can then review the query results. Asynchronous Query is set up for Service Handheld application and can be configured to support other Siebel Handheld applications. To set up Asynchronous Query for a Siebel Handheld Application, see ["Process of Configuring Asynchronous Query for Siebel Handheld Applications"](#) on page 49.

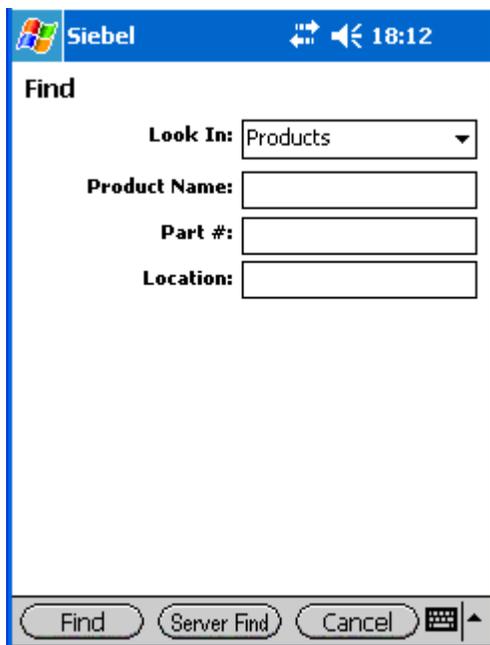
Using Asynchronous Query with the Siebel Service Handheld Application

If a Service Handheld application is enabled with Asynchronous Query, you can perform asynchronous query for Products, Assets, Orders, and Solutions.

To perform an asynchronous query

- 1 Navigate to the Find Dialog window by tapping the View menu, then selecting Find.

The Find Dialog appears as shown below.



- 2 Tap in the Look In field, and select a Find Object from the drop-down list.

For example, Products, Assets, Orders or Solutions. Depending on the object you select, the window displays the relevant find fields. Available find fields for these Find Objects are shown in the following table:

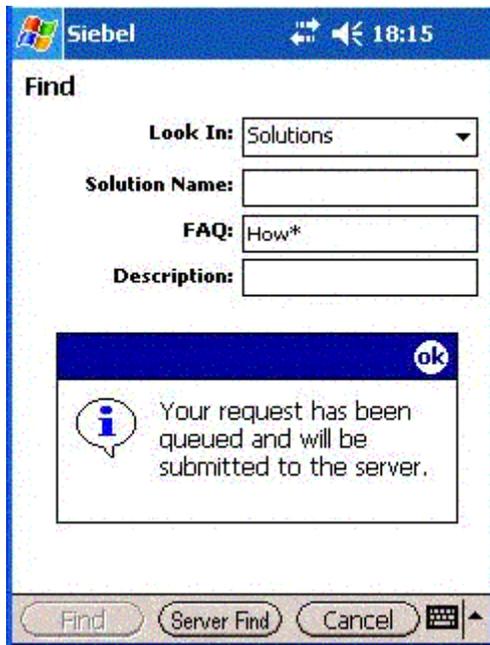
Find Object	Available find fields
Assets	Asset #, Tag #, and Account Name
Products	Product Name, Part #, and Location
Orders	Order #, Order Date, and Account Name
Solutions	Solution Name, FAQ, and Description

- 3 Enter the query criteria into the available find fields.

- 4 Tap either the Find or Server Find button at the bottom of the window.

Tapping on the Find button performs a query in the Siebel Handheld application's local database and the operation returns the query results in the corresponding view.

Tapping on the Server Find button sends a request message to the server by way of Store-and-Forward Messaging and displays the following message to the user: "Your request has been queued and will be submitted to the server."



- 5 The Asynchronous Query icon starts flashing when the query results return and arrive at the Siebel Handheld application. Tap the icon to open the Async Query List view to display the returned asynchronous query results. The list view provides four columns which are listed in the following table.

Column Title	Description
Search Specification	Displays the search criteria entered.
Object	Displays the find object that the query is based on.
Sent Time	Displays the time when the asynchronous query request message is sent to the server.
Received Time	Displays the time when the query results arrive at the Siebel Handheld application.

- 6 Tap any of the buttons in the Async Query List view.

The buttons are described in the following table:

Button Name	Description
Details	Opens the Async Query Results view, which displays the list of records meeting the query criteria. The displayed columns of an Async Query Results view depends on the find object that the query is based on.
Delete	Deletes the selected query record.
Delete All	Removes all the queries.
Refresh	If a query result message arrives while a user is viewing the respective view, the user needs to click the Refresh button to display the newly received message.
OK	Closes the Asynchronous Query List view.

NOTE: After a user performs a handheld synchronization, all the data in Async Query List view and Async Query Results view is removed.

2

Installation and Configuration of Siebel Store-and-Forward Messaging

The following topics are included in this section:

- “Prerequisites for Siebel Store-and-Forward Messaging Installation” on page 19
- “Process of Installing Siebel Store-and-Forward Messaging” on page 19
- “Process of Deploying IBM MQe Queue Managers” on page 23
- “Process of Installing and Configuring Handheld Applications” on page 26
- “About Setting Up Third-Party Wireless Gateway Servers” on page 30
- “Troubleshooting Store-and-Forward Messaging Setup and Configuration” on page 31

Prerequisites for Siebel Store-and-Forward Messaging Installation

Perform the basic Siebel server installation according to the instructions contained in *Siebel Installation Guide for Microsoft Windows: Servers, Mobile Web Clients, Tools*.

Process of Installing Siebel Store-and-Forward Messaging

To install Siebel Store-and-Forward Messaging you must perform the following tasks:

- “Enabling Component Groups for Store-and-Forward Messaging” on page 20
- “Adding Responsibilities for Store-and-Forward Messaging” on page 20
- “Entering Information for the Store-and-Forward Messaging Application” on page 20
- “Creating Store-and-Forward Messaging Message Objects” on page 21
- “Configuring the Message Delivery Timeout Parameter for Store-and-Forward Messaging” on page 22
- “Optional Step: Configuring Store-and-Forward Messaging Workflows” on page 22
- “Activating Workflows and Reloading Runtime Events for Store-and-Forward Messaging” on page 23
- “Testing for Internationalization” on page 23

Enabling Component Groups for Store-and-Forward Messaging

Enable the following component groups if they have not yet been enabled.

- **Handheld Synchronization component group.** Used for Siebel Handheld applications.
- **Workflow Management component group.** Used for Store-and-Forward Messaging workflows.
- **Enterprise Application Integration component group.** Used for Store-and-Forward Messaging server components such as SMQReceiver.
- **Field Service component group.** Used to enable Siebel Field Service related features.

Adding Responsibilities for Store-and-Forward Messaging

The following two responsibilities are related to Store-and-Forward Messaging system administrator or users. To set up responsibilities, see *Security Guide for Siebel eBusiness Applications*.

- **SMQ User.** Allows access to the Store-and-Forward Messaging administration views and certain Siebel Handheld administration views.
NOTE: You must add this responsibility to the System Administrator user.
- **Field Technician - Handheld.** Allows access to the Service Handheld application views.
NOTE: You must add this responsibility to both the System Administrator and the users of the Siebel Service Handheld application.

Entering Information for the Store-and-Forward Messaging Application

You must enter certain required Store-and-Forward application information in the Store-and-Forward Applications administration screen.

To enter Store-and-Forward Messaging application information

- 1 Log into a Siebel Web Client application as a system administrator.
- 2 Choose Navigate > Site Map > Administration - Store-and-Forward > Store-and-Forward Applications.
- 3 Select the application for which you would like Store-and-Forward Messaging enabled.
For example, Siebel Service for CE, which is the Service Handheld.

- 4 Enter the Inbound Queue Name for the application.
This name should also be set in the Siebel Handheld application's registry during the handheld application installation. Typically, this value is InboundQ.
- 5 Enter the Queue Info field with the SMQReceiver Subsystem parameter.
For example, SmqReceiverSubsys.
- 6 Save the record.

Creating Store-and-Forward Messaging Message Objects

You must populate message object and message component fields in the Store-and-Forward Applications view. Doing this allows you to review message objects, message components and fields for Siebel Handheld applications, or to set up Store-and-Forward Messaging timeout parameters for Siebel Handheld applications.

NOTE: This task can be completed by following the steps below, or if the Siebel Handheld application has been enabled to use Store-and-Forward Messaging, the first handheld synchronization session can populate the data also.

To manually create Store-and-Forward Messaging message objects

- 1 Choose Navigate > Site Map > Administration—Store-and-Forward > Store-and-Forward Applications.
- 2 From the Store-and-Forward Applications drop-down menu, select Create Message Objects.
- 3 In the Store-and-Forward Generate Objects Popup applet, enter the following values:

In this field...	Enter this value...
HH Sync Server Name	The Siebel Server name where the handheld sync server component runs.
HH Sync Component Name	The object manager name for the handheld sync component. For example, ServiceCEObjMgr_enu for the English version of the Siebel Service Handheld application.

- 4 Click the Generate button.
- 5 After the generation process, the message objects, message components, and message fields are populated.

Configuring the Message Delivery Timeout Parameter for Store-and-Forward Messaging

You configure the Message Delivery Timeout Parameter to indicate the timeout period of each message object. The default value is zero, so you must change this value in order to provide a timeout period for your dispatched messages.

To configure timeout parameter for Store-and-Forward Messaging message objects

- 1** Choose Navigate > Site Map > Administration—Store-and-Forward > Store-and-Forward Message Timeout.
- 2** In the Store-and-Forward Applications screen, select the Store-and-Forward Messaging application.
For example, Siebel Service for CE.
- 3** In the Message Timeout view, select the desired message object.
For example, ActionSHCE.
- 4** In the Store-and-Forward Timeout Administration sub-view, create a new record with the following values:
 - Type = Message Delivery Timeout.
 - Default Time = desired time frame, for example, 600. The value entered in the Default Time field is in seconds.

Optionally, you may also set up the Message Delivery Timeout parameter based on a particular field and its list of values.

Optional Step: Configuring Store-and-Forward Messaging Workflows

This task is optional. Siebel Store-and-Forward Messaging provides many preconfigured workflows. The typical inbound and outbound preconfigured workflows are as follows:

- SMQ Process User Queue, an inbound workflow
- SMQ Outbound Activity to Primary Owned By, an outbound workflow
- SMQ Outbound Activity to One Recipient, an outbound workflow
- SMQ Outbound Activity to Team, an outbound workflow

You can configure these workflows to meet specific business requirements. For more information on Store-and-Forward Messaging preconfigured workflows, see ["Siebel Store-and-Forward Messaging Sample Workflows"](#) on page 57.

Activating Workflows and Reloading Runtime Events for Store-and-Forward Messaging

After the workflows are properly configured, you need to activate them and reload runtime events:

To activate workflows and reload runtimes events

- 1** Choose Navigate > Site Map > Administration-Business Process > Workflow Deployment.
The Repository Workflow Processes screen appears.
- 2** In the Active Workflow Processes view, query for all the workflow processes beginning with SMQ. If any of the workflows described in ["Optional Step: Configuring Store-and-Forward Messaging Workflows"](#) on page 22 appear, delete them.
- 3** In the Repository Workflow Processes screen, query for all the workflow processes beginning with SMQ.
The workflows described in ["Optional Step: Configuring Store-and-Forward Messaging Workflows"](#) on page 22 are returned by this query.
- 4** Activate the Store-and-Forward Messaging workflows one by one by clicking the Activate button.
The workflow "SMQ Outbound Activities to Primary Owned By" is triggered by the runtime events.
- 5** Reload the runtime events by choosing Navigate > Site Map > Administration-Runtime Events > Events, and select Reload Runtime Events from the command menu.
- 6** After workflows are activated, you can go back to the SMQ Application View to select the inbound workflow "SMQ Process User Queue" for the application.

Testing for Internationalization

When creating an application for any language in the Store-and-Forward Applications View, make sure the QueueInfo column for each language has the same value. The SMQReceiver is language independent, and the default value, SmqReceiverSubsys, should remain this value for the each application in each different languages you create.

Process of Deploying IBM MQe Queue Managers

An IBM MQe queue manager runs as a separate process from the Siebel Server. This process can run either on the same computer hosting the Siebel Server, or on a different computer in the same enterprise. Either way, the Siebel Server and the Siebel Handheld application communicate with the queue manager using the TCP/IP network protocol. IBM MQe is a Java-based product, and requires certain Java configuration be completed. The tasks are as follows:

- ["Configuring a Queue Manager on the Computer Hosting Siebel Server"](#) on page 24
- ["Configuring a Queue Manager on a Computer Other than the Siebel Server Computer"](#) on page 24

- “Enabling the SMQReceiver” on page 25
- “Optional Step: Creating Additional SMQ Subsystems” on page 26

Configuring a Queue Manager on the Computer Hosting Siebel Server

A queue manager is a self-contained process and requires a dedicated TCP/IP port to listen for connections from the Siebel Server and the Siebel Handheld client applications.

To configure a queue manager on the computer hosting Siebel Server

- 1** Install a Java Runtime Environment (JRE) version 1.3.1 or higher if the computer does not have one.
- 2** Update the Windows system path to contain the directory of java.exe and the directory of jvm.dll. Usually these are subdirectories of the Java home directory bin, bin\client and bin\server.
- 3** Open a command window and navigate to the bin directory of the Siebel Server installation.
- 4** Use the SET command to verify the SIEBEL_HOME environment variable is set correctly.
- 5** Run the batch file setupqm.bat and follow the on-screen prompts.

The default values for queue manager name, directory, and port should be applicable for most installations. Check with your IT system administrator to make sure that the default listener port 8082 is available to use. Alternatively, you can specify a different port number.

- 6** From the Windows Start menu, choose Settings > Control Panel > Scheduled Tasks.
- 7** Right-click the Scheduled Task for the queue manager that you just created and choose Run. Verify the task's status has changed to Running in the Scheduled Tasks folder window.

Configuring a Queue Manager on a Computer Other than the Siebel Server Computer

You can configure a queue manager on a computer that does not host the Siebel Server. This computer can be put in the trusted network or in a DMZ. However, the queue manager host computer and port must be accessible to all Siebel Handheld clients and the Siebel Server.

To configure this setup, the same steps must be performed on the computer hosting the Siebel Server.

To perform set up on the Siebel Server

- 1** Open a command window and change to the bin directory of the Siebel Server installation.
- 2** Run the batch file deployqm.bat and follow the on-screen prompts.

This step produces a directory tree named C:\SiebelSMQ by default.

- 3 Copy the C:\SiebelSMQ folder to the computer that will host the queue manager.

To perform set up of queue manager on the target computer

- 1 Install a Java Runtime Environment (JRE) version 1.3.1 or higher if the computer does not already have an installed instance.
- 2 Update the system path to include the directory containing java.exe.
Usually this is a directory named bin in the JRE installation.
- 3 Open a command window and navigate to the bin directory that was copied in ["To perform set up on the Siebel Server"](#) on page 24.
- 4 Run the batch file setupqm.bat and follow the on-screen prompts.
The default values for queue manager name, directory, and port should be applicable for most installations. Check with your IT system administrator to be sure the default listener port 8082 is available to use. Alternatively, you can specify a different port number to use from here.
- 5 From the Windows Start menu, choose Settings > Control Panel > Scheduled Tasks.
- 6 Right-click the Scheduled Task for the queue manager that you just created and choose Run.
Verify the task's status is changed to Running in the Scheduled Tasks folder window.

Enabling the SMQReceiver

SMQReceiver must be enabled after the IBM MQe Queue Manager is set up and running. You must enable the SMQReceiver after the Siebel Server starts running.

To enable the SMQReceiver

- 1 Open up the Windows command prompt and start the Siebel Server Manager for the Siebel Server using the following command:

```
svrMgr /g <gateway server> /e <enterprise> /s <Siebel server> /u <userid> /p <password>
```

NOTE: *userid* and *password* are the system administrator's user name and password.

- 2 From the Siebel server manager run the following command once to start the SMQReceiver.

```
start task for comp SMQReceiver with  
ReceiverConnectionSubsystem=SmqReceiverSubsys,  
ReceiverDataHandlingSubsystem=SmqDispatchSubsys,  
ReceiverMethodName=Receivedispatch
```

Input parameters for the SMQReceiver are defined in the named subsystems. The first named subsystem defines the parameters necessary to configure an SMQReceiver for receiving messages for a single application (see the predefined named subsystem, SmqReceiverSubsys). The second named subsystem identifies the workflow for processing the received messages (see the predefined named subsystem, SmqDispatchSubsys).

- 3 From the server manager, run the following command once to make sure that the SMQReceiver starts itself every time the Siebel Server is restarted:

```
change param DfltTasks=1 for component SMQReceiver
```

When the SMQReceiver is running, there is exactly one log file SMQReceiver_xxx.log in the Siebel server log directory.

Optional Step: Creating Additional SMQ Subsystems

This step is required if you want to run Siebel Store-and-Forward Messaging for more than one Siebel Handheld application. Each Siebel Handheld application should have its own subsystems. This step allows each application to receive messages in its own queue, independent of all other applications. The following steps illustrate how to create additional subsystems for an application that uses an inbound queue named InboundFSQ and a workflow named SMQ Process FS User Queue.

To create additional SMQ subsystems

- From the server manager, execute the following two commands:

```
create named subsystem SmqFSReceiverSubsys for subsystem SMQRcvSubsys with  
SmqQueueType=Mqe, SmqQueueName=InboundFSQ, SmqQueueManagerName=ServerQM, SmqServerPortNumber=8082,  
SmqTransportServiceName="SMQ Transport Service", SmqTransportMethodName=waitForMessage
```

and

```
create named subsystem SmqFSDispatchSubsys for subsystem EAITransportDataHandlingSubsys with  
DispatchWorkflowProcess="SMQ Process FS User Queue"
```

Process of Installing and Configuring Handheld Applications

After setting up the Siebel Server and the queue manager, you are now ready to install and configure the Siebel Handheld applications to enable Store-and-Forward Messaging.

To install and configure the Siebel Handheld applications you need to perform the following tasks:

- [“Preparing for Installation of Siebel Handheld Applications” on page 27](#)
- [“Installing Siebel Handheld Applications” on page 28](#)
- [“Setting Up a Network Connection for Handheld Devices” on page 28](#)
- [“Synchronizing and Registering the Handheld Application for Store-and-Forward Messaging” on page 29](#)
- [“Optional Task: Tuning Handheld Application Parameters” on page 29](#)

Preparing for Installation of Siebel Handheld Applications

Prior to installing a Siebel Handheld application on a handheld device, you must first edit and verify the setup.ini parameters. Following this step, you may then install the Siebel Handheld application on the handheld device. See the Siebel Handheld Administration Guide for the Siebel Handheld application you are using.

NOTE: Store-and-Forward Messaging is supported for Direct Server Synchronization mode, but not for Companion Synchronization.

To verify and edit the setup.ini parameters

- 1 Open the application's setup.ini file.

For information on working with the setup.ini file, see the Siebel Handheld Administration Guide for the Siebel Handheld application you are using.

- 2 Change or verify the following parameter:

- SyncURL = http://[server IP address]/servicece_enu/

The SyncURL parameter is required to specify the URL to perform Siebel Handheld synchronization. This value is saved in registry on device. You can find this parameter in the [Siebel] section of the setup.ini file. The server IP address must be specified with the Web server's IP address.

- 3 Change or verify the following parameter values in the [Wireless Messaging] section.

- QueuingSoftware = MQE

QueuingSoftware can be MQE or NONE (if NONE is used, the Wireless Messaging feature is disabled)

- SMQCompression = GZIP

[Optional parameter] SMQ Compression setting. The valid values could be GZIP or blank. If this parameter is blank, no compression is applied.

- SMQEncryption = RC4

[Optional parameter] SMQ Encryption setting. The valid values could be RC4 or blank. If blank, no encryption is applied.

If MQE is selected for QueuingSoftware, the following parameters need to be specified:

- MQeServerQMgr = ServerQM

Mqe server Queue Manager name. The default value is ServerQM. It should be the same as the subsystem parameter "SmqQueueManagerName" in the subsystem specified in the Queue Info field in Store-and-Forward Applications View.

- MQeServerQueue = InboundQ
MQe server Queue name. The default value is InboundQ. It should be the same as the subsystem parameter "SmqQueueName" in the subsystem specified in the Queue Info field in Store-and-Forward Applications View.
- MQeServerAddr = [MQe Server Name]
MQe server address. The server domain name or IP address of the machine running the Queue Manager. For information, see "[Configuring a Queue Manager on the Computer Hosting Siebel Server](#)" on page 24. Make sure the domain name or IP address is resolvable from the handheld devices in the deployed environment.
- MQeServerPort = 8082
MQe Server Port number. The default value is 8082. It should be the same as the subsystem parameter "SmqServerPortNumber" in the subsystem specified in the Queue Info field in Store-and-Forward Application View.

If you do not want to enable Store-and-Forward Messaging for a Siebel Handheld application, comment out the entire [WirelessMessaging] section in the setup.ini file for the application.

Installing Siebel Handheld Applications

Install the Siebel Handheld applications by following the instructions contained in the Siebel Handheld Administration Guide for the Siebel Handheld application you are using.

Setting Up a Network Connection for Handheld Devices

After installing the Siebel Handheld application on the handheld device, you need to set up a network connection for the handheld device so that the device can communicate with the queue manager by way of an IP network through the HTTP protocol.

For example, the queue manager is configured on a computer in your company's network. If you plan to use Microsoft ActiveSync to connect your device to a laptop and then to the company trusted network, or plan to connect the device to the company network directly, follow these steps:

To set up a network connection

- 1** Tap Start > Settings, then tap the Connections tab.
- 2** Tap the Connections icon, and then the Advanced tab.
- 3** Tap the Select Networks button.

The Network Management screen appears.

- 4 Select My Work Network from the first drop-down list, and tap OK.

NOTE: If you plan to connect the handheld device to the queue manager through a wireless network, such as a wireless LAN 802.11 network or a wireless WAN network (for example, a GPRS or CDMA network), or a VPN, follow the instructions provided by the device manufacturer, the wireless modem manufacturer or the wireless carrier.

Synchronizing and Registering the Handheld Application for Store-and-Forward Messaging

If you use ActiveSync to connect your device to the Siebel Server to perform handheld synchronization, after the synchronization is completed, it is recommended that you turn off the device and turn the device back on to set up a new ActiveSync session which performs the initial registration/initialization step.

For information on handheld synchronization, see the Siebel Handheld Administration Guide for the Siebel Handheld application you are using.

After handheld synchronization, launch the Siebel Handheld application. The Siebel Handheld application registers itself with the Siebel Server through Store-and-Forward Messaging. The registration requires that the Siebel Handheld application performs a successful initialization step (INIT) with the Siebel Server Handheld Sync component.

Optional Task: Tuning Handheld Application Parameters

You can find the following parameters in the device registry. They are used by the Siebel Handheld application and can be modified. Siebel Client Registry settings are set during the client install. Some of their values can be configured by modifying the setup.ini before installation.

NOTE: Modifying the registry settings for Siebel Handheld after installation is not recommended. It is recommended that you modify the setup.ini parameters prior to installation instead.

Table 2 describes the Handheld application parameters.

Table 2. Handheld Application Parameters

Parameter	Description
SMQPollingInterval	<p>(Optional) Time interval, in seconds, that a Siebel Handheld application contacts a server queue manager to check for messages. The default value is 30 seconds. You may increase or decrease the value by adding this parameter in setup.ini or adding the name/value pair through device registry settings. If you decrease the value, it causes the application to contact the server more often. It means you may get messages faster, but application performance could degrade for non-messaging related operations.</p> <p>CAUTION: Change this value only when it is absolutely needed.</p>
MaxReturnedRecords	<p>(Optional) The maximum number of records returned by an asynchronous query. The default value is 500 records. You may increase or decrease the value by adding the name/value pair through device registry settings. This value is used by SMQ server to set the search result limit. If the number of search result is more than the setting, no records are returned.</p>
SMQRegisterTimeOut	<p>(Optional) Timeout for registration acknowledgement. If the application registration does not happen during the specified time frame, a message box would pop up asking if the user would like to wait longer. The default value is 30 seconds. You can change the default value by adding this parameter in setup.ini or adding the name/value pair through device registry settings. When you are working on a very slow network and find a lot of message boxes popping up before a successful registration, it is recommended you increase the value. Otherwise, you should avoid setting this optional parameter.</p>

About Setting Up Third-Party Wireless Gateway Servers

IBM WebSphere Everyplace Connection Manager 5.0 has been certified with Siebel Store-and-Forward Messaging. IBM WebSphere Everyplace Connection Manager provides the following features and flexibility to deploy Siebel Store-and-Forward Messaging.

- Additional security over wireless or wired networks
- Seamless cross-network roaming
- Reduced data transmission over wireless networks

For more information, see the related documents provided by IBM.

Troubleshooting Store-and-Forward Messaging Setup and Configuration

When a problem occurs for Store-and-Forward Messaging setup and configuration, the issue may reside on either the server side or the side of the Siebel Handheld application.

Siebel Store-and-Forward Messaging Server-Side Troubleshooting Checklist:

- 1** Make sure the server queue manager is running. If you run it from the scheduled tasks, its status should be running.
- 2** Make sure the SMQReceiver is running. You can check the running tasks to verify whether the SMQReceiver is running from the Siebel Server Manager command line. To check the status of the SMQReceiver, use the following command from the Siebel server manager:

```
list comp SMQReceiver
```

When the SMQReceiver is running, there should be a log file SMQReceiver(number).log in the Siebel Server log directory.

- 3 Make sure the queue directory tree on the queue manager host computer is created and the Siebel Handheld application has registered.

NOTE: In the example below, <USERNAME> stands for the user name of the handheld application user. <ddd> stands for any three digits.

The default directory structure looks like the following:

```
xxx\siebsrvr\smq\mqe\ServerQM\Queues\ServerQM
```

```
AdminQ
```

```
AdminReplyQ
```

```
InboundQ
```

```
[InboundQ.<USERNAME>.<ddd>] // created when the application registers
```

```
[<USERNAME>.<ddd>.SFQ] // created when the Siebel server responds to the registration
```

When a Siebel Handheld application starts the first time, the application sends a registration message to the Siebel Server. The registration message first reaches the queue manager's InboundQ directory. The SMQReceiver moves the registration message to the InboundQ.UserQueueName directory, for example, InboundQ.<USERNAME>.<ddd>. Here, <USERNAME> stands for the mobile user name. The registration message is then processed by the Workflow Process Manager and a server response message is generated and placed into the user's outbound queue, for example, <USERNAME>.<ddd>.SFQ. You can verify whether the two directories have been created for a user and whether there are messages over there.

You can check application registration from the Administration—Store-and-Forward screen. Go to User List > Device Administration, query for the user and verify whether a device name shows up in the applet. After a proper registration, the device address column in the Store-and-Forward Device Addresses view shows the device queue name for the particular user.

- 4 Check messages sent or received on the Siebel server from the Administration—Store-and-Forward screen. Choose Navigate > Administration—Store-and-Forward > Store-and-Forward User Message History, then query for the user and verify whether any message has been received from or sent to the Siebel Handheld application.
- 5 Check message objects are populated in Siebel Store-and-Forward Application View. If they are not populated:
 - a Choose Navigate > Site Map > Administration—Mobile.
 - b Click Application Administration view tab.
 - c Select the application name. For example, Siebel Service for CE.
 - d Click the Setting view tab, perform the following query: SchemaChangeNotification in the name field and see if it exists and if the value is: SMQ Message Service. If not, add it and remove the hhsync directory under the siebsrvr directory.
 - e Restart the Siebel server and try again.

If message objects are populated, it may be due to some server components not running.

If no, check the server-side log file to see if there are any error messages.

- 6 Examine the log files such as SMQReceiver log files, WfProcMgr log files, or the Siebel Handheld application log files to find more information for troubleshooting. You can enable or increase the server logging levels using the Siebel server manager commands. The commands are:
 - For SMQReceiver, change `evtloglvl SMQMsgSvc=5` for comp `SMQReceiver`
 - For Workflow Process Manager,
 - change `evtloglvl SMQMsgSvc=5` for comp `WfProcMgr`
 - change `evtloglvl EngInv=5` for comp `WfProcMgr`
 - change `evtloglvl StpExec=5` for comp `WfProcMgr`
 - change `evtloglvl PrcExec=5` for comp `WfProcMgr`
 - change `evtloglvl ObjMgrSqlLog=4` for comp `WfProcMgr`
 - For Siebel Service Handheld application
 - change `evtloglvl HandheldSyncLog=5` for comp `ServiceCEObjMgr_enu`
- 7 Test the outbound workflow. Choose `Navigate > Site Map > Activities > Activity List > All Activities`, and create a new activity. Step off the record and go back to the activity, assign the owner of the activity to the mobile user. This event triggers the "SMQ Outbound Activity to Primary Owned By" workflow and a data message should reach the user's Siebel Handheld application if the handheld device is connected to the queue manager. Server outbound messages are put in the `[UserQueueName].SFQ` directory temporarily until the handheld device polls for the messages. If there is a network connection issue, the messages sit in this directory until they expire. The expiry time is specified by the Message Delivery Timeout parameter in the Store-and-Forward Timeout Administration applet.
- 8 Sometimes, the workflow runtime events cannot be triggered after activation. Restarting the Siebel Server can fix this problem.
- 9 The Siebel Server components `SRProc` and `SRBroker` are essential for Siebel Store-and-Forward Messaging. They can fail for many different reasons. Check their corresponding log files, `SRProc*.log` and `SRBroker*.log` to see if there are any errors.
- 10 SMQ Receiver must be enabled after the queue manager is set up and running.

Siebel Store-and-Forward Messaging Server-Side Common Error Messages

Error Message: "The implementation DLL 'ssmqMQe' for queuing system 'MQe' could not be loaded."
In the SMQReceiver log file.

Usually this means the jvm.dll (used by the Java Virtual Machine) is not in the system path of the computer hosting the Siebel server. Store-and-Forward Messaging ssmqmqe.dll has a dependency on the jvm.dll. If jvm.dll can not be properly loaded, the ssmqmqe.dll will fail to be loaded too. You need to make sure the system path includes a directory containing the jvm.dll.

The SMQReceiver runs separately from the queue manger and embeds a Java Virtual Machine within its process. To embed a JVM the SMQReceiver needs to find the jvm.dll, not java.exe, on the system path. The jvm.dll should be in C:\<JavaHome>\jre\bin\server\ if you install a full Java SDK. If you install only a Java Runtime Environment (JRE) then this path would be like C:\Program Files\Java\<JavaHome>\bin\client\. Make sure you include this path in the system path of the computer.

The IBM MQe queue manager and its related ServerQM.bat and Scheduled Tasks are Java applications so they need java.exe to be either in the system path or explicitly specified. The java.exe is typically in the C:\<JavaHome>\bin\ directory.

Siebel Store-and-Forward Messaging Client-Side Troubleshooting Checklist

- 1 Verify that the following parameters are in the setup.ini file. [Table 5](#) lists the default values.

Figure 5. Parameter values for setup.ini file

Parameter	Default value
MQeServerQMgr	ServerQM
MQeServerQueue	InboundQ
MQeServerAddr	[hostname] or IP address of the computer hosting the queue manager
MQeServerPort	8082
QueuingSoftware	MQE. For IBM MQe only

If any of the parameter values do not match the server configuration, modify the setup.ini file and reinstall the Siebel Handheld application with the correct parameters.

- 2 Examine the Siebel Handheld application log file to find more information for troubleshooting. For information on working with the log file, see the Siebel Handheld Guide for the Siebel Handheld application you are using.

Siebel Store-and-Forward Messaging Client-Side Common Error Messages

- **Error Message:** "Unable to initialize Wireless Messaging. Cannot connect to the server. Please ensure that you have an active connection and try again."

Verify that the device has an active network connection by starting a Pocket Internet Explorer on the device and check whether the Pocket Internet Explorer can access a server URL, such as `http://[hostname]/service_enu/s.swe`.

Microsoft ActiveSync is configured by default to disconnect after an ActiveSync data synchronization. If you are connecting a device to the server through ActiveSync, follow these steps to maintain connection.

- On the handheld device, navigate to Start > ActiveSync.
- Tap the Tools menu in the bottom left corner of the screen.
- From the Tools menu tap Options.
- Make sure you're in the PC tab, then tap on the Options button.
- Under the heading titled: "When syncing remotely", tap the Maintain Connection radio button.

Additionally, occasionally, a network connection by way of an ActiveSync session may have domain name resolution issues. If this occurs, replace the MQeServerAddr host name with the IP address of the computer hosting the queue manager.

- **Error Messages:** "Wireless Messaging registration is pending. Would you like to continue to wait for server confirmation." or "Unable to Initialize Wireless Messaging Timed Out while waiting for registration response from the server. Please try again or contact your system administrator."

These two errors usually mean the device is able to send the first registration message to the server queue manager, but the Siebel server is not able to pick up the message from the inbound queues, generate a response message and send the response message back to the Siebel Handheld application. In this case, review the server-side troubleshooting check list to see if there is an error recorded in the log files.

3

Administration of Siebel Store-and-Forward Messaging

The following topics are included in this chapter:

- "Overview of Siebel Store-and-Forward Messaging Administration" on page 37
- "Process of Administering Applications with Siebel Store-and-Forward Messaging" on page 37
- "Process of Setting Up Siebel Store-and-Forward Messaging on a Siebel Handheld Application" on page 43
- "Process of Configuring Asynchronous Query for Siebel Handheld Applications" on page 49

Overview of Siebel Store-and-Forward Messaging Administration

Siebel Store-and-Forward Messaging administration screens allow you to administer mobile users, their Siebel Handheld devices, detailed Store-and-Forward Messaging message information, and timeout parameters. Store-and-Forward Messaging administration consists of three functional components, User Administration, Message Administration, and Message Repository.

User Administration displays mobile user, user device address, mobile application and message information for each user.

Message Administration displays how messages are constructed and allows an administrator to specify three message timeout parameters.

Message Repository provides key administrative information about each inbound and outbound message.

This chapter presents an overview of tasks you perform when administering Siebel Store-and-Forward Messaging. You administer Siebel Store-and-Forward Messaging from the Administration—Store-and-Forward screen in a Siebel Web client.

NOTE: To access Store-and-Forward Administration screens, you must have the responsibility, "SMQ User."

Process of Administering Applications with Siebel Store-and-Forward Messaging

Siebel Store-and-Forward Messaging supports Siebel Handheld applications which run on Pocket PC devices. For more information on Siebel Handheld, see the Siebel Handheld Administration Guide for the Siebel Handheld application you are using. For more information on supported devices, see *System Requirements and Supported Platforms* on Siebel SupportWeb.

In the Administration—Store-and-Forward > Store-and-Forward Applications view, the applications listed are identical to the Siebel Handheld applications displayed in the Administration-Mobile > Application Administration view. If you plan to configure a Siebel Handheld application and enable it to run Siebel Store-and-Forward Messaging, perform the following steps:

- “Enabling Applications for Store-and-Forward Messaging” on page 38
- “Administering Messages in Store-and-Forward Messaging” on page 38
- “Setting Outbound Data Message Timeout Parameters” on page 39
- “Administering Handheld Devices for Store-and-Forward Messaging” on page 40
- “Reviewing Store-and-Forward Messaging Message History” on page 41

Enabling Applications for Store-and-Forward Messaging

CAUTION: The following procedure must be performed before the Pocket PC device with the newly configured application synchronizes to the handheld synchronization server for the first time.

To enable an application for Store-and-Forward Messaging

- 1 Chose Navigate > Site Map > Administration-Mobile > Application Administration.
- 2 Click the Settings view tab, and create a new record with the following information in the Name and Value fields:
 - Name = SchemaChangeNotification
 - Value = SMQ Message Service

NOTE: The application now appears in the Administration—Store-and-Forward > Store-and-Forward Applications view.

Administering Messages in Store-and-Forward Messaging

Once a Siebel Handheld application is enabled for Store-and-Forward Messaging, you must administer the data message definition from the Administration—Store-and-Forward screen.

To administer data messages

- 1 Choose Navigate > Site Map > Administration—Store-and-Forward > Message List, and select an application.
- 2 The following Administration views and sub-views need to be populated for Store-and-Forward function:
 - **Message Objects.** Each data message object is based on a business object defined in the Siebel Handheld application. A message object consists typically of a record in the primary business component and all the descendant records in its descendant message components.

- **Message Components.** A message component consists of various fields. Not all field values are included in the message components.
- **Fields.** Only the fields displayed in the message fields are constructed in a data message.

You can populate these views manually, or they will be automatically populated during the first handheld synchronization process.

Manually Populating Message Objects, Components, and Fields

For detailed information on how to manually populate these views, see [“Creating Store-and-Forward Messaging Message Objects” on page 21.](#)

Automatically Populating Message Objects, Components and Fields

If a Siebel Handheld application has been enabled for Store-and-Forward Messaging and you have successfully installed an instance of the Siebel Handheld application on a Pocket PC device, the first handheld synchronization process populates the message objects, message components and fields automatically. This initial synchronization process may take longer than usual. For information on Siebel Handheld application synchronization, see the Siebel Handheld Administration Guide for the application you are using.

Setting Outbound Data Message Timeout Parameters

To make sure server outbound data messages are delivered in a timely manner, Store-and-Forward Message Timeout view allows you to specify three message timeout parameters.

- **Message Delivery Timeout parameter.** This parameter determines the amount of time, in seconds, allowed for a given outbound data message to be delivered before it is timed out. The timeout length can be field-value dependent, for example, different activity messages can have different timeouts based on the value entered into the activity priority field. A message is removed from the user's server outbound queue if it is not delivered within the defined time period. Also, the related activity record's status is changed to Dispatch Failed when the system is unable to successfully transmit the message to a device.
- **Message Acceptance Timeout parameter.** This parameter determines the amount of time, in seconds, within which a server outbound data message needs to be accepted or declined by the mobile user. This is an application-level parameter and can be used in a customized workflow or business process to define proper actions. The timeout length can be field-value dependent. For example, by setting values for activities, you can determine the amount of time, within which a service technician needs to tap Accept or Decline after a dispatched activity, received through Store-and-Forward Messaging, reaches his or her device.

NOTE: This parameter is currently not deployed by default in the Service Handheld application.

- **Start to Send parameter.** This parameter determines a time window, in seconds, within which a newly created data message may be sent to a Siebel Handheld application. This is an application-level parameter. This parameter needs to be associated with a field, such as the Planned Start field for Activity. The value setup for this parameter can be used in a customized workflow to define delay of an outbound data message. For example, if the parameter is set to 36 hours, an outbound data message for a new activity can only be sent to a handheld device when the activity's Planned Start time is within 36 hours of the current time.

NOTE: This parameter is not currently deployed for the Service Handheld application.

The values set for all the three message timeout parameters are in seconds.

To set up outbound data message timeout parameters

- 1 Choose Navigate > Site Map > Administration—Store-and-Forward > Store-and-Forward Applications, and select a Siebel Handheld application.
- 2 Click the Message Timeout view tab, then highlight the message object for which you would like to set a timeout parameter.

For example, the ActionSHCE message object, which is the data message object defined for the Action business object.
- 3 In the Store-and-Forward Timeout Administration subview, click New.
- 4 Choose a timeout parameter, either Message Delivery Timeout, Message Acceptance Timeout, or Start to Send.
- 5 In the Field Values and Time Out subview, enter the required fields.

For example, the timeout values can vary for activity records based on the Priority field. See the following table for an example:

Field	Value	Time
Priority	1 - ASAP	600
Priority	2 - Important	1200

If you do not select a field value, the Default Time value set applies to all the records.

Administering Handheld Devices for Store-and-Forward Messaging

When a Siebel Handheld application with Store-and-Forward Messaging enabled is launched the first time, the handheld device sends a registration message to register itself on the Siebel server. When the Siebel Handheld application is started the first time, make sure that the device has a wired or wireless network connection with the queue manager and the Siebel server. After the handheld device is registered, the mobile user and device information are populated. You can review the mobile user and device information from the Administration—Store-and-Forward > User List view.

To examine information about a registered handheld device

- 1 Choose Navigate > Site Map > Administration Store-and-Forward > User List.
- 2 In the Persons list, highlight a user, then click the Device Administration view tab.
- 3 Review the information.

The following table defines the fields in the Device Administration view.

Field	Description
Device Name	Description of the registered handheld device.
Mobile Application	The name of the Siebel Handheld application.
Sync Node ID	An ID used by Handheld Sync Server to uniquely identify a device.
Address Type	The queuing system used by the Siebel Handheld application, which is IBM MQe.
Device Address	The device's inbound queue name.

Reviewing Store-and-Forward Messaging Message History

You can review message histories in the Store-and-Forward Message History view for all the inbound and outbound messages. You may also review an individual user's inbound and outbound messages in the Personal Message History view. These views allow you to access characteristics of an inbound or outbound message, including the unique message ID, the application used for the message, the message direction - either from server or from client, the time when the message was received or sent, the message size, message status, and any error information. You can use this information to troubleshoot or monitor application or system usage.

There are two tasks you can perform to review message history. These tasks are listed below:

- ["To review message history" on page 41](#)
- ["To review user message histories" on page 43](#)

To review message history

- 1 Choose Navigate > Site Map > Administration—Store-and-Forward > Store-and-Forward Message History.

2 Review the information.

The data in the message history view is generated automatically, and is read-only. The following table lists the fields in the Store-and-Forward Message History view.

Field	Description
Message ID	The message ID in the screen is the row id of the message history table.
Transport ID	Transport-level ID used by the system.
User ID	User login name.
Application Name	The name of the Siebel Handheld application.
Direction	The direction the message has traveled. Either from Server or From Client.
Time Sent	Time a message was sent.
Time Received	Time a message was received.
Status	<ul style="list-style-type: none"> ■ Pending: The outbound data message has been created but is delayed until the specified Start to Send time. ■ Sent: The server outbound message has been sent to the queuing system. ■ Server-Received: The server has received the message from the Siebel Handheld application. ■ Client-Received: The handheld client application has received the message from the server. ■ Overdue-Not Received: The message is not delivered within the Message Delivery Timeout and has been removed from the user's server outbound queue. ■ Invalid: A message can no longer be generated due to record being deleted or reassigned to a different user. The message appears in the message table to log the fact that a workflow has been initiated, but something was wrong so a message cannot be generated. ■ Send Failed: The server outbound message cannot be delivered due to a transport error.
Size	The message size, as transported to the queuing system, after compression.
Original Message Id	ID of the corresponding request message if this message is a response message.
Error	Message content if this is an ERR (Error) type message.

To review user message histories

- 1 Choose Navigate > Site Map > Administration—Store-and-Forward > User List > Message History.
- 2 Review the information.

The table in the previous step describes the fields in the Store-and-Forward Personal Message History view.

Process of Setting Up Siebel Store-and-Forward Messaging on a Siebel Handheld Application

The Siebel Service Handheld application is configured by default to run Siebel Store-and-Forward Messaging.

To set up Siebel Store-and-Forward Messaging on any other Siebel Handheld application, you must perform the following tasks:

- [“Preconfiguring the Siebel Handheld Application” on page 43](#)
- [“Adding Store-and-Forward Messaging Views to the Handheld Application” on page 44](#)
- [“Adding Alter Sound User Properties to the Siebel Handheld Application” on page 45](#)
- [“Adding the Siebel Store-and-Forward Messaging Toolbar to the Handheld Application” on page 45](#)
- [“Adding Application Find to the Handheld Application” on page 46](#)
- [“Compiling Changes Made to the Handheld Application” on page 46](#)
- [“Updating the User’s Responsibilities and Views to Use Store-and-Forward Messaging” on page 47](#)
- [“Adding Settings to Enable Store-and-Forward Messaging” on page 48](#)
- [“Setting up the Siebel Handheld Application Setup.ini File for Store-and-Forward Messaging” on page 48](#)
- [“Installing the Siebel Handheld Application” on page 49](#)

Preconfiguring the Siebel Handheld Application

There are two steps to follow when preconfiguring your Siebel Handheld application. They are listed below:

To modify the Siebel Tools .cfg file

- 1 Open the Siebel Tools configuration file: [install directory]\tools\bin\enu\tools.cfg.
- 2 Make sure the Siebel Tools database connection information is correct.
- 3 In the [Siebel] section, verify that ClientConfigurationMode = All.

- 4 Save and close the file.
- 5 Open Siebel Tools.

To preconfigure an application

- 1 Launch Siebel Tools and navigate to View > Options > Object Explorer.
- 2 In the Development Tools Options box, make sure the following items are checked:
 - Applet
 - Application
 - Business Component
 - Business Object
 - Find
 - Screen
 - Toolbar
 - View
 - Workflow Process
- 3 Click OK.
- 4 In the Object Explorer, click the Types tab, then click Application.
- 5 Query the application list for your Siebel Handheld application.
For example, Siebel HH LS Medical.

Select the application, then from the Application level menu, select Tools > Lock Project.

Adding Store-and-Forward Messaging Views to the Handheld Application

The following task details how to add Store-and-Forward Messaging Views to your Siebel Handheld application.

To add Store-and-Forward Messaging views to the application

- 1 In the Siebel Tools Object Explorer, navigate to the Screen object.
- 2 Create a new record, or copy the SHCE Service Hidden Views Screen and modify it according to the steps below.
- 3 Add the following views to the hidden views screen created in the previous step:
 - SHCE Async Query List view

- SHCE Wireless Alerts List view

These two views have been created by default and are available for use. You need to configure an Asynchronous Query Results view and an inaccessible view for unsupported business components in the tasks which follow. Make sure you have added these newly created views into the hidden views screen, as detailed in this task. For more information, see ["Process of Configuring Asynchronous Query for Siebel Handheld Applications"](#) on page 49.

- 4 In the Object Explorer, expand the Application list then choose Screen Menu Item. Add the newly created screen.

Adding Alter Sound User Properties to the Siebel Handheld Application

Different sounds can be associated with the five different alert levels by specifying the .wav file in the application user properties.

To add alter sound user properties to a Siebel Handheld application

- 1 In the Siebel Tools Object Explorer, choose Application > Application User Properties.
- 2 Select your Siebel Handheld application from the Application list.
For example, Siebel HH LS Medical.
- 3 Insert the following new records into the Application User Properties list:
 - WiMeAlertMessage_1_Sound
 - WiMeAlertMessage_2_Sound
 - WiMeAlertMessage_3_Sound
 - WiMeAlertMessage_4_Sound
 - WiMeAsyncMessage_Sound
- 4 Set the value for each user property to the name of a .wav file that exists on your particular handheld device.

Available .wav files are determined by individual device manufacturers. Consult the documentation that accompanied your handheld device.

Adding the Siebel Store-and-Forward Messaging Toolbar to the Handheld Application

The Store-and-Forward Messaging Toolbar, which appears in the upper right corner of the Siebel Handheld application when Store-and-Forward Messaging is enabled, has been configured by default, but must be added to the Siebel Handheld application. The toolbar contains the following icons that flash when an event has occurred.

- **Inbound Message Icon.** Indicates that a message has arrived at the Siebel Handheld application.
- **Asynchronous Query Icon.** Indicates that asynchronous query results have been received from the server.
- **Outbound Message Icon.** Indicates that an outbound message has been placed in the application's outbound queue and awaits delivery.

To add the toolbar to the Siebel Handheld application, you need to perform the following task:

To add the Store-and-Forward Messaging toolbar to the Siebel Handheld application

- 1 Open Siebel Tools, and in the Object Explorer, choose Application > Toolbar.

NOTE: If you do not see this choice in the Object Explorer, you have either not made the correct changes to the tools.cfg file in ["To add the Store-and-Forward Messaging toolbar to the Siebel Handheld application"](#) on page 46, or you have not checked all the items that need to be exposed in ["Preconfiguring the Siebel Handheld Application"](#) on page 43.

- 2 Select your application from the Application drop-down list.
For example, Siebel HH LS Medical.
- 3 Insert a new record in the Application Toolbar list with the following value: SHCE Top.
- 4 Recompile your project.

Adding Application Find to the Handheld Application

Any Find object configured for asynchronous query must be added to the application object.

To add application find to application

- 1 In the Siebel Tools Object Explorer choose Application > Find.
- 2 Select your application from the Application list.
For example, Siebel HH LS Medical.
- 3 Insert a new record in the Application Find list for the asynchronous queries that you want to support.

Compiling Changes Made to the Handheld Application

You must compile changes made to any objects you change or create.

To compile Siebel Tools changes to the Siebel Handheld application

- 1 In Siebel Tools, select your Siebel Handheld application in the Application list.

- 2 Right-click, and select Compile Selected Objects.
- 3 Click browse to specify the new .srf file to the appropriate location.
For example, Siebel Industry Applications use [install directory]\objects\enu\siebel_sia.srf and Siebel eBusiness Applications use siebel.srf by default.
- 4 Make sure there are no applications running and that the database icon is not in your status area of the system taskbar (if it is, right-click the database icon, and choose Exit).
- 5 Select the object shown and click Compile.
- 6 Replace the server .srf file with your newly compiled .srf file.

Updating the User's Responsibilities and Views to Use Store-and-Forward Messaging

You must update and the responsibilities to the newly created or newly altered views.

To update the user's responsibilities and views for Store-and-Forward Messaging

- 1 Log into a Siebel Web Client as a system administrator.
 - 2 Choose Navigate > Site Map > Administration-Application > Responsibilities.
 - 3 Add SADMIN and handheld users to the Siebel Handheld user's responsibility by doing the following:
 - Query for the responsibility.
For example, Medical Sales - HH CE.
 - Insert SADMIN, and the user ID of the handheld users in the Users applet.
 - 4 Add the new views to the handheld user's responsibility by doing the following:
 - Query for the responsibility.
For example, Medical Sales - HH CE.
 - Insert the following new records into the Views applet:
 - SHCE Async Query List view
 - SHCE Wireless Alerts List view
- NOTE:** If you cannot insert the new records into the views applet, you can add these new views through Site Map > Administration-Application > Views.
- 5 Query for the SMQ User responsibility, then insert SADMIN into the Users applet.
 - 6 Select the Organization for the SMQ User responsibility and verify whether the Siebel Handheld user's organization is included.
For example, Medical Products MD ENU is the user SADMIN's organization.

Adding Settings to Enable Store-and-Forward Messaging

New settings are necessary to properly extract the Store-and-Forward Messaging views.

To add settings to enable Store-and-Forward Messaging

- 1 Choose Navigate > Site Map > Administration-Mobile > Application Administration > Settings.
- 2 Query for your Siebel Handheld application.
For example, Siebel HH LS Medical.
- 3 Create the following new Settings records:

Name	Value
NoExtractBusComp	SHCE Async Query, Sequence = 1
NoExtractBusComp	SHCE Async Query Results, Sequence = 2
NoExtractBusComp	SHCE Wireless Alerts, Sequence = 3
NoDatabaseBusComp	<name of unsupported business component>, Sequence = 1
SchemaChangeNotification	SMQ Message Service, Sequence = 1

For example, the Solution business component, for the SHCE Service application. For information on configuring unsupported business components, see ["Configuring Unsupported Business Components for Asynchronous Query" on page 54](#).

For information on entering information for the Siebel Handheld application, see ["Entering Information for the Store-and-Forward Messaging Application" on page 20](#).

Setting up the Siebel Handheld Application Setup.ini File for Store-and-Forward Messaging

To enable Store-and-Forward Messaging for your Siebel Handheld application, you need to make certain changes to the setup.ini file of the Siebel Handheld application.

To set up the setup.ini file

- 1 Make any changes to the [WirelessMessaging] section of the setup.ini file as shown in ["Preparing for Installation of Siebel Handheld Applications" on page 27](#).
- 2 Add the settings for the SyncURL, MQeServerAddr, and MQeServerPort parameters. See ["To verify and edit the setup.ini parameters" on page 27](#).

For more information of installing the Siebel Handheld application, see ["Process of Installing and Configuring Handheld Applications" on page 26](#).

Installing the Siebel Handheld Application

For instructions on installation of the Siebel Handheld application, see the Siebel Handheld Administration Guide for the Siebel Handheld application you are using.

Process of Configuring Asynchronous Query for Siebel Handheld Applications

Asynchronous Query has been configured, by default, for the Siebel Service Handheld application. Perform the following tasks to configure Asynchronous Query functionality for any other Siebel Handheld application.

- “Configuring the Find Object in Siebel Tools” on page 49
- “Creating the Asynchronous Query Results Applet” on page 51
- “Creating the Asynchronous Query Results View” on page 52
- “Adding Each New View to the Hidden Screens View” on page 53
- “Adding Each New View to the Hidden Screens View” on page 53
- “Adding Each New View and Responsibilities to the Application” on page 53
- “Configuring Unsupported Business Components for Asynchronous Query” on page 54

Configuring the Find Object in Siebel Tools

The Find dialog on the handheld device, which contains the functionality for local find and server find (asynchronous query), is configured in Siebel Tools. For information on configuring Find Objects, see *Siebel Search Administration Guide*.

You start the configuration process by adding a Find object. There are two views for each Find object. One view is rendered when a user performs a local find. The other view is for asynchronous query only and is based on the business object: SHCE Async Query.

When the user taps the Details button in the Asynchronous Query List applet, the Siebel Handheld application identifies the Find object of the highlighted row and renders the view that is related to the SHCE Async Query business object. This view, and its applet, display the asynchronous query results for the Find object.

When the user clicks on the Find button (local find) in the Find dialog, the view that is not related to the SHCE Async Query business object is rendered. The visibility of this view is used for Asynchronous Query as well.

To configure the Find object

- 1 In the Siebel Tools Object Explorer, click Find, then query for the Find object you wish to enable for asynchronous query.

If the Find object does not exist, create a new record.

Some fields of the Find object are explained in the table below:

Property	Description
Applet	Describes the applet that is rendered when the user clicks on the local Find button. When a user performs a local find (by tapping the Find button in the Find dialog on the Siebel Handheld application), the user is navigated to the specified applet and a local query is performed.
Display Name	The name that is displayed in the Find dialog Look In drop-down list. For example, by default the Siebel Service Handheld application contains Orders, Assets, Products, and Solutions.

To add Find fields

- 1 In the Siebel Tools Object Explorer, click Find > Find Field.

The available fields in the Field property associated with the business component of the applet specified in the Applet property. For example, the Order-SHCEService Find object uses SHCE Service Orders List Applet - Find. The business component of that list applet is Order Entry - Orders.

The necessary fields for the Find Field are explained below.

Field	Description
Display Name	The name displayed in the Find Dialog Look In drop-down list. For example, the default Siebel Service Handheld contains Orders, Assets, Products, and Solutions.
Display in Entry	Indicates that the field is available in the Find Dialog when the parent Find Object is selected in the Look In drop-down list. In other words, the user can enter query text for this field.
Display in Results	Indicates that data is retrieved for this field during an asynchronous query. This property is only relevant for asynchronous query (server find), as the data returned for local find is dictated by the available columns in the applet specified in the Applet property of the Find object.

To add Find views

- 1 In the Object Explorer, click Find > Find View.

2 Add the view.

NOTE: Only two views should be added: one for local find, and one for asynchronous query (server find).

For Local Find. A view that contains the applet specified by the parent Find Object Applet property should be added. When a local find is performed in the client Find Dialog, the user is navigated to this view. For example, if a local query is done on Orders in the Service Handheld application, the user is navigated to SHCE Service Asset List View - Find, which contains the applet SHCE Service Assets List Applet - Find that was specified in the parent Find Object local properties. Note that the visibility of this view is used by the asynchronous query feature when requesting server information. For example, if the visibility is designated as Personal, then the server query only returns Personal results.

For Server Find. When a user taps the Asynchronous Query icon in the upper right corner of the screen, the SHCE Async Query List view appears. The SHCE Async Query List view has been configured and is available for use. From the SHCE Async Query List view or applet, the user can highlight a query and tap the Details button. This operation brings up an Asynchronous Query Results view or applet, which should be configured and added into the application. For information on configuring the Asynchronous Query Results applet and view, see ["Creating the Asynchronous Query Results Applet" on page 51](#) and ["Creating the Asynchronous Query Results View" on page 52](#).

Creating the Asynchronous Query Results Applet

Once the Find object has been configured, it is necessary to create the applet that is used to display the results to the user. When the user clicks the Server Find button in the Find dialog box, a record is added to the SHCE Async Query business component, and can be viewed in the SHCE Async Query List view by clicking the Asynchronous Query icon. The Asynchronous Query icon is only visible when Store-and-Forward Messaging is enabled. See ["Using Asynchronous Query with the Siebel Service Handheld Application" on page 16](#) for an example. When the server returns the results of the asynchronous query, they are placed in the SHCE Async Query Results business component, which is a child of SHCE Async Query business object. The user can access these results by tapping the Details button in the SHCE Async Query List view.

To create an applet to display asynchronous query results

- 1** Create a new list applet, or copy an existing Asynchronous Query Result applet, such as SHCE Service Async Query Results Asset List applet.

The new or copied applet must have the following attributes:

- The applet must be a list applet.
- The business component property must be SHCE Async Query Results. In other words, all results applets are based on this business component.
- This applet should have the following fields checked:
 - No Insert
 - No Delete

□ No Update.

- When mapping applet fields to business component fields (Data 1, Data 2, ... Data 6 of SHCE Async Query Results) it is necessary to make sure that the business component field corresponds the correct Find object field. Returned asynchronous query results are populated in sequence of the Find object fields that have the 'Display in Results' flag set. In other words, Data 5 maps to the 5th find object field with the flag. See the following example:

Find Field Name	Sequence Number	Display in Results	Display in Entry	Data Column Map
A	0	Y	Y	Data 1
B	1	Y	N	Data 2
C	2	N	Y	None (not displayed)
D	3	Y	Y	Data 3
E	4	Y	Y	Data 4
F	5	N	Y	None (not displayed)
G	6	Y	N	Data 5

- 2 Use the Edit Web Layout feature in Siebel Tools to configure the user interface.
This determines the order the query result columns appear in the user interface.

Creating the Asynchronous Query Results View

If an Asynchronous Query Results view has not been created, create it by following these steps.

To create the view object

- 1 In the Siebel Tools Object Explorer, navigate to the View object and create a new record using the guideline listed below.
NOTE: The property business object for the view needs to be SHCE Async Query.
- 2 Add the Async Query Results applet created in ["Creating the Asynchronous Query Results Applet" on page 51](#) to this view.

- 3 Add the following user properties to the view to implement the pseudo popup behavior. Doing this makes the view behave like a popup rather than a view.

Name	Value
SHCEHideNavBar	Y
SHCEHideToolBar	Y
SHCEPseudoPopup	Y

See the SHCE Service Async Query Results Asset List view for more information. If you copy the SHCE Service Async Query Results Asset List view, make sure you change the fields for the Visibility Applet and the Thread Applet and point them to the newly created Asynchronous Query Results applet.

Adding Each New View to the Hidden Screens View

A screen that contains the SHCE Async Query List applet as well as the SHCE Wireless Alerts List view should already be added to the Application > Screen Menu Item in the Tools Object Explorer for your application. The new views should be added to this screen. By adding the screen in Application > Screen Menu Item, the definitions will be extracted during the synchronization process.

NOTE: To have the screen appear in the dropdown screen menu, you have to add the screen to the Application > Page Tab. However, since the default buttons provide navigation to the default views, this hidden screen is excluded from the Page Tabs.

For an example, see the SHCE Service Hidden Views Screen.

Adding Each New View and Responsibilities to the Application

You can perform this task by running the dedicated client with the /editseeddata switch or by logging into a Siebel Web Client as a system administrator.

To add the new views

- 1 Choose Navigate > Site Map > Administration-Application > Views.
- 2 Add the new views.

To add the views to the responsibilities

- 1 Choose Navigate > Site Map > Administration-Application > Responsibilities (or Responsibility List).
- 2 Add the views to the responsibilities.

Configuring Unsupported Business Components for Asynchronous Query

An unsupported business component is one that is not supported on the client but is available on the server. You can configure the Siebel Handheld application to support asynchronous query on these business components.

The Applet property of the Find object is mandatory and dictates the available Find fields that can be added. The available fields are the business component fields of the specified Find object. It is therefore necessary to create a new view based on the unsupported business component. For more information, see ["Configuring the Find Object in Siebel Tools" on page 49](#). Although this view is inaccessible to the end user, it provides the visibility information for the server asynchronous query operation. You still need to configure the Async Query Results view separately. In summary, there are two Find views per Find object for an unsupported business component. One view, the inaccessible view, is based on the Find object's business component (such as Accounts, Contacts, Solutions, and Orders), which may be an unsupported business component on the Siebel Handheld application. The other view is the Async Query Results view that you configure separately. The Async Query Results view is used to display the results of asynchronous queries.

The following two sections provide an example of configuring an inaccessible applet and view for the Solutions business component, which is an unsupported business component in the Siebel Service Handheld application.

Example for Configuring an Inaccessible Applet

The following is an example for configuring an inaccessible applet.

Creating a New Applet: SHCE Sales Solutions Find Applet

To create a new applet

- 1 In Siebel Tools, create a new applet, then specify the business component to the one you wish to use.

For instance, Solution.

Make sure that you have built a Web template. It need not contain any fields. The sync server will not extract the applet if there is no Web template. For information on Web templates, see *Siebel Developer's Reference*.

Creating a New View: SHCE Sales Solutions Find View

To create a new view

- 1 Set the applet from the previous task as the view's default and only applet.

- 2** Specify the visibility on the view that you wish to use for asynchronous queries against this business component.
- 3** Make sure to add this view to the user's responsibility.
You must run the Siebel client application with the /editseeddata switch, add the view and then add the responsibility in the Application Administration view. For information, see ["Adding Each New View and Responsibilities to the Application"](#) on page 53.
- 4** Create a new Find object called: Solution-SHCESales.
See ["Configuring the Find Object in Siebel Tools"](#) on page 49.
 - a** Specify the applet as the one defined in the SHCE Sales Solutions Find Applet.
 - b** Choose the fields to expose in entry and in the results.
- 5** Follow the instructions in the previous sections to do the following:
 - a** Add the Find object to the application. See, ["Adding Application Find to the Handheld Application"](#) on page 46.
 - b** Add the view to the hidden screen you created earlier in the application. See, ["Adding Each New View to the Hidden Screens View"](#) on page 53.
 - c** Add the view to the application list of views and add appropriate responsibilities.
- 6** Update synchronization settings to avoid extracting the data for the new view. If this is not done, then the data for this unsupported business component will be extracted unnecessarily.
 - a** In the Siebel Web client, choose Navigate > Site Map > Administration-Mobile > Application Administration.
 - b** Choose the name of the application(s) that use this unsupported business component, and select the Settings tab.
 - c** Add a new record where the Name property = "NoDatabaseBusComp" and the Value contains the name of the unsupported business component.

4

Siebel Store-and-Forward Messaging Sample Workflows

The following topics are included in this section:

- "About Store-and-Forward Messaging Workflows" on page 57
- "SMQ Outbound Activity to One Recipient" on page 58
- "SMQ Outbound Activity to Primary Owned By" on page 59
- "SMQ Outbound Activity to Team" on page 59
- "SMQ Process User Queue" on page 60

About Store-and-Forward Messaging Workflows

Store-and-Forward Messaging provides four sample workflows to demonstrate its functionality. These workflows can be customized to meet different business process requirements. The definitions of these workflows can be examined in the Siebel Tools. For more information, see *Siebel Business Process Designer Administration Guide*.

The three outbound workflows are SMQ Outbound Activity to One Recipient, SMQ Outbound Activity to Primary Owned By, and SMQ Outbound Activity to Team.

The SMQ Outbound Activity to One Recipient is a basic workflow. It is based on the Action business object. Its main function is to generate a message, format the message, send the message to a server outbound queue, and update the message history table.

The SMQ Outbound Activity to Primary Owned By workflow uses the SMQ Outbound Activity to One Recipient workflow as a subworkflow. This workflow is triggered by the WriteRecordUpdated runtime event in the Action business component. If an activity is assigned to a mobile user or an activity owned by a mobile user is updated, the workflow sends a data message to the mobile user with the updated activity information and its associated data.

The SMQ Outbound Activity to Team workflow also uses the SMQ Outbound Activity to One Recipient as a subworkflow. The workflow allows sending the identical activity message to all the service technicians on the same team.

The inbound workflow is SMQ Process User Queue. This workflow picks up server inbound messages and process them.

SMQ Outbound Activity to One Recipient

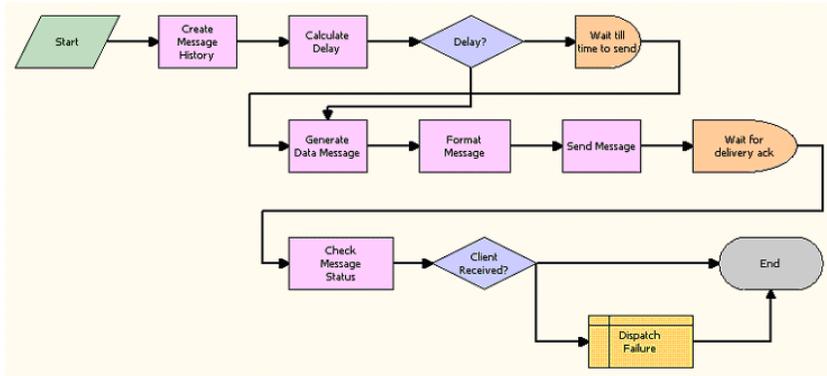


Figure 6. SMQ Outbound Activity to One Recipient Workflow

As seen in [Figure 6](#), the SMQ Outbound Activity to One Recipient workflow is based on the Action business object, and is an outbound workflow defined for a mobile service technician. The workflow creates a server outbound data message containing the information about a dispatched activity and send the message through the Store-and-Forward Messaging.

The main process properties include Application Name, Message Object Name, and Message Recipient. The Application Name and Message Object Name must be defined in the Administration-Store-and-Forward > Store-and-Forward Applications view.

This workflow contains the following steps:

- 1** Create Message History: This step creates a message history record in the message history table and sets the message status to Pending.
- 2** Calculate Delay: The workflow may be put to sleep if a Start to Send parameter is being specified in the Store-and-Forward Timeout Administration view.
- 3** Generate Data Message: This step takes the message object ID as well as the related business object name and extracts the related data to construct a server outbound data message.
- 4** Format Message: This step takes the data extracted and formats it to a well-formed XML document.
- 5** Send Message: This step sends the XML document into the user's server outbound queue.
- 6** Wait for delivery ack: This step waits for an acknowledgement from the MQe queuing system, which indicates whether the message reaches the targeted handheld device.
- 7** Check Message Status: This step checks the message status. If the status of the message has been changed to Client-Received, the message has arrived at the client side.
- 8** Dispatch Failure: If the status of the message is something else, this step sets the status of the activity record to Dispatch Failure.

SMQ Outbound Activity to Primary Owned By

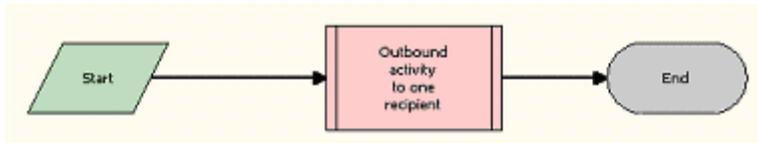


Figure 7. SMQ Outbound Activity to Primary Owned By Workflow

As shown in [Figure 7](#), this outbound workflow uses the SMQ Outbound Activity to One Recipient workflow as a subworkflow. A runtime event is defined in the start step and is triggered by the WriteRecordUpdated event in the Action business component. Every time an activity record is updated, the workflow is triggered and sends a server outbound data message to the activity's primary owner.

This workflow provides three main process properties to the SMQ Outbound Activity to One Recipient workflow.

- 1 Application Name: set to Siebel Service for CE, which is Service Handheld application.
- 2 Message Object: set to ActionSHCE, which is the business object enabled for Store-and-Forward Messaging for the Service Handheld application.
- 3 Recipient: set to the "Primary Owned By" field value of an activity record. This value identifies the primary owner of the activity.

In addition, a condition of "`[Updated By]<>[Primary Owner Id]`) AND `[Status]<>LookupValue('Event Status', 'Dispatch Failed')`" is specified on the branch following the start step. This condition filters out two undesirable triggering events, the record changes that are made by the owner himself, and the changes that are made by the workflow itself because the related outbound data messages are not delivered within the Message Delivery Timeout.

SMQ Outbound Activity to Team

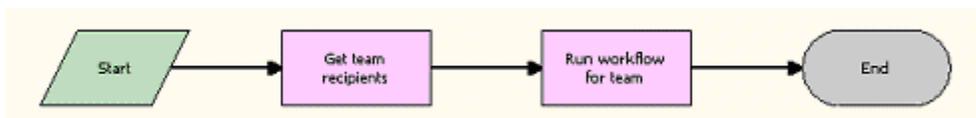


Figure 8. SMQ Outbound Activity to Team Workflow

As shown in [Figure 8](#), the SMQ Outbound Activity to Team workflow also uses the SMQ Outbound Activity to One Recipient workflow as a subworkflow. Some customers may need to send the same activity record to all the service technicians on the same team. This workflow shows how it can be achieved in the following two steps.

- 1 Get Team Recipients: The input argument TeamField specifies a multivalue field to derive the set of recipients. Currently the input argument is set to Owned By.
- 2 Run Workflow for Team: The input argument ProcessName specifies the workflow to be run for every technician in the team. This argument is set to SMQ Outbound Activity to One Recipient.

SMQ Process User Queue



Figure 9. SMQ Process User Queue Workflow

As shown in [Figure 9](#), the SMQ Process User Queue is the inbound workflow, which is triggered to pick up server inbound messages from each user individual inbound queue and process them. This workflow has the following input arguments in the Process User Queue step, which can be customized:

- 1 Application Name: Set to Siebel Service for CE, which is Service Handheld application.
- 2 TimeOut: Time to wait for next inbound message's arrival before the workflow ends. It is currently set to five seconds.

5

Business Services for Siebel Store-and-Forward Messaging

The following lists Business Classes and Business Services used in Siebel Store-and-Forward Messaging.

SMQ Message Service

This business service consists of the main functions for Store-and-Forward Messaging. [Table 3](#) lists the SMQ Message Service methods, and their definitions.

Table 3. SMQ Message Service Methods

Method	Definition
CheckMsgStatus	Queries the status field of a given message.
CreateMessageHistory	Creates a new record in the message history view.
FormatMsg	Formats a message to the proper XML format.
GenDataMsg	Creates a data message based on a message object.
GetTimeout	Calculates any of the three types of time out parameters for a given message object.
PingDevice	Sends a Ping message to check whether the device is within coverage.
ProcessUserQueue	Used primarily in the inbound processing. It processes all available inbound messages for a given user inbound queue.
RegisterMobileDevice	Handles device registration when a registration message is received.
RunWorkflowForTeam	Executes a workflow process for a set of users.
SendMsg	Sends a properly formatted message to the SMQ transport service.
UpdateMsgStatus	Changes a message status to a given value.

SMQ Transport Service

This business service provides an interface between Siebel applications and the IBM WebSphere MQE Everyplace queuing system. [Table 4](#) lists the SMQ Transport Service methods and their definitions.

Table 4. SMQ Transport Service Methods

Method	Definition
GetQueues	Gets a list of user inbound queues from the queuing system.
WaitForMessage	Waits for a message on an application inbound queue.
MoveMessage	Moves a message from an application inbound queue to a user inbound queue.
PeekMessage	Retrieves a copy of the first message on a queue, the message remains on the queue.
ReceiveMessage	Retrieves the first message on a queue, the message is removed from the queue.
RemoveMessage	Removes the first message on a queue.
SendMessage	Sends a message to an outbound queue representing a client device.

Store-and-Forward Messaging Message Protocols

Store-and-Forward Messaging messages fall into two basic categories: messages sent from a Siebel Server to a Siebel Handheld application and messages sent from a Siebel Handheld application to a Siebel Server.

- **Outbound Server Messages.** Generated on a Siebel Server for delivery to a Siebel Handheld application.
 - **Data Message.** Contains record-level data from a single business component and its related child business components.
 - **Ping Message.** Used to determine whether a Siebel Handheld application is connected with the Siebel Server.
 - **Acknowledgement Message.** Indicates that a server inbound message has been successfully received and processed.
 - **Error Message.** Informs the target Siebel Handheld application that a server inbound message was not successfully handled on the server side or other error conditions.

- **Inbound Server Messages.** Generated on a Siebel Handheld application for delivery to a Siebel Server.
 - **Request Message.** Used to request data for a single business component record, or a set of specific business component records.
 - **Invoke Message.** Used to invoke a business service command on the server side.
 - **Transaction Message.** Specifies record-level insertion, update, association, and deletion transactions.

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