



**SIEBEL**<sup>®</sup> 7  
eBusiness

## **SIEBEL FIELD SERVICE GUIDE**

*VERSION 7.5, REV. A*

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## **Index**

# Introduction

This guide describes each feature of Siebel Field Service, and provides the information required for configuring and administering this application.

Although job titles and duties at your company may differ from those listed in the following table, the audience for this guide consists primarily of employees in these categories:

<b>Database Administrators</b>	Administrators who administer the database system, including data loading, system monitoring, backup and recovery, space allocation and sizing, and user account management.
<b>Installers</b>	Persons responsible for setting up Siebel Field Service for initial use.
<b>Marketing Administrators</b>	Administrators who set up and maintain a marketing department. Their duties include designing and managing campaigns, product marketing information, and product distribution lists.
<b>Siebel Application Administrators</b>	Administrators who plan, set up, and maintain Siebel applications.
<b>Siebel Application Developers</b>	Developers who plan, implement, and configure Siebel applications, possibly adding new functionality.
<b>Service Center Administrators</b>	Administrators who set up and maintain a service center.
<b>Siebel System Administrators</b>	Administrators responsible for the whole system, including installing, maintaining, and upgrading Siebel applications.

## How This Guide Is Organized

This book shows the progression of tasks to be performed in Siebel Field Service.

This guide is organized according to the functions of screens that apply to Siebel Field Service. For example, screens that apply to service support are grouped into one chapter. With the exception of this Introduction and [Chapter 1, “Overview of Field Service,”](#) each chapter in this guide addresses one or more specific screens and their associated functions.

Although job duties at your site may vary from the classifications used in this guide and may overlap, most information is directed to an application administrator or Siebel administrator audience. Where appropriate, end user procedures are also included. These are to inform the administrator how the default user interface functions when set up.

This guide is designed to be used in combination with a broader set of documentation that pertains to all Siebel eBusiness Applications. Most chapters in this guide cover only the information that is specific to Siebel Field Service. Where applicable, you are referred to other guides.

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**NOTE:** This guide assumes that you have successfully installed Siebel Field Service. If you have not yet installed the application, see *Siebel Server Installation Guide* or *Upgrade Guide* for the operating system you are using. If you plan to use Siebel Remote, you must complete additional implementation tasks described in *Siebel Remote and Replication Manager Administration Guide*.

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## What's New in This Release

The features that are new in Release 7.5 are as follows:

- **Asset hierarchy.** Siebel Field Service allows you to track assets as an n-level hierarchy of parent assets and child asset components. Child components inherit the properties of the parent asset.
- **Assets screen improvements.** New views and new fields on existing views are added to the Assets screen in support of new functionality.
- **Asset transactions automation.** Inventory transactions performed on an asset automatically include the components of the asset.
- **Barcodes.** Field Service can now import information scanned into a barcode reader.
- **Agreements enhancements.** Additional views and tabs in the Agreements screen allow you to associate notes, entitlement metrics, and orders with an agreement.
- **Engines as business services.** The Fulfillment Engine, Part Locator Engine, Replenishment Engine, Cycle Counting Engine, Preventive Maintenance Engine, and Mobile Inventory Transaction Engine are implemented as business services.
- **Siebel Invoices ASI.** A new ASI (Application Services Interface) imports invoice data from third-party invoicing applications into your Siebel application.
- **Quality enhanced reports.** New reports are added to the Quality screen.
- **Quality multiple occurrences.** You can apply a single product change request to multiple product platforms or versions. You can also define parent-child, dependency, and other relationships between change requests.
- **Release Manager.** A Release Manager module is added to allow you to plan and track product development projects.
- **Field Service Analytics Applications.** New reports are added to the Agreements module. For more information, see *Siebel Analytics Installation and Administration Guide* and *Siebel Analytics User Guide*.

Your Siebel implementation may not have all the features described in this guide, depending on which software modules your company has purchased.

# Additional Resources

This section lists additional resources, such as other Siebel application guides, that may be relevant to your use of Siebel Field Service.

## **Additional Documentation**

The following additional books also contain essential information about functionalities discussed in this guide:

- *Applications Administration Guide*
- *Integration Platform Technologies: Siebel eBusiness Application Integration Volume II*
- *Product Administration Guide*
- *Siebel Assignment Manager Administration Guide*
- *Siebel Order Management Guide*
- *Siebel Professional Services Automation Guide*
- *Siebel Wireless Administration Guide*



# Revision History

*Siebel Field Service Guide*, Version 7.5, Rev. A

## Version 7.5, Rev. A

**Table 1. Changes Made in Version 7.5, Revision A**

Topic	Revision
<a href="#">“Generating Correspondence for a Service Request” on page 55</a>	Added a section and procedure on generating correspondence for a service request.
<a href="#">“Accounts Screen” on page 59</a>	In the last paragraph under this heading, changed an incorrect cross-reference.
<a href="#">“Service Requests Views” on page 63</a>	In <a href="#">Table 4</a> , added a description of the Group field.
<a href="#">“Verify Button” on page 65</a>	A note about the Verify button being a business service has been removed. The note was incorrect.
<a href="#">“Setting Alarms for Activities” on page 94</a>	Removed the Note paragraph referring to the Suppress Calendar check box, which no longer appears on the Activities screen.
<a href="#">“All Activities View” on page 104</a>	In <a href="#">Table 15</a> , removed the description of the Suppress Calendar check box, which no longer appears on the Activities screen. Also added a description of the Repeat Frequency field.
<a href="#">“Part Tracker View” on page 107</a>	In <a href="#">Table 17</a> , clarified the description of the Commit and Commit All buttons.
<a href="#">“Making Changes to a Schedule” on page 148</a>	Added a Caution paragraph regarding manual schedule changes.
<a href="#">“Server Key Mappings View” on page 168</a>	Added a paragraph about restarting the server component after changing key mappings.
<a href="#">“Schedule View” on page 170</a>	In <a href="#">Table 37</a> , added a description for the Planned Start field.
<a href="#">“To define products covered in an entitlement template” on page 203</a>	Added a Caution paragraph at the end of the procedure to clarify how to associate a product and an entitlement template when the product is an agreement line item.

**Table 1. Changes Made in Version 7.5, Revision A**

Topic	Revision
“Using Agreements and Entitlements” on page 208	Added a new procedure to explain how to associate primary contacts with an agreement.
“Agreement View” on page 229	In <a href="#">Table 52</a> , added a description for the Currency field and revised the description of the Effective field.
“Entitlement Details Subview” on page 234	In <a href="#">Table 57</a> , added descriptions for the Current Qty and Initial Qty fields.
“Invoice Logic for Agreements” on page 247	Added details to <a href="#">Step 2</a> through <a href="#">Step 5</a> of the process description to make it more accurate.
“Logic for NRC Line Items” on page 248	Modified <a href="#">Step 1</a> of the process description to make it more accurate.
“Logic for Usage Line Items” on page 248	Modified <a href="#">Step 4</a> and <a href="#">Step 5</a> of the process description to make it more accurate.
“Setting Up Automatic Invoicing for Agreements” on page 253	To the first paragraph, added a clarification about how to make automatic invoicing work.
“To associate an invoice plan with an agreement” on page 253	Added a new <a href="#">Step 7</a> to clarify which fields are required for the various types of invoicing.
“To associate multiple employees with an inventory location”	Deleted this procedure from <a href="#">Chapter 9, “Service Inventory.”</a> The procedure was inaccurate.
“Best Practice: Managing Inventory Levels” on page 322	Added a subsection explaining a best practice for creating certain inventory levels.
“To specify allocation of products” on page 332	Rewrote <a href="#">Step 3</a> through <a href="#">Step 6</a> to clarify the procedure. Added a Caution paragraph about changing settings.
“To set a repeating component request for the Cycle Counting Engine” on page 386	Added a new procedure to explain how to set a repeating component request for the Cycle Counting Engine.

**Table 1. Changes Made in Version 7.5, Revision A**

Topic	Revision
<a href="#">Chapter 12, “Quality”</a>	<p>Rewrote the chapter to be more task-based and better-focused on its user audiences. Changes include the following:</p> <ul style="list-style-type: none"> <li>■ Reorganized the material into Administrator, Product Marketing, Engineering, and Quality Assurance user sections.</li> <li>■ Added process flow diagrams and descriptions for the user tasks.</li> <li>■ Removed the view descriptions and rolled their text into the procedures.</li> <li>■ Removed procedures for associating a service request with a change request, accessing a primary occurrence change request from its child, and accessing a multiple occurrence change request from its parent.</li> <li>■ Removed the sections on Charts and Reports.</li> <li>■ In the Administrator section, added procedures for setting up roles and responsibilities, lists of values, area-subarea mappings, and product builds.</li> <li>■ In the Quality Assurance sections, added procedures for querying for, adding attachments to, reopening, and Close-Verifying change requests.</li> <li>■ To the Engineering section, added a procedure for assigning change requests.</li> <li>■ To the Product Marketing section, added procedures for querying for, reassigning, and closing change requests.</li> <li>■ Added a section with background material and new procedures for generating, approving, and shipping patch requests.</li> </ul>
<a href="#">“Properties of Assets” on page 490</a>	<p>Added the seventh bulleted paragraph to help clarify the relationship between assets and products.</p>

**Table 1. Changes Made in Version 7.5, Revision A**

Topic	Revision
“To create an asset” on page 494	Added a Note paragraph after <a href="#">Step 5</a> to clarify asset configuration from within a set of records displayed by a predefined query.
“Creating a Hierarchical Asset From a Product Bundle” on page 495	Added a section and procedure explaining how to create a hierarchical asset from a product bundle.
“To record a reading for an asset” on page 503	Added a Caution paragraph about recording readings for assets whose products have changed.
“Service Request Templates” on page 537	Rewrote this section to clarify what a service request template includes.
“Time Interval Subview” on page 549	In <a href="#">Table 128</a> , added a description for the Interval field.
“Glossary”	The book’s Glossary section has been removed. The glossary definitions have been added to the main <i>Glossary</i> book.

# Overview of Field Service

# 1

This chapter describes the Field Service process, the application design, and the administrative tasks associated with Field Service.

# About Field Service

The field service process begins with *service requests* and *orders*. A service request is a customer's request for information about or assistance with products or services. An order is a commitment on the part of the customer to purchase products and services at a specific price. Service requests are described in [Chapter 2, "Service Support,"](#) in this guide. Orders are described in *Siebel Order Management Guide*.

The field service process typically consists of one of the following scenarios:

- A customer reports a problem to a service center and field engineers are dispatched to repair the item.
- A customer places an order with a service center and field engineers are dispatched to install the item.

Separate functional groups such as the service center, dispatch, field engineers, and parts business need to share information. Siebel Field Service integrates call center, dispatch, field activities, and service parts information in a single application. Siebel Field Service provides service center agents, warehouse staff, and field service engineers with the tools to respond to service requests and orders. Siebel Field Service handles tasks including the following:

- Receives service calls.
- Verifies service agreements and entitlements.
- Enters a service request.
- Searches for solutions.
- Creates activities for a service request.
- Assigns and dispatches field service engineers.
- Provides parts inventories for parts depots and trunk stock.
- Provides detailed customer configuration.
- Tracks parts consumption and logistics.
- Manages inventory replenishment.

- Integrates return materials authorizations and service orders.
- Provides field service engineers with complete service details, including the required skills, tools, and parts for all service activities.
- Manages repair of defective parts.
- Sets up and manages preventive maintenance plans.
- Tracks and analyzes service costs.
- Prepares invoices for service, and tracks payments.
- Defines characteristics of assets and records readings from equipment (assets) in the field for preventive maintenance, billing, and service.

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**NOTE:** A Siebel implementation may not have all the features described in this guide, depending on which software modules have been purchased.

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## **Managing the Full Cycle of Field Service**

Field service businesses use Siebel Field Service to manage the entire flow of field service operations. Inbound service center calls are managed in this sequence:

- 1** Enter a service request. Service request activities are created throughout the life cycle of the service request.
- 2** Verify the service level agreements for the caller.
- 3** Based on the diagnosis of the problem and the service level agreement, create a return material authorization (RMA) or a service order and link it to the service request, to allow prompt resolution.
- 4** Fill the order and ship the replacement parts to the customer or the field engineer.
- 5** Dispatch activities to a field engineer with the right skill set, tools, time, and location.

When a call has been resolved, the engineer reports the details of the resolution from the field, updates the customer relationship database to reflect possible cross-selling opportunities, and updates and replenishes the service parts inventory on a just-in-time basis. An invoice can be issued to the customer as proof of work. Pending return material authorizations from customers are tracked from receiving the items and defective parts are managed through the repair cycle.

Siebel Field Service consists of the basic functions required by most service businesses, as well as optional functions that can be added to fit most field service requirements:

- Base Field Service modules:
  - Call Management
  - Account/Contact Management
  - Field Activities Management
  - Warranty Management
  - Asset Management
  - Service Order Management
  - On-Site Services Management
  - Knowledge Management
  - Dispatch Board
  - Service Inventory
  - Shipping and Receiving
- Optional Field Service modules:
  - Contract Management
  - Siebel Scheduler
  - Repair
  - Preventive Maintenance



- Logistics Management
- Quality Management (includes Quality and Release screens)
- Barcodes

## Dispatch Board

Dispatch Board is a graphical user interface that allows call center personnel and dispatchers to select, schedule, and assign field service engineers to service activities.

The Dispatch Board screen shows all unplanned activities and a list of the selected field service engineers and their schedules. Dragging unplanned activities onto the schedules of field service engineers automatically assigns and schedules these activities.

## Siebel Scheduler

Siebel Scheduler provides automatic scheduling of activities and optimization of a service calendar. Appointment booking and schedule optimization are based on service region data, employee data, and constraints. Insertion of activities into optimized schedules accommodates immediate scheduling needs; for example, service calls linked to contractual commitments (entitlements) and emergency events. The application provides worldwide scheduling capability.

Siebel Scheduler includes the following features:

- Appointment scheduling allows customer service representatives to automatically schedule customer visits without exceeding current labor capacity. Appointments based on a window of time can be given to the customer with granularity down to hours.
- Siebel Scheduler optimizes deployment schedules based on business-defined constraints (for example, minimizing travel and labor costs) while making sure that contractual commitments are met. High-priority calls can be scheduled immediately, resulting in the reassignment of lower-priority calls.
- Siebel Scheduler can insert service activities that need immediate attention into an already-optimized schedule. Siebel Scheduler can also respond to unplanned situations like a vehicle breakdown or unavailable field service engineers.

- Siebel Scheduler can use Siebel Assignment Manager to provide an optimized list of field service engineers for assignment to each service request or activity. Siebel Scheduler also provides to the Assignment Manager data on availability of employees.
- Schedules are optimized in batch mode based on business-defined criteria.

## Mobile Computing Support

Field service engineers in the field can access Siebel Field Service on their laptop computers, handheld devices, or wireless devices. Later they can synchronize to send local changes to the Field Service server and to retrieve new information from this server. Siebel applications support synchronization over LANs, WANs, dial-up connections, wireless networks, and the Internet.

Siebel Field Service introduces uncommitted transactions for inventory transfers in the field. This allows for tracking of part movements without immediate access to records in the corporate computer. Upon synchronization with a Field Service server, these transactions may be committed and recorded in the server database.

## Service Parts Information

Siebel Field Service provides full information about parts availability, including installation instructions, operational constraints, and warranty and manufacturing data. Siebel Field Service allows the field engineer to graphically navigate through the base configuration of any complex product and review the customer's on-site configuration. Siebel Field Service supports parts comparison and replacement information so that field service operations can quickly identify alternative parts.

## Field Service Engineer Information

Siebel Field Service tracks a wide variety of information for field service engineers such as skill sets, product expertise, location, and business, and contact data like cellular phone and paging information. Each field service engineer can define notification preferences so that a dispatcher or customer can contact the engineer efficiently. Integrated calendar posting and scheduling allows each field engineer to maintain a personal calendar.

## **Field Service Engineer Activities**

When a service event is reported, Siebel Field Service defines the steps required to correct the problem, necessary tools, and required parts and skills. Information such as safety data, schematics, and technical notes on the products, may be linked to the service activities and parts data. Siebel Field Service also allows the capture of billing information related to an activity at a customer site, including parts, expenses, and labor charges.

## **Service Inventory**

The Inventory module manages service parts inventory. Inventory is tracked in real time across locations and businesses, including trunk inventories, and is accessible from anywhere in the company. Siebel Service Inventory provides a Part Locator screen to find parts during the RMA/order process or during a dispatch operation. The Part Locator Engine offers real-time access to inventory, allowing end users to make accurate and informed decisions on parts shipments.

The Field Service Part Browser allows a field service engineer to investigate the availability of a product in all inventory locations within a field service business.

## **Agreements and Contract Management**

Siebel Contract Management supports the contract life cycle, from service opportunity identification, service pricing, and proposal generation to service delivery on contractual commitments to contract additions, cancellations, and renewals.

With Siebel Contracts, end users can define the terms of an agreement between the customer and the service provider. These terms can include the service provider's contractual obligations such as performance metrics, response time, equipment maintenance responsibilities, service pricing, discounts, and service entitlements. Agreement entitlements allow end users to define service offering details, specifying tiered pricing for offerings and determining customer assets' levels of coverage.

Additionally, Siebel Contracts allows end users to specify the terms of installment payments, renting, leasing, financing, and use-based pricing. When a service contract is established, the contract's recurring, non-recurring and usage-based charges can be automatically invoiced. End users can also track and forecast financial and service revenue information resulting from the sale of service offerings, individual service contracts, and across the service organization overall.

Service providers can use product warranty and off-warranty contract expiration data to reprioritize service sales resources. Combined with Siebel Service Analytics, Siebel Contracts allows end users to assess customer service needs, personalize service offers, and customize coverages.

## Preventive Maintenance and Asset Measurements

Preventive maintenance is often a critical revenue and cost-containment factor for a service business. Siebel Field Service allows customers to generate preventive maintenance management services automatically. The Preventive Maintenance module provides the ability to create automatically predefined preventive maintenance service requests and related activities based on usage or frequency.

Certain equipment (for example, photocopiers or printers) requires regular maintenance to remain in good condition. Service businesses often provide preventive maintenance services as part of their offerings. Those services are sometimes included in warranty agreements, or sold to the customer as part of the service contract.

Monitoring systems can automatically request maintenance when certain conditions are met; for example, a meter reading passes a threshold or a fixed time period has elapsed. These events trigger the creation of a service request.

To facilitate preventive maintenance, Siebel Field Service provides for the collection and processing of asset measurements. Readings taken either manually or automatically from equipment in the field are recorded in Field Service. These readings can be from gauges, counters, or meters attached to products. This data may be used to initiate service requests for repairs or preventive maintenance. Usage readings can be used for billing on a fee-per-use basis.

## **Shipping and Receiving**

Shipping and Receiving are integrated with Siebel Service Inventory, and track customer orders to shipment. Siebel Shipping and Receiving manages internal orders to transfer stock among inventory locations and receives RMAs and orders, closing the loop with each customer.

## **Field Service Analytics Applications**

Siebel Field Service Analytics Applications provide managers with a tool for analysis of large volumes of records. The results of the analysis are displayed in charts and reports.

Siebel Field Service Analytics Applications are documented separately in *Siebel Analytics Installation and Administration Guide* and *Siebel Analytics User Guide*.

## **Siebel Wireless for Field Service**

Siebel Wireless provides real-time access to information through a wireless application protocol (WAP)-enabled mobile phone or wireless handheld device. With Siebel Wireless for Field Service professionals, users can update sales opportunities, review account and activity information, access calendar and contact details, order and track parts, respond to service requests, and send correspondence. See *Siebel Wireless Administration Guide*.

### **Siebel Wireless Messaging**

The Siebel Short Messaging Service (SMS) Adapter provides connectivity to global SMS centers using proprietary APIs. Siebel Wireless Messaging provides wireless dispatches and database updates.

# Field Service Application Design

Siebel Field Service operates as a single Windows NT service that runs components such as EIM, Optimization Engine, Assignment Manager, and so on. Siebel Server operates components as processes or threads based on the system preferences specified for each component. Thus, there can be multiple components running at the same time and each component can run a specified number of tasks at a given time.

## Siebel Professional Services Automation

Siebel Field Service is integrated with Siebel Professional Services, allowing the two applications to share resource management, cost tracking, and billing of longer-term service projects with milestone achievement time lines. See *Siebel Professional Services Automation User Guide*.

## Field Service Engines

Siebel Field Service provides the following automated functions:

- **Fulfillment Engine.** Analyzes orders, locates parts for each line item, returns the located parts (products or substitute products) to the user, allocates parts, and generates pick tickets.
- **Part Locator Engine.** Analyzes orders, locates parts for each line item, and returns the located parts (products or substitute products) to the user. The user can manually allocate these parts and generate the pick tickets.
- **Replenishment Engine.** Selects source and target inventories when restocking is needed and generates the orders required to obtain materials from an external provider, an internal inventory site, or an internal manufacturing facility.
- **Cycle Counting Engine.** Generates cycle counting orders (parts lists).
- **Preventive Maintenance Engine.** Generates service requests for the maintenance of assets, based on predefined triggers.
- **Mobile Inventory Transaction Engine.** Generates inventory and asset transactions when a field service engineer reports part movements in the field.

To facilitate configuration, maintenance, and multi-language support, these components are implemented as business services. For information about business services, see the chapter on business services in *Integration Platform Technologies: Siebel eBusiness Application Integration Volume II*. For information about setting logging levels for these engines, see [Appendix A, “Engines Logging Levels.”](#)

# Administrative Tasks

This section describes the types of administrative tasks required for Field Service. Instructions for performing these tasks are provided in this guide and in other guides in the Siebel eBusiness Applications documentation set.

The following administrative tasks are required:

- **Implementation and application administration.** You must define and structure a number of elements that are used throughout the application. These include currencies, exchange rates, organizations, divisions and positions in your organization, users and their responsibilities, service territories, and so on. These tasks are described in *Applications Administration Guide*.
- **Product management and administration.** Field Service provides two tables for product information: an internal product table and an external product table for competitive products. In addition to populating these tables, you must define a product categorization hierarchy, specify product features, and specify settings for products that will be tracked in inventory. You can also define price lists and associate them with products. These tasks are described in *Applications Administration Guide* and *Pricing Administration Guide*.
- **Marketing administration.** All the various elements of marketing information must be defined and set up for your implementation. These include accounts, contacts, and so on. These tasks are described in *Siebel Marketing Guide*.
- **Assignment administration.** Siebel Assignment Manager allows you to automatically assign the appropriate people to specific tasks. Instructions for using Siebel Assignment Manager can be found in *Siebel Assignment Manager Administration Guide*.
- **Templates.** Service and preventive maintenance plans use activity and service request templates to define efficient service calls. These features are described in [Chapter 2, “Service Support”](#) and [Chapter 3, “Field Service Activities.”](#)



- **Agreements and Entitlements.** Service and preventive maintenance plans are based on contracts and entitlements that customers purchase. Setting up service agreements and entitlements is described in [Chapter 5, “Agreements,”](#) in this guide.
- **Inventory.** Field Service includes the process of setting up a logical inventory structure and maintaining a physical inventory. These tasks are described in [Chapter 9, “Service Inventory”](#) and [Chapter 11, “Cycle Counting and Replenishment”](#) in this guide.

## **Overview of Field Service**

*Administrative Tasks*

## **Service Support**

# **2**

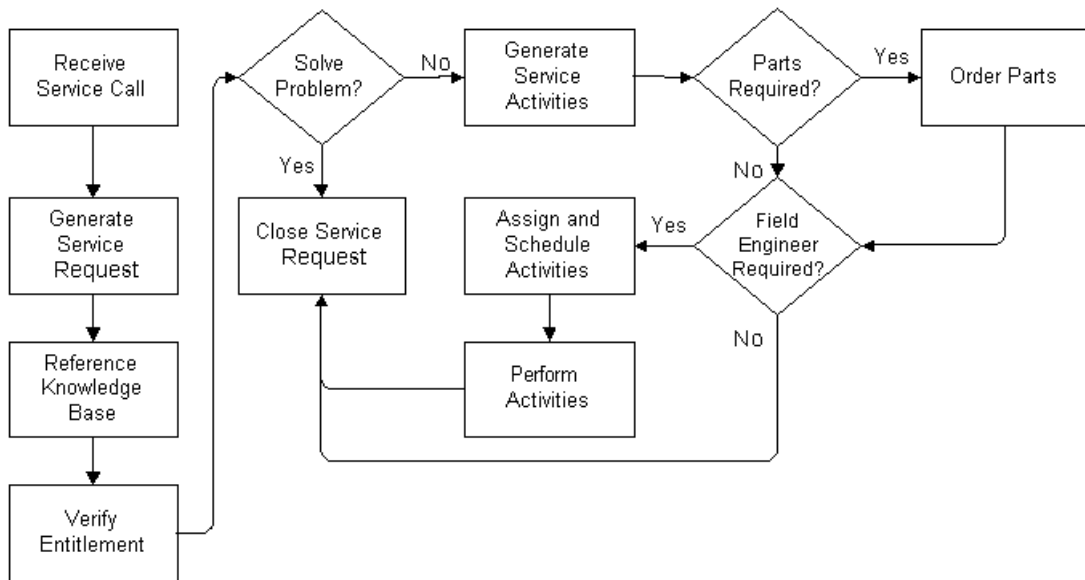
This chapter describes the way field service call centers process service calls from customers, set up service requests, and attempt to find immediate solutions.

## Processing a Request for Service

The workflow for processing a customer's request for service, shown in [Figure 1 on page 45](#), includes the following steps:

- 1** Receive a request for service.
- 2** Generate a service request.
- 3** Verify the request, by confirming:
  - The account
  - The caller (contact)
  - Assets
  - Entitlements for service
  - Warranties
- 4** Try to solve the problem using known solutions.
- 5** If known solutions do not solve the problem, generate activities for service.
- 6** Order parts if needed.
- 7** Schedule a service engineer and assign activities to that service engineer, if needed.
- 8** Assign and schedule field service activities (see [Chapter 4, "Scheduling and Dispatch"](#)).

- 9 Perform the activities.
- 10 Close the service request.



**Figure 1. Workflow for Processing a Service Request**

# Setting Up Service Support

This section provides typical procedures for setting up Siebel Field Service to process service calls. Setting up service support includes the following tasks:

- Setting up customer accounts and contacts for these accounts
- Setting up activity templates
- Setting up problem resolution
- Setting up service metrics
- Setting up employees and their responsibilities

## Procedures for Setting Up Service Support

Follow these procedures to set up service support.

### **To create a service activity template**

- 1** Navigate to Site Map > Application Administration > Activity Templates.
- 2** Create an activity template.

For information on creating activity templates, see [Chapter 3, “Field Service Activities.”](#)

- 3** In the activity template’s Type field, select Service Request.
- 4** Click the Service Details view tab.
- 5** Create a new service detail record.
- 6** Enter values for the required fields.
- 7** Click one of the four subview tabs, as needed:
  - Service Activity Steps
  - Assignment Skills
  - Service Activity Items
  - Service Activity Instructions

**8** Create a new record in the subview.

**9** Enter values for the required fields.

**To set up service metrics**

**1** Navigate to Site Map > Service Administration > Service Metrics.

**2** Create a new service metric record.

**3** Enter a name for the metric.

---

**NOTE:** Service metrics are named in the Service Metrics list, but they are defined in detail in the Entitlements screen. See [“To define entitlement template metrics” on page 202](#). After entitlements and service metrics have been defined, you can associate an entitlement with a service request. See [“To select an entitlement for a service request” on page 49](#).

---

## Setting Up Problem Resolutions

Use the Solution Administration screen to find and add information that can provide immediate solutions to requests for service. [Table 1](#) lists and defines the views on the Solution Administration screen.

**Table 1. Views on the Solution Administration Screen**

View	Role in Setup
Resolution Documents	Associates with solutions document files that describe a problem and its solution.
Related Solutions	Associates related solutions with specific solutions.
Service Requests	Specifies service requests related to a specified solution.
Change Requests	Specifies change requests related to a specified solution.
Solution Categories	Associates solution categories with a solution.

For more information about setting up solutions, see [“Setting Up Solutions” on page 79](#).

## Logging Requests for Service

The first set of tasks the service representative performs in response to a request for service includes recording the request and attempting to solve the problem. If the service representative cannot resolve the problem, the agent may set up field service activities, select the engineers, schedule the engineers, and, finally, inform the engineers of their assignments.

The following procedures suggest a typical workflow that is initiated upon receiving a request for service.

### ***To verify an account, a contact, and an asset***

- 1** Navigate to the Accounts screen.
- 2** Query for the caller's account.
- 3** Select the record for the caller's account and click the hyperlink in the Account Name field.

The Contacts list appears, showing authorized contacts for that account.

- 4** In the Contacts list, query for the caller's name.
- 5** Click the Assets view tab.

The Assets list shows assets associated with the selected account.

- 6** In the Assets list, query for the asset the call is about.
- 7** If you want to see the product with which the asset is associated, click the Service Profile view tab.

The Service Profile list shows products associated with the selected account. The Assets list shows the assets associated with a selected product.



**To log a service request**

- 1 Navigate to the Service screen.
- 2 Create a service request record.
- 3 Enter values for the required fields.
- 4 In the Asset # field, select the asset requiring service.

---

**NOTE:** The Siebel state model controls the behavior of the Status and Substatus fields. See *Siebel Business Process Designer Administration Guide* for a detailed explanation of the state model.

---

**To verify the service agreements and entitlements for an account**

- 1 Navigate to the Accounts screen.
- 2 Select an account record.
- 3 Click the Agreements tab.

The Agreements list shows agreements associated with this account. The Start, End, and Valid fields show which agreements are in effect.

- 4 Click the Entitlements tab.

The Entitlements list shows agreements associated with this account. The Agreement field shows the agreement with which the entitlement is associated.

**To select an entitlement for a service request**

- 1 Navigate to the Service screen.
- 2 Select a service request that has an associated account or contact.
- 3 On the More Info tab, click Verify.

The Pick Entitlement dialog box appears showing only entitlements that match the criteria for this service request. If no entitlements appear, the selected service request is not entitled to receive service.

- 4 In the Pick Entitlement dialog box, select an entitlement and click OK.

### **To verify the valid hours for completing a service request**

---

**NOTE:** For this procedure to work, you must first verify the entitlement. See [“To verify the service agreements and entitlements for an account” on page 49.](#)

---

- 1 Navigate to the Service screen.
- 2 Select a service request.
- 3 Click the Service Hours tab.

The Service Hours list shows the hours during which a customer is entitled to receive service.

### **To verify the warranties for an asset**

- 1 Navigate to the Service screen.
- 2 Select a service request.
- 3 Click the Service Details view tab.
- 4 In the Service Details form, click the show more button.
- 5 In the Warranty As Of field, enter the date on which to verify a valid warranty.
- 6 Click Check Warranty.

The Product Warranty, Component Warranty, and Manufacturer Warranty check boxes indicate, when checked, which of these warranties are in effect on the date you entered.

### **To associate a change request to a service request**

- 1 Navigate to the Service screen.
- 2 Select a service request.
- 3 Click the Change Requests view tab.
- 4 In the Change Requests list, click Add.

- 5 In the Add Change Request dialog box, select an existing change request or create a new one.

For information on entering change requests, see [Chapter 12, “Quality.”](#)

**To associate an activity plan with a service request**

- 1 Navigate to the Service screen.
- 2 Select a service request.
- 3 Click the Activity Plans view tab.
- 4 In the Activity Plans list, add a new activity plan record.
- 5 In the Template field, select an activity plan template on which to base this activity plan.
- 6 Enter values for the other fields, as needed.

For information about activity plans and activity templates, see [Chapter 3, “Field Service Activities.”](#)

**To associate an activity with a service request**

- 1 Navigate to the Service screen.
- 2 Select a service request.
- 3 Click the Activities view tab.
- 4 In the Activities list, add a new activity record.
- 5 Enter values for the fields, as needed.

## Updating a Service Request

After a service request is opened, the service center or field service agent can add the following information to a service request.

### **To update activities for a service request**

- 1** Navigate to the Service screen.
- 2** Select a service request.
- 3** Click the Activities view tab.
- 4** Select an activity.
- 5** Enter new values in the fields, as needed.

### **To add an asset to a service request**

- 1** Navigate to the Service screen.
- 2** Select a service request that is not associated with an asset.
- 3** On the More Info tab, click the show more button.
- 4** In the Asset # field, enter or select the number for the additional asset.

---

**NOTE:** A service request can be associated directly with only one asset. However, a service request can be associated with multiple activities, and each activity can have one associated asset. To associate multiple assets with a Service Request, create multiple activities, associate them with a service request, and associate each of the assets with a different activity. For information on managing defective assets, see [Chapter 12, “Quality.”](#)

---

### **To add additional assets to a service request**

- 1** Navigate to the Activities screen.
- 2** Create a new activity.
- 3** In the SR # field, select the service request with which you want to associate additional asset.

**4** In the Asset # field, select the additional asset to associate with the service request.

**5** Enter values for other fields, as needed.

**To verify field part movements**

**1** Navigate to the Service screen.

**2** Select a service request.

**3** Click the Activities view tab.

**4** Select an Activity.

**5** Click the hyperlink in the Type field.

The Activities screen appears with the Attachments view tab selected.

**6** Click the Part Tracker view tab.

The Part Tracker view shows transfers of parts associated with this activity.

**To record a resolution code for a service activity**

**1** Navigate to the Service screen.

**2** Select a service request.

**3** Click the Activities view tab.

**4** Select an activity record.

**5** Click the hyperlink in the Type field.

The Activities screen appears with the Attachments view tab selected.

**6** In the Activity form, in the Resolution Code field, select a resolution.

---

**NOTE:** Resolutions can also be associated with a service request.

---

#### **To review orders associated with a service request**

- 1 Navigate to the Service screen.
- 2 Select a service request.
- 3 Click the Orders view tab.

The Orders list displays orders associated with the selected service request.

#### **To generate and print an invoice for a service request**

- 1 Navigate to the Service screen.
- 2 Select a service request.
- 3 Click the Invoices view tab.
- 4 To generate an invoice, in the Invoices list, click Auto Invoice.
- 5 Click the hyperlink in the Invoice # field.

The Invoices Line Items view appears.

- 6 From the application-level menu, choose View > Reports.

In the Reports dialog box, the Select a Report field shows Customer Invoice.

- 7 Click Run Now.

The Siebel Report Viewer window appears with the invoice.

- 8 Click the print button to print a pro forma invoice.

#### **To view the performance measurements (metrics) for a service request**

---

**NOTE:** For this procedure to work, you must first verify the entitlement. See [“To verify the service agreements and entitlements for an account” on page 49.](#)

---

- 1 Navigate to the Service screen.
- 2 Select a service request.

- 3 Click the Metrics view tab.

The Metrics list appears, showing metrics associated with the service request.

The Metrics list contains read-only records of the metrics associated with this service request. Service metrics are defined in the Service Administration screen, in the Entitlement Templates list on the Metrics view. See [Chapter 5, “Agreements.”](#)

#### **To close a service request**

- 1 Navigate to the Service screen.
- 2 In the Service Request list, select the service request you want to close.
- 3 In the Status field, select Closed.

The system automatically changes the Substatus field to Resolved and sets the Closed field’s date and time to the current date and time.

---

**NOTE:** After closing a service request, the record is read-only. The status of a service request must be changed back to Open before the record can accept any further changes.

---

## **Generating Correspondence for a Service Request**

You can generate correspondence for a selected service request.

#### **To generate correspondence for a service request**

- 1 Navigate to the Service screen.
- 2 Select a service request for which you want to generate correspondence.
- 3 From the application-level menu, choose File > New > Correspondence.

The Correspondence view appears with a new record in the Correspondence list. The Recipients list shows the contact associated with the selected service request.

- 4 In the Correspondence list, complete the fields as needed for the correspondence you want to generate.

- 5 Add more recipients to the Recipients list, if needed.

---

**NOTE:** The selected service request does not become associated with any additional contacts added to the Recipients list for a service request-related correspondence.

---

- 6 Click Generate.

For more information about correspondence, see the chapter on correspondence in *Siebel Sales User Guide*.



## Solving a Service Request

The procedures in this section suggest a workflow for researching and solving a service request.

### ***To associate a service request with a related service request***

- 1** Navigate to the Service screen.
- 2** Select a service request.
- 3** Click the Related SRs view tab.
- 4** In the Related SRs list, add a new service request record.
- 5** In the Add Service Requests dialog box, query for service requests that have a similar type, product, account, or other common element.
- 6** Select the service request you want to associate with the current service request and click Add.

### ***To verify associated change requests for a product***

- 1** Navigate to the Products screen.
- 2** Select a product.
- 3** Click the Change Requests view tab.

Change requests associated with this product appear in the Change Requests list.

### ***To verify the repair history of a product***

- 1** Navigate to the Repairs screen.

The Repairs list appears.

- 2** In the Repairs list, create a query on the Product field.

The Repairs list shows all repairs for the selected product.

***To find explanations (decision issues) for a service request***

- 1** Navigate to the Service screen.
- 2** Select a service request.
- 3** Click the Decision Issues tab.

A list of decision issues appears, with suggested explanations for the customer.

- 4** To see more information related to a decision issue (such as literature and attachments), select the decision issue and click the hyperlink in the Name field.
- 5** Click the Attachments tab to view files associated with this decision issue.

## Accounts Screen

Using the Accounts screen, a customer service representative can verify the following information for an incoming service call:

- The customer's account (Accounts list or Service Profile view).
- The contact making the call (Contacts view or Service Profile view).
- The assets at the customer site that are associated with this account (Assets view or Service Profile view).
- The service agreements for this account (Agreements view).
- The entitlements for the service agreements belonging to this account (Entitlements view).

The customer service representative can automatically verify entitlements for specific service agreements by clicking the Verify button on the Service Request screen (see [“Service Requests Views” on page 63](#)).

- The history of service requests logged to this account (Service Requests view).
- Billing and Shipping information for the account (Bill to/Ship to view).
- Invoices previously prepared for the account (Invoices view).

For more information on using the Accounts screen, see the chapters on Accounts in *Siebel Call Center User Guide* and *Siebel Sales User Guide*.

## Accounts Across Organizations

An *organization* limits the visibility of data within a company. However, the All Accounts Across Organizations view shows all accounts within a company.

An employee can belong to one organization and account records can belong to one organization. The owner of an account record can see his or her account record in the My Accounts view, even if the account record belongs to a different organization. However, the same employee using the same login to Siebel Field Service, cannot see this account in the All Accounts view. The record is exposed only to those people who belong to the same organization.

For more information on setting up organizations, see the chapter on access control in *Security Guide for Siebel eBusiness Applications*.

## Accounts View

The Accounts view provides information about all accounts that belong to a service business. Use this list to verify the account for the individual placing a service request.

## Contacts View

The customer service representative (CSR) uses the Contacts view to verify the person placing a service call. For more information on using the Contacts view, see *Fundamentals*.

## Agreements View

The Agreements view displays all of the agreements associated with an account and the status of these agreements. [Table 2](#) describes items in agreement records.

**Table 2. Selected Items in the Service Agreements View**

Item	Description
Primary	A check box that indicates this is a primary agreement for the selected account. This check box is for information only.
Type	The type of agreement; for example, Service Level Agreement or Price Protection.
Valid	A check box that indicates this is an active agreement. When checked, an agreement may appear in the list that the Verify button produces. See <a href="#">“Verify Button” on page 65</a> .

For more information on using the Agreements view, see [Chapter 5, “Agreements.”](#)

## Entitlements View

The Entitlements view shows all of the entitlements for service that are associated with this account. The Quota fields indicate the number of service calls remaining for this entitlement. The Start and End Date fields show the valid range of dates for this entitlement. This view is read-only.

## Service Profile View

The Service Profile view shows the products and assets associated with an account. The user can enter both new product and asset records in this view. The same Products and Assets subviews appear in References > Profile.

## Account Reports

Account reports, listed in [Table 3](#), are available from the Reports menu.

**Table 3. Selected Account Reports for Service**

Report	Description
Current Account Service Profile	Describes details for products associated with the account, including product, product type, version, description, vendor and comment. This report also describes a purchase history including product information, implementation phase, and purchase date.
Smart Report Account Summary	Describes details of a selected account including account history, future revenue, satisfaction, organizational hierarchy, and service requests.
Smart Report Account Service Detail	Describes all service-related information for the selected account including service requests, customer satisfaction, and the history of service request resolution.

## Service Screen

When responding to a service call, a customer service representative can create a service request on the Service screen. The service request tracks all activities connected with the call and records the service business's entire response to the service call (activities, orders, parts movements, and assignments).

On the Service screen, the user can carry out the following tasks:

- To verify the entitlements for the account requesting service, click the Verify button.
- Find solutions that may resolve a service call (Solutions view).
- Set up new service requests (All/My Service Requests view).
- To show the current warranty coverage for an asset associated with a service request, choose the Check Warranty menu command (Service Details view).
- Associate change requests with a service request (Change Requests view).
- Provide activity plans for a service request (Activity Plans view).
- Provide individual activities for a service request (Activities view).
- Assign activities to field service engineers using the Siebel Scheduler, Assignment Manager, or Dispatch Board (most Service Request views).
- Attach documents to a service request (Attachments view).
- Review orders for a service request (Orders view).
- To prepare an invoice for all billable activities and expenses for a service request, click the Auto Invoice button (Invoices view).

## Service Requests Across Organizations

Service requests, like many other Siebel objects, have organizational visibility. This means:

- The All Service Requests view shows only service requests for the organizations to which the user has permission.
- The All Service Requests Across Organizations view shows the service requests for all organizations within a company.
- The My Service Requests view shows all service request records belonging to the user, even if the user is in a different organization.

For more information on setting up organizations, see the chapter on access control in *Security Guide for Siebel eBusiness Applications*.

## Service Requests Views

The Service Requests views create and track service requests. [Table 4](#) describes items in service request records.

**Table 4. Selected Items in the Service Requests View**

Item	Description
Agent Closed	The date and time that the service request was actually closed, displayed in the user's time zone.
Agent Committed	<p>The date and time that the service request is expected to be closed, displayed in the user's time zone. Choosing an entitlement automatically generates a value for this field, based on the response time in the service request metrics, the service calendar, and the date the service was requested.</p> <p>Activities associated with this service request inherit the Agent Committed value. The Agent Committed field value in the service request appears in the Activity Due fields in the activities.</p> <p>See also <a href="#">“Calculating the Agent Committed Time for a Service Request” on page 66</a>.</p>
Agent Opened	The date and time that the service request was created, displayed in the user's time zone.

**Table 4. Selected Items in the Service Requests View**

Item	Description
Assign	This command produces a dialog box with a list of field service employees, ranked based on administrative criteria. Select the employee best suited to be the owner of a selected service request.
Billable	A check box that indicates to the Invoice Engine that the activities included in this service request are billable to the account.
Customer Closed	The date and time that the service request was actually closed, displayed in the customer's time zone.
Customer Committed	The date and time that the service request is expected to be closed, displayed in the customer's time zone.
Customer Opened	The date and time that the service request was created, displayed in the customer's time zone.
Entitlement	An entitlement that provides special terms for billing the labor, expenses, and parts used in this service request. It also provides the calendar and hours in which the customer is entitled to service.
Group	<p>Division responsible for communications with the customer regarding this service request.</p> <p>Divisions available in the picklist are those whose Organization Type is Service. For information about setting up divisions, see <i>Security Guide for Siebel eBusiness Applications</i>.</p>
Verify	<p>This button produces a dialog box with the names of the entitlements to which a customer has subscribed. If no entitlements appear in the dialog box, the selected service request is not entitled to receive service.</p> <p>Note that this button appears only in the Service Request form. To see the form, choose the More Info view tab under the Service Requests list.</p> <p>For more information, see <a href="#">"Verify Button" on page 65</a>.</p>

**Numbering Service Requests and Other BusComp Object Types**

Each new BusComp (for example, service request, order, or activity) is automatically assigned a unique record ID (for example, SR #, Order #, Activity #, and so on).



By default, all Siebel applications use the ROW\_ID for these values. The row ID is an alphanumeric value composed of a segment number followed by a sequential value. For example, the row ID 12-63Q0XT is composed of the segment number 12 and the sequential value 63Q0XT. To see the row ID for a selected record, click the view menu button and choose About Record. The dialog box that appears contains a value for Row #.

To display alternative values for the record ID, use one of these methods:

- Use the Query function Expr: RowIdToRowIdNum ([ID]) to convert the alphanumeric value to a numeric value.
- Use a Sequence Object to automatically generate the value from an RDBMS database.
- Write a script on Buscomp\_PreWriteRecord. (Do not use Buscomp\_PreGetFieldValue.)

## Verify Button

The Verify button finds the entitlements for a specified account, contact, product, and asset. Once the user selects an entitlement from the Pick Entitlement dialog box, the application computes the Commit Time for the service request from the Service Calendar associated with this entitlement and from the Response Time specified in the entitlement metrics. Verify searches the database for entitlements that match the following data supplied for the service request:

- Account
- Contact
- Product
- Asset (from the Service Details view)

Only entitlements that match this data appear in the Pick Entitlement dialog box. If no entitlements appear, the selected service request, service agreement, account, contact, product, or asset is not entitled to receive service.

For information on configuring the Verify button, see [“System Preferences for Verifying Entitlements” on page 206](#).

## **Calculating the Agent Committed Time for a Service Request**

*Agent Committed* represents the contractual response period for service. The Verify button determines the value of Agent Committed and stores this value on a service request. The Agent Committed date and time are calculated based on the Date Opened, the Response Time metric, and the Service Calendar (schedule hours and exception hours). The result appears in the Agent Committed field. The Agent Committed time from the service request populates the Due field for activities.

The Agent Committed time allows the agent either to schedule events that are within acceptable time frames, defined by the service calendar, or to tell the customer that a requested event is outside of his or her service calendar and is therefore, billable.

Activities associated both directly (in the [“Activities View” on page 70](#)) and indirectly (in the [“Activity Plans View” on page 70](#)) with a service request inherit the Agent Committed date and time. The Agent Committed field value in the service request appears in the Activity Due fields in the activities.

### Entitlement Rules for the Verify Button

System Preferences has three settings (see [Table 5](#)) which determine the action of the Verify button (see [“Service Requests Views” on page 63](#)).

**Table 5. System Preferences for Verifying Entitlements**

System Preference Name	Description
Entitlement: Verify Consumer	<p>This setting sets the conditions for checking the authorization of the contact requesting service. If TRUE, the entitlements displayed must meet <i>one</i> of these criteria:</p> <ul style="list-style-type: none"> <li>■ The contact for the entitlement matches the service request contact.</li> <li>■ The entitlement account is set to All Contacts, and the entitlement account matches the service request account or the account for the contact for the service request.</li> </ul> <p>If no contact is selected, Siebel Field Service tries to verify the entitlement using the other entitlement settings.</p>
Entitlement: Verify Dates	<p>This setting checks that the service request falls within the time span of the entitlement. If TRUE, the entitlements displayed are only those that provide coverage on the date the service request was opened, a date between the start and end dates for the entitlement.</p> <p>If the entitlement has no start or end date, it does not appear.</p>
Entitlement: Verify Product	<p>This setting checks that the asset or product is entitled to service. If TRUE, the agreements displayed must meet <i>one</i> of these criteria:</p> <ul style="list-style-type: none"> <li>■ The entitlement asset matches an asset in the service request.</li> <li>■ The entitlement product matches a product in the service request (no asset or serial number specified).</li> <li>■ The entitlement is set to All Products and the product or asset for the entitlement matches the product or asset for the service request.</li> </ul> <p>If no product is selected, Siebel Field Service tries to verify the entitlement using the other Entitlement settings.</p>

## Assign Command

The Assign menu command activates the Assignment Manager in interactive mode, to provide a ranked list of field service engineers who are qualified and available to carry out a service request. The Assignment Manager can also run in dynamic and batch modes for any Assignment objects, including Accounts, Opportunities, and Campaigns.

---

**NOTE:** For using the Assignment Manager in Mobile mode, for mobile users, see *Siebel Assignment Manager Administration Guide*.

---

The Assignment Manager scores employees for assignment based on the factors specified in the following rules:

- **Check calendar.** If this option is enabled, an employee must have calendar availability to perform the task. This is based on the assignment rule, Earliest Start, Latest Start, and the Duration (of an activity). If the individual is not available, this employee is removed from the list of candidates.
- **Assignment availability.** The Assignment Manager passes a list of potential employees to the Appointment Booking System (ABS), which checks the employees' service schedules (including their geographic service region assignments) and the activities already on their calendars. The ABS then returns the list of available employees to the Assignment Manager. In an optional step, the Assignment Manager may request that the ABS create and schedule a new activity for the chosen employee. For more information on the ABS, see [Chapter 4, "Scheduling and Dispatch."](#)
- **Workload.** For each workload rule specified, the number of activities assigned to that employee that meet all of the workload criteria is calculated. This number is then reduced by the maximum workload. This result is used to generate a score that is inversely proportional to the workload rule weight [Workload score = Score \* (1 - (current workload/maximum workload))]. For example, if the workload rule is for Unassigned and Critical Service Requests, and if the maximum load for this rule is 10 and the weight for this workload is 20, then an employee load of 10 or greater receives a score of zero, and an employee with a load of 2 receives a score of 16.

- **Attribute match.** For each condition specified, the criteria are evaluated. If a condition is true, the score equals the weight specified; otherwise the score is zero. If the condition is not met and the condition is required, the total score for that employee or position is zero.
- **Expertise weighting.** For each condition that uses advanced weighting, the score for that condition is adjusted, based on the advanced weighting criteria. For the employee column that is matched, the expertise for that attribute type must also be analyzed. For example, if a condition is specified for a product (product expertise) match, with a weighting of 15, and expertise weightings of Expert, Intermediate, and Novice are 3, 2, and 1, respectively, the resulting scores for this factor would be 15, 10, and 5, respectively.

The total score for an employee is a sum of the scores for each individual factor, modified by the factors that override the total score and set the score to zero (check calendar, required attribute matches, and so on). The highest score represents the most likely individual for assignment.

The Assignment Engine is configured for the Service Request object to either assign automatically the highest scoring employee (using SmartScript) or to run in interactive mode. In interactive mode, the user selects the Assign command and the Assignment Manager returns a ranked list of employees in the Assign Employees dialog box. The user can then select an assignee. For information about setting up interactive assignment for Siebel objects, see Assignment Manager Configuration in the *Siebel Assignment Manager Administration Guide*.

---

**NOTE:** All assignment rules can be accessed by navigating to the Site Map and clicking Assignment Administration. For more information, see *Siebel Assignment Manager Administration Guide*.

---

## Activity Plans View

In the Activity Plans view, a field service agent can select a template to define the activities required to resolve a service request. [Table 6](#) describes two fields and a check box in activity plan records.

**Table 6. Selected Items in the Activity Plans View**

Item	Description
Lock Assignment	A check box that, when selected, instructs the Siebel Assignment Manager not to assign activities created as part of this activity plan.
Planned Start	The date and time to begin the activities that resolve a service request. The default is the date and time that the record is created.
Template	A set of activities for recurring tasks, selected from a drop-down list.

## Activities View

In the Activities view, a field service agent can view activities for a service request, and add stand-alone activities. An administrator or dispatcher can manually assign field service engineers to each activity.

---

**NOTE:** To see the details of an activity, including its items, steps for completion, and instructions, click the hyperlink in the Type field. The Activity Attachments view appears for this activity. Click, for example, the Items, Steps, or Instructions tab to see information related to the selected activity.

---

## Attachments View

Use the Attachments view to add files created in another program (for example, spreadsheet files) to service requests. These files are stored in the Siebel file system in compressed form. When decompressed, attachments are written to these two directories:

- < install root > server/files. When a Field Service client is connected to a server, this directory is used to decompress read-only files.
- < install > /temp. Writable attachments are decompressed in this directory.

These directories must have write access.

## **Audit Trail View**

The Audit Trail view shows the history of changes that have been made to specific service request records. This view is read-only. For more information about the Audit Trail utility, see *Applications Administration Guide*.

## **Calendar View**

The Calendar view displays the scheduled service activities for a selected service request over the next month, starting on a specified day. The user can click on the Calendar view to view scheduled activities. For more information, see *Applications Administration Guide*.

## **Change Requests View**

The Change Requests view describes manufacturing defects in components that are associated with a service request.

## **Decision Issues View**

The Decision Issues view displays explanations that may be used internally or provided to the customer to solve a service request. The user can also add new decision issues to a selected service request.

## **Messages View**

The Messages view records a message concerning the selected service request and sends a screen alert or an email to the person selected in the Employees field. For more information, see *Applications Administration Guide*.

## Service Details View

The Service Details view shows the warranties covering an asset, the symptom reported for the asset, and the resolution code for a service request. [Table 7](#) describes buttons, check boxes, and selected fields in Service Details records.

**Table 7. Selected Items in the Service Details View**

Item	Description
Check Warranty	This button displays the warranties in effect for an asset on the date in the Warranty As of field. Check marks appear next to the types of warranty that apply: Product, Components, or Manufacturer. To verify the warranties active on another date, change the date in the Warranty As of field and click Check Warranty.  For more information about warranties, see <a href="#">Chapter 15, “Warranties.”</a>
Product Warranty	A check box that indicates this type of warranty is in effect on the specified date. This check box is for information only.
Component Warranty	A check box that indicates this type of warranty is in effect on the specified date. This check box is for information only.
Manufacturer Warranty	A check box that indicates this type of warranty is in effect on the specified date. For information about this type of warranty, see <i>Glossary</i> . This check box is for information only.
Warranty As of	The date on which Check Warranty validates the coverage under warranties.
Service Region	The service region associated with this service request. Activities for this service request inherit this service region. The Appointment Booking System and Optimizer Engine (see <a href="#">Chapter 4, “Scheduling and Dispatch”</a> ) require a service region.
Symptoms	A description of the symptom that triggered this service request, chosen from a dialog box. See <a href="#">“Symptoms Codes for a Service Request” on page 73.</a>



## Symptoms Codes for a Service Request

There can be one or more symptom codes for any problem description. A customer can report some symptoms during a service request, while the field service engineer may find other symptoms and report them on site as part of an activity, and the repair technician may report other symptoms in a repair station as part of a repair activity. All the symptoms reported appear in the dialog box available in the Symptoms field from the Service details view. This is possible because the symptoms are stored in an intersection table that also stores the activity and the service request ID.

## Service Hours View

The Service Hours view shows the hours during which service is provided under the specified entitlement. Shaded areas represent service times. Service hours appear only if an entitlement is specified for the service request and has been verified.

## Survey View

The Survey view records customer responses concerning the level of service received. After a customer service representative enters responses to the questions and saves the record, the survey calculates a customer satisfaction score.

## Invoices View

The Invoices view shows the invoices billed against a service request. Select the Auto Invoice command (see [“Auto Invoice Command” on page 262](#)) in the Invoices view to generate new invoices using orders and activities that have a billable flag set. For more information about invoicing and the Invoice Engine, see [Chapter 6, “Invoices.”](#)

## Metrics View

The Metrics view provides benchmarks of performance for a service request. All fields are read-only.

## Orders View

The Orders view presents the orders related to selected service requests. [Table 8](#) shows the check box in order records.

**Table 8. Selected Item in the Orders View**

Item	Description
Approved	A check box that indicates this order was approved. This check box is for information only. It does not have associated code.

## Solutions View

The Solutions view associates existing solutions and related, frequently asked questions (FAQs) to a service request. Click on the name of the solution to go to the Solutions screen and the Resolution Documents view, which displays the names of files containing information supporting a solution.

## Charts View

The Charts view provides the analyses, listed in [Table 9](#), of activities.

**Table 9. Service Analysis Charts**

Chart	Analysis
Aging Analysis by Product	The duration of a service request as a function of product.
Aging Analysis by Product Area	The duration of a service request as a function of field service product area.
Aging Analysis by Severity	The duration of a service request as a function of severity.
Aging Analysis by Status	The duration of a service request as a function of status (Open, Assigned, Pending, and so on).
Priority Analysis by Owner	The priority of service requests assigned to each field service engineer.
Status Analysis by Owner	The status of service requests assigned to each field service engineer.

**Table 9. Service Analysis Charts**

<b>Chart</b>	<b>Analysis</b>
Closed Service Requests by Owner	The history of closed service requests assigned to each field service engineer.
Closed Service Requests by Product	The history of closed service requests for each product.
Customer Analysis	The number of service requests for each customer account.
New Service Requests	The number of new service requests per calendar period.
New Service Requests by Owner	The number of new service requests assigned to a field service engineer per calendar period or per product.
New Service Requests by Product	The number of new service requests for each product per calendar period.
Product Analysis	The number of new service requests for each product.
Product Version Analysis	The number of new service requests for each version of a product.
Severity and Priority Analysis	Two graphs: <ul style="list-style-type: none"> <li>■ The number of service requests as a function of severity.</li> <li>■ The number of service requests as a function of priority.</li> </ul>
Status and Area Analysis	Two graphs: <ul style="list-style-type: none"> <li>■ The number of service requests as a function of status.</li> <li>■ The number of service requests as a function of field service product area.</li> </ul>
Symptom and Resolution Analysis	Two graphs: <ul style="list-style-type: none"> <li>■ The number of service requests as a function of symptom.</li> <li>■ The number of service requests as a function of resolution.</li> </ul>
Trend Analysis by Product	The number of service requests for each product as a function of calendar period.

**Table 9. Service Analysis Charts**

<b>Chart</b>	<b>Analysis</b>
Aging Analysis by Priority	The duration of a service request as a function of priority.
Trend Analysis by Product Area	The number of service requests for each field service product as a function of calendar period.
Trend Analysis by Severity	The number of service requests for each severity level as a function of calendar period.
Trend Analysis by Source	The number of service requests logged in by a given route (email, phone, and so on) as a function of calendar period.
Trend Analysis by Status	The number of service requests with a given status as a function of calendar period.

## Service Reports

Service reports, listed in [Table 10](#), are available from the View menu by selecting Reports.

**Table 10. Service Reports**

Report	Description
Service Request Activity (All)	Displays a page for each service request, with information about the service request and each of the associated activities.
Service Request Activity (Public)	Displays a page for each service request, with information about the service request and each of the associated activities.
Service Request Detail (Barcode)	Provides detail information about each service request.
Service Request Detail (No Barcode)	Provides detail information about each service request.
Service Request Summary	Provides a summary of each service request.
Smart Report Service Request Performance	Analyzes the aging of open service requests using three metrics: number of open service requests, call volume, and resolution time, each over the last six months.

**NOTE:** Use a query to limit the reports to service requests of interest.

## About Solutions

Customer service organizations estimate that approximately 85 percent of incoming service requests have been previously resolved by other customer service representatives. To minimize costs and maximize the effectiveness of a call center, an organization can reuse the solutions for previously resolved problems.

The Solutions module allows you to store, organize, associate, and search the knowledge base for resolutions successfully used for similar problems or even published solutions for potential problems.

After a problem is successfully resolved, you can associate the solution with the service request for reference, in case the service request is reopened by the customer at a later date. Recording the solution also makes it possible for you to resolve similar service requests without doing extensive research. You can find an existing service request, solution, or resolution document that may provide information relevant for the current service request or product defect under investigation. You can quickly review the information and associate it with the current service request or product defect.

---

**NOTE:** Full text search of service requests is configurable. To configure the search engine for service requests, see *Siebel Search Administration Guide*.

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## Setting Up Solutions

Use the Solution Administration screen to provide the information that can provide immediate solutions to requests for service.

### **To add a solution**

- 1 Navigate to Site Map > Solution Administration.
- 2 Create a new solution record.
- 3 Enter values for the required fields.

### **To add a resolution document to a solution**

- 1 Navigate to Site Map > Solution Administration.
- 2 In the Solutions list, select a solution.
- 3 Click the Resolution Documents view tab.
- 4 In the Resolution Documents list, create a new resolution document record.
- 5 In the File Name field, navigate to an electronic document file on your computer or on your company's network, and select it.

### **To associate solutions with each other**

- 1 Navigate to Site Map > Solution Administration.
- 2 In the Solutions list, select a solution.
- 3 Click the Related Solutions view tab.
- 4 In the Related Solutions list, add a related solution record.

### **To associate a service request with a solution**

- 1 Navigate to Site Map > Solution Administration.
- 2 In the Solutions list, select a solution.
- 3 Click the Service Requests view tab.
- 4 Add a service request record.

***To associate a change request with a solution***

- 1** Navigate to Site Map > Solution Administration.
- 2** In the Solutions list, select a solution.
- 3** Click the Change Requests view tab.
- 4** Add a change request record.



## Solution Administration Screen

The Solution Administration screen defines solutions to service requests and associated resolution documents, solutions, service requests, and change requests. It also provides predefined solution categories that add information to a solution.

The information provided in these views appears in the Solutions screen (see [“Solutions Screen” on page 83](#)).

### Solutions

The Solutions list records the name and description of a solution, plus the frequently asked questions (FAQs) to which the solution might respond. [Table 11](#) shows the items in solutions records.

**Table 11. Selected Items in the Solutions View**

Item	Description
Publish Internal	A check box that indicates this information is available to internal users. The check box indicates this solution will not appear in solution lists exposed to customers over the Web but appears on internal solution lists.
Publish External	A check box that indicates this information is available to external users. The check box indicates that this solution appears both in solution lists exposed to customers over the Web and on internal solution lists.

The More Info view for the Solutions list displays Solution Categories that provide additional predetermined pieces of information that add to this solution.

### **Resolution Documents View**

The Resolution Documents view allows you to associate files with a service request. These files can contain information that contributes to solving the service request.

Resolution documents are, by default, read-only. To edit these documents in the Solution Administration screen, follow this procedure:

#### ***To allow editing of resolution documents***

- 1** Start Siebel Tools.
- 2** Choose the SR Resolution Item list frame.
- 3** Choose the list column ResFileName.
- 4** Change the read-only property from TRUE to FALSE.
- 5** Compile and test the change.

### **Related Solutions View**

The Related Solutions view associates solutions records that may contribute to the resolution of a selected solution.

### **Service Requests View**

The Service Requests view associates service requests that may contribute to a solution.

### **Change Requests View**

The Change Requests view associates change requests that may contribute to a solution.

### **Solution Categories View**

The Solution Categories view associates predefined solutions that may contribute to an overall solution.

## Solutions Screen

The Solutions screen provides predefined solutions with associated resolution documents, solutions, service requests, and change requests. This information is defined in the [“Solution Administration Screen” on page 81](#). Most of the views in the Solutions screen are identical to those in the Solution Administration screen, with the exception of Solution Categories, which is unavailable in the Solutions screen.

Most views in the Solutions screen allow users to add records.

### Solutions View

The Solutions view displays the name and description of a solution, the FAQ to which the solution might respond, and an answer to the FAQ. These records are read-only.

### Resolution Documents View

The Resolution Documents view associates a selected solution with files containing information that contributes to solving a service request.

### Related Solutions View

The Related Solutions view associates a selected solution with solutions records that may contribute to the resolution of a selected solution.

### Service Requests View

The Service Requests view associates a selected solution with a service requests that may contribute to this solution.

## **Change Requests View**

The Change Requests view associates a selected solution with change requests that may contribute to a solution.

## **Customer Satisfaction Survey View**

The Customer Satisfaction Survey view records the responses from customers on the effectiveness of service. The answers to predetermined questions contribute to a customer satisfaction score (Satisfaction Level). This survey is associated with a selected solution.

## Field Service Activities

# 3

This chapter shows how Field Service uses activities. For general information about activities, see the Activities chapter of *Applications Administration Guide*.

# Activities Overview

Using Siebel Field Service, field service engineers work from activities. Activities are either attached to a service request or stand-alone. Using an activity template, Field Service can automatically provide a set of activities to carry out a service request.

These are the common types of activities:

- Service activities that fall into these categories:
  - Installation
  - Preventive maintenance
- Repair activities, including shipping and receiving

Field Service provides activities to track the tasks done in response to a service request, a preventive maintenance request, the report of a change request, and the request for a repair. The Activities screen records activities that must be assigned to field service or call center personnel.

Field service and repair activities are accompanied by detailed information for field service personnel, which includes steps, items (recommended parts/tools), skills and instructions, field part movements, expense recording, and time recording.

---

**NOTE:** Recommended parts and tools are called *Items* in Siebel 7.

---

These are the major advantages of breaking down a service request into one or more activities:

- The ownership of the problem remains at the call management level, when required.
- The field service engineer looking at assigned activities can easily identify only the required information.

- Reporting is simplified.
- Activities can be assigned to more than one person.

---

**NOTE:** Field service activities can be stand-alone (for example, preventive maintenance activities) or, more commonly, attached to service requests. For complex preventive maintenance activities, it may be convenient to formalize the activity by creating a service request.

---

Field engineer activities are an extension of the Siebel Activity object, with Field Service customizations that specifically meet the requirements of engineers reporting complex, standardized service activities.

Activity objects may be associated with the following Siebel objects:

- Accounts
- Agreements
- Assets
- Campaigns
- Change requests (Quality screen)
- Contacts
- Messages
- Opportunities
- Order Items
- Preventive maintenance
- Programs
- Projects
- Repairs
- References
- Service requests

Activities, once generated, are assigned to appropriate engineers. Assigned activities are displayed on the engineers' calendars and the engineers may receive automatic notification by way of their laptop computers, handheld computers, cell phones, or pagers. Engineers can accept or decline an activity and, once accepted, use the Activities screen to report on its execution.

Assigning activities can take place manually, one by one, on the Activities, Service Requests, and Dispatch Board screens. The person assigning can select engineers manually or use the Assignment Manager (Assign menu command). Automatic assignment uses a variety of criteria for assignments, including skills, availability, location, and cost.

Scheduling of assigned engineers can take place manually on the Activities screen, on the drag-and-drop interface of the Dispatch Board screen, or automatically using Siebel Scheduler.

For a complete discussion of assigning and scheduling activities, see [Chapter 4, "Scheduling and Dispatch."](#)



## Using Activity Templates and Plans

Activity plans are created using activity templates. Activity templates are collections of predefined activities. Activity plans may include schedule requirements for carrying out these activities.

In the Activity Plans views on the Service Requests, Accounts, and Repairs screens, only the activity templates for specific types of activity are visible. For example, when generating an activity plan for opportunities, only activity plans of the type Opportunity are visible. Selecting a template selects all the activities in that template and the child records of those activities (for example, Service Details, Items, Skills, and so on).

### Fields Copied from Activity Templates

The following fields are copied from activity templates to an activity plan:

- Activity type
- Alarm
- Category
- Comments
- Cost Estimate
- Description
- Display In
- Duration
- Employee

---

**NOTE:** If Employee is defined in the Activity Template, then it is copied. Otherwise, the value in the Employee field depends on the activity category. If the activity category is not Field Engineer Activity, Repair Activity, Preventive Maintenance, or Other, then the Employee field is populated with the current login ID.

---

- Lock Assignment
- Priority
- Status

Child records associated with the template are copied to the following views on the Activities screen:

- Steps view
- Instructions view
- Items view
- Skills view

---

**NOTE:** To copy the child records from the template, set the activity Category field to Field Service Activity, Preventive Maintenance, Repair Activity, or Other. See [“All Activities View”](#) on page 104.

---

For more information about views on the Activities screen, see [“Activities Screen”](#) on page 104.

## About the Category Field

The Category field on the Activity Templates Service Details subview determines the following for activities generated from the activity template:

- Whether child records of the activities are created when the template is applied
- Whether assignment of the activity is locked
- How the activity is assigned

For more information about this subview, see [“Service Details Subview”](#) on page 102.

## Child Records

If the Category field is set to Field Engineer Activity, Repair Activity, Preventive Maintenance, or Other, then any child records such as service activity steps or assignment skills will be created when the activity template is applied.

If the Category field is left blank or set to a value other than those listed in the previous paragraph, the activity records will be created when the template is applied, but no child records will be associated with the activities.

## Lock Assignment

If the Category field is left blank, the Lock Assignment check box for the created activity is selected.

## Activity Assignment

An activity created with activity templates can be assigned to any one of the following users:

- The employee specified in the template
- The employee who created the activity by applying an activity template (This is usually in a sales situation.)
- No employee (This is recommended when Siebel Assignment Manager is to be used to assign the activity.)

The assignment is determined by the values in the Employee and Category fields of the activity record in the Activity Template Details list. [Table 12](#) shows how the assignment is determined.

**Table 12. Employees and Category Values Determine Activity Assignment**

Employees Field Value	Category Field Value	Assignment
NOT NULL	Any value (NULL or NOT NULL)	Assigned to the employee specified in the Employee field of the activity template.

**Table 12. Employees and Category Values Determine Activity Assignment**

Employees Field Value	Category Field Value	Assignment
NULL	Field Engineer Activity, Repair Activity, Preventive Maintenance, or Other	Not assigned. The Employee and Owner fields are blank in the created activity.
NULL	<i>Not</i> Field Engineer Activity, Repair Activity, Preventative Maintenance, or Other	Assigned to the employee who created the activity by applying the activity template.

## Setting Up Activities

This section includes the following procedures for setting up field service activities. These include defining activity templates and supplying information for carrying out each activity.

### Setting Up Field Service Activity Templates

Follow these procedures to set up activities.

#### **To define activity templates**

- 1 Navigate to Site Map > Application Administration > Activity Templates.
- 2 Create an activity template record.
- 3 Enter values for the required fields.

#### **To associate activities with activity templates**

- 1 Navigate to Site Map > Application Administration > Activity Templates.
- 2 Select an activity template.
- 3 Click the Activity Template Details view tab or the Service Details view tab.
- 4 Create an activity record.
- 5 Enter values for the required fields.

---

**NOTE:** You can associate activities with an activity template in either the Activity Template Details or the Service Details view.

---

#### **To associate steps, skills, parts and tools, and instructions with an activity**

- 1 Navigate to Site Map > Application Administration > Activity Templates.
- 2 Select an activity template.
- 3 Click the Service Details view tab.
- 4 Select an activity record.

- 5** Click the Service Activity Steps tab.
  - a** Add a new record for each step.
  - b** In the Sequence field, specify the sequence of steps.
- 6** Click the Assignment Skills tab.
  - a** Add a new record for each skill.
  - b** In the Service Activity Skill Item list, specify the type of skill and level of expertise.

The fields in this view depend on the content selected for the Item field in the Assignment Skills view.
- 7** Click the Service Activity Items tab.
  - a** Add a new record for each part or tool.
  - b** Specify the quantity of each part or tool.
- 8** Click the Service Activity Instructions tab and add a new record for each instruction.

## Setting Alarms for Activities

Activities are attached to many Siebel business objects; for example, Service Requests and Opportunities. Siebel applications can notify the user of the start time for a pending activity. The Alarm check box in each Activity record turns on this notification.

Alarm notification displays a dialog box or pop-up window in the Siebel user interface at a predetermined interval before the start of each activity. The Alarm dialog box appears only once for each activity, unless the activity is repeated (the Repeat box is checked in the activity record). If the activity is repeated, the alarm appears at the specified time before the start of each instance of the activity.

Alarms work only through the user interface; they cannot trigger workflow processes. Since alarms require High Interactivity, they are available only for Siebel Enterprise Applications that have High Interactivity set on.

## Configuring Alarms

Alarms notify users of upcoming activities. One setting configures the time at which the notification takes place.

### **To set the time that alarms appear**

- 1 Navigate to Site Map > User Preferences > Calendar.
- 2 In the Alarm Lead Time field, select a time from 5 to 120 minutes before the value of Planned Start for each activity.

## Turning on Alarms for Activities

To set the alarm for an activity, check the Alarm box in an activity record on any screen that provides an Activities view or in the Calendar screen (see the following procedure).

### **To turn on alarms for a calendar activity**

- 1 Navigate to the Calendar screen.
- 2 Add a new activity record to the calendar.
- 3 In the Calendar Detail view, complete the required fields.
- 4 Select the Alarm check box.
- 5 Click Save This One.

# Using Field Service Activities

The following procedures suggest a typical workflow for a field service engineer who is working from a set of activities.

### **To log expenses for an activity**

- 1 Navigate to the Activities screen.
- 2 Select an activity.
- 3 Click the Expense Tracker view tab.
- 4 Create a new expense record.
- 5 Enter values for required fields, plus the amount.
- 6 Select the Billable check box to include this item in invoices produced automatically for this activity.

### **To log hours spent on an activity**

- 1 Navigate to the Activities screen.
- 2 Select an activity.
- 3 Click the Time Tracker view tab.
- 4 To create a time tracker record, click Start.

The Start field is automatically filled in with the time you create the record.

- 5 To record the end time for an activity, click Stop.

### **To verify the availability and order status of materials for an activity**

- 1 Navigate to the Activities screen.
- 2 Select an activity.



- 3 Click the Items view tab.

The associated parts and tools appear in the Items list. The Order #, Order Type, and Line Status fields show the status for receiving an ordered part.

---

**NOTE:** A field service engineer can create an order from the Items list by clicking the menu button and selecting the type of order needed (Service or Sales). To verify the order or to view order details, save the record and click the hyperlink in the Order field; this displays the related order on the Orders screen.

---

***To order materials for an activity***

- 1 Navigate to the Activities screen.
- 2 Select an activity.
- 3 Click the Items view tab.

The associated parts and tools appear in the Items list.

- 4 Select a record in the Items list.
- 5 Click the menu button and select Service Order.

This creates a service order for the selected item.

- 6 To order all items that have not yet been ordered, select Service Order All from the drop-down list.

A new, unique order number appears in the Order # field as a hyperlink and the Order Type field shows Service Order. The order also appears in the Orders screen.

***To record additional items (parts and tools) required to complete a service activity***

- 1 Navigate to the Activities screen.
- 2 Select an activity.
- 3 Click the Items view tab.

- 4 Create a part record.
- 5 In the Product field, select a part or tool.

---

**NOTE:** A tools record has its Tools check box selected.

---

### **To verify on-hand inventory using the Part Browser**

- 1 Navigate to the Part Browser screen.  
The Product Inventory view appears.
- 2 Select the record for a part and its inventory location.
- 3 Check the Inventory Level list for the part's availability, status, and quantity at that inventory location.
- 4 Check the Substitutes list to see if there are any alternatives for a part.

### **To verify on-hand inventory using Check Trunk**

- 1 Navigate to the Activities screen.
- 2 Select an activity record.
- 3 Click the Items view tab.
- 4 In the Items list, select the activity item for which you want to verify on-hand inventory.
- 5 Click Check Trunk.

The Available Qty field is updated according to the current user's trunk inventory.

### **To record the movement of service parts in the field**

- 1 Navigate to the Activities screen.
- 2 Select an activity.
- 3 Click the Part Tracker view tab.
- 4 Create a part movement record.

**5** Enter values for the required fields.

**6** Click Commit.

This creates an inventory transaction, an asset transaction, or both (depending on the source or destination) in the Field Service server.

---

**NOTE:** Part movements recorded in the field appear here only after synchronization with the field service engineer's mobile computer. If the engineer described the part with a write-in serial number, the part transfer appears here only after processing by an administrator.

---

***To generate an invoice automatically for a field service activity***

**1** Navigate to the Activities screen.

**2** Select an activity.

**3** Click the Invoices view tab.

**4** Click Auto Invoice.

Auto Invoice creates an invoice record for this activity.

***To enter a new activity for a service request***

**1** Navigate to the Service screen.

**2** Select a service request.

**3** Click the Activities view tab.

**4** Create an activity record.

**5** Enter values for the required fields.

***To record additional recommended steps for a service activity***

**1** Navigate to the Activities screen.

**2** Select an activity.

**3** Click the Steps view tab.

- 4** Create a step record.
- 5** In the Step field, select a step.
- 6** If you enter multiple steps, correct the sequence of steps by typing the correct numbers into the Step # fields.

***To record additional skills required to complete a service activity***

- 1** Navigate to the Activities screen.
- 2** Select an activity.
- 3** Click the Assignment Skills view tab.
- 4** Create a skill record.
- 5** In the Item field, select the type of skill.
- 6** In the Service Activity Skill Item subview tab, create a skill item record.
- 7** Complete the skill item record fields as needed.

---

**NOTE:** Fields in the skill item record vary according to the selection you made in the skill record's Item field.

---

***To record additional instructions for a service activity***

- 1** Navigate to the Activities screen.
- 2** Select an activity.
- 3** Click the Instructions view tab.
- 4** Create an instruction record.
- 5** Enter values for the required fields.

## **Monitoring Field Service Activities**

A service center agent can use the following procedures to monitor the progress of a service request.

### ***To review a field service engineer's activities***

- 1** Navigate to the Calendar screen.
- 2** From the Owner drop-down list, select the name of the field service engineer.
- 3** For the type of calendar, click the Daily, Weekly, or Monthly tab.

### ***To verify part movements in the field***

- 1** Navigate to the Activities screen.
- 2** Select an activity.
- 3** Click the Part Tracker tab.

A record of part movements appears in the Part Tracker list.

## Application Administration Screen

The Application Administration Screen has a view and a subview that are suitable for defining Field Service-related activity plan templates.

### Activity Templates View

The Activity Templates view creates activity plan templates for all Siebel applications. Any number of activities may be associated with these templates. [Table 13](#) describes items in activity templates records.

**Table 13. Selected Item in the Activity Templates View**

Item	Description
Public	When selected, this check box indicates that the information can be accessed by customer and partner applications, as well as by employee applications.
Auto Trigger	This check box provides the activities from this template to a sales stage, when the sales stage is set for an opportunity.

### Service Details Subview

The Service Details subview associates multiple activities with each activity template. This subview has tabs for associating steps, skills, parts and tools, and instructions with an activity.

[Table 14](#) describes items in activity template detail records.

**Table 14. Selected Item in the Service Details Subview**

Item	Description
Breakable	When selected, allows Optimizer to insert a break into an activity. For information about Optimizer, see <a href="#">Chapter 4, “Scheduling and Dispatch.”</a>
Category	Category under which the activities will fall. For information about the effects of selections in field, see <a href="#">“About the Category Field” on page 90.</a>

**Table 14. Selected Item in the Service Details Subview**

Item	Description
Duration	Complete duration of the activity, expressed in minutes, and calculated as work time + break time.
Lead Time	Duration of travel to or other preparation for the activity.
Lock Assignment	When selected, prevents reassignment of the activities.
Units	Units of measure for Lead Time field.
Work Time	Duration of work.

## Activities Screen

The Activities screen manages all activities that a field service engineer carries out in response to a service call.

### All Activities View

The All Activities view shows all activities, both active and closed, assigned to field service engineers. A field service engineer can add activities or modify existing activities; for example, change the status of an activity. The Activities view changes from a list to a form after choosing the Instructions, Invoices, Part Tracker, Time Tracker, Skills, or Items view.

---

**NOTE:** The child records of activities (for example, Steps) may be available only for activities of certain types (for example, Service).

---

[Table 15](#) describes items in Activities records.

**Table 15. Selected Items in the Activities View**

Item	Description
Alarm	A check box that turns on a warning if the activity does not begin by the planned start date.
Billable	A check box that indicates to the Invoice Engine that this activity is billable to the customer.
Category	Determines the type of child records that are inherited from the activity template (see <a href="#">“Fields Copied from Activity Templates” on page 89</a> ). It also determines the behavior of the Lock Assignment flag (see <a href="#">“Rules for Assigning Activities” on page 106</a> ).
Change Request #	The defect number for a product associated with this activity, chosen from a dialog box.
Defective Tag	The defective tag number (repair number) associated with this activity, chosen from a dialog box. In the form only.



**Table 15. Selected Items in the Activities View**

Item	Description
Due	This is the last time and date for an activity, usually used to indicate contractual commitments or deadlines. This field is automatically populated with the value from the Agent Committed field for the service request (see <a href="#">“Calculating the Agent Committed Time for a Service Request” on page 66</a> ). Due is the same as the Latest Start field in the Schedules view on this screen.
Duration	The time required to carry out an activity, including breaks and travel time. The value is = Planned End – Planned Start. In the form only.
Employees	The names of the employees assigned to carrying out a selected activity. One employee may be identified as primary.
Repeat Frequency	The interval at which to repeat this activity: daily, weekly, monthly, quarterly, or yearly. The repeated activity appears multiple times in the service engineer’s calendar. The Dispatch Board cannot schedule repeated activities.
Private	A check box that indicates this activity is internal to the service business and is not visible to a customer; for example, over the Internet. In the form only.
Lock Assignment	A check box that instructs the Assignment Manager not to assign this activity. For more information, see <a href="#">“Rules for Assigning Activities” on page 106</a> .
Repeat Until	End date for repeating this activity.
Resolution Code	The solution code for an activity, chosen from a drop-down list. Also applies to a service request, and is labeled Resolution in the Service Requests view.
SR #	The service request associated with a selected activity.
Status	The state of an activity; for example, Approved, Unassigned, or Done. Clicking the hyperlink for the value Unassigned in the Status field presents the Dispatch Board screen.

### Rules for Assigning Activities

When an activity is created with the Category field set to Field Engineer Activity, Repair Activity, Preventive Maintenance, or Other, the following occurs:

- No owner is assigned.
- The Lock Assignment flag is set to False—meaning that the Assignment Manager automatically assigns this activity.

After the record is saved, changing the Category value does not have these effects.

Use Siebel Tools to change the default for activity categories (set ASGN\_USR\_EXCLD\_FLG to N; the default is Y).

Use the Lock Assignment flag in the [“All Activities View” on page 104](#), the [“Schedule View” on page 110](#), and the [“Activity Templates View” on page 102](#) to change this assignment for individual activities. If this flag is checked, the Assignment Manager excludes this activity.

## Expense Tracker View

The Expense Tracker view allows a field service engineer to record expenses related to an activity. [Table 16](#) describes the check box in Expense Tracker records.

In the Expense Tracker view, a Complete button appears at the top of the Activity form. This button updates the Cost and Price fields for all the current activity's parts, time, and expense records, and changes the value in the Activity record's % Complete field to 100. (Additionally, when the % Complete field reaches 100, the Status field value changes to Done.)

**Table 16. Selected Item in the Expense Tracker List**

Item	Description
Billable	A check box that indicates this expense is billable to the customer. When this flag is set, the Invoice Engine uses this record to create an invoice.

## Part Tracker View

The Part Tracker view describes the transfer of parts in the field between the client, a service order, and the field service engineer's trunk inventory. [Table 17](#) describes items in Part Tracker records.

---

**NOTE:** Transactions between inventories and between inventories and customers are recorded on the Inventory Transactions screen (see [“Inventory Transactions View” on page 352](#)).

---

In the Part Tracker view, a Complete button appears at the top of the Activity form. This button updates the Cost and Price fields for all the current activity's parts, time, and expense records, and changes the value in the Activity record's % Complete field to 100. (Additionally, when the % Complete field reaches 100, the Status field value changes to Done.)

**Table 17. Selected Item in the Part Tracker List**

Item	Description
Billable	A check box that indicates this labor is billable to the customer. When this flag is set, the Invoice Engine uses this record to create an invoice. The service business can define expenses that are not billable; for example, a coffee break.
Commit	A check box that indicates this transaction was committed. This check box is set automatically after clicking the Commit button, if all validations are completed (see <a href="#">“Instructions View” on page 108</a> ).
Commit and Commit All buttons	The Commit button creates a transaction for a selected, uncommitted record. The Commit All button creates transactions for all uncommitted records.  Once committed, a record becomes read-only. Committed records cannot be uncommitted. For more information, see <a href="#">“Mechanism of the Commit Buttons” on page 330</a> .

**Table 17. Selected Item in the Part Tracker List**

Item	Description
Write-In Asset	A check box that indicates the serial number for an asset is not in the local database. The user checks this box, and then enters a write-in serial number. This check box is for information only; it does not have associated code.
Write-In Serial Number	A field for entering a serial number. This is for an asset that is not yet in the Field Service database on the local computer. An administrator generates the inventory transaction for the asset after the user synchronizes.

### Instructions View

The Instructions view records instructions for carrying out an activity. These instructions may be specific to a customer's site.

### Invoices View

The Invoices view displays invoices created for this activity and it allows manual or automatic generation, using the Auto Invoice command, of invoices for any activities that are marked as billable. For more information, see [“Invoices View” on page 262](#) and [“Auto Invoice Command” on page 262](#).

### Readings View

The Readings view displays key characteristics of an asset, defined in the Activities form, that may be recorded and tracked. The upper list describes measurements that are described for this product. The Readings form records data for the selected measurement collected from the asset. The Readings view collects information used to trigger preventive maintenance activities and use-based invoicing.

## Items View

The Items view shows the recommended parts and tools that a field service engineer must have to complete an activity. An activity template can populate these records, and the owner of the activity can add records. [Table 18](#) describes items in Items records.

**Table 18. Selected Items in the Items View**

Item	Description
Check Trunk	This button displays a pop-up window with the product name, part number, inventory location, quantity requested, and quantity available for the selected activity item. The quantity available is a calculated quantity.
Order #	The number of a sales or service order, if this part or tool is on order, which the field technician selects from a dialog box.
Tool	<p>A check box that indicates this is a tool rather than a part. This is for information only; there is no associated code.</p> <p>Note that product records are created in the Product Administration screen. The Products form view contains a Tools check box that the product is a service tool and not a part that a customer would buy. This check box has other effects; for example, with this box checked, the customer cannot order this product.</p>

## Schedule View

The Schedule view provides an extended description of the schedule and the scheduling process for a selected activity, plus controls for booking or cancelling future appointments and for inserting an activity in an optimized schedule. Some of the fields in this view appear also in “[All Activities View](#)” on page 104. [Table 19](#) describes items in Schedule records.

**Table 19. Selected Items in the Schedule View**

Item	Description
Account Address Map	This button provides a hyperlink to the MapQuest web site. Siebel does not guarantee the availability or accuracy of any content or service provided by MapQuest.
Allow Breaks	This check box allows the Optimization Engine to disrupt an activity to insert defined breaks, but not breaks that are separate activities (see “ <a href="#">Breaks</a> ” on page 146).
Book Appt	This button sends a request to the Scheduler to find the possible time slots for scheduling this activity. For more information, see <a href="#">Chapter 4, “Scheduling and Dispatch.”</a>
Cancel Appt	This button sends a request to the Scheduler to remove this activity from the schedule. For more information, see <a href="#">Chapter 4, “Scheduling and Dispatch.”</a>
Contract Schedule	This button sends a request to the Scheduler to insert an activity into the schedule with minimal disruption to the schedule and without significant increase in the cost of the schedule. For more information, see <a href="#">Chapter 4, “Scheduling and Dispatch.”</a>
Duration	The time required to carry out an activity, including breaks and travel time. The value is = Planned End - Planned Start.
Earliest Start	The earliest time and date an activity may begin, usually used to indicate contractual commitments or deadlines. In some configuration settings (see “ <a href="#">Scheduling Parameters</a> ” on page 150) it may be NST (No sooner than).

**Table 19. Selected Items in the Schedule View**

Item	Description
Latest Start	The latest time and date for an activity, usually used to indicate contractual commitments or deadlines. It is the same as the Due field in the More Info view on this screen. In some configuration settings, it may be NLT (No later than).
Lock Assignment	A check box that instructs the Assignment Manager not to assign this activity. The Employees field is never changed. For more information, see <a href="#">“Rules for Assigning Activities” on page 106</a> .
Lock Schedule	A check box that prevents the Optimization Engine from scheduling this activity. When this flag is set, the engine cannot change the values of Planned Start and Planned End.
Planned End	The proposed date for completing an activity. Also appears as Planned Completion in the user interface.
Planned Start	The proposed date for starting an activity. The engines use this value, along with Planned End, to calculate the duration of an activity and to determine whether to load activity data into the Optimizer cache or ABS cache.
Service Region	The service region to which this activity is assigned.
Work Time	The time required to work on an activity, not including, for example, travel and breaks. The engines use this value to calculate the duration of an activity and to determine whether to load activity data into the Optimizer cache or the ABS cache.

## Assignment Skills View

The Assignment Skills view describes the skills needed to complete an activity. This view contains lists of Service Activity Skills and Service Activity Skill Items. Various skills, such as product or language skills, are required for a field service engineer to carry out an activity. Add skill types (which appear in the drop-down menu for the Item field) using the Assignment Administration screen (see *Siebel Assignment Manager Administration Guide*). The Assignment Manager uses these attributes in assigning an activity to the right employee.

## Steps View

The Steps view describes the recommended procedures for carrying out an activity. [Table 20](#) describes an item in Steps records.

**Table 20. Selected Items in the Steps View**

Item	Description
Done	A check box that indicates this step was completed. This check box is for record keeping; it has no effect on other functions in Field Service.

## Time Tracker View

The Time Tracker view allows a field service engineer to record the hours spent on each field service activity. [Table 21](#) describes items in Time Tracker records.

In the Time Tracker view, a Complete button appears at the top of the Activity form. This button updates the Cost and Price fields for all the current activity's parts, time, and expense records, and changes the value in the Activity record's % Complete field to 100. (Additionally, when the % Complete field reaches 100, the Status field value changes to Done.)

**Table 21. Selected Items in the Time Tracker List**

Item	Description
Billable	A check box that indicates this labor is billable to the customer. When this flag is set, the Invoice Engine uses this record to create an invoice. The service business can define expenses that are not billable; for example, a coffee break.
Start	This button creates a new Time Tracker record, records the date and time, and defaults the Type field to Work.
Stop	This button records the stop date and time for the activity in the Time Tracker record. To resume an activity, the field service engineer must click Start to create a new record.



## Charts View

The charts view provides the charts listed in [Table 22](#) for the analysis of activities.

**Table 22. Activities Analyses**

Chart	Analysis
Account and Type Analysis	Two graphs: <ul style="list-style-type: none"> <li>■ The number of activities for each account.</li> <li>■ The number of activities for each type of account.</li> </ul>
Contact Analysis	The number of activities for each contact.
New Activities Analysis	The number of new activities as a function of a calendar period.
Status Analysis by Owner	The number of activities for each owner.
Status and Priority Analysis	Two graphs: <ul style="list-style-type: none"> <li>■ The number of activities for each status category.</li> <li>■ The number of activities for each priority category.</li> </ul>
Symptom and Resolution Analysis	Two graphs: <ul style="list-style-type: none"> <li>■ The number of activities of each symptom type.</li> <li>■ The number of activities for each resolution code.</li> </ul>
Trend Analysis by Activity Type	The number of activities of each type as a function of calendar period.
Trend Analysis by Product	The number of activities for each product as a function of calendar period.

## Activity Reports

The Reports menu provides the reports, listed in [Table 23](#), for activities.

**Table 23. Activities Reports**

<b>Report</b>	<b>Description</b>
Activity List	A summary of all activities.
Field Engineer Activity Summary	A summary of all activities for field service engineers.
Field Engineer Activity Detail	A full report of each field service activity, printed one per page.

## **Products Screen**

The Products screen has one view, Service Details, that is useful for field service activities.

## Service Details View

The Service Details view provides information about service products and possible substitute products. The values are defined in the “[Product Administration Screen](#)” on page 301. All fields are read-only. [Table 24](#) describes items in Field Service Details records.

**Table 24. Selected Items in the Service Details View**

Item	Description
Allocate Below Safety	A check box that indicates the Fulfillment and Part Locator Engines can allocate this product when its level in inventory is below the safety level.
Auto Substitute	A check box that indicates the Fulfillment and Part Locator Engines can automatically substitute a product.
Auto Allocate	A check box that indicates the Fulfillment and Part Locator Engines can allocate this product. If this box is unchecked, the engines do not allocate this product.
Field Replaceable	A check box that indicates this item may be replaced at the customer site. This is informational only.
Lead Time	The wait time for the product to arrive. Allows the user to order the part with enough lead time to serve the customer.
MTBF	Mean time between failures; a measure of dependability of the product.
MTTR	Mean time to repair; a measure of the time required to repair the product.
Return Defective	A check box that indicates this item, if defective, should be returned to the service center, This is informational and has no effect on other fields or functions.
Serialized	A check box that indicates this product and all of its assets are serialized. Serialized products are treated in a different way. Whenever a serialized product is shipped or received, Field Service expects the right number of assets with serial numbers.
Tool	A check box that indicates this item is a tool used in service procedures. This is informational and has no effect on other fields or functions.

---

**NOTE:** Serialized products are treated differently from non-serialized products. Whenever a serialized product is shipped or received, Field Service expects the right number of assets. For example, if four serialized hard drives are shipped or received, Field Service expects that four separate assets are entered.

---

### **Substitute Products Subview**

The Substitute Products subview specifies the product that the Fulfillment Engine may use to fill an order when the specified product is unavailable from inventory. All fields are read-only.

---

**NOTE:** Multiple substitute products can be established in the Products Administration Screen.

---

The user chooses from products that are specified in the [“Products View” on page 301](#). The Fulfillment Engine can choose this product if the specified product is unavailable and the Auto Substitute flag is set.

---

**NOTE:** Substitutions are unidirectional. Product A may substitute for Product B, but Product B cannot substitute for Product A unless that substitution is explicitly defined.

---

## **Part Browser Screen**

The Part Browser view allows a field service engineer to investigate the availability of products and substitute products in all inventory locations within the field service business, or only those inventory locations associated with that field service engineer. All fields are read-only.

Depending on the visibility of the user, the Part Browser can show inventory across Organizations (see [“All Inventory Locations Across Organizations”](#) on page 346).

---

**NOTE:** Do not confuse the Part Browser view with the Part Locator. The Part Locator is a semi-automatic mechanism that Field Service provides to find products among various inventory locations when fulfilling orders (see the [“Part Locator Engine”](#) on page 287). The Part Browser simply displays products and their inventory locations.

---

## **Scheduling and Dispatch**

# **4**

This chapter describes the various aspects of scheduling and gives details about using the Dispatch Board.

# About Schedules

A schedule describes the hours in a week for which the customer is entitled to receive service.

---

**NOTE:** Depending on the Siebel application and screen, Schedule is the same as Service Hours or Service Calendar.

---

Schedules are based on a typical work week. For each schedule, an administrator can also specify holidays and excluded days for which contractually covered service is not offered to a customer.

Service Calendars use Universal Time Code conversions. For more information, see the chapter on ongoing application administration tasks in *Applications Administration Guide*.



## Introduction to Siebel Scheduling

This chapter describes how customer service representatives assign and schedule personnel to carry out field service activities.

The process of scheduling field service engineers must take into account a wide range of factors, including availability of personnel, proximity to the customer site, skills, availability of parts, efficiency of scheduling, and optimizing costs to the service provider.

Siebel Field Service provides these tools for assigning and scheduling activities:

- **Assignment Manager.** This function provides a list of personnel who are qualified to carry out a service activity or service request. The list, based on a set of rules, is ranked by a score that indicates the engineer's suitability. The dispatcher or customer service representative chooses a field service engineer from this list. For more information, see *Siebel Assignment Manager Administration Guide*.
- **Appointment Booking System (ABS).** Using the ABS, a customer service representative can schedule future appointments, with a choice of time periods from which a customer can select, and book appointments. The output of the ABS is the assignment of specific field service engineers to service activities on specific dates and times.
- **Optimization Engine.** The main purpose of the Optimization Engine, or Optimizer, is to reorganize and reassign a schedule to reduce the cost of the schedule (see ["Cost Function" on page 183](#)). The optimizer uses a flexible set of constraints, availabilities, and cost considerations.

The Optimizer can reorganize schedules to meet contractual commitments for service, accommodate emergency service calls, and meet unforeseen events in the service organization (for example, sick days for field service engineers). These functions of the Optimizer are known as Contract Scheduling.

Contract Scheduling inserts high-priority service activities into a schedule with minimal disruption of the schedule and without significant increase in the cost of the schedule. Contract scheduling requires an immediate response. For contract commitments, the Optimizer can either fit the service activity into a free spot in a schedule or reschedule and re-optimize an entire schedule to accommodate a new activity.

- **Dispatch Board.** This screen lets a dispatcher or customer service representative manually assign and schedule individual activities by drag-and-drop onto a Gantt chart.
- **Manual assignment.** Manual assignment is available in any Activities view, where a dispatcher or customer service representative can fill in the Employees field. For procedures, see [“Assigning and Scheduling Field Service Activities Manually” on page 188.](#)

After an activity is assigned and scheduled, the Workflow Manager can notify a field service engineer by sending, for example, an email or a notification to a wireless device. The engineer can then synchronize a mobile PC or handheld computer to obtain details about an activity.

## Business Requirements

Typically, businesses that schedule personnel have the following needs:

- Match the right person to an activity, depending, for example, on the skills required for that activity.
- Minimize the cost of service. This usually means minimizing overtime, down time, and travel.
- Respect contractual commitments (for example, service personnel must be onsite within 24 hours).

Businesses have to schedule service for three different time spans:

- For emergencies today, making sure that the best person can respond in the promised time frame.
- For the jobs occurring over the next week or two, ensuring that the appropriate people are efficiently utilized and not spending excess time traveling from site to site.
- For the weeks and months ahead, booking future jobs such as preventive maintenance and installations, using available resources efficiently.

**Best Practice: Wireless Updates**

Schedules constantly change in a service region, because a service engineer calls in sick, a customer cancels an appointment, or a repair runs overtime. Service businesses must constantly shift to accommodate unexpected occurrences.

Wireless communications allow service forces to respond flexibly to change. For example, an engineer calls in sick. Using a solution provided by the ABS or Optimizer, Field Service can send out pages or Short Message Service (SMS) messages to cell phones to reschedule appointments. SMS can send messages up to 160 characters and request confirmation of message delivery.

In another example, when time is freed up unexpectedly, break/fix activities can be slotted into those times. The critical step is reaching the engineer, through a wireless device, and obtaining acceptance. The wireless device can also provide basic information about the customer and the problem, preparing the engineer to enter the customer site informed and to fix the problem without assistance from the service center.

If a job runs over the scheduled time, an engineer can use a wireless device to send a message to a dispatcher or customer service representative; the customer service representative can then proactively inform the customer of the process.

**Best Practice: Integration with Service Inventory System**

Approximately 70 percent of all break/fix calls require a part. Because most break/fix calls occur during the day, service engineers may not have the parts in their trunk inventories or the time to pick up replacement parts from a local depot. One solution is to schedule a service engineer who has the parts on hand. This can be one of the constraints when choosing appropriate personnel.

Another solution, if the response can wait until the next day, is to reschedule the service call and drop-ship the parts overnight to the customer. Tight integration with the inventory system (which must track down to the trunk level) is critical to any scheduling system. Part utilization is set up using [“Scheduling Parameters” on page 150](#).

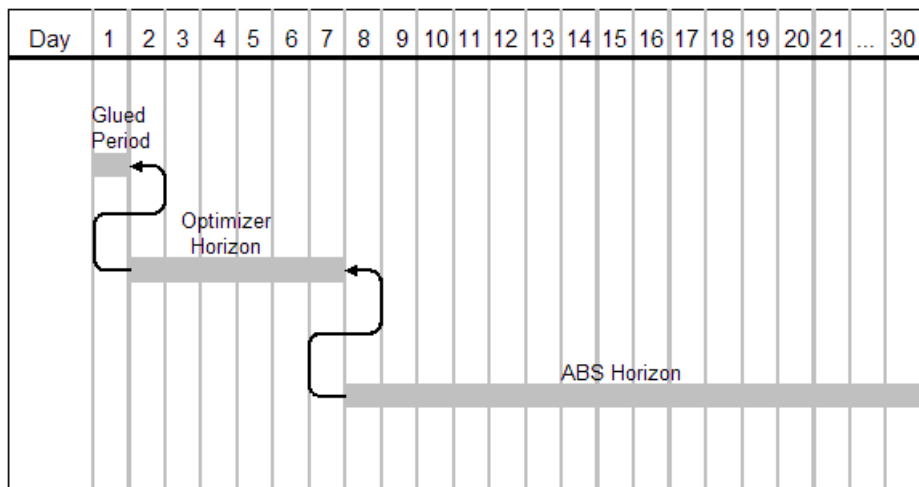
### Schedule Horizons

The ABS and Optimizer define the following time periods for scheduling of activities:

- **Glued period.** A time period, starting from today, when no scheduling of activities is permitted. This period is required to prevent changes to schedules and assignments that are already sent to field service engineers. The period is part of the Optimizer horizon. A glued period is not required; you can set it to 0.
- **Contract Scheduling period.** The period of time in days for scheduling immediately pending activities for a specific service region. Typically, this period covers days 2 to 8 (starting from the end of the Glued period to a week from today).
- **Optimizer horizon.** A period of time that includes the Glued period and the Contract Scheduling period. This is the time period within which the Optimizer operates.
- **ABS horizon.** The period of time in days for scheduling future activities extending from the end of the Optimizer Horizon to some time in the future; for example, a month from today or days 9-30.

Both the ABS and the Optimizer horizons are represented by a single time line ([Figure 2 on page 125](#)), since both are measured from a current time (specifically, the time for loading data (see [“Loading and Reloading Service Region Data” on page 139](#))).

Figure 2 shows an example of how these time periods are typically defined. The Glued period is day 1. The Contract Scheduling period is days 2 through 7. The Optimizer horizon, which spans the Glued period and the Contract Scheduling period, is days 1 through 7. The ABS horizon is days 8 through 21, and appointment booking is done for that period of time.



**Figure 2. Scheduling Horizons**

Activities move from right to left along this time line. For example, a service activity may follow this scenario:

- An appointment to perform an activity is booked into a time slot some time 8 to 15 days from now. The ABS assigns the activity to an employee during the ABS horizon.
- As the days go by, the scheduled activity moves closer to today. On day 8 it moves from the ABS horizon to the Optimizer horizon. In the Optimizer horizon, the Optimization Engine evaluates the schedule and determines the best time and person to carry out the service activity, while trying to minimize the costs of a schedule.

- The activity remains in the Optimizer horizon for 7 days, where the Optimization Engine may adjust the schedule at regular intervals, at least once each day. This readjustment may be necessary because of changes in personnel, emergency service calls, or service activities that are regulated by contractual commitments (for example, a warranty repair required within 12 hours).
- On day 1, the Glued period begins and the schedule for the activities in a service region is locked.

## Service Regions

A service region is a geographic area defined by ZIP Codes and a service team. The ABS and the Optimization Engine deal with service regions and their associated data when scheduling activities. A field service engineer can belong to only one service region.

### Defining Schedules for Service Regions

Every employee and service region has a predefined schedule that includes the days and hours that work may take place (normal work hours), plus exceptions that deviate from normal work hours. Schedules for service are defined in the Application Administration screen, Schedules view. For more information about service schedules, see [“Defining Schedules for Service Regions” on page 126](#).

A service region can have only one schedule. This schedule is associated with a service region in Scheduling Administration > Service Regions.

The ABS uses the service region schedule and then the employees' schedules to provide appointment bookings. The Optimizer uses the field service engineers' schedules, not the service region schedule, when calculating the best deployment of personnel.

Setting schedules for field service engineers must follow these rules:

- A schedule must have only one shift start per day.
- The shift start must be the first time period in a day.  
If a shift spans more than one day; for example, Monday 9–11:59 p.m. and Tuesday 12–4 a.m., the first day should include the start of the shift.
- The ABS, but not the Optimizer, can have activities that span more than one day.

- It is possible to schedule one or more breaks in a day.
- The ABS does not consider overtime for a field service engineer.
- The Optimizer can schedule activities in overtime and extended overtime.

---

**CAUTION:** Do not define breaks during overtime. The Optimizer ignores breaks that are scheduled during overtime and treats them as working time. This introduces inaccuracies into cost calculations.

---

# Schedules

Schedules involve components such as times, locations, and personnel. This section contains procedures for defining schedules and their components. This section also includes descriptions of a schedule-related screen and its views in your Siebel application.

## Defining Schedules

Use the following procedures to define schedules, working days, and working hours. For each schedule, you set schedule hours, which define the hours of availability (days of week, hours per day, and holidays) for service-providing entities (employees, partners, or business units). Exception hours are specific days or hours in a schedule for working (for example, Saturday morning in an 12xM-F schedule) or not working (for example, a midweek holiday in a 12xM-F schedule).

### **To create a schedule and set schedule hours**

- 1** Navigate to Site Map > Service Administration > Schedules.
- 2** Create a new schedule record by performing the following steps:
  - a** In the All Schedules list, add a new record.
  - b** In the More Info form, enter a name for the schedule.
  - c** In the Exception Name field, select the name of the exceptions record, if any, that applies to this schedule.
- 3** Create a schedule hours record by performing the following steps:
  - a** Click the Schedule Hours view tab.
  - b** In the Schedule Hours list, add a new record.
  - c** Enter values for the required fields: Start Day, Start Time, and End Time.
  - d** Select the Shift Start Flag if the time period described in the record defines the beginning of a work shift.



- e In the Type field, select a value.

---

**NOTE:** An Extended Overtime period must be preceded by an Overtime period.

---

For rules on setting schedule shifts, see the [“All Exceptions View” on page 132](#).

Repeat [Step 2](#) and [Step 3](#) for each day of the week on which you want to provide support in this schedule.

---

**NOTE:** Schedule hour records can reflect different time periods on the same day of the week. However, only one of these records can contain the start of a shift.

---

#### ***To add exceptions and exception hours to a schedule***

- 1** Navigate to Site Map > Service Administration > Schedules.
- 2** Click the All Exceptions view tab.
- 3** Create an exception record by performing the following steps:
  - a** In the All Exceptions form, add a new record.
  - b** Enter the name of the exception.

This usually represents a set of exceptions; for example, U.S. holidays.
- 4** Create an exception hours record by performing the following steps:
  - a** Click the Exception Hours view tab.
  - b** In the Exception Hours list, add a new record.
  - c** Enter values for the required fields: Name, Start Date, and End Date.
  - d** If the Exceptions Hours record defines a working period, select the Working check box.

- e If the exception hours are working hours, in the Type field, select a billing type for these hours: Normal, Overtime, or Extended Overtime.

---

**NOTE:** In defining schedule hours, Extended Overtime hours must be preceded by Overtime hours.

---

#### **To associate a schedule with an employee**

- 1 Navigate to Site Map > User Administration > Employees.
- 2 Select an employee record.
- 3 In the More Info form, click the show more button to show more fields.
- 4 In the Schedule field, select a schedule.

#### **To define exception hours for an employee**

- 1 Navigate to Site Map > User Administration > Employees.
- 2 Select the employee for whom you want to define exception hours.
- 3 Click the Employee Exception Hours view tab.
- 4 In the Employee Exception Hours list, add a new record.
- 5 Complete the fields, as needed.

#### **To associate a schedule with a service region**

- 1 Navigate to Site Map > Scheduling Administration > Service Regions.
- 2 Select a service region record.
- 3 In the More Info tab, in the Schedule field, select a schedule.

## Service Administration Screen

The Service Administration screen has a Schedules view for setting up the hours available for service.

### All Schedules View

You can create multiple schedules in the All Schedules view. For each schedule, you set schedule hours, which define the hours of availability. The schedule may also include a set of exceptions (in the Exception Name field), which are defined in the All Exceptions view and the Exception Hours view. For more information, see [“All Exceptions View” on page 132](#) and [“Exception Hours View” on page 133](#).

### Schedule Hours View

The Schedule Hours view defines the days and time periods in each day that are included in a schedule. For example, an 8x5 schedule will define time periods within eight hours on five days. This could be 9 a.m. until 5 p.m., Monday through Friday. However, each day could have more than one record, each with a separate time period; for example, 9-12 a.m. Monday and 2-5 p.m. Monday. [Table 25](#) describes some fields in schedule hours records.

**Table 25. Items in the Schedule Hours View**

Item	Description
End Time	Indicates the end of a time period on the selected day.
Shift Start Flag	<p>Indicates a time period that begins a work shift. The Optimization Engine, which uses this setting, requires the following constraints:</p> <ul style="list-style-type: none"> <li>■ A schedule must have only one shift start per day. To set up multiple shift start times, use multiple schedules, each for a separate shift.</li> <li>■ The Shift Start flag should be set on the first time period in a day (the exception being when a shift extends over two days).</li> <li>■ Shifts can span more than a day, such as Monday 8 p.m. to 11:59 p.m. and Tuesday 12 a.m to 4 a.m. The Monday record should have the Shift Start Flag selected.</li> </ul>
Start Day	A day of the week that is included in the schedule.

**Table 25. Items in the Schedule Hours View**

Item	Description
Start Time	Start of a time period on the selected day.
Type	Can have a value of Normal, Overtime, or Extended Overtime. The Appointment Booking System and the Optimizer use this value. For information, see <a href="#">“Appointment Booking System” on page 172</a> and <a href="#">“Optimization Engine” on page 175</a> .

### All Exceptions View

The All Exceptions view names a set of exceptions to the hours defined in the Schedule Hours view. The Exception Hours view contains the definition of these exceptions. For more information, see [“Exception Hours View.”](#)

Exceptions represent special nonworking days or working days. Different exception records may define exceptions for different sites; for example, U.S. holidays for one site and Canadian holidays for another.

To associate an exception with a schedule, define the exception (see [“To add exceptions and exception hours to a schedule” on page 129](#)) and include this exception in the definition of a schedule.

## Exception Hours View

The Exception Hours view defines a day or continuous blocks of days as an exception to a schedule. These days are often holidays. In some cases, exception hours can define working and nonworking periods; for example, no work on Sunday from 6 a.m. to 12 a.m. in a 7x12 schedule. For other schedules, the exception hours can define work periods on days that are not normal work hours; for example, Saturday morning for a 5x8 schedule. [Table 26](#) describes some fields in Exception Hours records.

**Table 26. Selected Items in the Exception Hours View**

Item	Description
Start Date End Date	A range of calendar days or hours within a specific day that define the exception hours.
Reason	Reason for the exception to the schedule. Values may include, for example, Appointment, Deadline, Sick Time, and Vacation.
Type	Type of billing rate. Can have a value of Normal, Overtime, or Extended Overtime. Overtime and Extended Overtime apply to exception hours that are marked as Working. The Appointment Booking System and the Optimizer use this value. For information, see <a href="#">“Appointment Booking System” on page 172</a> and <a href="#">“Optimization Engine” on page 175</a> .
Working	Indicates that the record defines a work period.

# Scheduling Administration

Scheduling administration includes setting up and maintaining data for service regions, setting parameters, setting up servers to run the Optimization Engine and ABS, and adjusting schedules.

## Guidelines for Setting Up Scheduling

Consider the following when setting up Siebel Scheduling:

- **Business model.** What is your business model? What part does scheduling play? Which Siebel application modules are you using?
- **Service regions.** Plan service regions so that movement of service personnel between regions should be the exception. Geographic areas that define service regions may overlap.
- **Server mapping.** Set up servers and processors to distribute the scheduling tasks efficiently.
- **Employees.** Assign employees to service regions.
- **ZIP or postal codes.** Load ZIP Code and geocode data.
- **Constraints.** Set up two types of constraints for the Optimization Engine:
  - **Hard constraints.** The ABS and Optimizer cannot violate hard constraints. Activities that do not fit these constraints are not scheduled. As a result, the engines are faster in finding solutions, but fewer solutions are obtained. The solutions result in higher costs for service.

- **Soft constraints.** The Optimizer can weight the cost of using or violating a soft constraint when calculating solutions for a schedule. Soft constraints result in longer optimization times (lower performance of the Optimizer), more solutions, and lower costs for service. The result of violating soft constraints may be a more costly schedule.

The ABS uses only hard constraints. The Optimizer can use either hard or soft constraints.

---

**CAUTION:** Do not define contradictory constraints. For example, the following two constraints conflict if both are hard constraints and the duration for the activities is less than two hours:

A field service engineer must work a minimum of four hours per day.

A field service engineer can have no more than two activities per day.

---

- **Cost functions.** The Optimizer calculates a cost function for each proposed schedule. This function is sum of factors that drive the optimization of a schedule; for example, the cost of overtime, travel distance, and penalties for violating soft constraints (see [“Cost Function” on page 183](#)).

## Setting Up Service Regions

The geographic area of a service region is defined by ZIP Codes and geocodes. The Optimizer follows these rules for ZIP Codes:

- A service region can include more than one ZIP Code.
- More than one service region can include the same ZIP Code; this means that service regions can have geographic overlap.

---

**CAUTION:** If possible, avoid configuring more than one service region per ZIP Code. Field Service assigns a service request to a service region according to the ZIP Code of its account’s address. If that ZIP Code is in more than one service region, the service request is not automatically assigned to a service region and a customer service agent must manually select a service region for it.

---

## Geocodes and ZIP Codes

The Optimizer uses geocode data and ZIP Codes (or postal codes for international users) to identify addresses. Geocode data contains longitude and latitude coordinates for physical locations (for example, a customer site), down to minutes and seconds. The Optimizer can use data at any level of detail; for example, ZIP Codes or ZIP + 4 codes.

As a ZIP Code can cover several square miles, it is preferable to use ZIP + 4, which generally brings the accuracy to the level of buildings for businesses or to within a block or two for residential addresses.

The Optimizer, requires, as a minimum, ZIP or postal codes, country, longitude, and latitude. Five-digit ZIP Codes for the United States are shipped with your Siebel application's seed data. ZIP Code information resides in the data model table (S\_ZIPCODE). [Table 27](#) shows the six columns in this table.

**Table 27. S\_ZIPCODE Data Model Table**

Column	Description
ZIP Code	Postal ZIP Code in alphanumeric text
City	Name of city
State	Name of state or province
Country	Name of the country
Longitude	Longitude number (0 to +/- 180, + for the eastern hemisphere and - for the western hemisphere) up to six decimal places
Latitude	Latitude number (0 to +/- 90, + for the northern hemisphere and - for the southern hemisphere) up to six decimal places

**NOTE:** Where longitude and latitude values are the same for two locations, the Optimizer uses the Minimum Travel Time (see [“Service Regions View” on page 160](#)).



There are two ways to load data into the S\_ZIPCODE table:

- Use the Siebel Enterprise Integration Manager. For more information, see *Siebel Enterprise Integration Manager Administration Guide*.
- Import data from Application Administration > ZIP Code Administration.

#### **To import geocode data**

- 1 Navigate to Application Administration > ZIP Code Administration.
- 2 Click the menu button and select Import from the drop-down list.

The Import wizard appears.

- 3 Specify the filename containing the data to import and click Next.
- 4 Complete the information, including field mapping for the data records.

#### **Specifications for Geocode Data**

There are several vendors of geocode information. Make sure to specify the following information in geocode data:

- **Latitude format.** North of the equator is positive; south of the equator is negative. The data is interpreted to six decimal places.
- **Longitude format.** East of the prime meridian (Greenwich, UK) is positive; west of the prime meridian is negative. The data is interpreted to six decimal places.

Siebel stores its latitude and longitude in the decimal degrees format, as this is the most widely used format and is easy to use for distance calculations (see the following example).

	<b>Decimal Degrees</b>	<b>Deg:Min:Sec</b>
<b>Latitude</b>	37.830354	37:49:49.274N
<b>Longitude</b>	-122.284076	122:17:2.674W

Most data sets are in decimal degrees; if not, use the following formula to convert it from the degrees, minutes, seconds to decimal degrees:

$$\text{Decimal degrees} = \text{Degrees} + (\text{Minutes}/60) + (\text{Seconds}/3600)$$

Example:

$$\begin{aligned} & 37 \text{ Degrees, } 25 \text{ Minutes, } 40.5 \text{ Seconds} \\ & = 37. + (25/60) + (40.5/3600) \\ & = 37. + .416666 + .01125 \\ & = 37.427916 \text{ degrees} \end{aligned}$$

### Data Cleansing

Address and ZIP Code accuracy are critical for a schedule optimization. Use of a data cleansing application, such as the Siebel Data Quality module, is highly recommended (see *Siebel Data Quality Administration Guide*).

### Universal Time Codes

Siebel Field Service stores all times as Greenwich Mean Time (GMT). For display in the user interface, it converts GMT to the appropriate local time zone.

Scheduling uses the following time zones:

- **The customer's time zone.** Appointments are booked in the customer's time zone, which is assumed to be the same as the service region's time zone.
- **The service center's time zone.**
- **The service region's time zone.** Activities displayed in the Activity Gantt Chart on the Dispatch Board are in the service region's time zone.
- **The employee's (field service engineer's) time zone.** Scheduling ignores the employee's time zone and uses the service region time zone.

---

**CAUTION:** Activity times (for example, Earliest Start and Latest Start)<sup>1</sup> must be specified in the service region time zone. If the dispatcher or service administrator is in a different time zone, the conversion to the service region time zone must be done manually.

---

## **Service Region Schedules**

Each service region is assigned a schedule that the ABS and Optimizer use. This may be different than the schedule associated with each employee. Schedules are defined in Applications Administration screen, Schedules view (see [“Defining Schedules” on page 128](#)).

The ABS uses the service region schedule as a base, and then refines its choices of time slots based on the employee schedules (see [“Employee Availability and Schedules” on page 141](#)).

The Optimizer uses only the employee schedules.

## **Loading and Reloading Service Region Data**

The Optimizer acts on the schedule for each service region. Booking appointments and optimizing the schedule for activities requires the following data:

- Schedules for service regions and employees
  - Existing activities and appointments
  - Service activities
  - Service regions
  - Employees
  - Parts available to employees
  - Scheduling parameters
  - Service region parameters
  - System parameters
  - Constraints
  - Time windows
  - A cost function
1. In the user interface, Earliest Start = No Sooner Than and Latest Start = No Later Than = Due.

To carry out scheduling quickly and efficiently, the server copies data from the database into memory caches, one for the ABS and one for the Optimizer. The ABS cache holds the time slots in the future, and the Optimizer cache holds the activities occurring over the next few days.

Since the information is cached, it must be loaded into the caches from the database when the service is started periodically to synchronize updates. Initial loading and reloading of data are automatic processes. The data for a service region is copied automatically to the caches each time the server is restarted, and manually by clicking the Load buttons; see [“Service Regions View” on page 164](#). Repeat requests can also load service region data.

Since there are two caches, every night, information needs to move from the ABS (future) cache into the Optimizer (present) cache. For example, today is July 1st and the Optimizer horizon holds all activities from July 1 to July 7. The ABS horizon is defined as fourteen days, so the ABS cache holds from July 8th to July 15th. Note that both horizons are measured from the beginning of the Glued period. The end of the Optimizer horizon is set to the same calendar day (at midnight) as the start of the ABS horizon.

After it becomes July 2, the old, July 1 data is no longer necessary; it is in the past and is discarded. At the same time, the Optimizer horizon is still looking seven days out, so it needs to load the July 9 data into the Optimizer cache. However, before the data can be loaded into the Optimizer cache, it must be unloaded from the ABS cache. If it is in both caches at the same time, it could be changed in both engines simultaneously. Therefore, the activities and data for July 9 are released from the ABS cache, and then loaded into the Optimizer cache.

The ABS should always be reloaded before the Optimizer, so that there are no conflicts in scheduling between the ABS and the Optimizer. Carry out both reloads in the same day.

When a service region is being loaded, it is not available for requests. The request is returned with a return code.

At the first load of data from a service region, the Optimizer assumes that the data coming from the database was previously optimized. So while generating an initial solution, it tries to keep the assignee as well as the sequence of activities for each field service engineer. It also keeps the time stamp of this load in the cache.

## **Employee Availability and Schedules**

Employee schedules (available and unavailable hours) are controlled by the Schedule field in User Administration > Employees > Service Details and the exception records in User Administration > Employees > Employee Exception Hours. The definition of the schedules (which appear in the Schedule field) are set in Application Administration > Schedules.

The ABS uses the service region schedule as a base, and then refines its choices of time slots based on the employee schedules (see [“Service Region Schedules” on page 139](#)).

The Optimizer uses only the employee schedules.

### **Maintaining and Loading Employee Data**

Employee data is loaded with service region data into the ABS or Optimizer cache. When activities are loaded, the Assignment Manager retrieves the list of eligible employees and the ABS or Optimizer loads this data.

When you load the data for a new employee, the list of employees eligible for existing activities is not updated. The result is that the new employee may not be eligible to carry out any of the existing activities, but is eligible for new activities. At the next reload of the service region and its employee data, the new employee is eligible for all activities.

### **Shifts**

One employee can have only one shift per day, which can include rate types of normal time (RT), overtime (OT), and extended overtime (EOT), as defined for each employee. A shift must use rate types in the following order:

- 1** EOT
- 2** OT
- 3** RT
- 4** OT
- 5** EOT

Any of these rate types can be missing from the definition of a shift, but the remaining types must be in this order. For example:

- 1 OT
- 2 RT
- 3 OT

The rates for overtime and extended overtime are configured in Pricing Administration > Cost List > Cost List Line Items as a percentage increase over regular time (Standard Cost). Standard Cost is set in User Administration > Employees > Service Details.

### Skills

Siebel Scheduling is capable of performing skill-based routing (meaning, assigning only people with a particular skill set to a job). The engines use the Assignment Manager to evaluate skills and it returns a list of appropriate employees, in the following manner:

- 1 Each activity is submitted to the Assignment Manager.
- 2 The Assignment Manager returns the appropriate people based on assignment rules.
- 3 The Optimizer uses only these people when attempting to schedule that job.

For more information on how to set up skills and evaluation rules, refer to *Siebel Assignment Manager Administration Guide*.

### Constraints

Service businesses have a number of union, legal, or business constraints under which they must operate. Here are a few examples:

- Union contracts may stipulate that no worker does more than ten hours of overtime in a week.
- There may be laws regulating worker safety that restrict employees from working more than twelve hours a day.

- To keep costs down, management might specify that no service manager should authorize more than forty hours of overtime per week for all of their employees.

A constraint set for each service region provides the criteria that guides the Optimizer in searching for a solution. Constraints may be hard or soft. Schedules that violate hard constraints are discarded even though they may be better than other solutions. The Optimizer may use solutions that violate soft constraints, but assigns a penalty to these violations that may make one solution less favorable than another solution. The cost function calculated for each solution (see [“Cost Function” on page 183](#)) includes the penalties for violating soft constraints.

Constraints are created using the Constraint Wizard, which walks the users through this process step-by-step. The user chooses a constraint template and then either chooses or fills in the appropriate values.

Constraints are designed for flexibility, but it is possible to write constraints that are contradictory and cause problems. For example, using these two constraints will cause problems, because the two are contradictory:

- All employees should work at least 40 hours per week.
- Employees performing break/fix activities should work no more than four hours per day.

If both are hard constraints, the Optimizer cannot find a solution and fails to schedule these activities. Be sure to test new constraints before releasing them into a production environment; leaving them as soft constraints may help to avoid problems. However, too many soft constraints hamper performance, so there needs to be a balance.

Constraints fall into the following categories ([Table 28](#)).

**Table 28. Constraints for the ABS and Optimization Engine**

Item	Description
Appointment Booking Activity Time	Limits the time of day an activity of a specified type or priority can start or end.
Appointment Booking FSE Limit	Limits the number of activities of any type or of a specified type, or time spent on activities by any employee or a specific employee. Or, limits the number of activities or time spent on activities that have a specified service role (for example, Installation or Preventive Maintenance).
Appointment Booking Schedule Activity Type	Limits the number of activities of any type, or time spent on activities of a specified type for a whole schedule.
Optimizer Activity Time Hard	Limits when an activity of a specified type or priority must begin or end. This is a hard constraint.
Optimizer Activity Time Soft	Limits when an activity of a specified type or priority may begin or end. Also, specifies the penalty for violating this soft constraint.
Optimizer FSE Limit Hard	<p>Limits the following values for any employee or a specific employee during a specified period:</p> <ul style="list-style-type: none"> <li>■ % workload</li> <li>■ Number of activities of any type or of a specified type</li> <li>■ Total hours of travel time</li> <li>■ Total work hours</li> </ul> <p>This is a hard constraint.</p>
Optimizer FSE Limit Soft	<p>Limits the following values for any employee, a specific employee, or a specified service role (for example, Installation or Preventive Maintenance) during a specified period:</p> <ul style="list-style-type: none"> <li>■ % workload</li> <li>■ Number of activities of any type or of a specified type</li> <li>■ Total hours of overtime</li> <li>■ Total hours of travel time</li> <li>■ Total work hours</li> </ul> <p>Also, specifies the penalty for violating this soft constraint.</p>



**Table 28. Constraints for the ABS and Optimization Engine**

Item	Description
Optimizer Fairness <sup>1</sup>	<p>Ensures the equal distribution of the following values for workload, specified as a percentage, for all employees or for a specified service role (for example, Installation or Preventive Maintenance):</p> <ul style="list-style-type: none"> <li>■ Number of activities of any type or of a specified type</li> <li>■ Total hours of overtime</li> <li>■ Total hours of travel time</li> <li>■ Total work hours</li> </ul> <p>Also, specifies the penalty for violating this soft constraint.</p>
Optimizer Schedule Activity Type Hard	<p>Limits the following values for a whole schedule in a specified period:</p> <ul style="list-style-type: none"> <li>■ Hours of work time for activities of a certain type</li> <li>■ Number of activities of a certain type</li> <li>■ Percentage count of activities of a certain type<sup>1</sup></li> <li>■ Percentage hours for activities of a certain type<sup>1</sup></li> </ul> <p>This is a hard constraint.</p>
Optimizer Schedule Activity Type Soft	<p>Limits the following values for a whole schedule:</p> <ul style="list-style-type: none"> <li>■ Hours of work time for activities of a certain type</li> <li>■ Number of activities of a certain type</li> <li>■ Percentage count of activities of a certain type<sup>1</sup></li> <li>■ Percentage hours for activities of a certain type<sup>1</sup></li> </ul> <p>Also, specifies the penalty for violating this soft constraint.</p>
Optimizer Schedule Overtime Soft	<p>Limits the hours of overtime in a specified period for a whole schedule.</p> <p>Also, specifies the penalty for violating this soft constraint.</p>
Optimizer Travel Time	<p>Limits the travel time between activities for all employees, specific employees, or a specified service role (for example, Installation or Preventive Maintenance).</p> <p>This can be a hard or soft constraint.</p>

1. This is called a leeway constraint because it is based on a percentage rather than an absolute value. As this is an approximate number, it allows the Optimizer to achieve acceptable schedule assignments within acceptable times.

### Examples of Constraints

The following constraints limit work hours:

- An engineer cannot work more than 45 hours per week.
- An engineer cannot engage in an activity type (for example, working with hazardous materials) more than four hours per day.
- Total workload must be less than 95%.
- Total workload must be greater than 60%.
- An engineer cannot travel more than four hours a day, for safety reasons.

The following constraint limits timing of an activity:

- All waste disposal activities must start before 8 p.m.

### Breaks

Schedules can include any number of breaks. Breaks are defined as employee breaks or activity breaks:

- Employee breaks are defined in the employee's schedule or as exceptions to this schedule.
- Activity breaks are defined in Activities > Time Tracker as time periods with the Type field set to Break.

The following rules apply to the way the Optimizer uses breaks:

- Breaks can have their start time = Start Time + 1 second. This means that a break from 12 to 1 p.m. is the same as a break from 12:00:01 to 1:00:01.
- Break times during OT or EOT are paid.

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**NOTE:** Since breaks during overtime are considered paid time, it is recommended not to define breaks during overtime. Calculating these breaks may slow the Optimizer's calculations.

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- Breaks can be allowed during activities or excluded from specific activities.

To include a break, set the Breakable flag in Application Administration > Activity Templates > Activity Template Details. (If the Breakable field does not appear, it may be necessary to turn on the display of this field.) If this flag is not set, a break is not allowed during an activity.

A normal user can set breaks for a selected activity in Activities > Schedule, Allow Breaks check box. To see this check box, click the More/Less button.

**To define breaks and allow them for activities**

- 1 Navigate to Site Map > Application Administration > Work Types.
- 2 To create a break type, click New and enter a name for the break type; for example, Break1.
- 3 Complete the other fields as needed.
- 4 Click the view menu button and choose About Record.

The About Record dialog box shows the Row #.

- 5 Make note of the value for Row #. (You will need it to complete the next procedure.)
- 6 To give employees access to this break, add them in the Access field.
- 7 Complete the other fields as needed.

**To set the name of the break type**

- 1 Navigate to Site Map > Application Administration > System Preferences.
- 2 Click Query to find the system preference Sch:Break Time Id.
- 3 In the System Preference Value field, enter the row ID for the break defined in [Step 5 on page 147](#) of the procedure “[To define breaks and allow them for activities.](#)”

**To record break time**

- 1 Navigate to the Activities screen.
- 2 Select an activity.

- 3 Click the Time Tracker view tab.
- 4 Add a new Time Tracker record.
- 5 In the Type field, select the Work Type defined in the procedure [“To define breaks and allow them for activities”](#) on page 147.

### Travel

The Optimizer uses employee travel conditions and travel time when obtaining the lowest cost solution for a schedule. These values are set in User Administration > Employees > Service Details. The fields Start Shift From and End Shift At define the starting and ending conditions for travel to and from service calls. These are the possible values of these fields:

- **Home (Travel incl.)**. The employee travels from home directly to the first job. The Optimizer includes the cost of this travel when calculating schedules.
- **Home (Travel Not incl.)**. The employee travels from home directly to the first job. The cost of travel is not included.
- **Depot**. The employee starts each day by going to a service depot or office. Travel costs are tracked starting from the depot.

### Making Changes to a Schedule

Dispatchers and field service engineers may change these specifications for service activities: Planned Start date, Planned End date for an activity, and the engineer assigned to an activity (in the Employees field).

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**NOTE:** Planned End, Planned Completion and End are all the same. All these terms appear in the user interface.

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All changes require updating an in-memory cache of the activities. If a user changes an activity in the database, it becomes out of synch with the cache in memory. Activity data can be reloaded manually into memory by clicking the Load button in Scheduling Administration > Service Regions > Activities. It can also be done automatically using the Workflow Manager.

---

**CAUTION:** Manual changes to a schedule should be kept to a minimum. This is because the Optimization Engine works on the principles of constraint propagation and domain reduction, which are critical to solving complex schedules quickly. This means that no activity that violates a hard constraint can be loaded into the memory cache. (This includes implicit constraints; for example, using the employees' work schedules or excluding double-booking.)

Therefore, the Optimizer might reject a manual change when it loads the activity. Even if the activity is loaded successfully, the Optimizer may later change the schedule for this activity.

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When changing a schedule, a user can set two flags for an activity that freeze its scheduled time or assignment:

- **Lock Assignment flag** ensures that Optimizer cannot change the assignment (Employees field). However, this value can be changed manually.
- **Lock Schedule flag** ensures that the ABS or the Optimizer cannot change the values of Planned Start and Planned End.

Even if these flags are set, an activity can be rejected from the schedule if it violates a hard constraint. However, the Optimizer does not attempt to change the activity's Planned Start, Planned End, or Employees fields, so that it remains on the user's calendar. Reducing the number of hard constraints used in the schedule can minimize the possibility of rejecting an activity.

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**NOTE:** It is recommended that activities with a Status of Done should have the Lock Assignment and Lock Schedule flags set.

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Where an activity violates a constraint, the Lock Assignment flag is set to TRUE, and the Lock Schedule flag is also set to TRUE, then the activity is not loaded into memory or updated.

### **Moving Activities Between Service Regions**

An employee can only belong to one service region. However, this does not prevent an employee from performing activities in other service regions. For example, Sue Nelson is an engineer based in the San Francisco service region. Today is a light day for her, but the San Jose service region is completely booked. In most cases, this case would be handled by manually scheduling activities for Nelson using the Dispatch Board. However, the Optimizer can schedule Nelson in the San Jose service region. This requires switching the service region for the activity. Create a button or workflow that carries out these steps:

- 1** Cancels the activity from Service Region 1 (San Francisco).
- 2** Sets the activity to Service Region 2 (San Jose).
- 3** Loads the activity in to Service Region 2 (San Jose).

The Workflow Manager can trigger this process upon rejection of an activity from Service Region 1. Or, the user can initiate this process interactively.

### **Scheduling Parameters**

Parameter sets hold key information that determines how the ABS and Optimizer operate.

If the scheduling server starts without Optimizer or ABS parameters (see [Table 29](#)), the service region is not loaded for the Optimizer or the ABS, respectively. The log files (ApptBook\_xxx.log and Optimizer\_xxx.log in the log directory on the Siebel server) specify which parameters are missing. Note that if a service region fails to load, the ABS or Optimizer must be restarted. This does not require rebooting the computer.

**Table 29. Scheduling Parameters**

Parameter	Required?	Value	Description
Month Start Date		Number, 1-28	Determines what day the month starts on. Used for constraints that are defined in terms of months. Most users will set this to 1. The default value is 1.
Use Assignment Manager		1/0	Whether to submit the activity to Siebel Assignment Manager to receive a list of engineers capable of performing this work. This should be set to 1 to use the AM, unless all employees in a service region have the same skills or all are eligible to do all the jobs. The default value is 1.
Week Start Day		Number, 1-7	Determines what day the week starts on. Used for constraints that are defined in terms of weeks. Most users will set this to 1 (Sunday) or 2 (Monday). The default value is 1.
ABS – Activity Category		Sequence number for the Activity Category LOV.	When loading in activities into the ABS, only those with the specified category will be loaded. The default value is all categories.
ABS – Activity Status		Sequence number for the Activity Status LOV.	When loading activities into the ABS, those with the specified status are excluded. Recommended default: Cancelled.
ABS – Days to End	Yes	Number	When starting the ABS process, specifies how many days out the ABS should be booking appointments. It is always measured in number of days (not an absolute date) showing how far the schedule runs. Required for ABS.

**Table 29. Scheduling Parameters**

<b>Parameter</b>	<b>Required?</b>	<b>Value</b>	<b>Description</b>
ABS – Days to Start	Yes	Number	When starting the ABS process, this number specifies how many days out the ABS should start booking appointments. It is always measured in number of days, not an absolute date. Required for ABS.
ABS – Default Number of Slots		Number	Specifies how many choices (maximum number of appointment slots) are returned to the user. A higher number of slots gives more flexibility, but may slow the ABS, as it takes longer to search for more slots. The default value is 5.
ABS – Logging Level		Number, 1–4	Controls how much information is written to the ABS log stored on the server (ApptBook_xxx.log). The lowest level, 1, writes only basic information about the server activities, while the highest level, 4, writes detailed logs, showing all actions that occurred.
ABS – Range of Heuristic		Number, 1–3	Determines the time range that the selection heuristic uses: 1 – day 2 – week 3 – month



**Table 29. Scheduling Parameters**

Parameter	Required?	Value	Description
ABS – Selection Heuristic			<p>Determines the logic used when finding time slots:</p> <ul style="list-style-type: none"> <li>■ <b>1 – Earliest First method.</b> The earliest available time slots are included in the set. This method may provide the fastest possible response for the activity.</li> <li>■ <b>2 – Resource Leveling method.</b> Time slots are selected so that the schedules for qualified employees are evenly loaded, to the extent possible.</li> <li>■ <b>3 – Resource Loading method.</b> Time slots are selected so that the schedules for employees are filled to the extent possible, one employee at a time. If two or more qualified employees are available, the time slots for the employee with the most complete (filled-up) schedule are selected for inclusion in the set.</li> </ul> <p>The number of time slots returned in response to the request is configurable through the parameter ABS - Default Number of Slots.</p>
ABS – Timeout		Number (minutes)	Sets how long time slots are locked (in minutes) after the user requests them, but has not chosen one. After this time, the slots are released and made available for booking by other users. This is important if the user closes the browser or loses a connection, so that the slots are again available.
Optimizer – Activity Category	Yes	Sequence number for the Activity Category LOV.	When loading in activities into the Optimizer, only those with the specified category will be loaded. The default value is all categories.
Optimizer – Activity Status		Sequence number for the Activity Status LOV.	When loading in activities into the Optimizer, those with the specified status are excluded. Recommended default: Cancelled.
Optimizer – Default Priority	Yes	Sequence number for the Activity Priority LOV.	Priority used if no priority is set for an activity.

**Table 29. Scheduling Parameters**

Parameter	Required?	Value	Description
Optimizer – Glued	Yes	Number (hours)	The period, in minutes, from now in which the Optimizer treats the schedule as frozen. No activity may be scheduled during this time period.
Optimizer – Hard Latest Start		1/0	Whether the Latest Start value is considered a hard or soft constraint: 0 – Soft constraint 1 – Hard constraint The default is 0.
Optimizer – Logging Level		Number, 1–4	This field controls how much information is written to the Optimizer log (Optimizer_xxx.log) stored on the server. The lowest level, 1, writes only basic information about the server activities, while the highest level, 4, writes detailed logs, showing all actions that occurred.
Optimizer – Optimize Heuristic		Number, 1–8	The heuristic used to improve the optimization solution: 1 – Greedy search 2 – Steepest search 3 – Greedy search followed by a Tabu search 4 – Steepest search followed by Tabu 5 – Greedy search followed by Fast GLS 6 – Steepest search followed by Fast GLS 7 – Greedy search followed by GTS 8 – Steepest search followed by GTS where: GLS = Guided Local search GTS = Guided Tabu search For more information about these methods, see <a href="#">“Heuristics for the Optimization Engine” on page 155</a> .

**Table 29. Scheduling Parameters**

Parameter	Required?	Value	Description
Optimizer – Consider Parts		0/1	Whether the Optimizer should consider parts in an engineer’s trunk inventory when considering the engineer for assignment to an activity:  0 - No 1 - Yes
Optimizer – Parts Period		Integer (hours)	If the Optimizer considers that a service engineer has the parts required to solve a problem, this parameter tells the Optimizer how far in advance to consider parts.
Optimizer – Save Interval	Yes	Integer (Minutes)	The interval for committing the optimized or partially optimized schedule to the database. Shorter values mean that the database is more up to date, but frequent updates may have an effect on performance.
Optimizer – Tardiness Cost	Yes	Number (Float)	The cash value, in \$/hour, of violating the Optimizer – Hard Latest Start soft constraint.
Optimizer – Task Excl Cost	Yes	Number	Penalty used in calculating the cost function if an activity is unscheduled.
Optimizer – Timeout	Yes	Minutes (Integer)	The maximum time in minutes for each optimization.

## Heuristics for the Optimization Engine

The Optimizer provides a choice of methods for obtaining solutions for a service region’s schedule. Each of these methods involves a different strategy to improve the schedule. All methods use operations to move two or a few appointments and activities in a schedule and then verify improvements in the overall cost of the schedule (see [“Cost Function” on page 183](#)). For example, the Optimization Engine may try to swap a pair of activities between two field service engineers. This can change the cost of the schedule by changing the cost of travel, the amount and cost of overtime, and the rate billed by the field service engineer. Any reduction in cost is an improvement in the schedule.

There are five different classes of operations for moving appointments and activities in a schedule. Each optimization method uses all of these scheduling heuristics.

There are two basic optimization methods, which can be used alone, and three methods that can be used in combination with the basic methods. The following basic methods consistently search for and accept only improvements (lower cost) in the schedule:

- **Greedy search.** This method starts with an existing schedule and finds the first move that improves the schedule, accepts the move, and then uses this solution to find the next improvement. A Greedy search repeats this process until there is no more improvement or it reaches a time limit. This method is relatively fast, but the result solution is not as good as other methods.
- **Steepest search.** This method starts with an existing schedule, tries all moves, accepts the move that provides the greatest improvement in the schedule, and then uses this solution to find the next improvement. A Steepest search repeats this process until there is no more improvement or it reaches a time limit. This method takes longer, but generally produces lower-cost schedules.

The following methods, combined with either the Greedy search or the Steepest search, allow moves that temporarily increase the cost of a schedule in order to arrive at significant, overall improvements in the schedule. In all cases, the Greedy search or the Steepest search quickly finds an improved schedule, and then one of the following methods takes over and searches for improvements:

- **Tabu search.** This method accepts the next best solution even if it is not an improvement over the previous schedule. It keeps a “tabu” list of finite length that contains the results of previous moves. The Optimizer cannot repeat a move until a move drops off the list.
- **Fast Guided Local search.** This method adjusts the cost of a solution to reflect the number of times the Optimizer tried a move. This allows the Optimizer to try a wider range of changes.
- This method combines the Tabu search and the Fast Guided Local search. It often finds good solutions faster than either the Tabu or Fast Guided Local searches.

## Setting Up Server Processes, Performance, and Key-Based Routing

Every Siebel server can run one or more service regions. Large service regions can run on a dedicated server.

Each service region can run on only one application server. This allows the information for one service region to be cached within memory instead of being continually read from the database, reducing the load placed on the database during schedule optimization.

The ABS and Optimizer interact with the database only at these times:

- **Data loading.** The ABS and Optimizer read large amounts of information from the database on start up, or when the service region is reloaded (“[Loading and Reloading Service Region Data](#)” on page 139). For this reason, it is best to avoid reloading during a busy time.
- **Saving schedules.** The Optimizer can save its result sets to the database at specified time intervals (see the parameter Optimizer – Save Interval in [Table 29](#)), but unless this is a very large data set, it should not noticeably affect database performance.

A scheduling request must be routed to the correct application server. To accomplish this, the Siebel Scheduling takes advantage of the key-based routing available to Siebel servers (see the “[Server Key Mappings View](#)” on page 168). There are two server key mappings, one for the ABS and one for the Optimizer.

When the user clicks the Book Appt button, the request is sent to the enterprise server. The enterprise server then looks at a map of the service regions and routes the request to the appropriate Siebel server that stores that service region.

### Multi-Processor Support

If the underlying operating system can support multiple processors on one computer, Siebel Scheduling can take advantage of those processors by running different service regions for the ABS and Optimizer on different processors. This is accomplished by setting different process numbers in a server key map. A server with a single processor can run multiple processes, but this may reduce performance.

---

**NOTE:** The number of processes running on a server computer bears no relation to the number of processors in that computer.

---

Since the ABS and Optimizer are different modules, they are already running as separate processes, even though the process number is the same. One module for one service region can only run in one process at a time.

For example, consider a four-processor computer, with only two of the processors in use. If one service region runs with both the ABS and Optimizer, the key map would look like the following example.

Server	Service Region	Process <sup>1</sup>	Module
AppServer1	West Coast Region	1	ABS
AppServer1	West Coast Region	1	Optimizer

1. Process refers to the number of processes for that component, not the processor number on the server.

---

**NOTE:** It is not possible to run one module for a service region as two processes.

---

If two service regions run on a four-processor computer, it is possible to use all four processors, as in the following example.

<b>Server</b>	<b>Service Region</b>	<b>Process<sup>1</sup></b>	<b>Module</b>
AppServer1	West Coast Region	1	ApptBook
AppServer1	East Coast Region	2	ApptBook
AppServer1	West Coast Region	1	Optimizer
AppServer1	East Coast Region	2	Optimizer

1. Process refers to the number of processes for that component, not the processor number on the server.

If there are more than two service regions on a four-processor machine, it is possible to run them as different processes. For example, if the West Coast Region is very large and the Central and East Coast regions are smaller, the following scheme might be the best use of the processors on a server.

<b>Server</b>	<b>Service Region</b>	<b>Process<sup>1</sup></b>	<b>Module</b>
AppServer1	West Coast Region	1	ApptBook
AppServer1	East Coast Region	2	ApptBook
AppServer1	Central Region	2	ApptBook
AppServer1	West Coast Region	1	Optimizer
AppServer1	East Coast Region	2	Optimizer
AppServer1	Central Region	2	Optimizer

1. Process refers to the number of processes for that component, not the processor number on the server.

The West Coast region, which requires more computation, uses two processors. The East Coast and Central regions run in the same processes and on the same two processors.

Each server component is multi-threaded and can load schedules for multiple service regions. These schedules are shared by multiple threads.

Each request to the Optimization Engine runs on a new thread. A request identifies the schedule for one service region that it requires and locks it. Requests for schedules for other service regions can continue while requests for the same schedule are queued.

## Scheduling Administration Screen

The Scheduling Administration screen provides data required to configure and administer the operation of the ABS and the Optimization Engine.

### Service Regions View

The Service Regions view defines service regions in terms of the employees assigned to each region, geographic coordinates (in terms of geocode and ZIP Codes or postal codes), and the operation of the ABS and Optimization Engine for the selected service region. The view also lists all activities assigned to a selected service region.

[Table 30](#) describes the fields that define the operation of the ABS and Optimization Engine in each service region.

**Table 30. Selected Items in the Service Regions View**

Item	Description
Average Travel Speed Per Hour	The average travel speed for field service engineers in the service region, used when the Optimizer calculates the “Cost Function” on page 183.
Average Travel Time (Minutes)	The amount of travel time that the ABS adds to an activity when calculating the duration of an activity (work time + average travel time).
Constraint Set	The constraint set that the ABS and Optimization Engine use in optimizing the schedule for the selected service region, defined in Scheduling Administration > Constraint Sets and the Scheduling Administration > Constraints.



**Table 30. Selected Items in the Service Regions View**

Item	Description
Cost Function	The cost function that the Optimization Engine uses in optimizing the schedule for the selected service region, defined in Scheduling Administration > Cost Functions.
Cost List	A cost list for labor, used for calculating overtime costs. Costs Lists are defined in Pricing Administration > Cost List (see <i>Pricing Administration Guide</i> ).
Minimum Travel Time	If the calculated travel time between two activities is less than this time, the Optimizer uses this time.
Parameter Set	The set of parameters that the ABS and Optimizer use, defined in Scheduling Administration > Parameter Sets.
<b>Schedule</b>	The name of a schedule that the ABS uses. Schedules are defined in Applications Administration > Schedules.
Time Window	The name of a set of time windows defined in Scheduling Administration > Time Windows. A Time Windows view defines the interval of time that should be allocated for starting an activity. The ABS uses time windows. See the <a href="#">“Time Windows View”</a> on page 165.
Time Zone	The name of a time zone used by the ABS and Optimizer. Time Zones are defined in Applications Administration > Time Zone Administration (see <i>Applications Administration Guide</i> ).
Travel Cost	The cost of travel per unit of travel. The Optimizer uses this value when calculating the Cost Function for a schedule.
Travel Unit of Measure	The unit of travel (miles or KM) that the Optimizer uses when calculating the Cost Function for a schedule.

The Scheduling Administration screen provides the following buttons and commands for the manual operation of the ABS and the Optimization Engine ([Table 31](#)).

**Table 31. Buttons and Commands in the Service Regions View**

Item	Description
Coalesce ABS	This button attempts to improve a selected appointment schedule by removing the time gaps between booked appointments. This asynchronous request is carried out for one service region at a time.
Load ABS	This button erases all data for a service region in the ABS cache and reloads this data from the database. For each service region, this is an asynchronous request to the Siebel server.
Load Optimizer	<p>This button erases all data for a service region in the Optimizer cache and reloads this data from the database. For each service region, this is an asynchronous request.</p> <p>When an optimization is in progress, this request is not sent to the server. The user receives an error message.</p>
Optimize	This button sends a request to the Optimization Engine to run an optimization on the selected service region. The Workflow Manager or repeat requests can start an optimization.
Stop Optimization	<p>This command sends an asynchronous request to the Optimization Engine to stop an ongoing optimization of the selected service region.</p> <p>Stopping an optimization may not be immediate because the Optimization Engine completes the solution that is in process and saves this solution in the database.</p> <p>Stopping an optimization is a manual process; the Workflow Manager or repeat requests cannot send this command.</p>

### Activities View

The Activities view displays all activities for the selected service region. This view is read-only. [Table 32](#) describes the button in this view.

**Table 32. Button in the Activities View**

Item	Description
Load	<p>This button sends an asynchronous request to the Siebel server to load the selected activities into the ABS or Optimizer cache.</p> <p>Based on the values of the Planned Start and Planned End field for an activity and the start and end times for the ABS and Optimizer horizons, the data goes either to the ABS or Optimizer cache.</p> <p>Normally, use the Workflow Manager instead of this button to load activities.</p> <p>The Load request cannot be carried out for a repeating activity.</p>

### Employees View

The Employees view lists the employees assigned to a service region. This view is read-only. [Table 33](#) describes the buttons in this view for managing the availability of employees and loading employee data.

**Table 33. Buttons in the Employees View**

Item	Description
Unavailable	<p>When you select an employee record and click this button, it instructs the Optimizer that the selected employee is unavailable for a time defined in User Administration &gt; Employees &gt; Employee Exception Hours. The button sends an asynchronous request to the Optimizer to load the data for the selected employee, including exception hours, and reassigns or reschedules activities.</p> <p>Before using this command, the administrator may have to add a new record to the Employee Exception Hours view describing the time that this engineer is unavailable.</p>

**Table 33. Buttons in the Employees View**

Item	Description
Load ABS	The button sends an asynchronous request to the Optimizer to refresh the data for one or more selected employees in the ABS cache. This command must be initiated manually or by the Workflow manager; do not use a repeat request.
Unload ABS	The button sends an asynchronous request to the Optimizer to remove the data for one or more selected employees from the ABS cache. This command must be initiated manually; do not use a repeat request.

### Zip Codes View

The Zip Codes view lists the ZIP Codes or postal codes that are included in a service region, plus city, state, country, and longitude and latitude for each ZIP Code.

For the Optimizer to schedule an activity, the address of the activity must have valid ZIP Codes and country specified. ZIP Codes must have the corresponding Geocodes specified (see [“Geocodes and ZIP Codes” on page 136](#)). The Zip Code value can be a ZIP Code or a ZIP + 4 code.

### Cost Functions View

The Cost Functions view defines the function that the Optimizer uses for assessing the success of each iteration of a schedule. This view sets up the general description of each cost function. Cost functions are associated with service regions in the Scheduling Administration screen; see [“Service Regions View” on page 160](#).

### Cost Function Details View

The Cost Function Details view defines each variable in a cost function. For more information about the structure of cost functions, see [“Cost Function” on page 183](#).

### Service Regions View

The Service Regions view contains read-only records listing the service regions that use a selected cost function.

## Parameter Sets View

The Parameter Sets view provides the basic definition of the parameters that the ABS and the Optimization Engine use. Parameter sets are associated with service regions in the Scheduling Administration screen; see [“Service Regions View” on page 160](#). Each service region uses one parameter set.

## Parameters View

The Parameters view defines each parameter in a parameter set. For more information about parameters, see [“Scheduling Parameters” on page 150](#).

## Service Regions View

The Service Regions view contains read-only records listing the service regions that use a selected parameter set.

## Time Windows View

The Time Windows view defines the interval of time that should be allocated for starting an activity. The ABS uses time windows.

The Time Windows field in Scheduling Administration > Service Regions associates a time window with a service region.

[Table 34](#) shows the required fields in the Time Window view.

**Table 34. Required Fields in the Time Windows View**

Item	Description
Name	The name of the set of time window mappings.
Default Time Window	The time window applied to activities of any duration, if the Time Windows Details view does not have a mapping for an activity of a specific duration.

## Time Window Details View

The Time Windows Details view defines specific mappings that make up each time window record. To accommodate activities that vary in duration, this view maps each range of durations to a time window. For example, a work time of 1 to 60 minutes may require a time window of 120 minutes to provide Optimizer the flexibility to change the schedule for optimization.

### **Service Regions View**

The Service Regions view contains read-only records listing the service regions that use a selected time window.

### **Constraints View**

The Constraints view provides the Constraint wizard to direct the definition of each constraint.

#### ***To create constraints***

- 1** Navigate to Site Map > Scheduling Administration > Constraints.
- 2** Add a constraint record.
- 3** From the Pick a Constraint list, select a constraint template.

The template for the constraint statement appears on the Constraint Statement tab below.

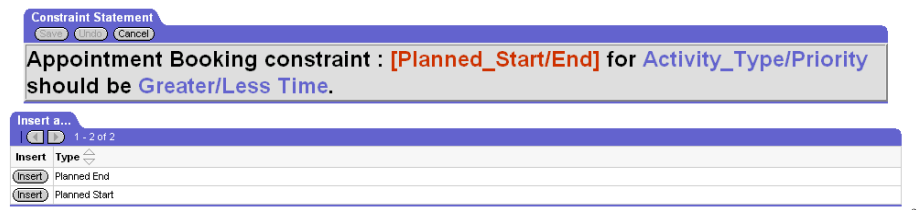
- 4** Click Continue.

The template is ready to receive information.

The illustration that follows shows the Constraint Statement and Insert a... tabs. The Constraint Statement tab displays a template statement that reads as follows:

Appointment Booking constraint : [Planned\_Start/End] for Activity\_Type/Priority should be Greater/Less Time.

The first variable (Planned\_Start/End, in this example) is automatically selected and ready to receive information. The square brackets and red highlighting indicate a selection. The other variables (Activity\_Type/Priority and Greater/Less Time, in this example) are highlighted in blue. The Insert a... list shows items that can be selected for insertion in the selected variable (Planned End and Planned Start, in this example).



**5** In the Insert a... list, click Insert for the record to use for the selected field.

**6** If a dialog box appears with a list of records, select the appropriate record.

The value appears in the template and the selection moves to the next field to the right.

**7** Repeat [Step 5](#) and [Step 6](#) for each additional variable.

**8** When the constraint is complete, click Save.

The Save a Constraint dialog box appears.

**9** Enter a name for the constraint and click Save.

The Constraints list reappears.

## Constraint Sets View

Constraint Sets view provides the basic definition of a set of constraints that a service region uses for running the Optimization Engine.

### Constraints View

The Constraints view adds predefined constraints (see [“Constraints View” on page 166](#)) to the selected set of constraints.

### Service Regions View

The Service Regions view contains read-only records listing the service regions that use a constraint set.

### Server Key Mappings View

The Server Key Mappings screen assigns servers to processes and associated service regions. [Table 35](#) shows the fields in this view.

**Table 35. Fields in the Server Key Mappings View**

Item	Description
Server	A type-in field for the name of a Siebel server.
Process #	A type-in field for the number of a process running on the server.
Service Region	The name of a service region selected from the Pick Service Region dialog box.
Component	The name of a component, either ABS or Optimizer, selected from the Pick Component dialog box.

After modifying server key mappings, you must restart the relevant server component (for example, Appointment Booking System or Optimization Engine) for the changes to take effect.

---

**NOTE:** If Server Key Mappings - Optimizer Component is missing from the drop-down list for the Component field, the server installation was incomplete. To correct this, use the Synchronize button on the Enterprise Configuration screen. See the complete procedure in *Siebel Server Administration Guide*.

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## Service Screen

The Service screen includes a view that provides the Book Appt and Cancel Appt buttons for running the ABS.

### Activities View

The Activities screen displays the activities associated with service requests. [Table 36](#) describes the buttons in this view.

**Table 36. ABS Buttons in the Activities View**

Item	Description
Book Appt	This button sends a synchronous request to the ABS for time slots in which to book the selected activity. The available appointments return in a dialog box.
Cancel Appt	This button sends a synchronous request to the ABS or the Optimizer to cancel an appointment, release the appointment for other schedules, and set the status of the selected activity to Cancelled.  The request is sent to the ABS or Optimizer, depending on the horizon that contains this activity. If the activity (Planned Start and Planned End) overlaps the ABS and the Optimizer horizons, the request goes to both the ABS and Optimizer.
Confirm	This button in the Book Appointment dialog box sends a server request to confirm the selected appointment and release the lock on the remaining slots.
Cancel	This button in the Book Appointment dialog box sends a server request to reject all proposed appointment slots and to release the lock on these slots.

### Conditions for Appointment Booking

Before booking an appointment, make sure that the service region is specified for an activity and that the activity is not repeating.

If the Lock Schedule flag is set (TRUE), provide values in the Planned Start and Planned End fields. In this case, no time slots are required and the Book Appointment dialog box does not appear.

If the Lock Assignment flag is not set (FALSE), specify manually the employee for an activity.

### Conditions for Cancelling an Appointment

To cancel an appointment, set the service region, make sure the activity is not repeating, and the activity (Planned Start – Planned End) is not in the Glued period. If the Cancel Appt request is successful, the fields that define an activity are unchanged except for the activity Status, which is set to Cancelled.

The choice of sending the Cancel Appt request to the ABS or Optimizer depends on these conditions:

- If the Planned Start and Planned End values are less than the start time for the ABS horizon, then send a request to the Optimizer.
- If the Planned Start value is less than the start time for the ABS horizon, and the Planned End value is greater than the start time for the ABS horizon, then send a request to the Optimizer and the ABS.
- If the Planned Start value is greater than or equal to the start time for the ABS horizon and the Planned End value is less than the end of the ABS horizon, then send a request to the ABS.

### Activities Screen

The Activities screen has one view that defines variables that the Optimizer and ABS require.

#### Schedule View

The Schedule view contains the Book Appt, Cancel Appt, and Contract Schedule buttons for running the ASB and Optimizer interactively (see [Table 37 on page 170](#)).

**Table 37. Selected Items in the Schedule View**

Item	Description
Book Appt	See <a href="#">Table 36 on page 169</a> .
Cancel Appt	See <a href="#">Table 36 on page 169</a> .

**Table 37. Selected Items in the Schedule View**

Item	Description
Contract Schedule	This button sends a request to the Optimizer to insert a priority service activity into a schedule with minimal disruption of the schedule and without significant increase in the cost of the schedule. For more information, see <a href="#">“Appointment Booking System” on page 172</a> .
Earliest Start	The earliest time and date an activity may begin, usually used to indicate contractual commitments or deadlines. In some configuration settings (see <a href="#">Table 29 on page 151</a> ) this value is described as NST (No sooner than).
Latest Start	The latest time and date for an activity, usually used to indicate contractual commitments or deadlines. It is the same as the Due field in the More Info view on this screen. In some configuration settings, this value is described as NLT (No later than).
Planned Start	If you specify values for Earliest Start or Latest Start, then Planned Start must be later than Earliest Start and earlier than Latest Start.
Duration	The time required to carry out an activity, including breaks and travel time. The value = Planned End – Planned Start.
Work Time	The time required to work on an activity, not including, for example, travel and breaks.
Allow Breaks	This check box allows scheduling an activity around breaks (see <a href="#">“Breaks” on page 146</a> ).
Lock Schedule	A check box that prevents the ABS and the Optimization Engine from changing the values of Planned Start and Planned End.

# Appointment Booking System

A significant portion of a service business is concerned with activities happening in the future, such as installations or preventive maintenance. The Siebel Appointment Booking System (ABS) is designed to automate the process of offering appointments to customers. The ABS operates in real time.

The ABS provides a list of available time slots for future appointments, and then reserves a selected appointment slot. Customers may prefer a shorter time slot, but the window should be large enough that there is a high probability that the engineer can meet a commitment. For example, if a customer wants her TV cable installed, which is approximately a one-hour activity, the customer service representative may give her a time slot from 8 a.m. to 12 p.m.

When preparing a list of possible time slots, the ABS enforces the following rules:

- The time slots offered must equal the availability of the personnel for a service region.
- The time slots offered must match the personnel who have the required skills. The Assignment Manager can enforce this rule.
- Time slots must meet other constraints; for example, never have an engineer do more than four installations per day. Other limits on field service activities can meet business or union requirements.
- The ABS can have activities that extend over more than one day.
- Activities that cross between the end of the Optimizer horizon and the beginning of ABS period are treated as *locked* by both of these engines.

## Best Practice: Preventive Maintenance and the ABS

The optional Preventive Maintenance module allows users to set triggers on assets, which, when tripped, automatically create service requests and activities for these assets. There are two types of triggers, time-based and threshold-based.

Threshold-based preventive maintenance depends on asset readings (such as number of copies made on a copier) and are reactive (taking a reading results in creating a service request). The service requests that the Preventive Maintenance Engine creates usually require immediate action, as opposed to action in the future. Immediate actions use the Siebel Contract Scheduling module (see [“Contract Scheduling” on page 181](#)). The ABS is involved only if the service call can be delayed more than a specified number of days.

Time-based preventive maintenance triggers, for legal or contractual reasons, require periodic, proactive checks on equipment. The Preventive Maintenance Engine generates service requests and future activities. One of the activities could be an outbound call from the dispatcher or customer service representative to schedule a time for service. When the customer service representative calls the customer, the representative can use the ABS to negotiate a time.

## The ABS Horizon

The ABS horizon is the length of time, in days, that is available for appointment booking for a service region. Typically, this is from days 8 to 56 (starting a week from now to eight weeks).

## What Happens During Appointment Booking?

The following steps illustrate a typical process for the ABS:

- 1** A request for service arrives from a customer.
- 2** The customer service representative opens a service request and selects an activity plan to generate activities for this request.
- 3** The agent clicks the Book Appt button in the Service screen or the Activities screen to obtain a list of appointment choices from the ABS, for the selected activity.

- 4** The ABS searches for available time slots using the Earliest Start field and Latest Start field (if a value is supplied) to limit the search.
- 5** If the earliest and latest start are not specified, the ABS chooses from all of the time slots within the ABS horizon.  
  
The ABS returns time slots and reserves these with a timed lock.
- 6** The customer service representative, who sees these choices in a dialog box, selects a time slot and clicks Confirm.
- 7** The ABS marks the selected slot as permanently used. The ABS then frees the other reserved time slots, writes the details of the selected slot to the activity record, and returns control to the client.
- 8** If none of the time slots work for the customer, the customer service representative clicks Cancel. If these slots are not cancelled, the time-out releases the slots.
- 9** The ABS frees all of the time slots reserved for this activity and returns control to the client.

### Requirements for Running the ABS

The following settings are required for running the ABS:

- Service region for each activity
- Earliest Start and Latest Start values for each activity
- Key Server mapping
- Time windows
- Parameter set
- Parameters:
  - ABS- Days to Start
  - ABS - Days to End
  - Optimizer – Default Priority

## Optimization Engine

The Optimization Engine uses a choice of complex algorithms (see [“Heuristics for the Optimization Engine” on page 155](#)) to meet these objectives:

- Assign field service engineers to service activities.
- Schedule these activities.
- Maximize the efficiency and the quality of service.
- Minimize cost to the service organization.

The Optimization Engine can also respond to immediate scheduling demands to provide break/fix activities that meet the requirements of service entitlements (for example, a response within four hours), emergencies (for example, breakdown of service vehicles), and changes in service personnel (see [“Contract Scheduling” on page 181](#)).

## Schedule Optimization

Since the majority of service costs are derived from labor, efficient use of labor is one of the primary goals of a service organization. Efficiency encompasses a broad array of objectives, some of which may be conflicting:

- Solving a service request the first time, which requires assigning a field service engineer with the right skills and parts.
- Skilled engineers can finish a task faster; however, they should also be assigned to more challenging work so their time is not wasted on trivial tasks.
- Where possible, travel between jobs should be minimized by grouping jobs in a particular area.
- Engineers should appear onsite within contractually committed times.

The Optimizer provides automated, background optimization of the schedule for field service activities and optimal use of resources in each service region.

### Business Priorities

Every business has a different definition of efficiency in delivering service. Businesses that have requirements for critical responses (for example, a utility company may have downed power lines) define efficiency as placing someone onsite within the shortest time. In this case, response is more important than full utilization. Other businesses do not have stringent response requirements, but require higher utilization to preserve profits. In either case, a service business needs to set priorities when scheduling and dispatching personnel.

### Break/Fix Activities and Contract Scheduling

Most service businesses start the day with a schedule of activities to perform, such as maintenance, installations, and other booked repairs. During the day, customers may call for repairs (break/fix activities), requiring modification of schedules.

Customers with service contracts often have specific entitlements with a required response time. This response time may be tiered according to the level of the contract: standard contracts may promise engineers onsite within 24 hours, while premium contracts may specify response times as short as two hours.

Break/fix activities must be inserted into the schedule that the Optimizer has carefully optimized during the previous night. Optimizing the schedule again is usually not practical because optimization routines can run for an hour or two to determine good solutions. Customers want a service commitment immediately, often while they are on the phone. A balance must be achieved, trading optimized schedules for quick responses and customer satisfaction, while still enforcing business rules.

The ideal solution for the customer service representatives, in response to break/fix requests, is to click a button and receive a time for a service call that respects contractual agreements and other constraints. The Optimizer addresses this need.

### Best Practices

The Optimizer is appropriate for field service businesses that have a large number of engineers within a concentrated area. In general, if over 30% of a service force is located in the top ten areas, then optimization is appropriate. In particular, businesses that have the following needs should be looking at an optimization solution.



## **A Centralized Dispatch Model**

A centralized dispatch model, in which a team of dispatchers handle the majority of dispatching for the full service business, is often driven by a follow-the-sun support model. In this model, customers can call twenty-four hours a day and are routed to an open call center somewhere in the world.

Customer support representatives need to assign engineers to a call even though they do not know the local requirements and rules. The Optimizer has constraints, so that when central dispatchers submit the activity, it is optimized in a fashion that is consistent with local priorities. Most activities can be scheduled automatically at a central location; any exceptions can be handled manually by a local service manager, eliminating the need for dedicated dispatch personnel.

## **Enforcing Contractual or Legal Constraints**

Many companies must comply with strict limits on work hours and hazardous work. Union agreements may stipulate special conditions, such as fairness in work assignments. Having a system that can automatically track these constraints significantly decreases the burden on service businesses.

## **Working in High-Traffic Areas**

The majority of wasted time in a service business is usually spent getting to customer sites. Many service businesses find that their employees are either spending too much time in the office or are on the road needlessly, driving back and forth between engagements.

By handling two calls in one area, traveling time is decreased significantly and performance is increased by over 10 percent. As service businesses are moving to a revenue base, a 10 percent increase in revenue can yield an even higher gain in profits.

## **The Amount of Optimization**

Is it possible for a schedule to be too optimized? In general, a schedule with high utilization (little free time) is a good thing. However, past a certain point, further optimization may bring diminished cost savings. Furthermore, highly optimized schedules are easily corrupted; minor changes can cause problems to ripple throughout a schedule.

For example, consider a day's schedule for one engineer is booked from 9 to 5, with no free time. If just one appointment runs over, the engineer will not be able to complete all activities, leaving at least one (or more) to overtime or the next day. And, unexpected events such as a vehicle breakdown can completely disrupt this fully booked schedule.

The goal is to create a schedule that is optimized but still flexible enough to accommodate change. There are two ways to do this:

- Create constraints limiting the percentage of hours booked.
- Extend the duration of activities to leave extra time.

The first method is preferable as it allows managers to set up a dependable level of work. With the second method, managers are not sure of the true workload for their region.

The balance of working time and available time depends on the business needs. Businesses that require more flexibility (and therefore lower utilization percentages) have the some or all of the following business requirements:

- High break/fix volume
- Critical response (for example, a power line down)
- Highly variable times for service delivery
- Many short activities (especially in a high-traffic areas)
- Tight contractual requirements

Service businesses with a need for higher utilization usually have the following business requirements:

- Longer activities (and therefore less travel)
- Preventive maintenance as the main type of service
- Lower break/fix occurrences
- Longer contractual response time

When determining the best level of utilization, consider your service needs and then set an approximate level. Then adjust the optimization parameters to give the best results.

## **Requirements for Optimization**

The following settings are required for running the Optimization Engine:

- A service region
- Server Key mapping
- Cost function
- Cost list
- Travel cost
- Minimum travel time
- Travel U/M
- Parameter set
- Parameters:
  - Optimizer - Activity Category
  - Optimizer - Default Priority
  - Optimizer - Glued
  - Optimizer - Save interval
  - Optimizer - Tardiness Cost
  - Optimizer - Task Excl Cost
  - Optimizer - Timeout

The Optimization Engine has the following additional requirements:

- An activity cannot span more than one day; multi-day activities are not scheduled. The Optimizer can schedule other activities during the time intended for multi-day activities. However, the penalties for not scheduling these activities still contribute to evaluating the potential success of an optimized schedule (see the “[Cost Function](#)” on page 183).
- Activities that cross between the end of the Optimizer horizon and the ABS horizon are treated as *locked* by both the ABS and the Optimizer.

When loading activities into the Optimizer cache for the first time, the Optimizer produces an initial solution to the schedule by accepting the existing order and assignment of appointments. While finding the initial solution, the Optimizer first processes the activities which have Lock Assignment and Lock Schedule flags (see “[Making Changes to a Schedule](#)” on page 148) set to TRUE. This helps to ensure that these requests are honored in the optimized schedule.

While the schedule for a service region is being optimized, only insert activity (see “[Insert Activity Button](#)” on page 182) and stop optimization (see “[Service Regions View](#)” on page 168) requests are accepted. These are queued, and the queue is processed when the optimization finds the next solution. Any other request is returned.

## Using the Workflow Manager

Scheduling is best considered as a business process. For the Optimizer to be useful, it must be fully integrated into the normal process of delivering service. The Workflow Manager is the primary vehicle for ensuring this integration. Most Siebel customers using the Optimizer would use the Workflow Manager to accomplish the following tasks:

- Manual updates to a schedule
- Locking in manual changes
- Synchronizing a schedule with manual changes
- Updating a schedule for contractual commitments
- Notify a manager by email of rejected activities
- Moving activities to a secondary service region

- Verifying a declined assignment through wireless and reassignment

### Availability of Parts

Availability of parts is a constraint only for the Optimizer, not the ABS. Data loaded into the Optimizer cache includes all trunk inventories for all field service engineers in a service region.

The Optimizer parameter Consider Parts includes the availability of parts in an engineer's trunk inventory when considering the engineer for assignment to an activity. The parameter Parts Period (see [“Scheduling Parameters” on page 150](#)) sets the number of hours that the loaded parts list is valid for an optimization.

If parts are considered, and the activity includes a part with an Order Item number (see the [“Part Tracker View” on page 107](#)), and then the product can be drop-shipped for the service call; the Optimizer does not consider this part as a constraint in scheduling.

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**NOTE:** To be considered for a service call, parts in a trunk inventory must have a status of Good and an availability of On Hand.

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## Contract Scheduling

Contract Scheduling is a feature of the Optimizer that is designed for rapid scheduling of service appointments while maintaining the critical Optimizer requirements: enforcement of contractual deadlines and use of constraints when searching for solutions. Companies with the following needs may use Contract Scheduling:

- Same-day break/fix calls are a higher percentage of service calls.
- Service contracts specify penalties for failing to meet response times (for example, free labor or free parts).
- A large number of constraints must be respected.

Run Contract Scheduling from three locations in Field Service:

- **Insert Activity button** in Dispatch Board > Unscheduled Activities. This sends a request to either the ABS or the Optimizer to schedule an appointment or insert the selected activity into the optimized schedule, depending on times relative to the horizons.
- **Contract Schedule button** in Activities > Schedule. This sends a request for scheduling the selected activity.
- **Load button** in Scheduling Administration > Service Regions > Activities. This is similar to the Insert Activity button in the Dispatch Board screen.

### Insert Activity Button

The Insert Activity button obtains, for a selected activity, either a confirmed appointment from the ABS or it runs the Optimizer to schedule the activity. The Insert Activity button is similar to the Contract Schedule button in Activities > Schedule (see [“Contract Scheduling” on page 181](#)).

Before using Insert Activity, make sure the following conditions are met:

- The service region is set in the Dispatch Board > Activity Gantt Chart.
- The activity is not repeating.
- If Lock Schedule flag is set (TRUE), then the Planned Start and Planned End values are not null.
- If the Lock Assignment flag is set (TRUE), then the activity assignee is not null.

The choice of sending the Insert Activity request to the ABS or Optimizer depends on the Earliest Start and the Latest Start values. These values determine whether the activity falls within the ABS or the Optimizer horizon:

- If the Latest Start value is null, sends the request to the ABS.
- If the Latest Start value is in the Glued period, does not insert the activity, but returns an error message.
- If the Latest Start value is less than the ABS start, sends the request to the Optimizer.

## Contract Schedule Button

The Contract Schedule button has the same function as the Insert Activity button.

## Load Button

The Load button for activities is intended for synchronizing data in the cache if there have been manual changes to an activity. Before using the Load command, make sure the following conditions are met:

- The activity is not repeating.
- If Lock Schedule is set, then there are values for Planned Start and Planned End.
- If Lock Assignment is set, then there is an employee assigned to the activity.

The choice of sending the activity to the ABS or the Optimizer cache depends on these conditions:

- If Planned Start and Planned End are specified, then the choice of the ABS or Optimizer depends on matching these values to the dates for either the ABS or the Optimizer horizon.
- If Planned Start and Planned End are not specified, then the values for Earliest Start and Earliest End are used. If these values fall within the Optimizer horizon, then the activity goes to the Optimizer cache.
- If neither of these conditions succeeds, an error message is returned.

## Cost Function

The cost function is the sum of factors that drive the optimization of a schedule. For each activity in the schedule, the Optimization Engine minimizes the value of the cost function while optimizing the schedule. The cost function indirectly calculates the monetary cost of carrying out a schedule.

There is only one cost function for each service region. However, many service regions can use the same cost function. The cost function is the sum of the following factors, shown in [Table 38](#):

**Table 38. Factors in the Optimizer Cost Function**

Factor	Calculation of the Factor
Constraint Violation	$\Sigma(\text{RuleViolationCost} \times \text{Weight})$
	<p>This is the sum of Rule Violation Costs for each soft constraint violated.</p> <p>A violation is proportional to the degree of the violation. The units for the amount of the violation are the same as defined for the constraint. Time units are in hours; all other cases use the activity.</p>
FSE Overtime	$\text{FSEOTCost} \times (\text{EndtimeoflastactivityinOT} - \text{Endofnormalshift}) \times \text{Weight}$  Where, $\text{FSEOTCost} = (\text{StdCost} \times \text{StdOTpercent}) + (\text{StdCost} \times \text{ExtOTpercent})$
Tardiness	$\text{TardinessCost} \times \text{Amountofdelay} \times \text{Weight}$
Task Exclusion Penalty	$\text{TaskExclusionPenalty} \times \frac{1}{\text{TaskPriority}} \times \text{Weight}$
	<p>Task priority allows higher priority tasks to take precedence over low priority ones. This is important when there are not enough resources to schedule all activities.</p> <p>The Task Priority term uses the numeric value from the Order column in Applications Administration &gt; List of Values (see <i>Applications Administration Guide</i>). This is the value that also appears in Activities &gt; More Info, Priority field.</p> <p>Task Exclusion Penalty and Weight cannot be zero. If they are zero, no activities are scheduled.</p>
Travel Distance	$\text{TravelDistance} \times \text{TravelCost} \times \text{Weight}$

For all weights in the cost function, start with values of one (which approximate the real cost of scheduling an activity), then change these values as needed.



## Dispatch

The Dispatch Board screen provides an intuitive interface for selecting field service engineers to carry out activities and manual scheduling of these activities.

### Setting Up the Dispatch Board

Setting up the Dispatch Board includes the following tasks:

- Assign employees to service regions in User Administration > Employees > Service Details.
- Assign schedules to employees in Schedule field in User Administration > Employees > Service Details and the exception records in User Administration > Employees > Employee Exception Hours.
- Assign responsibilities to employees in User Administration > Employees > More Info.
- Set up rules for the Assignment Manager.
- Set the system preference for the Dispatch Board.
- Set the user preferences for the Dispatch Board.

### System Preference for the Dispatch Board

The Dispatch Board allows a dispatcher or customer service representative to drag an activity from the Unscheduled Activities list to a block of time and employee in the Gantt chart. If the service region of the activity is different from the service region selected for the Gantt chart, the result depends on the setting of the system preference FSDB:Override Service Region:

- If the value of the system preference is TRUE, then the dispatcher can drop the activity on the Gantt chart and the service region for the activity is automatically changed to the service region selected for the Gantt chart.
- If the value is FALSE, then the dispatcher cannot drop the activity on the Gantt chart and an error is returned.

## Changing the Behavior of the Activity Gantt Chart

Field Service provides control over many aspects of the Activity Gantt Chart. To change these settings, on the application-level menu, choose View > User Preferences > Dispatch Board. [Table 39](#) describes the settings for the Dispatch Board.

**Table 39. Options for the Activity Gantt Chart**

Group/Field	Description
Time Span	Sets the time scale for the Gantt chart: <ul style="list-style-type: none"> <li>■ Year/Month</li> <li>■ Year/Week</li> <li>■ Month/Week</li> <li>■ Month/Day</li> <li>■ Week/Day</li> <li>■ Day/Hour</li> </ul>
Time Interval in Minutes	The smallest unit of time displayed on the Gantt chart. The default is 30 minutes.
Date Shown	The day that appears by default: <ul style="list-style-type: none"> <li>■ Today</li> <li>■ Last Date Chosen (in the Date fields)</li> </ul>
Start Day at	The start time for a work day. The default is 9 a.m.
End Day at	The end time for a work day. The default is 5 p.m.
Use Color Scheme	A drop-down list that applies a color scheme to either Activity Priority, Activity Status, or Activity Type.

**Table 39. Options for the Activity Gantt Chart**

Group/Field	Description
Color	<p>The colors of the bars representing scheduled activities. A different color can be assigned to each of these categories and subcategories:</p> <ul style="list-style-type: none"> <li>■ Activity Priority: ASAP, High, Medium, and Low.</li> <li>■ Activity Status; for example, Not Started, In Progress, On Hold, Done, Cancelled, Acknowledged, and Declined.</li> <li>■ Activity Type: Various types, chosen from a drop-down list.</li> </ul> <p>Click the Color field to the right of the Category field to select a color from a drop-down list.</p>
Service Region	The default value that appears in the Service Region field, selected from a drop-down list.
Auto-Update Service Region	This check box determines whether the last service region displayed in the Activities Gantt chart appears the next time the user goes to the Dispatch Board screen.

## Setting Up a Dispatcher

Field Service provides responsibilities for employees, showing only the views needed to complete their job. There is a responsibility for a dispatcher, who can assign activities to service engineers. For more information on responsibilities and visibility see *Applications Administration Guide*.

### **To add a user with the responsibility of a dispatcher**

**1** Navigate to Site Map > Application Administration > Responsibilities.

**2** In the Responsibilities list, select the Dispatcher record.

If this record is not in the list, create a new record with the responsibility of Dispatcher.

**3** To add the name of the employee who will take the Dispatcher's role, add a new record on the Users list.

- 4 In the Views list, make sure the selected user has access to the Dispatch Board (FS eGanttChart View).

### Assigning and Scheduling Field Service Activities Manually

The following procedures are for manually dispatching field service engineers.

#### **To assign field service engineers to service activities manually**

- 1 Navigate to the Service screen.  
The Service Requests view appears.
- 2 Select a service request.
- 3 Click the Activities view tab.
- 4 In the Owner field, select an employee.

#### **To assign field service engineers with Assignment Manager**

- 1 Navigate to the Activities screen.
- 2 Select an activity.
- 3 On the More Info view tab, click the show more button and make sure the Lock Assignment check box is cleared.
- 4 On the More Info view tab, click the menu button and select Assign.

A dialog box appears with names of field service employees ranked in order of preference.

The suggested assignments are based on a variety of criteria including workload and skills, set up using the Assignment Manager. For instructions on configuring the Assignment Manager, see *Siebel Assignment Manager Administration Guide*.

---

**NOTE:** The Assign command or button is also available in Dispatch Board > Unscheduled Activities.

---

- 5 In the dialog box, select the employee who will own this activity and click OK.

**To add a service region to the Dispatch Board**

- 1 Navigate to Site Map > Dispatch Board.

The Activity Gantt Chart view appears.

- 2 At the top of the Activity Gantt Chart view tab, click Select.
- 3 In the Pick Service Region dialog box, select a service region and click OK.

The field service engineers associated with the selected service region appear in the left column of the Gantt chart.

---

**NOTE:** Available hours are shown in the Activity Gantt Chart with colors that represent rate types. Non-working periods are grey, working periods are white, overtime periods are orange, and extended overtime periods are brown. If no colors are specified for activities, yellow boxes are the default to indicate activities that are assigned and scheduled.

---

**To select a subset of field service engineers based on a skill**

- 1 Navigate to Site Map > Dispatch Board.

The Activity Gantt Chart view appears.

- 2 In the Unscheduled Activity list, select an activity.
- 3 Click Apply Skills.

Only those engineers from the selected service region having the selected skills appear in the Gantt chart. See [“Unscheduled Activities List” on page 191](#).

- 4 To remove the constraint of the applied skills from this list of field service engineers, reselect the service region by clicking Select at the top of the Activity Gantt Chart view tab.

**To assign and schedule field service engineers manually with the Dispatch Board**

- 1 Navigate to Site Map > Dispatch Board.

The Activity Gantt Chart view appears.

- 
- 2** In the Unscheduled Activities list, select an activity.

---

**NOTE:** To assign an activity, it must have a type.

---

- 
- 
- 3** Click the activity's drag/drop icon, drag it to the Activity Gantt Chart, and drop it on a field service engineer's schedule.

The activity appears as a horizontal bar. Holding the cursor over this bar displays a pop-up window containing a description of the activity.

- 
- 
- 
- 4** To remove an activity, drag it back to the Drag/Drop column in the Unscheduled Activities list.

---

**NOTE:** To allow you to remove an activity, the Unscheduled Activities list must contain at least one record.

---

## Dispatch Board Screen

The Dispatch Board provides a drag-and-drop interface for manual assignment and scheduling of service activities.

## Unscheduled Activities List

The Unscheduled Activities list displays all activities that have a status of Unscheduled. [Table 40](#) shows selected items in the Unscheduled Activities list.

**Table 40. Selected Items in the Unscheduled Activities List**

Item	Description
Apply Skills	<p>This button runs the Siebel Assignment Manager and updates the Gantt chart with a list of employees who belong to the service region and who have the skills specified for the activity.</p> <p>The Apply Skills button carries out the intersection of the employees in a service region and those that the assignment manger returns. The AM only checks skills if it has the appropriate rule.</p>
Assign	<p>This button runs the Siebel Assignment Manager. A dialog box appears with a ranked list of potential field service engineers for assignment to the Employees field for this activity.</p>
Insert Activity	<p>This button sends a synchronous request to the ABS or Optimizer, which inserts the selected activity into a schedule with minimal disruption of the schedule and without significant increase in the cost of the schedule. For more information, see <a href="#">“Insert Activity Button” on page 182</a>.</p>

## Activity Gantt Chart

The Activity Gantt Chart shows the scheduled and unscheduled time periods for a group of field service engineers associated with a service region. This view appears in a calendar format.

Schedules are shown in the Activity Gantt Chart with colors that represent rate types. Non-working periods are grey, working periods are white, overtime periods are orange, and extended overtime periods are brown.

### Selecting Data for the Activity Gantt Chart

To select field service engineers and other items that appear on the Activity Gantt Chart, use the following options:

- Click the Service Region select button. Select the service region from the Pick Service Region dialog box. The engineers that belong to the selected service region appear in the Gantt chart, replacing the previous list of engineers.

- In the Date fields, enter the date to display in the Gantt chart and click Go. The data for the selected date appears in the chart. Also see [“Changing the Behavior of the Activity Gantt Chart” on page 186](#).

#### Notes on Using the Activities Gantt Chart

- An unlimited number of activities can overlap (be assigned to the same hours for a field service engineer), but only three appear in the chart. Adding more than one activity to a time slot reduces the height of the bar representing that activity and removes the description of the activity. To see the description of an activity bar and the properties of this activity, hold the cursor over the bar for a few seconds. A pop-up box appears.
- Activities may be assigned to available or unavailable hours in a field service engineer’s schedule.
- Any activity in the Activity Gantt Chart can be re-assigned or rescheduled.
- Click an activity type to see more information about the activity. The Activities screen, Schedule view appears.
- Clicking on the name of an employee shows the User Administration screen, Employees view, with information about the selected employee.
- Dragging an activity from the Activity Gantt Chart back to the Unscheduled Activities list sets the activity status to Unscheduled and removes the value from the Employees field for this activity.
- The assignment of an activity and its duration may be changed from the Unscheduled Activities list or from the Activities view.
- The Dispatch Board can display instances of a repeated activity, with the following restrictions:
  - Drag and drop the repeated activity from the Unscheduled Activities list to the Activities Gantt chart. This becomes the first scheduled instance of the activity.
  - The repeated instances of this activity fill in automatically.
  - The user cannot drag any instance of a repeated activity to another location on the Dispatch Board or back to the Unscheduled Activities list.



**Using Dispatch Board Queries**

The Dispatch Board is provided with the following predefined queries useful for limiting the amount of data that appears in the Unscheduled Activities list. Select these queries from the Favorites drop-down list. These queries apply only to unscheduled activities:

- All Dispatches. Shows all assigned and scheduled activities. This is the default.
- All Dispatches for Today.
- All Dispatches for This Week.
- All Overdue Dispatches.
- All Priority-1 Dispatches.
- All Priority-2 Dispatches.
- My Dispatches for Today.
- My Dispatches This Week.
- My Overdue Dispatches.

Set up additional predefined queries in Applications Administration > Predefined Queries.

**Using the Dispatch Board Queries with Legacy Data**

If there is a large quantity of legacy data, older activities that were not scheduled using the Dispatch Board may also appear. It is advisable to limit the queries to show only records created after the Dispatch Board is installed, to make sure that extraneous data does not appear in the Field Activity view.

## Scheduling and Dispatch

---

*Dispatch*

# Agreements **5**

This chapter describes how to create and manage contracts (agreements) and their specific levels of service (entitlements). It also describes the screens and views that contain information relating to agreements and entitlements.

## **Agreements Overview**

An *agreement* describes a product or service provided to the customer and the financial relationship between parties. In the context of your Siebel application, contracts and agreements are synonymous. In your Siebel application's user interface, contracts are referred to as agreements. Consequently, this chapter usually presents the term "agreements."

Many different types of agreements can be created manually in the Agreements screen or automatically from a quote in the Quotes screen. Agreements can have a hierarchical relationship; that is, a master agreement can have multiple child agreements.

### **Automatic Entitlements**

Entitlements can be applied automatically to agreement line items using entitlement templates that are associated with specific products. Each line item in an agreement can have multiple entitlements which cover specific costs, contacts, and accounts, metrics, service hours, responsiveness, and preventive maintenance plans.

### **Agreement Management**

Siebel Agreements provides for renting, leasing, financing, and usage. Renting, leasing, and financing are set up in terms of nonrecurring charges, recurring charges, and schedules for agreement invoicing. Usage is set up in terms of use plans, asset measurements, and readings.

This chapter discusses nonrecurring charges (NRCs; for example, the one-time fee for a service agreement) and recurring charges (RCs; for example, a monthly service fee) as they apply to the agreement. Use-based agreements are also addressed here because these may include service components.

## Agreement Invoicing

The Siebel Invoice Engine provides a mechanism for automatically creating invoices. The Invoice Engine produces invoices for service-related time, expense, and material charges. Invoices for the billing of NRCs, RCs, and usage are generated automatically, based on a predefined schedule. For information about the Invoice Engine and service-related invoices, see [Chapter 6, “Invoices.”](#)

---

**NOTE:** To increase flexibility, invoicing for agreements is implemented as a Business Service.

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# Setting Up Agreements

Use the following procedures to set up agreements and entitlements.

### **To define asset-based pricing**

- 1** Navigate to Site Map > Pricing Administration > Price List.
- 2** Select a price list.
- 3** Click the Service Pricing view tab.
- 4** Select a product, typically a service product.
- 5** In the Service Price Details subview tab, click New to add a product record.
- 6** In the Product field, select a product.
- 7** Enter values for the fields that determine the pricing of this product when combined with the service product: Type of Calculation, Target Price, and Adjustment Value.

The combination of the service product (in the Service Pricing view) and an asset in the Service Price Details view defines a unique price.

### **To define contract-based pricing of orders**

- 1** Navigate to Orders.
- 2** In the Service Orders list, select an order.
- 3** In the form, click the show more button to see more fields.
- 4** Click the select button in the Entitlement field.
- 5** Select an entitlement from the Pick Entitlement dialog box, and click OK.
- 6** Click the Line Items subview tab.
- 7** In the Line items list, click the menu button and select Reprice from the drop-down list.

- 8 In the Totals form, click Save.

The Reprice command sends the order, line items, and the selected entitlement to the Pricing Engine. The engine prices each line item and includes any special pricing defined under the entitlement. For background, see [“Order-Entitlement-Based Pricing” on page 201](#).

#### **To define NRC plans**

- 1 Navigate to Site Map > Service Administration > Non-Recurring Plans.
- 2 Create a new NRC plan record.
- 3 Enter values for the Name, Type, and Schedule fields. See [“Non-Recurring Plans View” on page 224](#).
- 4 Click the Plan Details view tab.
- 5 Create a new Plan Details record.
  - a Enter values for the Number and NRC % fields.
  - b Add additional charges (fixed amount or percentage) to each payment as needed.

#### **To define use plans**

- 1 Navigate to Site Map > Service Administration > Use Plans.
- 2 Create a use plan record.
- 3 Enter values for the Name and Description fields.

For a description of the Estimate check box, see [“Use Plans View” on page 225](#).
- 4 In the Plan Details view tab, click New to add a product record to the use plan.
- 5 In the Product field, select a product.
- 6 Select the Commit check box.

The Commit check box converts this record to read-only.
- 7 Repeat [Step 4](#) through [Step 6](#) for each product included in the use plan.

#### **To define pricing for a use plan**

- 1** Navigate to Site Map > Service Administration > Use Plans.
- 2** Select a use plan record.
- 3** Click the Plan Details view tab.
- 4** Select a Plan Details (product) record.
- 5** Create a new pricing record by performing the following steps:
  - a** In the Pricing list, click the menu button and select New Record.
  - b** Complete the required fields: Measurement Type, starting measurement (From field), and Units.

For more information about the fields, see [“Pricing Subview” on page 225](#).

#### **Asset-Based Matrix Pricing**

For an agreement line item (see [“Line Items View” on page 230](#)), the combination of a product (typically a service product, specified in the Product field) and an asset (Asset # field) determines a unique price. This capability is named *asset-based matrix pricing*.

Asset-based pricing is used for pricing products related to assets that a customer has already purchased. The Reprice and Reprice All buttons activate the Pricing Engine to calculate the price of the combination, price from the price list, or price list entry, and supply information on volume discounts.

To configure asset-based matrix pricing, an administrator must use the Siebel Pricing Configurator to set up a matrix based-pricing model (see *Pricing Administration Guide*).

For a pricing model, the following data allows asset-based pricing:

- Pricing Factor Name: any
- Type: Matrix
- Matrix Bus Object: Admin Price List
- Matrix Bus Comp: FS Product Price Item Details



- Matrix Search Spec (for Agreements);, [Price List Id] = {Service Agreement.Price List Id} AND [Parent Product Id] = {FS Agreement Item.Product Id} AND [Product Id] = {FS Agreement Item.Covered Asset Product Id}
- Matrix Search Spec (for Quotes);, [Price List Id] = {Quote.Price List Id} AND [Parent Product Id] = {Quote Item.Product Id} AND [Product Id] = {Quote Item.Covered Asset Product Id}

### Order-Entitlement-Based Pricing

Orders can have an associated entitlement that provides special pricing for all line items in the order. This is also known as contract-based pricing.

To configure contract-based pricing, an administrator must use the Siebel Pricing Configurator to set up a matrix-based pricing model (see *Pricing Administration Guide*).

For a pricing model, the following data allows contract-based pricing:

- Pricing Factor Name: any
- Type: Matrix
- Matrix Bus Object: Service Agreement
- Matrix Bus Comp: FS Entitlement Pricing Details
- Matrix Search Spec (for Orders);, [Entitlement Id] = {Order Entry - Orders.Entitlement Id} AND [Product Id] = {Order Entry - Line Items.Product Id}

## Setting Up Entitlements

Follow these procedures to set up entitlements.

### **To set system preferences for the Verify entitlements button**

**1** Navigate to Site Map > Application Administration > System Preferences.

**2** Query the system preferences for entitlements.

Enter `Entitlement*` in the System Preference Name field.

The query finds the system preferences described in [“System Preferences for Verifying Entitlements” on page 206](#).

**3** Select TRUE or FALSE for the System Preferences Value field.

### **To define entitlement templates**

**1** Navigate to Site Map > Service Administration > Entitlement Templates.

**2** Create an entitlement template record.

The Name field shows an automatically assigned template number.

**3** Change the Name field value to an identifiable name for the template, as needed.

**4** Enter values for the other fields, as needed.

The check boxes automatically associate data with the new template. For a description of these check boxes, see [“Entitlement Templates View” on page 220](#).

### **To define entitlement template metrics**

**1** Navigate to Site Map > Service Administration > Entitlement Templates.

**2** Select an entitlement template record.

**3** Click the Metrics view tab.

**4** On the Metrics view tab, create a metric record.

**5** Enter values for the required fields.

**To define service hours**

- 1 Navigate to Site Map > Service Administration > Schedules.
- 2 Create a new schedule record.
- 3 Enter values for the required fields.
- 4 To define the time periods in a schedule, click the Schedule Hours view tab.
- 5 Create a new schedule hours record.

Each schedule hours record defines a time period in a schedule, in terms of hours in a day.

- 6 Enter values for the required fields.

**To define exceptions to schedules**

- 1 Navigate to Site Map > Service Administration > Schedules.
- 2 Select a schedule record.
- 3 To define a schedule exception, click the All Exceptions view tab.

Schedule exceptions define non-work dates (for example, holidays) in a work schedule and special work days in a non-work period.

- 4 On the All Exceptions view tab, create a new schedule exception record.
- 5 Enter values in the Name and Description fields.
- 6 To define the dates and times for an exception, click the Exception Hours subview tab.
- 7 Create a new exception hours record.
- 8 Enter values for the required fields.

**To define products covered in an entitlement template**

- 1 Navigate to Site Map > Service Administration > Entitlement Templates.
- 2 Select an entitlement template record.
- 3 Click the Products view tab.

- 4 Create a product record.
- 5 In the Add Internal Products dialog box, select a product, and then click OK.

---

**CAUTION:** If you follow this procedure and then create an agreement line item with the product, then you cannot automatically associate the entitlement with the line item by following the procedure [“To automatically create entitlements for an agreement line item” on page 213](#). For that procedure to work, you must first associate the entitlement template with the product. See [“To associate an entitlement template with a product” on page 206](#).

---

#### **To define service billing details for entitlement templates**

- 1 Navigate to Site Map > Service Administration > Entitlement Templates.
- 2 Select an entitlement template record.
- 3 Click the Service Details view tab.
- 4 Create a Service Details record.
- 5 Select an activity type for the Type field, enter values in required fields, and select check boxes as needed.

---

**NOTE:** Service Details apply to the selected activity for a specific entitlement. To define exceptions for a service activity, see [“To define exceptions for a service activity.”](#)

---

#### **To define exceptions for a service activity**

- 1 Navigate to Site Map > Service Administration > Entitlement Templates.
- 2 Select an entitlement template record.
- 3 Click the Service Details view tab and select a Service Details record.
- 4 The appears below the Service Details list.
- 5 On the Time Exceptions subview tab, create a Time Exceptions record.
  - a In the Type field, select a project.

- b** Enter values for the other fields as needed.
- 6** From the drop-down list at the top of the Time Exceptions list, select Expense Exceptions.
- 7** Create an Expense Exceptions record.
  - a** In the Expense field, select an expense type.
  - b** Enter values for the other fields as needed.
- 8** From the drop-down list at the top of the Expense Exceptions list, select Product Exceptions.
- 9** Create a Product Exceptions record.
  - a** In the Product field, select a product type.
  - b** Enter values for the other fields as needed.

***To define special pricing for entitlement templates***

- 1** Navigate to Site Map > Service Administration > Entitlement Templates.
- 2** Select an entitlement template record.
- 3** Click the Pricing Details view tab.
- 4** Create a Pricing Details record.
- 5** In the Product field, select a product.
- 6** Enter values for the fields that determine the pricing of this product when combined with the service product: Type of Calculation, Target Price, and Adjustment Value.

For information about these fields and the role of Pricing Details records, see [“Pricing Details Subview” on page 223](#).

***To define preventive maintenance plans covered by entitlement templates***

- 1** Navigate to Site Map > Service Administration > Entitlement Templates.
- 2** Select an entitlement template record.
- 3** Click the Preventive Maintenance view tab.

- 4 Create a preventive maintenance record.
- 5 In the Add Preventive Maintenance Plans dialog box, select a preventive maintenance plan and click Add.

#### **To associate an entitlement template with a product**

- 1 Navigate to Site Map > Product Administration.
- 2 In the More Info tab's Show drop-down list, select Product Entitlement.
- 3 In the More Info list, create a new record.
- 4 In the name field, select an entitlement template.

## System Preferences for Verifying Entitlements

System Preferences has three settings (see [Table 41](#)) which determine the action of the Verify button (see “[Service Requests Views](#)” on page 63).

**Table 41. System Preferences for Verifying Entitlements**

System Preference Name	Description
Entitlement: Verify Consumer	Sets the conditions for checking the authorization of the contact requesting service. If TRUE, the entitlements displayed must meet <i>one</i> of these criteria: <ul style="list-style-type: none"><li>■ The contact for the entitlement matches the service request contact.</li><li>■ The entitlement account is set to All Contacts, and the entitlement account matches the service request account or the account for the contact for the service request.</li></ul>

**Table 41. System Preferences for Verifying Entitlements**

System Preference Name	Description
Entitlement: Verify Dates	<p>Checks that the service request falls within the time span of the entitlement. If TRUE, the entitlements displayed are only those that provide coverage on the date the service request was opened: a date between the start and end dates for the entitlement.</p> <p>If the entitlement has no start or end date, it does not appear.</p>
Entitlement: Verify Product	<p>Checks that the asset or product is entitled to service. If TRUE, the agreements displayed must meet <i>one</i> of these criteria:</p> <ul style="list-style-type: none"> <li>■ The entitlement asset matches an asset in the service request.</li> <li>■ The entitlement product matches a product in the service request (no asset or serial number specified).</li> <li>■ The entitlement is set to All Products and the product or asset for the entitlement matches the product or asset for the service request.</li> </ul>

# Using Agreements and Entitlements

This section contains procedures for common agreement management tasks, such as creating agreements, entering line items, adding entitlements, and defining agreements.

### **To create new agreements**

- 1** Navigate to the Agreements screen.
- 2** Create an agreement record.
- 3** A new agreement record has, by default, Valid and Service checked, Status set to Current, and Type set to Service Level Agreement. Change these as needed.
- 4** Enter values for the required fields.

### **To see the entitlements for an agreement**

- 1** Navigate to the Agreements screen.
- 2** Select an agreement record.
- 3** Click the Entitlements view tab.

The Entitlements list shows the entitlements for this agreement. The start and end dates indicate whether the entitlement is active.

### **To verify agreements for a contact**

- 1** Navigate to the Contacts Screen.
- 2** Select a contact.
- 3** Click the Agreements view tab.

The Agreements list shows the agreements for this contact.

### **To see products covered by agreements**

- 1** Navigate to the Agreements screen.
- 2** Select an agreement record.
- 3** Click the Entitlements view tab.



- 4 Select an entitlement record.
- 5 Click the Products subview tab.  

The Products list shows the products covered by the selected entitlement under the selected agreement.
- 6 Repeat [Step 4](#) and [Step 5](#) for each entitlement in the list.

**To associate primary contacts with an agreement**

- 1 Navigate to the Agreements screen.
- 2 Select an agreement.
- 3 In the Account field, select an account to associate with the agreement.
- 4 Click the Primary Contacts view tab.

On the Primary Contacts form, the fields for the Legal Contact, Billing Contact, and Shipping Contact are automatically filled with the primary contact for the selected account.

- 5 If you want to change a primary contact, click a Last Name field and select another contact.

The list of available contacts is limited to the contacts that are associated with the selected account.

**To generate an agreement document**

- 1 Navigate to the Agreements screen.
- 2 Select an agreement.
- 3 Click the Documents view tab.
- 4 To create a document record, click New.
  - a Enter a name for the document.
  - b From the Template drop-down list, select a document template.
  - c Click Save.

- 5 Click Generate Draft.

The system launches Microsoft Word or Lotus WordPro and displays a draft agreement.

**To associate activity plans with an agreement**

- 1 Navigate to the Agreements screen.
- 2 Select an agreement.
- 3 Click the Activity Plans view tab.
- 4 Create an Activity Plan record.
- 5 Select a template for the activity plan.
- 6 Select Lock Assignment to prevent the Assignment Manager from assigning activities that are already in this activity plan.

**To add activities to an agreement**

- 1 Navigate to the Agreements screen.
- 2 Select an agreement.
- 3 Click the Activities view tab.
- 4 Create an activity record.
  - a In the Start field, select the date and time for the activity.
  - b In the Type field, select the activity type.
  - c Enter values for other fields, as needed.

**To add financial details for an agreement**

- 1 Navigate to the Agreements screen.
- 2 Select an agreement.
- 3 Click the Financials view tab.
  - a Complete the Order # and Quote # fields.

- b** Enter values for other fields as needed.

---

**NOTE:** Some fields are calculated and filled in using data from the Line Items view and its subviews. For example, Terms = (Agreement End Date - Agreement Start Date) / 30, and Months Left = (Agreement End Date - Today) / 30.

---

**To define terms and shipping information for agreements**

- 1** Navigate to the Agreements screen.
- 2** Select an agreement.
- 3** Click the Terms & Totals view tab.
- 4** Enter values for fields, as needed.

**To add products sold under an agreement**

- 1** Navigate to the Agreements screen.
- 2** Select an agreement.
- 3** Click the Line Items view tab.
- 4** Add a new product record.
- 5** Click the Line Detail subview tab, and then click the show more button to add additional information about the product.

**To specify the product and asset combination for asset-based pricing**

- 1** Navigate to the Agreements screen.
- 2** Select an agreement.
- 3** Click the Line Items view tab.
- 4** Create a line item record.
- 5** In the Product field, select a product, typically a service product to be priced with an asset.
- 6** In the Asset # field, select an asset to be priced with the selected product.

- 7 Enter values in the Price fields, which apply to the product, as needed.

### **To automatically generate invoices for agreements**

- See [“To associate an invoice plan with an agreement” on page 253](#) and [“To create an invoice for an agreement line item” on page 258](#).

### **To manually generate an invoice for an agreement line item**

- 1 Navigate to the Agreements screen.
- 2 Select an agreement.
- 3 Click the Line Items view tab.
- 4 Select a line item to invoice.
- 5 Click the Invoices subview tab.
- 6 Click New to create a new invoice for the selected agreement line item.
- 7 In the invoice you created, click the Invoice # hyperlink.  
The Invoices screen appears with the invoice displayed.
- 8 In the Line Items list, add invoice line items if required.
- 9 From the application-level menu, choose View > Reports > Customer Invoice.
- 10 Click Run Now.  
The Siebel Report Viewer appears.
- 11 Click the print button.

### **To attach files to agreements**

- 1 Navigate to the Agreements screen.
- 2 Select an agreement.
- 3 Click the Attachments view tab.
- 4 Add an attachment record.
- 5 In the Attachment Name field, select the file to attach and click Add.

**To automatically create entitlements for an agreement line item**

- 1 Navigate to the Agreements screen.
- 2 Select an agreement.
- 3 Click the Line Items view tab.
- 4 Select a line item (product record).
- 5 Click Entitle.

The Entitle button automatically associates entitlements with the line item, based on the entitlement template associated with the product.

**To manually add entitlements to an agreement**

- 1 Navigate to the Agreements screen.
- 2 Select an agreement.
- 3 Click the Entitlements view tab.
- 4 Add an entitlement record.

The Name field shows an automatically assigned entitlement number.

- 5 Change the Name field value to an identifiable name for the entitlement, as needed.
- 6 In the Type field, select the entitlement type.
- 7 Enter values in the Priority and Service Hours fields.

**To manually associate accounts with entitlements**

- 1 Navigate to Site Map > Entitlements.
- 2 Select an entitlement.
- 3 Click the Accounts view tab.
- 4 Add an account record.
- 5 To provide complete coverage under the selected entitlement, select the All Contacts and All Products fields.

### **To manually associate contacts with entitlements**

- 1** Navigate to Site Map > Entitlements.
- 2** Select an entitlement.
- 3** Click the Contacts view tab.
- 4** Add a contact record.
- 5** To provide complete coverage under the selected entitlement, select the All Products field.
- 6** Enter values for other fields, as needed.

### **To manually associate products and assets with entitlements**

- 1** Navigate to Site Map > Entitlements.
- 2** Select an entitlement.
- 3** Click the Products view tab.
- 4** Add a product record.
- 5** Do one of the following:
  - In the Asset # field, select an asset.
  - In the Product field, select a product.

### **To manually associate preventive maintenance plans with entitlements**

- 1** Navigate to the Agreements screen.
- 2** Select an agreement.
- 3** Click the Entitlements view tab.
- 4** Select an entitlement.
- 5** Click the Preventive Maintenance subview tab.
- 6** In the drop-down list at the top of the Preventive Maintenance subview, make sure PM Plans is selected.
- 7** Add a preventive maintenance plan record.

- 8 In the Add Preventive Maintenance Plans dialog box, select a preventive maintenance plan and click Add.

**To associate an entitlement with an order for contract-based order pricing**

- 1 Navigate to the Orders screen.
- 2 Select an order.
- 3 Click the show more button to see more fields.
- 4 In the Entitlement field, select an entitlement.
- 5 Click the Line Items view tab.
- 6 Click Reprice All.

The Reprice All button returns a price list for all line items and provides information on volume discounts.

**To generate preventive maintenance actions for an agreement and entitlement**

- 1 Follow [Step 1](#) through [Step 5](#) of “[To manually associate preventive maintenance plans with entitlements](#)” on page 214.
- 2 Select a preventive maintenance plan record.
- 3 Click Run PM.

The system generates preventive maintenance actions for the selected agreement and entitlement based on the selected preventive maintenance plan.

**To view preventive maintenance actions associated with a PM Plan**

- 1 Follow [Step 1](#) through [Step 6](#) of “[To manually associate preventive maintenance plans with entitlements](#)” on page 214.
- 2 Select a preventive maintenance plan record.
- 3 From the drop-down list at the top of the Preventive Maintenance subview, select PM Actions.

This read-only view shows the actions associated with the selected PM Plan.

**To associate a service calendar with an entitlement**

- 1 Navigate to the Agreements screen.
- 2 Select an agreement.
- 3 Click the Entitlements view tab.
- 4 Select an entitlement.
- 5 Click the Entitlement Details subview tab.
- 6 In the Service Hours field, select a service calendar record.

**To manually add performance measurements (metrics) for an entitlement**

- 1 Navigate to the Agreements screen.
- 2 Select an agreement.
- 3 Click the Entitlements view tab.
- 4 Select an entitlement.
- 5 Click the Metrics subview tab.
- 6 Add a metrics record.
- 7 Enter values in the Value, Units, Priority, and Service Hours fields, as needed.

**To verify entitlements for a service request and select an entitlement**

- 1 Navigate to the Service screen.
- 2 Select a service request.
- 3 In the service request form, click Verify.

The Pick Entitlement dialog box appears, with a list of the active entitlements for this service request. If no entitlements appear, the selected service request is not entitled to receive service.



- 4 Select an entitlement record from the Pick Entitlement dialog box, and then click OK.

Selecting an entitlement from the Pick Entitlement dialog box computes the Agent Committed time (see [“Service Requests Views” on page 63](#)) for the service request from the Service Calendar associated with this entitlement and from the Response Time specified in the entitlement metrics.

- 5 In the service request form, click the show more button.

The name of the selected entitlement appears in the Entitlement field.

***To view the agreements for a contact***

- 1 Navigate to the Contacts screen.
- 2 Select a contact.
- 3 Click the Agreements view tab.

The Agreements list shows the agreements for this contact.

## **Application Administration Screen**

The Application Administration screen has two views that influence agreements: the Schedules view for defining service schedules and the System Preferences view for determining the behavior of the Verify (entitlements) button. For information about these views, see *Applications Administration Guide*.

## Pricing Administration Screen

The Pricing Administration screen provides a view for configuring asset-based pricing. Pricing Configurator must be installed for asset-based pricing to work with agreement line items.

### Service Pricing View

The Service Pricing view allows users to associate multiple products that together define a unique price. (This is asset-based pricing.)

#### Service Price Details Subview

The Service Pricing Details subview specifies products that represent the targeted installed base of assets covered by a service product. In an agreement line item (see [“Line Items View” on page 230](#)), specifying a service product (for example, Platinum Coverage) and selecting an asset that is covered by asset-based pricing (for example, component G with serial number XYZ) return a line item price based on the combination of service product and part.

## Service Administration Screen

The Service Administration screen has views for defining entitlement templates and billing plans based on one-time (nonrecurring) charges and asset usage.

### Entitlement Templates View

The Entitlement Templates view allows an administrator to predefine entitlements and specify the type of service provided. An entitlement template specifies the default coverage for the accounts, contacts, preventive maintenance, billing, products, and pricing.

The Entitle button (see [“Line Items View” on page 230](#)) automatically finds the entitlement templates that correspond to products in an agreement (see [“Products Subview” on page 223](#)), and then creates the entitlements using the default values from the template. An administrator can then modify any of the values.

[Table 42](#) describes items in the Entitlement Templates view.

**Table 42. Selected Items on the Entitlement Templates View**

Item	Description
Account All Contacts	Indicates the entitlement should cover all contacts associated with the account. The effect is to check the All Contacts box in Agreements > Entitlements > Accounts.
Account All Products	Indicates all products associated with the account under this entitlement should be covered. The effect is to check the All Products box in Agreements > Entitlements > Accounts.
Activity Override	Determines whether the rate and price lists specified for the entitlement override the rate and price lists for a service request. For contract-based invoicing, check this box.
Billable	Indicates one or more services provided by this entitlement are billable to the customer.
Contact All Products	Indicates the entitlement should automatically cover all products for the contact. The effect is to check the All Products box in Agreements > Entitlements > Contacts.
Include Account	Indicates the entitlement should automatically cover the account on the agreement header.

**Table 42. Selected Items on the Entitlement Templates View**

Item	Description
Include Contact	Indicates the entitlement should automatically cover the contact from the agreement header.
Initial Quantity	Number of services covered in the entitlement.
Units	Unit of measure for the initial quantity covered; for example, service requests.

### Metrics Subview

In the Metrics subview, add performance requirements for the entitlement template; for example, response time. Each requirement must be in a separate record.

### Preventive Maintenance Subview

In the Preventive Maintenance subview, add a record for each Preventive Maintenance plan included in the entitlement template. When selecting a plan from the Add Preventive Maintenance Plan dialog box, check the box in the second column to select a plan; selecting a record without checking this box fails to select one or more plans.

### Service Details Subview

The Service Details subview defines each type of service covered by the entitlement and the billing terms for each service. Terms may include a fixed service charge and specific billable time, expenses, and parts. [Table 43 on page 221](#) describes some items on this view.

**Table 43. Selected Items on the Service Details View**

Item	Description
Expenses Billable	Indicates the service expenses under this entitlement are billable to the customer.
Parts Billable	Indicates the parts provided under this entitlement are billable to the customer.

**Table 43. Selected Items on the Service Details View**

Item	Description
Time Billable	Indicates time (labor) under this entitlement is billable to the customer.
Type	Defines the type of activity to which a Service Details record applies. This required value determines the other fields that appear in the Service Details view.

Note the following effects of a service detail record:

- Service Details apply to the selected activity type rather than to a specific entitlement template.
- No additional charges or discounts are applied to a service request activity if no corresponding service detail record is defined for the service request's associated entitlement.
- No additional charges or discounts are applied to a billable item in a service request activity if no corresponding exception record is defined for the service detail record in the service request's associated entitlement. See the [“Time Exceptions Subview,”](#) [“Expense Exceptions Subview,”](#) and [“Product Exceptions Subview”](#) sections that follow.

The subviews of Service Details define exceptions for time, expenses, and products. For example, if labor (time) is generally not billable, the Invoice Engine will only bill the exceptions. Conversely, if time is generally billable, the Invoice Engine does not bill the exceptions. You access these subviews by selecting from the drop-down list in the tab at the bottom of the screen.

### **Time Exceptions Subview**

Time exceptions define the pricing of time associated with an activity type that is different than standard pricing. Time exceptions include a fixed service charge, discounts, and a limit on the billable amount.

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**NOTE:** Exception records for time are associated with activity types and specific projects (specified in the Type field). For information about projects, see the chapter on project management in *Siebel Professional Services Automation Guide*.

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### Expense Exceptions Subview

Expense exceptions define pricing of expenses associated with an activity type that is different from standard pricing. Expense exceptions include a fixed service charge, discounts, and a limit on the billable amount.

### Product Exceptions Subview

Product exceptions define pricing of products associated with an activity type that is different from standard service pricing. Product exceptions include discounts, markups, and overrides.

### Products Subview

The Products subview defines specific products or assets covered by the entitlement. You can copy these products to an entitlement by selecting the Entitlement Template Products check box in the [“Entitlement Templates View”](#) on [page 220](#).

### Pricing Details Subview

The Pricing Details subview allows contract-based pricing for orders. When creating a sales or service order on the Orders screen, the user can select an entitlement which applies special pricing, defined on this view, to the Pricing Configurator. [Table 44](#) describes the items in this view.

**Table 44. Selected Items on the Pricing Details View**

Item	Description
Type of Calculation	Type of price adjustment; for example, a discount or markup.
Adjustment Value	Amount of price adjustment described in the Type of Calculation field.

## Non-Recurring Plans View

The NRC Plans view defines installment plans for payment of one-time charges; for example, 12 monthly payments. Invoices can be generated monthly, quarterly, or annually. NRCs are added to invoices based on this schedule. [Table 45](#) describes the check boxes on this view.

**Table 45. Selected Items on the NRC View**

Item	Description
Active	Makes this NRC plan a choice in Agreements > Line Items > Invoice Plan.
Commit	Converts this record and child records to read-only status. Selecting this check box also makes the Plan Details view read-only.

**NOTE:** To use an NRC plan, it must be both active and committed.

### Plan Details Subview

The Plan Details subview records add specific information for an NRC plan, including the percentage of the nonrecurring charge to bill at each schedule interval (monthly, quarterly, or annually) and any additional fee to add to each installment (as a percentage, a fixed amount, or both). Each record in this view describes the amount to charge for each payment. [Table 46](#) describes the items in this view.

**Table 46. Selected Item on the Plan Details View**

Item	Description
Number	Number of payments for a nonrecurring expense.
NRC %	Percentage of the NRC to bill in each payment.



## Use Plans View

The Use Plans view describes plans for billing, based on the use of an asset; for example, revolutions, distance traveled, or number of events (clicks). [Table 47](#) describes the check box in this view.

**Table 47. Selected Item on the Use Plans View**

Item	Description
Estimate	Allows for an estimate of use if the readings do not cover the specified billing period. If selected, the Invoice Engine uses the information in the Expected Usage and Use Basis (Days) fields (see <a href="#">“Product Measurements View” on page 227</a> ). If cleared and the Invoice Engine finds incomplete data for this billing period, the engine does not bill for this period.

## Plan Details Subview

The Plan Details view records the products covered by the use plan. [Table 48](#) describes the check box on this view.

**Table 48. Selected Item on the Plan Details Subview**

Item	Description
Commit	Converts this record to read-only status. Selecting this check box also makes the fields described in <a href="#">“Pricing Subview” on page 225</a> read-only.

## Pricing Subview

The Pricing subview defines the price structure of each product in the selected use plan. Enter a record for each range of measurement. The Pricing view allows tiered pricing; for example:

Usage Range (Miles)	Price per Mile
0-100	\$0.25
101-500	\$0.30

501-1,000	\$0.35
Over 1,000	\$0.40

Table 49 describes the items on the Pricing view.

**Table 49. Selected Items on the Pricing View**

Item	Description
From	Lowest value of a measurement for this pricing record.
Rollback	Provides discounted pricing for higher usage. Selecting Rollback on a specific tier causes the record's price to override the prices for all lower tiers. In the previous example (see <a href="#">"Pricing Subview" on page 225</a> ), a Rollback flag set for the tier labelled Over 1,000 would result in all miles billed at the rate of \$0.40 per mile, if the usage reaches this tier during the specified time period.
Units	Provides the following selections: <ul style="list-style-type: none"><li>■ <b>Per Count.</b> Charges the amount specified in the Amount field for each unit of measure; for example, \$0.50 per mile.</li><li>■ <b>Total.</b> Charges the amount specified in the Amount field for the total measurement interval (From and To fields); for example, \$15 for 0 to 100 miles (100 miles total).</li></ul>

**NOTE:** To set up aggregate rather than tiered pricing, choose Absolute for the Use Plan Bill Method field. This supplies a cumulative reading, starting from the beginning of the plan. See ["Product Measurements View" on page 227](#).

## Product Administration Screen

The Product Administration screen has one view for defining measurements taken from products and one view for associating an entitlement template with a product.

To see these views, choose the More Info view, and then select the Product Measurement or Product Entitlement view from the Show drop-down list.

### Product Measurements View

The Product Measurements view defines the measurements that are the basis for determining asset use (see [“Use Plans View” on page 225](#)). You access this view by selecting Product Measurements from the Show drop-down list on the More Info tab. [Table 50](#) describes items on this view.

**Table 50. Selected Items on the Product Measurements View**

Item	Description
Frequency	Schedule for obtaining readings of the specified measurement, chosen from a list.
Use Plan Bill Method	Method of accumulating data from readings: <ul style="list-style-type: none"> <li>■ <b>Incremental.</b> Counter increments continuously with each reading (10, 20, 30, 40, and so on).</li> <li>■ <b>Absolute.</b> Counter is reset after each reading (10, 10, 10, 10, and so on).</li> </ul>
Expected Usage	Numeric value for the expected use, which the Invoice Engine uses to bill for usage if readings of usage are unavailable and if Estimate is checked (see <a href="#">“Use Plans View” on page 225</a> ).
Use Basis (Days)	Time period, in days, over which the expected use is to occur. This value must match the value in the Frequency field.

A read-only version of the Product Measurements view is available in the Products screen.

## Product Entitlements View

The Product Entitlements view associates entitlements with a product. You access this view by selecting Product Entitlements from the Show drop-down list on the More Info tab. The Entitle button on the Agreements screen (see [“Line Items View” on page 230](#)) automatically associates the se entitlements with the products described in selected line items. This view contains two check boxes, described in [Table 51](#).

**Table 51. Selected Items on the Product Entitlement Templates View**

Item	Description
Agree Line Item Products	Copies all products from the agreement line item to an automatically generated entitlement (produced by clicking the Entitle button).
Entitlement Template Products	Copies all products associated with the entitlement template to an automatically generated entitlement (produced by clicking the Entitle button).

## Agreements Screen

The Agreements screen defines agreement of all types. It also includes views for the history of approvals for each agreement, entitlements, associated service requests, and activities.

### Agreement View

The Agreement view displays all agreements that are visible to the user. [Table 52](#) describes some items in Agreements records.

**Table 52. Selected Items in the All Agreements View**

Item	Description
Amendment	Number, text, or similar information that references another object that amends this agreement.
Currency	Code for the type of currency; for example, USD for U.S. dollars. For agreement-based invoicing, the Invoice Engine uses this value as the target, or overriding, currency. Before performing invoice calculations, the Invoice Engine converts all the input currency values, such as the ones in the NPR Plan and the Usage Plan, to the target currency. The Invoice Engine then performs its calculations in the target currency. After the calculations are completed, the Invoice Engine writes these values back as Invoices, Invoice Line Items, and Invoice Line Item Details, all in the target currency.
Effective	Actual date the agreement is effective. Can be later than, earlier than, or the same as the Start date.
End	Date the agreement will end.
Parent	Broader agreement, if any, under which this agreement resides, chosen from a dialog box.
Service	Indicates this is a service agreement. This check box is for information only.

**Table 52. Selected Items in the All Agreements View**

Item	Description
Start	Date the agreement is planned to start.
Valid	Indicates the agreement is valid. Must be selected for consideration of the entitlements when verifying coverage <a href="#">“Verify Button” on page 65</a> . Also, preventive maintenance actions for assets are only initiated if this box is selected and the selected entitlement is active, based on its start and end dates.

## Line Items View

The Line Items view records a description of each product sold or provided under a selected service agreement. [Table 53](#) describes items in this view.

**Table 53. Selected Items in the Line Items View**

Item	Description
Asset #	Number of an asset associated with the product described in this line item record, or the number of an asset for a different product, used for asset-based matrix pricing. See <a href="#">“Asset-Based Matrix Pricing” on page 200</a> .  Specifying an asset of the product described in the line item is appropriate, for example, when specifying a trade-in. This case can include a discount available only for trade-ins.
Entitle	Menu command and button. Automatically associates entitlements (from entitlement templates) with the product described in the selected line item. Selecting a second time associates any new entitlements, but does not update entitlements that are already associated. For more information, see <a href="#">“Entitlement Templates View” on page 220</a> and <a href="#">“Products Subview” on page 223</a> .
Product	Product for this line item. Can be a service product.
Reprice	Menu command. Calculates the price for the selected line item, based on the associated price list and pricing model.
Reprice All	Menu command and button. Calculates the price for all line items, based on the associated price list and pricing model.

## Totals Subview

The Totals subview displays the total price, before tax and shipping charges, for the agreement line items and applied discounts. To see this subview, click the drop-down list in the Line Item Attributes subview and select Totals.

## Line Item Attributes Subview

If the product is customizable, the product attributes appear in this subview. To see this subview, click the drop-down list in the Totals subview and select Line Item Attributes.

## Line Detail Subview

The Line Detail subview contains additional fields that define an agreement line item. Some fields are filled in automatically with the product selected in the Line Items view. [Table 54](#) describes items on the Line Detail subview.

**Table 54. Selected Items in the Line Detail Subview**

Item	Description
Asset #	The number of an asset to use (see <a href="#">“Setting Up Agreements” on page 198</a> ).
Discount %	A discount percentage applied directly to the selected line item.
Net Discount %	A calculated field whose value is equal to (Start Price - Discount Amount) / Start Price.
Discount Amount	A discount amount applied directly to the selected line item.
Usage Asset #	Number of the asset to use for billing of usage (see <a href="#">“Use Plans View” on page 225</a> ).
Line #	Number assigned to each line item in the Line Items view, starting with 1.
Sequence	Indicates the hierarchical relationship of line items.

## Invoice Plan Subview

The Invoice Plan subview records the billing details for the selected agreement line item. [Table 55](#) describes items on the Invoice Plan subview.

**Table 55. Selected Items in the Invoice Plan Subview**

Item	Description
Adjust Invoice	Positive or negative adjustment to the amount of an invoice. The Invoice Engine clears this field after generating an invoice.
Auto Invoice	Indicates the Invoice Engine should generate an invoice for this line item. Activates the Advance to field. If cleared, the Invoice Engine ignores this agreement line item.
Invoice Basis	Method of invoicing. Make a choice from the drop-down list: <ul style="list-style-type: none"> <li>■ <b>Advance.</b> Generates the invoice at the beginning of the interval defined by the Invoice Schedule and Invoice Timing fields. Estimates use-based charges based on the last readings.</li> <li>■ <b>Schedule.</b> Generate the invoice at the end of the interval defined by the Invoice Schedule and Invoice Timing fields.</li> </ul>
Invoice End	Last possible date to generate an invoice.
Invoice Schedule	Interval for generating invoices, chosen from a list; for example, monthly.
Invoice Start	Start date for the schedule of invoices.
Invoice Timing	Day of the month on which an invoice is generated.
Last Invoiced	Date of the last invoice generated in this schedule of invoices. <ul style="list-style-type: none"> <li>■ If this field contains a date and time, the Invoice Engine waits until the end of the billing interval (defined in Invoice Schedule) to generate an invoice.</li> <li>■ If this field is blank, the Invoice Engine assumes that the first invoice has not yet been generated.</li> </ul>
Non-Recurring	Total amount of the nonrecurring charge. It may include a service change or a discount.
NRC Invoiced	Total amount invoiced against the NRC amount.



**Table 55. Selected Items in the Invoice Plan Subview**

Item	Description
NRC Plan	Predefined NRC billing plan, chosen from a dialog box. If this field is blank, the NRC amount is divided equally among the invoices defined in NRC Qty.
NRC Qty	Number of installments for paying the nonrecurring charge.
NRC Schedule	Interval for invoicing NRC, chosen from a list; for example, monthly. This can be different from Invoice Schedule.
NRC Start	Start date for billing nonrecurring charges. The default is the Invoice start date.
RC Adjust	Amount to bill for partial intervals as defined in RC Schedule. For example, if invoices are prepared monthly, this field defines the dollars per unit of time that the Invoice Engine uses to calculate the RC invoice line item.
RC Schedule	Interval for generating invoices against recurring changes, chosen from a list; for example, monthly. The Invoice Engine uses this date only for calculating the amount owed. Invoices are issued on according to the Invoice Schedule. The default is copied from the Invoice Schedule field.
RC Start	Date to start billing a recurring charge. The default for this field is copied from the Invoice Start field.
Recurring	Amount of a recurring charge.
Use Plan	Predefined use plan, chosen from a dialog box that displays only the plans that apply to the product in the selected line item.
Use Start	Value that a Invoice Engine uses to generate the first invoice for billing on a use plan. See the logic for use-based billing in <a href="#">Chapter 6, "Invoices."</a>

## Invoices Subview

The Invoices subview displays all of the invoices associated with a line item. The Invoice Engine automatically produces these records.

### Entitlements View

The Entitlements view displays entitlements and associates them with specific agreements.

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**NOTE:** End users should use the Entitlements view on the Agreements screen. The Entitlements screen (“[Entitlements Screen](#)” on page 240) is used for general administrative work across agreements.

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### Accounts Subview

The Accounts subview associates accounts with specific entitlements. [Table 56](#) describes the items in accounts records.

**Table 56. Selected Items in the Accounts Subview**

Items	Function
All Contacts	Indicates all contacts associated with this account are covered by this entitlement. Entitlement verification uses this information (see “ <a href="#">Verify Button</a> ” on page 65).
All Products	Indicates all products are covered by this entitlement. Entitlement verification uses this information.

### Entitlement Details Subview

The Entitlement Details subview displays additional details for a selected entitlement. [Table 57](#) describes items in entitlement detail records.

**Table 57. Selected Item in the Entitlement Details Subview**

Item	Description
Current Qty	Enter the current quantity covered by the entitlement. Your Siebel application does not automatically update the current quantity. You must update it manually each time it changes.

**Table 57. Selected Item in the Entitlement Details Subview**

Item	Description
Initial Qty	Enter the initial quantity covered by the entitlement.
Override Activity Flag	Determines whether the rate and cost lists specified in this entitlement override the rate list and cost list specified for a service request.

### Products Subview

The Products subview associates assets and products with entitlements. The records in this view provide a list of products covered by the selected entitlement. These records are used when the All Products check box in the Accounts subview is not set, and the entitlement is valid only for specific products or assets.

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**NOTE:** Agreements > Line Items (see [“Line Items View” on page 230](#)) specifies the products purchased or provided under this agreement. Agreements > Entitlements > Products defines the level of service provided for each product and asset associated with the agreement.

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### Contacts Subview

The Contacts subview associates contacts at an account with a specific entitlement. The records in this view are used when the All Contacts check box (in the Accounts subview) is not set and the entitlement is valid only for specific individuals.

### Metrics Subview

The Metrics subview records performance measurements for an entitlement; for example, response time for a service call and customer satisfaction rating. The Response Time metric is required for calculating Agent Committed time in the Service Request view (see [“Service Requests View” on page 237](#)). This is the only entitlement metric is used directly to determine a level of service.

## Service Details Subview

The Service Details subview defines the billing terms for service activities covered by the entitlements. [Table 58](#) describes items in Service Detail records.

**Table 58. Selected Items in the Service Detail Subview**

Item	Description
Expenses Billable	Indicates the service expenses under this entitlement are billable to the customer.
Maximum Expense Discount	Limit of expense discounts that a customer may receive for a selected activity type.
Maximum Time Billable	Limit of time charges that a customer may receive for a selected activity type.
Parts Billable	Indicates the parts provided under this entitlement are billable to the customer.
Service Charge	Fixed charge included in the invoice. This may be the only charge if service is based on a flat rate.
Time Billable	Indicates time (labor) under this entitlement is billable to the customer.

## Price Details Subview

The Price Details subview records special pricing considerations for products covered by the entitlement; for example, discounts or markups. This special pricing is used only for pricing order line items; it requires the Siebel Pricing Configurator.

## Line Item Revenue View

The Line Item Revenue view displays all revenue records associated with an agreement line item. To obtain information about the revenue for a line item, first select the line item in the Line Item View, and then click the Line Item Revenue tab.

## Revenue Subview

The Revenue subview records the revenues collected for the selected agreement line item. A user can manually record payments received for an agreement line item. [Table 59](#) describes items in revenue records.

**Table 59. Selected Items in the Revenue View**

Item	Description
(drop-down lists)	The two drop-down lists at the top of the Revenue list direct a query of existing revenue records in this list. One field allows selection of records for specific products, the other for specific users.
Amount	Amount of revenue expected on the specified date.
Revenue Date	Date for expected revenue.
Revenue Wizard	Button. Runs a script wizard that helps users enter multiple revenue records over time.

Two additional subviews at this level provide revenue data as a spreadsheet and a chart.

## Service Requests View

The Service Request view displays new or existing service requests for a selected agreement. Service request records appear automatically in this view when a user verifies coverage and selects an entitlement.

For more information about service requests, see [Chapter 2, “Service Support.”](#)

## Financials View

The Financials view summarizes the cost of materials and the revenues for an agreement.

## Terms and Totals View

The Terms and Totals view displays the payment, taxes, and shipping information for an agreement.

### Totals Subview

The Totals subview displays the totals of service, parts, shipping, and tax billed to an agreement. [Table 60](#) describes items in totals records.

**Table 60. Selected Items in the Totals Subview**

Item	Description
Adjustment	Value entered in this field is subtracted from the value in the Total field.
Products	Sum of agreement line items that have the Service field set to No (see <a href="#">“Line Items View” on page 230</a> ) minus discounts.
Services	Sum of agreement line items that have the Service field set to Yes (see <a href="#">“Line Items View” on page 230</a> ), minus discounts.
Shipping	Cost of shipping. Copied from the Shipping Charges field in the Terms and Totals view.

### Activities View

The Activities view associates activities with agreements.

### Activity Plans View

The Activity Plans view associates activity plans with agreements.

### Approval History View

The Approval History view shows who approved this agreement. The Workflow Manager automatically creates these records as people approve an agreement.

### Attachments View

The Attachments view displays files related to selected agreements.

## Documents View

The Documents view automatically generates documents required to implement a service agreement; for example, subcontractor agreements and work orders. For information about how to create document templates, see the chapter on proposals in *Applications Administration Guide*. [Table 61](#) describes items in the Documents view.

**Table 61. Selected Item in the Documents View**

Item	Description
Auto Document	Command and button. Creates a new record from the default document template.
Generate Draft	Command. Creates a draft document and opens it in Microsoft Word or Lotus WordPro.
Local	Indicates this document is stored locally. This field is for information only; there is no associated code.

## Discounts View

The Discounts view displays the invoices that are associated with this agreement. The Invoice Engine automatically generates these records for service requests that are related to a selected agreement based on a selected entitlement. The discounts reflected here are based on special pricing defined under the entitlement.

## Notes View

The Notes view allows you to add notes to an agreement. You can add a private note (visible only for the logon ID under which it was created) on the Private tab or a public note (visible to all users) on the Public tab.

## Orders View

The Orders view displays a list of all orders associated with an agreement. This view allows you to create orders directly from a selected agreement.

For information about orders, see *Siebel Order Management Guide*.

## **Entitlements Screen**

The Entitlements screen displays the accounts, contacts, entitlement metrics, preventive maintenance plans, and products associated with entitlements across all agreements.



## Agreements Charts

The Agreements screen (Agreements > Charts) provides charts for analysis, listed in [Table 62](#).

**Table 62. Agreements Analysis**

Chart	Analysis
Trend Analysis by Effective Date	Number of agreements beginning as a function of calendar period.
Trend Analysis by Expiration Date	Number of agreements ending as a function of calendar period.

## Agreements Reports

The Reports menu (View > Reports) provides reports for Agreements, listed in [Table 63](#).

**Table 63. Agreements Reports**

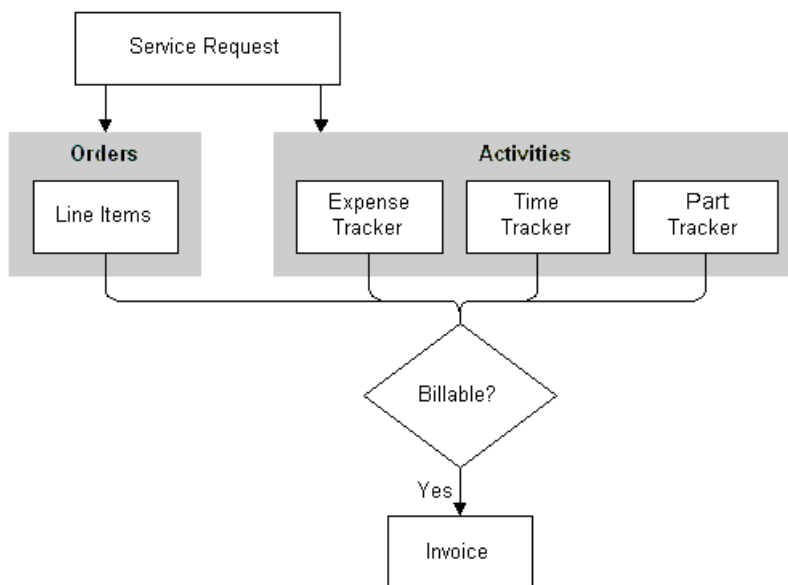
Report	Description
Agreement Summary	Summary of each agreement, printing three agreements per page.
Current Agreement Detail	All information about each agreement and associated line items.

# Invoices **6**

This chapter describes how Siebel Field Service can automatically generate invoices for service requests, activities, and contracts.

## Invoice Overview

Siebel Field Service automatically produces invoices for activities, service requests, and contracts. As shown in [Figure 3](#), invoices for activities can incorporate charges for parts, labor, and expenses. Invoices for service requests incorporate orders, plus the charges for all of the activities related to this service request. Only records that have the Billable flag set are added to the invoice automatically.



**Figure 3. Workflow for Automatic Invoicing**

Pro forma invoices can be printed onsite for customers and sent to an accounting system to track accounts receivable and revenue. An invoice can also be marked as delinquent, then tracked by the Workflow Manager, which can send automatic reminders to customers or employees.

Each invoice can include these line items:

- Time and materials
- Miscellaneous expenses and tax

- Nonrecurring charges
- Recurring charges
- Use charges
- Project charges
- Credits or other adjustments

Siebel Invoices can be integrated with third-party software to manage taxation for entire invoices or for invoice line items. Without tax integration, Siebel Invoices prepares pro forma invoices, statements of work, or quick reports to customers. The collection of applicable charges and activities is also an efficient way to pass this information to a financial system.

## Invoice Logic

This section describes the business logic for generating invoices for service requests, activities, and agreements.

### Logic for Service Requests

The Invoice Engine uses the following process logic for service requests:

- 1** For a selected service request, find all records with the Billable flag set.
- 2** Find the rate and price lists for the items described in these records.
- 3** Calculate the price for each item.
- 4** If an entitlement covers the service request:
  - a** Find the price and rate lists associated with the entitlement.
  - b** If the Activity Override flag is set, recalculate the billable cost for the items using the price and rate lists for the entitlement instead of the lists for the activity and the entitlement service price details for the activity types covered.
- 5** If there is no entitlement, go to the next billable item.
- 6** If there are no more billable items, create an invoice.

### Logic for Activities

The Invoice Engine uses the following process logic for activities:

- 1** For a selected activity, find all expense, time, and part records with the Billable Flag set.
- 2** Find the rate and price list for the activity.
- 3** Calculate the price for each record.
- 4** Create an invoice.

## Invoice Logic for Agreements

The Invoicing Engine creates a separate, independent invoice for every agreement line item and for every invoicing period. For every agreement line item, it generates invoices for all charges in the period after the last invoice was produced.

The Invoice Engine uses the following logic to process invoices for agreement line items:

- 1** If the Valid check box is selected in the parent agreement record, proceed.
- 2** If all invoices have already been generated for the invoice period (from the Invoice Start Date to the Invoice End Date), stop the invoicing process on this agreement line item.
- 3** If the invoice schedule for this agreement line item requires an invoice at this time (in other words, if an invoice is required before the Advance To date), proceed.
- 4** If the invoiced agreement line item was cancelled and the invoice period is before the cancel date, proceed.

---

**NOTE:** The cancel date can be set in the Cancel field in the Agreements screen, Line Items view, Line Detail subview.

---

- 5** Process all the charges for all billing types specified in the invoice plan associated with the agreement line item.
- 6** Generate an invoice.

The Invoice Engine can generate periodic invoices that include these types of charges:

- **NRC.** Installment payments for one-time (nonrecurring) charges; for example, a one-time fee for service billed in one or more installments.
- **RC.** Payment of periodic (recurring) charges; for example, a monthly service charge.
- **Usage.** Payments based on the use of an asset; for example, the number of copies produced on a color copier each month.

- **Adjustments.** Credits or charges for the selected period.

---

**NOTE:** To increase flexibility, invoicing for agreements is implemented as a Business Service.

---

### Logic for NRC Line Items

The Invoice Engine uses the following logic to process NRC line items:

- 1 If there is a previous invoice, find the NRC Invoiced amount. If the Non-Recurring amount is greater than or equal to the NRC Invoiced amount plus the next amount to be invoiced, proceed.
- 2 If this is the first invoice and if the NRC amount for the line item is greater than zero, proceed.
- 3 Calculate the NRC amount for the next invoice, using the NRC plan, if selected.
- 4 Create an NRC line item on the invoice.

### Logic for RC Line Items

The Invoice Engine uses the following process logic for recurring cost line items:

- 1 If the recurring charge for the invoice is greater than zero, proceed.
- 2 Calculate the RC amount.
- 3 Create an RC line item on the invoice.

### Logic for Usage Line Items

To generate invoices from usage line items, you must first define the asset on which the usage is measured. You specify this asset in the Usage Asset # field in the Agreements screen, Line Items view, Line Detail subview. For accurate billing, the invoice schedule must match the measurement frequency of the asset.



If you want to invoice on estimated usage, you must define certain fields in the product measurement record of the asset's product. [Table 64](#) lists these fields.

**Table 64. Product Measurement Fields**

Field	Comments
Frequency	The schedule for obtaining readings for the specified measurement.
Expected Usage	A numeric value for expected use. If usage readings are unavailable and if the Estimate check box is selected, then the Invoice Engine uses this value to bill for usage.
Use Basis (Days)	The time period, in days, over which the expected use is to occur. This value must match the Frequency.

You define these fields in the Product Administration screen, Product Measurements view. For more information, see [“Product Measurements View” on page 227](#).

The Invoice Engine uses the following logic for usage line items:

- 1** If there was a previous invoice for this agreement line item's use plan, find the reading on the last invoice.
- 2** If this is the first invoice for the use plan, find the reading closest to the Use Start date.
- 3** Find the reading closest to the current date or the Advance Invoice date.
- 4** If there is no new reading since the last invoice or the Use Start date, and if the Estimate check box is selected (on the Service Administration screen, Use Plans view), use the calculated average use defined in the Usage field (Assets screen, Measurements view) as the estimated reading.
- 5** If a reading is found, verify these values on the reading:
  - Is the Complete check box selected?
  - Is the Use Plan Bill Method (defined in the Product Administration screen, Product Measurements view) set to Incremental or Absolute?
- 6** If the conditions in [Step 5](#) are satisfied, calculate the usage.

### **Logic for Adjustment Line Items**

The Invoice Engine uses the following process logic for adjustment line items:

- 1** For the invoice period and agreement, if any value exists in the Adjustment field, add a new line item of this amount to the invoice.
- 2** Create an adjustment line item on the invoice.
- 3** Clear the Adjustment and the Adjustment Reason fields.

## Setup for Invoicing

For the Auto-Invoice feature, the following setup is required:

- There must be a specified price list for all of the product items determined as billable for an activity. The products must be listed as line items in the selected price list (Pricing Administration screen, Price Lists view, Price List Line Items subview).
- There must be a rate list line item for each type of resource (also known as a billing product; for example, a field engineer) used for an activity. The activities rate list is specified in the Activities screen, Activities view. In the Pricing Administration screen, Rate List view, Rate List Line Items subview, the resource, rates, and markups are defined.
- The rate types (in the Type field) must be identified for billable expenses and labor (Activities screen, Expense Tracker view and Time Tracker view).
- Each user must have a position that is associated with a billing product (Group Administration screen, Positions view, Billing Product field).
- Activities must have price and rate lists defined. Orders must have a price list defined. Auto-invoicing uses these lists to determine the total amount billed to a customer.

---

**NOTE:** Siebel does not provide configuration settings for the Invoice Engine.

---

## Cost and Price Lists

Siebel Field Service contains a costing infrastructure that allows users to track the costs as they are performed, and then export these costs to financial systems for posting to the general ledger. Previously, service organizations could only estimate the costs of performing service. Now they can associate costs of service calls at the time the service is performed.

The costing infrastructure is based on the creation of cost lists. Cost lists specify the costs of products. Most companies have this information in their financial systems. Incorporating this information into Field Service has the following advantages:

- Costs can be associated with service requests and activities at the time they are performed.
- Costs can be associated with orders for analysis of profitability.
- Cost lists can have time limits, so that they provide an accurate record of costs at the time they occurred.
- Service inventory can be created at any time.

Price lists link cost lists to service requests, orders, and activities. For example, one cost list, North American Costs, describes the costs of products and resources in North America. When a field service engineer chooses a price list for a service request, the associated cost list is automatically linked to the service request.

To learn more about cost lists, price lists, and rate lists, see *Pricing Administration Guide*.

## Setting Up Automatic Invoicing for Agreements

The Invoice Engine can automatically produce invoices for agreements that have associated invoice plans. To direct the Invoice Engine to produce invoices periodically without user intervention, you must set up a repeating component request. For information about repeating component requests, see the chapter on using the Siebel Server Manager GUI in *Siebel Server Administration Guide*.

For information about nonrecurring, recurring, and use-based invoice plans, see [Chapter 5, “Agreements.”](#)

### **To associate an invoice plan with an agreement**

- 1** Navigate to the Agreements screen.
- 2** Select an agreement.
- 3** Click the Line Items view tab.
- 4** Select the line item that will have an associated invoice plan.
- 5** Click the Invoice Plan subview tab.

The Invoice Plan form appears with a default invoice plan record for the selected line item.

- 6** Click the show more button to display more fields.
  - a** Accept the default values or enter new values for the Invoice Start and Invoice Schedule fields.
  - b** Define the recurring invoice charges by accepting the default values or entering new values for the Recurring, RC Start, and RC Schedule fields.
  - c** Make sure that Auto Invoice is selected.

---

**NOTE:** [Step b](#) and [Step c](#) are the minimal requirements for running the Invoice Engine for an agreement. If there is no RC charge, the Recurring field's value can be zero.

---

- d** Accept the default values or enter new values for the fields for a use plan and nonrecurring charges.

To set up use plans and NRC plans, see [Chapter 5, “Agreements.”](#)

- 7** Complete the other fields, as required for the type of automatic invoicing you want to set up for this line item.

---

**CAUTION:** If you do not complete all the required fields for the type of invoices to be generated, the Invoice Engine will generate these invoices with a balance of 0.00.

---

The following fields are required for all invoices:

- Invoice Start
- Invoice Schedule
- Invoice Timing
- Invoice Basis
- Auto Invoice

The following fields are required for invoices that include use-based charges:

- Use Plan
- Use Start

The following fields are required for invoices that include non-recurring charges:

- Non-Recurring
- NRC Start
- NRC Schedule
- NRC Qty

The following fields are required for invoices that include recurring charges:

- Recurring

- RC Start
- RC Schedule
- RC Adjust U/M – Required only if you enter a value in RC Adjust.

For more information about these fields, see [“Invoice Plan Subview” on page 232](#) and [“Invoice Plan Subview” on page 264](#).

## Creating an Invoice

Follow these procedures to produce customer invoices.

### **To create an invoice manually**

- 1** Navigate to the Invoices screen.
- 2** Add a new invoice record.
  - a** In the Bill to Account field, select an account from the Pick Account dialog box.
  - b** In the Invoice Amount field, enter an initial amount for the invoice. This can be \$0.00.
- 3** Click the Line Items view tab.
- 4** Add a record for each item in the invoice.

The default value of the Amount field is 0.00.

---

**CAUTION:** If the amounts recorded for the activity and order do not match the amounts recorded for the invoice line item, then associating manually entered line items with activities or orders could cause data quality issues.

---

- 5** Click the Line Item Details subview tab.
- 6** In the Details subview, add a record for each expense, time item, or part movement that is part of the selected line item.
- 7** Enter values in the Amount field and in the Description field, if needed.

### **To record billable activities for a service request**

- 1** Navigate to Service > Service Requests.
- 2** Select a service request.
- 3** Click the More Info view tab and then click the show more button to display more fields.
- 4** Select a price list, a rate list, and the Billable check box.



**5** Click the Activities subview tab.

**6** Select an activity or create a new activity.

**To record billable orders for a service request**

**1** Navigate to Service > Service Requests.

**2** Select a service request.

**3** Click the More Info view tab and then click the show more button to display more fields.

**4** Select a price list, a rate list, and the Billable check box.

**5** Click the Orders view tab.

**6** Select an order or create a new order.

**To record billable expenses for an activity**

**1** Navigate to the Activities screen.

**2** Select an activity.

**3** Click the Expense Tracker view tab.

**4** Select an expense or create a new expense.

**5** Select the Billable check box.

**To record billable time for an activity**

**1** Navigate to the Activities screen.

**2** Select an activity.

**3** Click the Time Tracker view tab.

**4** Select a time record or create a new time record.

**5** Select the Billable check box.

**To record billable part movements for an activity**

**1** Navigate to the Activities screen.

- 2 Select an activity.
- 3 Click the Part Tracker view tab.
- 4 Select a part movement record or create a new part movement record.
- 5 Select the Billable check box.

#### **To automatically generate an invoice for a service request**

- 1 Navigate to Service > Service Requests.
- 2 Select a service request.

Make sure the Billable check box is selected.

- 3 Click the Invoices view tab.
- 4 Click Auto Invoice.

An invoice record appears in the Invoices list.

#### **To automatically generate an invoice for an activity**

- 1 Navigate to the Activities screen.
- 2 Select an activity.

Make sure the Billable check box is selected.

- 3 Click the Invoices view tab.
- 4 Click Auto Invoice.

An invoice record appears in the Invoices list.

#### **To create an invoice for an agreement line item**

- 1 Navigate to the Agreements screen.
- 2 Select an agreement.
- 3 Click the Line Items view tab.
- 4 In the Line Items list, select a line item to invoice.
- 5 Click the Invoices subview tab.

- 6 In the Invoice list, add a new invoice.

---

**NOTE:** To run the Invoice Engine for the selected agreement, you can enter a date in the Advance to field and click Invoice. To run the Invoice Engine for an agreement, the line items in the agreement first must have invoice plans defined. For the procedure, see [“To associate an invoice plan with an agreement” on page 253](#).

---

**To print an invoice**

- 1 Navigate to the Invoices screen.
- 2 Select an invoice record.
- 3 From the application-level menu, select View > Reports > Customer Invoice.
- 4 In the Siebel Report Viewer window, do the following:
  - a Click Run Now.  
The invoice appears on screen.
  - b Click the print icon.

**To associate a payment with an invoice**

- 1 Navigate to the Invoices screen.
- 2 Select an invoice.
- 3 Click the Payments view tab.
- 4 Create a new payment record.
- 5 In the Payment # field, select a payment and click OK.

## **Service Screen**

The Invoice Engine automatically creates invoices based on the information provided in a service request. The user activates this engine by choosing the Auto Invoice command in the Invoices view in the Service Requests screen.

The Invoice Engine searches for any billable orders or activities related to the service request, applies the designated price and rate lists, then creates a new invoice. Only records that have billable flags set in the Orders and Activities views are included in the invoice calculation.

The billable flag in the Service Requests form defines the default settings for the billable flags in associated activities and orders. If the flag is set for a service request, but not for the associated orders or activities records, the activities or orders are not billed, unless the entitlement overrides the activity's billable flag.

A user may select an entitlement by clicking Verify in the Service Requests form, More Info view or by completing the Entitlement field in the Service Details view.

## Activities Screen

The Activities screen has four views that are related to invoices.

### Time Tracker View

The Time Tracker view lists the labor charges associated with an activity. The Start and Stop buttons in the Time Tracker view provide convenient recording of time spent on an activity. [Table 65](#) describes items in the Time Tracker view.

Auto Time Sheet (selected from the application-level File menu) produces new records in the Expense Tracker view. For more information about setting up and using Auto Time Sheet, also known as Auto Gen, see the chapters on time reporting and expense reporting in *Siebel Professional Services Automation Guide*.

**Table 65. Selected Items in the Time Tracker View**

Item	Description
Billable	A check box that indicates the Invoice Engine should include in an invoice the price of this labor, based on the rate list for the activity, in an invoice for the associated activity. By default, this flag is set if the Billable flag is set for the activity.
Start	This button creates a new time record and sets the start time and date.
Stop	This button sets the end time for the activity and calculates the elapsed time.
Type	Identifies the specific category of time for the selected record. The types displayed are project records called Work Types. Work Types are defined in Applications Administration > Work Types.

## Expense Tracker View

The Expense Tracker view records the expenses associated with an activity. Setting the Billable flag for an expense record makes this information available to the Invoice Engine. By default, this flag is set if the Billable flag is set for the activity.

Auto Expense Report (selected from the application-level File menu) produces new records in the Expense Tracker view. For more information about setting up and using Auto Expense Report, also known as Auto Gen, see the chapter on expense reporting in *Siebel Professional Services Automation Guide*.

## Part Tracker View

The Part Tracker view records products or assets used in the field for an activity. If the Billable flag is set in a record, the Invoice Engine includes this part in an invoice. By default, this flag is set if the Billable flag is set for the activity.

## Invoices View

The Invoices view displays all invoices associated with an activity. [Table 66](#) describes items in the Invoices view.

**Table 66. Selected Item in the Invoices View**

Item	Description
Auto Invoice	This button looks for any billable expenses, time, or parts related to the an activity, applies the associated price and rate lists, then generates invoices for the selected activity.  When the Invoice Engine runs from this view, it does not consider entitlements for service.

### Auto Invoice Command

The Invoice Engine requires the following information to generate an invoice automatically:

- **Billable flags.** Only records that have Billable flags set are included in the invoice.
- **Price list.** The price list must be specified.

- **Product prices.** In Pricing Administration > Price Lists > Price List Line Items, billable products must belong to the selected price list.
- **Rate list.** The rate list for field service activities must be specified in Activities > More Info.
- **Activity prices.** In Pricing Administration > Rate Lists > Rate List Line Items, the person carrying out billable service activities, known as the resource, must be related to the selected rate list.
- **Positions.** In Group Administration > Positions, the Billing Product field for the person (known as the Resource on the rate list) providing service must be specified.
- **Rate types.** In Activities > Expense Tracker and in Activities > Time Tracker, the rate types (Rate field) must be identified for billable expenses and labor.

---

**NOTE:** The Rate field is not displayed by default. To display it, you must use the tab-level menu's Columns Displayed command.

---

## Agreements Screen

The Agreements screen provides subviews (under the Line Items view) for contract-based invoicing.

### Line Items View

The Line Items view provides controls and subviews for invoicing agreement line items. Controls are listed in [Table 67](#).

**Table 67. Selected Items in the Line Items View**

Item	Description
Invoice	This button and command directs the Invoice Engine to generate invoices for the selected agreement line item, based on the invoice plan. The line items must have any status other than Cancelled.
Invoice All	This command directs the Invoice Engine to generate invoices for all line items, based on the invoice plan. The line items must have any status other than Cancelled.
Advance to	This field is located in the Line Items menu bar. If the Invoice Basis is set to Advance, the Invoice Engine can calculate the invoice amounts up to this date and time.

### Invoice Plan Subview

The Invoice Plan view displays the billing details for the selected agreement line item. [Table 68](#) describes an item in this view.

**Table 68. Selected Item in the Invoice Plan Subview**

Item	Description
Auto Invoice	A check box that indicates the Invoice Engine will generate an invoice for this line item. If unchecked, the Invoice Engine does not create an invoice for this agreement line item.



## Invoices View

The Invoices view displays all invoices associated with an agreement line item and allows modification of these invoices or creation of additional invoices. [Table 69](#) describes a check box in this view.

**Table 69. Selected Item in the Invoices View**

Item	Description
Late	A check box that is set automatically if the current date is past the due date.

## **Contacts Screen**

The Contacts screen has an Invoices view that displays invoices for the selected contact. A user can also enter invoice records manually.

## **Accounts Screen**

The Accounts screen has an Invoices view that displays invoices for the selected account. A user can also enter invoice records manually.

## Invoices Screen

The Invoices screen shows all invoices generated automatically, and allows users to manually enter invoices and invoice line items, record payments, attach files, and add notes.

### Invoices View

The Invoices list shows existing invoices and allows users to create or modify invoices. [Table 70](#) describes items in Invoices records.

**Table 70. Selected Items in the Invoices List and Form**

Item	Description
Late	A check box that is set automatically if the current date is past the due date. The due date is determined by the values of the Invoice Date and the Payment Term fields in the Invoices view.
Refresh Total	This command uses the data in the Payments, Line Items, and Line Items Details views to update the Total Due field in the Invoices view (More Info).
State	A color-coded indicator that represents the status of each invoice, based on the Status and Late fields.

## State Indicators

Each record in the Invoices list has a bar that indicates the status of the invoice. If the invoice is late, the indicator has the appearance described in [Table 71](#).

**Table 71. Invoice Late—Indicator Appearance**

Status	Color	Amount of Fill
Closed Cancelled Written-Off Submitted	Yellow	100%
New Draft In-Process Consolidated Paid	Red	50%
Prepared Partially Paid Open Billed	Red	75%
Partially Written-Off On-Hold Pending Rejected	Red	100%

If the invoice is not late, the indicator has the appearance described in [Table 72](#).

**Table 72. Invoice Not-Late—Indicator Appearance**

Status	Color	Amount of Fill
Closed Cancelled Written-Off Submitted	Gray	100%
Partially Written-Off On-Hold Pending Rejected	Green	50%
Prepared Partially Paid Open Billed	Green	75%
New Draft In-Process Consolidated Paid	Green	100%

---

**NOTE:** A Tool Tip is provided for each indicator. Move the cursor over the indicator bar to see its meaning.

---

## Line Items View

The Line Items view shows the billable items for an invoice. Line items can be added manually. [Table 73](#) describes items in Line Item records.

**Table 73. Selected Items in the Invoices Line Items View**

Item	Description
Order #	The order reference number associated with this invoice, supplied by the Invoice Engine or chosen from a dialog box. The Invoice Engine supplies this number if the invoice is produced by Auto Gen (see <a href="#">“Expense Tracker View” on page 262</a> ).  If an order is associated with a service request and the user activates the Auto Invoice command for a service request (Service screen, Invoice view), the order number is entered into the invoice line item.
Activity #	The reference number of the activity associated with this invoice, supplied by the Invoice Engine or chosen from a dialog box.
Agreement Line Item	The ID of an agreement line item associated with this invoice. This is supplied by the Invoice Engine or chosen from a dialog box.
Project Role	This field contains the project team associated with the current line item.

## Line Item Details View

The Line Item Details view provides details of the current invoice line item.

## Details Subview

The Details subview provides additional information about the items in the line item of an invoice: time, expenses, and parts. [Table 74](#) describes items in the Invoice Line Item records.

**Table 74. Selected Items in the Line Item Details Subview**

Item	Description
Activity Expense Item #	The ID of an expense associated with this invoice line item, supplied by the Invoice Engine or chosen from a dialog box.
Activity Time Item #	The ID of a record in the Time Tracker associated with this invoice line item, supplied by the Invoice Engine or chosen from a dialog box.
Order Line Item ID	The ID of an order associated with this invoice, supplied by the Invoice Engine or chosen from a dialog box.
Part Movement #	The ID number of a part movement related to this invoice line item, supplied by the Invoice Engine or chosen from a dialog box.

Line item details are used by the Invoice Engine; a manual invoice does not have to use this data.

## Payments View

The Payments view records the payments applied against the invoice. [Table 75](#) describes items in the Payments records.

**Table 75. Selected Items in the Payments View**

Item	Description
Payment #	The ID of the payment associated with this invoice, chosen from the Pick Payment dialog box. The payment records originate from a back-office application, or the user can create them in this dialog box (by using the New button).
Reference	A reference number that a customer assigns to a payment record.



## Invoice Report

The Customer Invoice report, from the Reports menu, prints an invoice for the selected invoice record.

Figure 4 shows an example of an invoice generated from your Siebel application. The header shows information that uniquely identifies this invoice, such as Invoice # and Date. A Description line follows, then Account and Bill To information. The body of the invoice contains a list of line items and their charges. Below and at the right is the Invoice Amount total.

Customer Invoice				SIEBEL				
<b>Invoice #</b>	1-1775201	<b>Status</b>	Open	<b>Type Code</b>	Receivable			
<b>Date</b>	09/05/2001	<b>Created By</b>	SADMIN	<b>Invoice Amount</b>	\$235.00			
<b>Rev #</b>	0	<b>Reference #</b>		<b>Due Date</b>				
<b>Description:</b> On Site Service								
<b>Account</b>			<b>Bill To</b>			<b>Payable To</b>		
Censio 700 Broadway Mail Location F3/WF Denver, CO 80273-0002			Dave Denison 700 Broadway Mail Location F3/WF Denver, CO 80273-0002					
Line	Date	Reference	Description	Qty	List	Disc	Extended	Amount
1	09/05/2001		Contract Service					\$75.00
<b>Invoice Amount:</b>								\$75.00
Invoice generated on 09/05/2001								Page 1 of 38

**Figure 4. Customer Invoice Report**

**Invoices**

*Invoice Report*

# Using Third-Party Invoicing Applications

# 7

This chapter tells you how to set up the ability for your Siebel application to obtain invoice information from your company's third-party invoicing system.

# Invoicing Integration Overview

Siebel invoice integration is designed for companies that rely on traditional back-office billing and accounting applications to perform billing for products sold and services rendered. The invoice retrieval business process assumes that the billable source data (billable time, expenses, and materials) has been sent from your Siebel application to a billing application for invoice processing.

After generating a final customer invoice, the third-party invoicing application can publish the invoice data into an XML file. This invoice file is then passed to your Siebel application. Your Siebel application updates the Invoice business object and propagates the invoice data into the base tables. Your Siebel application then displays the invoice in the Invoices views, where the data is read-only.

This functionality assists Siebel end users with answering inquiries from customers about their invoices. A Siebel end user can view a customer invoice while in the Siebel application, without having to access the third party invoicing application.

Integration with an invoicing application uses the business service named Siebel Invoice, of type Data Synchronization. In addition, it uses a prebuilt Application Services Interface (ASI) named Siebel Invoice.

For more information about how to set up, use, and modify integrations based on ASIs, see *Application Services Interface Reference: Siebel eBusiness Application Integration Volume VI*.

## Invoicing Integration Terms

The following terms are used when referring to invoicing data:

- **Bill.** An instance of accumulated charges over a defined period of time for one or more products or services that a customer has received and for which the customer owes your company.
- **Invoice.** A document that displays a balance the customer owes to your company and to other involved parties such as third-party shippers and government tax bureaus. Consists of billing information plus taxes plus incidentals. Contains account balance information and displays transactions against a balance. Can be associated with one bill or can consolidate multiple bills.

## Required Setup Procedures

To set up the use of third-party invoicing systems, you must configure the Web service.

### Configuring the Web Service

Web services are used to direct the inbound messages from the third-party invoicing application. You must make sure that the Web services are correctly configured and activated. For more information about configuring Web Services, see *Application Services Interface Reference: Siebel eBusiness Application Integration Volume VI*.

#### To configure the Web service

- 1 Navigate to Site Map > Web Services Administration > Inbound Web Services.
- 2 Select the row with Siebel Invoice in the Name field.
- 3 In the Inbound Web Services list, make sure that the values of the Namespace, Name, and Status fields match the ones in the following table.

Namespace	Name	Status
http://siebel.com/asi/	Siebel Invoice	Active

- 4 In the Service Ports list, make sure that the values of the Name, Type, and Business Service fields match the ones in the following table.

Name	Type	Business Service
Default	Business Service	Siebel Invoice

- 5 In the Transport field, enter the type of protocol used for making the Web Service call.
- 6 In the Address field, enter the location of the Web server and the user who is authorized to call this Web service.

# Optional Setup Procedures

When setting up the use of third-party invoicing systems, you may want to do the following:

- Extend the data set
- Turn off invoicing
- Customize invoicing

## Extending the Data Set

The data set can be extended by adding more fields to the relevant integration objects, provided that the fields are supported by the Siebel data model.

For information about how to extend the data that is received from the third-party inventory management system, see *Application Services Interface Reference: Siebel eBusiness Application Integration Volume VI*.

## Turning Off Invoicing

You may want to turn off the third-party invoicing function if, for example, your company does not have a third-party billing system. In this case, do not publish the ASI.

For information about publishing ASIs, see *Application Services Interface Reference: Siebel eBusiness Application Integration Volume VI*.

## Customizing Invoicing

You may want to customize the third-party invoicing function to add special functions or additional business processes, as follows:

### Define Service Ports

You may want to define service ports different from, or in addition to, the ones provided with your Siebel application. For information about service ports, see *Application Services Interface Reference: Siebel eBusiness Application Integration Volume VI*.

## **Create Workflow Processes**

You may want to define workflow processes to automate certain functions associated with third-party invoicing. For information on creating workflow processes, see *Siebel Business Process Designer Administration Guide*.

## **Using Third-Party Invoicing Applications**

*Optional Setup Procedures*



This chapter describes the process flows for orders supported by the Siebel Order Entry module and the Fulfillment and Part Locator Engines (components of the Field Service Logistics Manager).

## Fulfillment Overview

Siebel Field Service provides two methods for filling an order automatically:

- The Fulfillment Engine automatically locates in inventory the ordered items (or substitutes for these items), allocates these items, and generates a pick ticket.
- The Parts Locator is a semi-automatic version of the Fulfillment Engine. It gives the user control over fulfillment of individual line items in an order. The user can select the line items and choose to carry out these automatic procedures for the selected items:
  - Find products or substitutes in inventory.
  - Allocate these items.
  - Generate pick tickets.

## Fulfillment Engine

The Fulfillment Engine automatically finds and allocates products for selected service orders, and produces pick tickets to use for the orders. The engine uses the following information to find a product:

- Priority of an order, which can influence fulfillment relationships (see the Order Priority field in [“Relationships View” on page 349](#)).
- Customer’s preferred inventory location. Each account has a default inventory location.
- Relationships among inventory locations (to determine which location to query next if the product cannot be found in a location).
- Product information (for example, available substitutes).

The engine can run from the Field Service user interface, in batch mode using the Repeat Interval, or by Siebel Business Process Designer. As a batch process, fulfillment can be initiated at regular intervals (for example, twice a day for pending high-priority orders or once a day for other orders) or according to conditions (for example, high-priority orders might be fulfilled immediately).

The Fulfillment Engine uses information entered elsewhere in Field Service to decide how to fulfill an order. For example, it considers account information to select the default source inventory location if no source inventory location is specified at the order and the order line item level. Where substitution of products is necessary, the engine uses substitutes specified for a product. If the product is out of stock at the warehouse of first choice, it reads the fulfillment relationships between inventory locations to determine from which other warehouse to fulfill the order. See [“Inventory Relationships” on page 318](#).

The Fulfillment Engine produces this output:

- Allocated parts for each order.
- Pick tickets to be used by picker to pick, pack, and ship each order.
- Inventory transactions for part allocation.

---

**NOTE:** For the Fulfillment or Part Locator Engines to allocate a line item from inventory, the line item must have a status of On-Hand for Inventory Level.

---

## Finding Fulfillment Inventory Locations

When fulfilling an order, the Fulfillment Engine looks for parts in this order:

- 1 The source inventory location, if any, defined in the Line Details subview. See [“Line Detail Subview” on page 308](#).
- 2 The source inventory location defined in the Order Fulfillment view. See [“Fulfillment View” on page 310](#). This may be different from the source location in the Line Details subview.
- 3 The inventory location, if any, defined in the Accounts screen. See [“Accounts View” on page 60](#).
- 4 The system preference for DefaultFulfillInvLoc. See [“System Preferences for the Fulfillment and Part Locator Engines” on page 287](#).

## Fulfill Command

The Fulfill command on the Orders screen finds the order line items, allocates these items, and generates a pick ticket record for the item. (The Shipping screen, PickTickets view processes pick ticket records.) The Part Locator carries out each of these tasks separately, controlled by the Locate, Allocate, and Generate PickTickets commands.

## Locate Button

The Locate button on the Orders screen, Line Items view finds in inventory the product specified in an order line item. It also finds substitutes if the product is unavailable. For more information about this function, see [“Fulfillment Engine” on page 282](#).

## Allocate Button

The Allocate button on the Orders screen, Line Items view, Part Locator subview creates an inventory transaction of the type Allocate (see [Table 86 on page 326](#)) that reserves the product.

## Generate PickTickets Command

The Generate PickTickets command on the Orders screen produces a pick ticket record. This is the logic behind the button:

- For each line item action of the type Allocate, where the item is not on a pick ticket (the Shipment number field in the Line Items view, Actions subview is blank), the Generate PickTickets function tries to create a valid pick ticket (a new row in table S\_SHIPMENT). In doing so, it looks at the source inventory where the allocation is done.

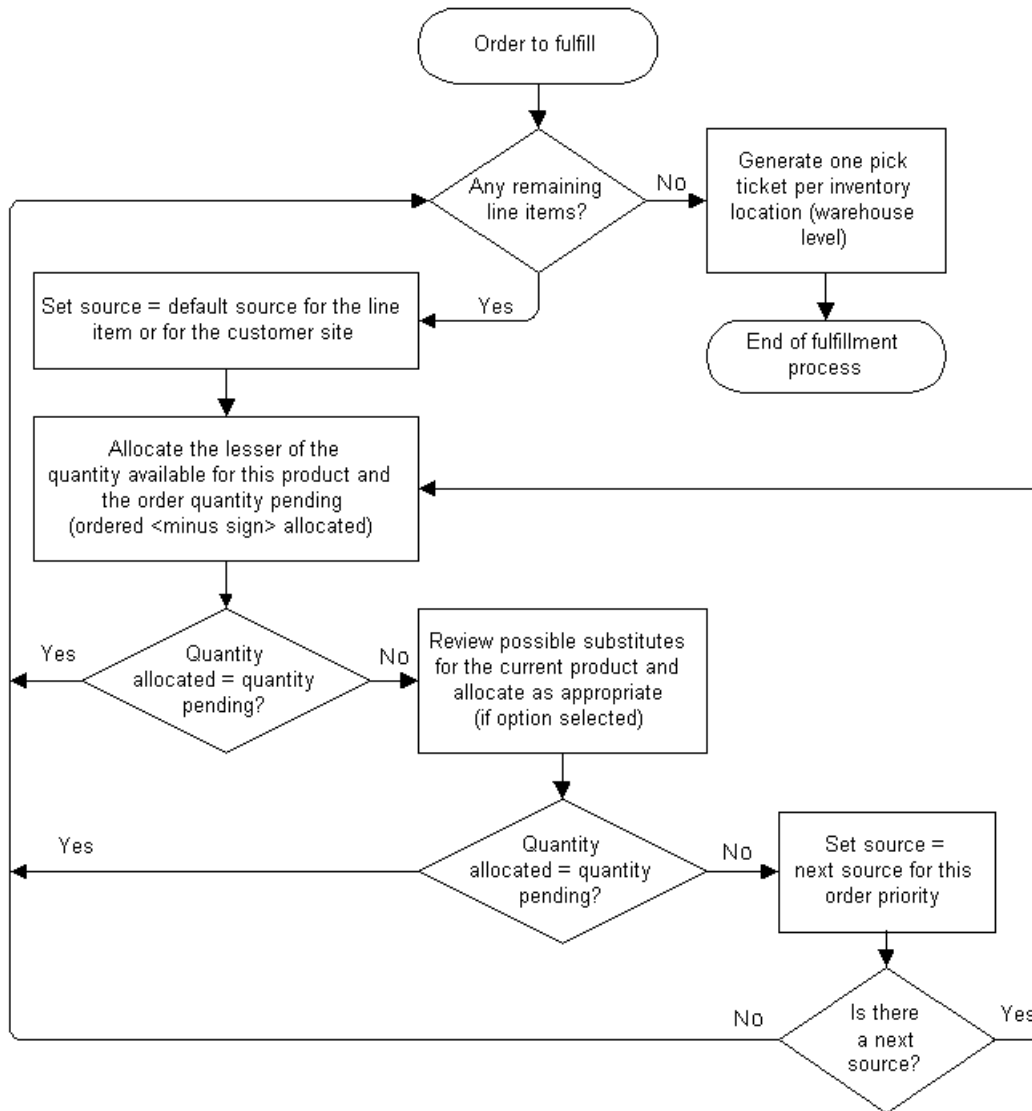
If this inventory is not of the type defined for the InventoryTypeForPT system preference, then it tries to find a parent inventory for the source inventory with the type defined in the InventoryTypeForPT system preference (the default for this is Warehouse). If one is found, then it generates a pick ticket record for this location. For other line item actions that have same source, the same pick ticket is used. A new pick ticket is generated only when source warehouses are different.

- Associates the line item action to that pick ticket by updating the Shipment number field.

[Figure 5 on page 286](#) shows how the Fulfillment Engine works for an order. For each line item to be fulfilled, it does the following:

- 1** Sets the source as the default source for the line item or the customer site.
- 2** Allocates the lesser of the quantity available for this product and the order quantity pending.
- 3** If the quantity allocated does not equal the quantity pending, reviews possible substitutes for the product and allocates as appropriate.
- 4** If the quantity allocated still does not equal the quantity pending, sets the source as the next source for this order priority.
- 5** If there is a next source, repeat [Step 2](#) through [Step 4](#). If there is no next source, starts again at [Step 1](#).

- 6 When no line items remain to be fulfilled, generates a pick ticket per selected inventory location.



**Figure 5. The Logic of the Fulfillment Engine**

## Part Locator Engine

The Part Locator provides semi-automatic fulfillment of line items in an order. The Part Locator Engine analyzes orders, locates parts for each line item, and returns the located parts (products or substitute products) to the user. The user can manually allocate these parts and generate the pick tickets.

For example, a customer service representative (CSR) receives a service request that requires shipping a product. The CSR creates an order, selects a line item in the order, and clicks Locate from a line item of the service order. Using the configuration parameters, the Part Locator browses various inventory locations and proposes sources from which to fulfill the order.

The Locate, Allocate, and Generate PickTickets commands that run the Fulfillment Engine in semi-automatic mode appear on the Orders screen. See [“Line Items View” on page 307](#) and [“Part Locator Subview” on page 309](#).

The Part Locator follows the fulfillment logic specified in [Figure 5 on page 286](#), and uses the same parameters for the fulfillment logic.

The Part Locator, unlike the Fulfillment Engine, cannot run asynchronously; meaning that when the Locate button initiates a product search, the Siebel application is unavailable for other operations.

## System Preferences for the Fulfillment and Part Locator Engines

The Fulfillment and Part Locator Engines use the same system preferences, shown in [Table 76 on page 288](#). These system preferences are stored in the table S\_SYS\_PREF. The BusComp is System Preferences. These are the columns of main interest:

- **SYS\_PREF\_CD.** Name of the system preference.
- **VAL.** Value of the system preference.

Changing the values of these preferences changes the default behavior of each engine. Use System Preferences to set these values:

- Default fulfillment inventory location
- Default inventory location types
- Substitution allocation rules
- Order statuses valid for fulfillment

- Line item statuses valid for fulfillment
- Synchronous or asynchronous fulfillment

---

**NOTE:** To activate changes to system preferences, restart the Siebel server.

---

**Table 76. System Preferences for the Fulfillment and Part Locator Engines**

Parameter	Default Value	Comments
DefaultFulfillInvloc	Blank	<p>Specifies the default inventory location to use as a source inventory location for the Fulfillment Engine and Part Locator. This is used as the Source Inventory Location if the user does not specify the Source Inventory Location at run time.</p> <p>The value must be the Row ID of the service inventory location. To find this ID, use the following procedure:</p> <ol style="list-style-type: none"><li>1 In any Service Inventory view, select an inventory location.</li><li>2 From the Help menu, select About Record.</li><li>3 In the dialog box, click Details.</li></ol>
InventoryTypeForPT	Warehouse	<p>Specifies the Inventory location type from which pick tickets are generated. The values should be from the Inventory location type LOV and individual values should be any of the LIVs.</p>
AllocationRule	1	<p>Specifies the rules for substitution. The possible values are 1,2,3 where:</p> <ol style="list-style-type: none"><li>1 Always allocate a substitute before going to the next inventory location.</li><li>2 Allocate a substitute only if it allows shipment from a single inventory location.</li><li>3 Never allocate a substitute if the exact product can be found in another inventory location.</li></ol>



**Table 76. System Preferences for the Fulfillment and Part Locator Engines**

Parameter	Default Value	Comments
Fulfill-SearchAllSublevels	FALSE	Specifies whether to search child locations. Possible values are TRUE and FALSE.  TRUE - Search the specified inventory location and all its child inventory locations specified by Sublevel relationships.  FALSE - Search the specified inventory location and all its fulfillment hierarchy locations but <i>not</i> the child inventory locations specified by Sublevel relationships.
OrderTypeToBeFulfilled	Service Order, Internal Order	Specifies the valid values for Order Type. The values should be from the Order Type LOV and individual values can be any of the LIVs.
OrderStatusToBeFulfilled	Open, New, Pending	Specifies the valid values for Order Status. The values should be from the Order Status LOV and individual values can be any of the LIVs.
OrderItemStatusToBeFulfilled	Open, New, Pending	Specifies the valid values for Order Item Status. The values are from the Order Item Status LOV and the individual values are LIVs.

## Substitution and Allocation Flags

The Fulfillment Engine uses the following inventory-specific attributes in its logic:

- **Auto Allocate.** If this flag is set, the Fulfillment Engine can allocate this product.
- **Auto Substitute.** If this flag is set, the Fulfillment Engine can allocate substitute parts in lieu of this product.
- **Allocate Below Safety.** If this flag is set, the Fulfillment Engine allocates from available quantity even if this allocation takes the available stock to below safety level. If the value is No, then any allocation that can take the level to below safety is not carried out.

Allocation and substitution options are set at three levels in Field Service:

- **Products.** See [“Products View” on page 301](#).

- **Inventory types.** See [“Inventory Options Subview”](#) on page 304.
- **Inventory locations.** See [“Product Inventory View”](#) on page 347.

At the product level, these attributes are binary values, either Yes or No. But at the inventory type level or inventory location, they may be Yes, No, or Default. A Yes or No value means override the value defined at the product level and use this value. A Default value means use the value defined at the product level.

### Conditions for Auto-Substitution

If the Fulfillment Engine is running and any one of the following conditions is met, the Fulfillment Engine attempts to allocate a substitute from the inventory's sublevel, then from the parent inventory, and then from the fulfillment center (based on order priority), assuming there are no exact products at any of these locations.

All of these conditions must be met for substitution to take place automatically during fulfillment:

- The Inventory Location and Product Level are set to Yes.
- The Inventory Location is set to Default and Product Inventory Types are set to Yes.
- The Inventory Location and the Product Inventory Type are set to Default and the Product is set to Yes.
- The Inventory Location, the Product Inventory Type, and the Product are set to Yes.
- A substitute product for the specified line item exists.
- AllocationRule = 1 (see [“System Preferences for the Fulfillment and Part Locator Engines”](#) on page 287).

---

**NOTE:** FS\_PROD\_ALLOC\_RULES can have the values Yes, No, and Default. These values can be specified in the List of Values view (Application Administration > List of Values). These values are *not* related to the AllocationRule values.

---

## System Preferences for the Fulfillment Engine

The Field Service engines have system preferences, listed in [Table 77](#), which determine the behavior of each engine. These system preferences are stored in the table S\_SYS\_PREF. The BusComp is System Preferences.

**Table 77. System Preferences for the Fulfillment Engine**

Parameter	Default Value	Comments
DefaultFulfillInvLoc	Blank	Accepts the Row ID of the default inventory location; for example, the Row ID for Warehouse 32.
OrderItemStatusToBeFulfilled	Open, New, Pending	Specifies the valid values for the existing order item status. The values should be from the Order Item Status LOV and individual values should be LIVs.
OrderStatusToBeFulfilled	Open, New, Pending	Specifies the valid values for the existing order status. The values should be from the Order Status LOV and individual values should be LIVs.
OrderTypeToBeFulfilled	Service Order, Internal Order, RMA Advance Exchange	Specifies the valid values for the existing order type. The values should be from the Order Type LOV and individual values should be LIVs.
Fulfill-SearchAllSublevels	FALSE	Specifies whether to search child locations. Possible values are TRUE and FALSE.  TRUE - Search the specified inventory location and all its child inventory locations specified by Sublevel relationships.  FALSE - Search the specified inventory location and all its fulfillment hierarchy locations but <i>not</i> the child inventory locations specified by Sublevel relationships.
InventoryTypeForPT	Warehouse	Specifies the Inventory location type from which pick tickets are generated. The values should be from the Inventory location type LOV and individual values should be any of the LIVs.

---

**NOTE:** To register changes to System Preferences, restart the Field Service server.

---

## Parameters for the Fulfillment and Part Locator Engines

By specifying input parameters to the Fulfillment and Part Locator Engines, an administrator can define the logic for a specific set of orders (using Order Search Specifications), for a single order (using Order ID), and for a single line item (using Line Item ID). [Table 78](#) contains the parameters for the Fulfillment and Part Locator Engines that are set in the Server Requests screen for the server components FSFullfill and FSLocate.

**Table 78. Parameters for the Fulfillment and Part Locator Engines**

Parameter	Value	Comments
InputMode	ORDERSEARCHSPEC	Specifies the WHERE clause for the orders and the engine will fulfill the orders based on the criteria.
	ORDERID	Specifies the Single Order ID to be fulfilled and the engine will fulfill the specified Order.
	LINEITEMID	Specifies the Single Order line item ID to be fulfilled and the engine will fulfill the specified Order line item.
	TEMPTABLE	Places all required values into a temporary table with a particular Client Request ID and passes that ID to the server to retrieve the parameters from Temp Table.
ClientReqId	A row ID for retrieving line items input from the temporary table	Required when InputMode = TEMPTABLE.
RowId	Row ID of a single order to fulfill or Row ID of a single line item to fulfill	Required when InputMode = ORDERID or InputMode = LINEITEMID.
OrderSearchSpec	A Where clause	Required when InputMode = ORDERSEARCHSPEC.

### **To set Fulfillment and Part Locator Engine parameters**

- 1 Identify the predefined system preferences to determine the defaults for the Fulfillment Engine.

**2** Read all the input parameters and identify all the line items from parameters or temp table based on mode.

**3** Fulfill each line item:

**a** Find the product and/or substitute product to fulfill the line item:

Queue the start invloc as the seed to start the search in the relationship.

Search the product throughout the entire inventory location hierarchy:

If this invloc has not previously been visited:

Add the Invloc to the set of Visited Invlocs.

Search the product for required/available Qty in the Invloc hierarchy.

If the Qty Product < Qty Required, search the substitute product for the remaining/available Qty.

If Qty Product or Qty Substitute is > zero, add the product and substitute availability to the warehouse list for the entire relationship.

If the warehouse list is created, then:

Add Qty Product to Qty Prod Found.

Add Qty Substitute to Qty Subst Found.

Determine whether the product is found or the search should continue:

If the allocation rule is *Substitute if ship from one location*:

If Qty Product + Qty Substitute is  $\geq$  Qty Required, stop the search.

Or else, continue the search.

If the allocation rule is *No substitute if exact found*:

If Qty Product is  $\geq$  Qty Required, stop the search.

Or else, continue the search.

If the allocation rule is *Always substitute*:

If Qty Prod Found + Qty Subst Found is > Qty Required, stop the search.

Or else, continue the search.

If continue the search, then:

Queue up all relationships for this invloc for further search.

Continue the search loop until found or all invloc relationships are exhausted.

If Qty Prod Found or Qty Subst Found is > zero, select the best allocation from the list according to the allocation rules.

**b** Allocate the product:

Generate the inventory transaction for all the products of type Allocate, and generate the inventory transaction for all the substitute products of types Substitute and Allocate.

**c** Generate the pick ticket.

## Running the Fulfillment Engine

Start the Fulfillment Engine by the following methods:

- Use the Workflow Manager.
- Use Siebel Server Requests.
- Invoke the engine for orders by clicking the Fulfill or Fulfill All command after selecting one or more Order line items.
- Use the Locate or Locate All command.

## Setup and Configuration

This section includes procedures for setting up order fulfillment.

### Setting Up Order Processes

Follow these procedures to define order types.

This procedure makes available from a predefined list the types of orders that appear in order-related views.

#### **To define order action types**

- 1 Navigate to Site Map > Data Administration > Order Action Types.
- 2 Create a new order action type record.
- 3 In the Line Item Action field, select a value.

#### **To define types of orders**

- 1 Navigate to Site Map > Data Administration > Order Types.
- 2 In the Order Types list, create a new order type record.
- 3 In the Order Type field, select a value.
- 4 In the Associated Action Types list, add a new record.

This adds an order action type associated with the order type that is selected in the Order Types list.

### Setting Up the Fulfillment and Part Locator Engines

Follow these procedures to set up the Fulfillment and Part Locator Engines.

#### **To set the component request parameters for the Fulfillment and Part Locator Engines**

- 1 Insert or edit a component request for one of the following server components:
  - Service Order Fulfillment Engine
  - Service Order Part Locator Engine

- 2 Add or modify the server component parameters as needed.

For information about server components and component parameters, see *Siebel Server Administration Guide*.

#### **To set asynchronous or synchronous operation of the Fulfillment and Part Locator Engines**

- 1 From the application-level menu, choose View > User Preferences > Service.
- 2 In the ASYNCHRONOUS FULFILLMENT OF section, do one of the following:
  - To set asynchronous operation of the Fulfillment and Part Locator Engines, select Orders.
  - To set synchronous operation of the Fulfillment and Part Locator Engines, clear Orders.

#### **To set system preferences for the Fulfillment and Part Locator Engines**

- 1 Navigate to Site Map > Application Administration > System Preferences.
- 2 In the System Preference Name column, locate the name of the system preference to set.
- 3 Type in a new value in the System Preference Value field, as appropriate.

System preferences are listed in [Table 79 on page 297](#). For specific system preference values, see [Table 76 on page 288](#).
- 4 To register changes to system preferences, restart the Field Service server.



**Table 79. System Preference Names**

Parameter	Default Value	Comments
DefaultFulfillInvlloc	Default inventory location	Enter the Row ID of the inventory location.
InventoryTypeForPT	Inventory location types	Enter the Inventory location type from which pick tickets are generated. The values should be from the Inventory location type LOV and individual values should be any of the LIVs.  To add an inventory location type, enter its name as it appears in the application, enclosed in single quotes. Separate location types with commas.
AllocationRule	Allocation rule	In the System Preference Value column, enter 1, 2, or 3 to specify the applicable allocation rule.
OrderStatusToBeFulfilled	Order status	To add an order status, enter its name as it appears in the application, enclosed in single quotes. Separate status values with commas.
OrderItemStatusToBeFulfilled	Order line item status	To add an order item status, enter its name as it appears in the application, enclosed in single quotes. Separate status values with commas.
Fulfill-SearchAllSublevels	Whether to search child locations	Enter a value of TRUE and FALSE.  TRUE - Search the specified inventory location and all its child inventory locations specified by Sublevel relationships.  FALSE (default) - Search the specified inventory location and all its fulfillment hierarchy locations but <i>not</i> the child inventory locations specified by Sublevel relationships.

## Fulfilling Orders

Follow these procedures to fulfill service orders. This involves identifying and reserving items specified in an order.

### ***To allocate parts for a service or internal order manually***

- 1** Navigate to the Orders screen.
- 2** Select an order.
- 3** Click the Line Items tab.
- 4** Select the line item to allocate.
- 5** Click the Actions subview tab.
- 6** To add an action record, click New.
  - a** In the Type field, select Allocate.
  - b** Enter the order quantity in the Qty field.
  - c** Specify inventory information in the Source Location, Source Availability, and Source Status fields.

---

**NOTE:** If the Logistics Manager and its Fulfillment Engine are installed, the Fulfillment Engine automatically specifies Allocate actions.

---

### ***To generate a pick ticket for an order***

- 1** Navigate to the Orders screen.
- 2** Select an order.
- 3** Click the More Info tab.
- 4** Click the menu button and select Generate Pick Tickets.

### ***To locate order line items using the Part Locator***

- 1** Navigate to the Orders screen.
- 2** Select an order.

- 3 Click the Line Items tab.
- 4 Select a line item.
- 5 Click the Part Locator tab.
- 6 In the Line Items list, click one of the following buttons:
  - **Locate** - Searches for the product through inventory locations, and then loads the list of available and substitute parts in the Part Locator subview.
  - **Locate All** - Finds inventory locations for all line items.

#### ***To allocate order line items using the Part Locator***

- 1 Follow the procedure [“To locate order line items using the Part Locator” on page 298](#).
- 2 In the Part Locator subview, select a product/inventory location record in the Available Substitute list or the Line Allocation list.
- 3 In the Qty field, enter the number of items to allocate.  
If no quantity is specified, the total available quantity is allocated.
- 4 If the selected record is in the Available Substitute list, click the appropriate button:
  - **Allocate All**. Allocates available parts automatically, starting with the first listed inventory location, up to the value in the Qty field.
  - **Allocate**. Allocates the selected line item from a selected product/inventory location record.

#### ***To fulfill orders using the Fulfillment Engine***

- 1 Navigate to the Orders screen.
- 2 Select an order.
- 3 Click Fulfill to fulfill the selected order.

#### ***To fulfill order line items***

- 1 Navigate to the Orders screen.

- 2** Select an order.
- 3** Click the Line Items tab.
- 4** Select an order line item.
- 5** Do one of the following:
  - Click Fulfill to fulfill the selected order line item.
  - Click Fulfill All to fulfill all order line items.

#### **To de-allocate order line items**

- 1** Navigate to the Orders screen.
- 2** Select an order.
- 3** Click the Line Items tab.
- 4** Select an order line item.
- 5** Click the Actions subview tab.
- 6** Select the action item (of type Allocate) to de-allocate.
- 7** Click the menu button and select De-Allocate from the drop-down list.

## Product Administration Screen

The Product Administration screen includes a view for configuring inventory locations, allocation, and cycle counting for products. For more information, see *Product Administration Guide*.

### Products View

The Products view records basic information about each product; for example, product name, part number, and revision. [Table 80 on page 301](#) describes items in Product records.

**Table 80. Selected Items in the Products View**

Item	Description
Allocate Below Safety	A check box that indicates the Fulfillment and Part Locator Engines can allocate this product when its level in inventory is below the safety level (set in the <a href="#">“Product Inventory View” on page 347</a> ).
Auto Allocate	A check box that indicates the Fulfillment and Part Locator Engines can allocate this product. If this box is unchecked, the engines do not allocate this product.
Auto Substitute	A check box that indicates the Fulfillment and Part Locator Engines can allocate a substitute for this product.
Equivalent Product	The Fulfillment Engine uses this information if the specified product is unavailable. This is the same as the specified substitutes. See <a href="#">“Substitute Products Subview” on page 305</a> .
Field Replaceable	A check box that indicates this item may be replaced at the customer site. This is informational and has no effect on other fields or functions.
Orderable	A check box that indicates the product may be obtained by ordering from any specified source. If the product is not orderable, it does not appear in the Pick Product dialog box, which presents choices for the Product field in the Orders screen, Service Order view, Line Items subview.
Return if Defective	A check box that indicates this item, if defective, should be returned to the service center. This is informational only.

**Table 80. Selected Items in the Products View**

Item	Description
Serialized	A check box that indicates this product and all of its assets are serialized. Serialized products are treated in a different way. Whenever a serialized product is shipped or received, Field Service expects the right number of assets with serial numbers.
Service Product	<p>A check box that indicates this product is used for service and may have special pricing. See <i>Pricing Administration Guide</i> for information on pricing administration and <i>Product Administration Guide</i> for information on product administration.</p> <p>When selected, prevents the Part Locator Engine from allocating parts for the product. To allow the Part Locator Engine to allocate parts for the product, clear this check box.</p>
Tool	A check box that indicates this item is a tool used in service procedures. This is informational only.

## Product Field Service Details View

The Product Field Service Details view provides the information used in locating and allocating products for use in field service activities.

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**NOTE:** To navigate to the Product Field Service Details view, use the Show drop-down list in the More Info tab.

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This view has two subviews, Inventory Options (see [“Inventory Options Subview” on page 304](#)) and Substitute Products (see [“Substitute Products Subview” on page 305](#)).

Table 81 describes items in Product Field Service Details records.

**Table 81. Selected Items in the Product Field Service Details View**

Item	Description
Allocate Below Safety	A check box that indicates the Fulfillment and Part Locator Engines can allocate this part when its level in inventory is below the safety level (see <a href="#">“Product Inventory View” on page 347</a> ). This check box also appears in the Products view (see <a href="#">“Products View” on page 301</a> ).
Auto Allocate	A check box that indicates the Fulfillment and Part Locator Engines can allocate this part. If this box is unchecked, the engines do not allocate this product. This check box also appears in the Products view (see <a href="#">“Products View” on page 301</a> ).
Field Replaceable	A check box that indicates this item may be replaced at the customer site. This is informational and has no effect on other fields or functions.
Lead Time	The vendor’s response time in minutes.
MTBF	Mean time between failures; a measure of dependability of the product.
MTTR	Mean time to repair; a measure of the time required to repair the product.
Return Defective	A check box that indicates this item, if defective, should be returned to the service center. This is informational only.
Revision	The current version of the product. This is copied to new asset records.
Serialized	A check box that indicates this product is serialized. Serialized products are treated in a different way. Whenever a serialized product is shipped or received, the application expects the right number of assets with serial numbers.
Ship carrier	The default carrier for the selected product; for example, UPS or FedEx.
Ship Via	The default mode of transportation; for example, Air, Ground, or Sea.

**Table 81. Selected Items in the Product Field Service Details View**

Item	Description
Status	The status of a product; for example, production, obsolete, or prototype. This is copied to new asset records.
Tool	A check box that indicates this item is a tool used in service procedures. This is informational and has no effect on other fields or functions.

## Inventory Options Subview

The Inventory Options subview sets the inventory locations for a product and determines how the Fulfillment Engine allocates a product from inventory or chooses a substitute when filling an order. It also sets the cycle counting default parameters for each product in inventory (see [Chapter 11, “Cycle Counting and Replenishment”](#)). [Table 82](#) describes items in Inventory Options records.

**Table 82. Selected Items in the Inventory Options View**

Item	Description
Auto Allocate	When this field is set to Yes, the Fulfillment Engine can automatically allocate a product from this location. When set to Default, the engine uses the Auto Allocate setting for the product at all inventory locations, set in the Product view. This setting does not affect replenishment.
Allocate Below Safety	When this field is set to Yes, the Fulfillment Engine can automatically allocate a product from this location when the quantity falls below the safe level. When set to Default, the engine uses the Allocate Below Safety setting for the product at all inventory locations, set in the Product view. This setting does not affect replenishment.
Auto Substitute	When this field is set to Yes, the Fulfillment Engine can automatically substitute a product. When set to Default, the engine uses the Allocate Below Safety setting for the product at all inventory locations, set in the Product view. This setting does not affect replenishment.



## Substitute Products Subview

The Substitute Products subview specifies the products that the Fulfillment Engine may use to fill an order when the specified product is unavailable from inventory. The user chooses from products that are specified in the Products view (see [“Products View” on page 301](#)). The Fulfillment Engine can choose this product if the Auto Substitute flag is set.

---

**NOTE:** Substitutions are unidirectional. Product A may substitute for product B, but B cannot substitute for A unless that substitution is explicitly defined.

---

## Data Administration Screen

The Data Administration screen has two fulfillment-related views for configuring orders: Order Action Types and Order Types.

Actions process orders. These actions indicate that the product has been reserved for a line item (Allocate action), it has been substituted by another product (Substitute action), it has been shipped (Ship action), and so on.

Order types define the classes of orders that Field Service processes; for example, Internal Order, Service Order, RMA Return, and so on. Each Order Type has associated Order Action Types; for example, a Purchase Order typically has a Receive Order Action Type.

---

**NOTE:** New order types and order action types can be added through these views. However, the processing that must happen when these new actions and action types are selected by end users has to be customized.

---

### Order Action Types View

The Order Action Types view defines the actions that may be associated with an order type. An administrator chooses action types from a drop-down list. The choices available in this menu are set in the Applications Administration screen, List of Values view.

---

**CAUTION:** Never delete order types or order action types, as their Row IDs provide values for tables elsewhere in Orders. To change or replace an order type or an order action type, modify the List of Values and then update (do not delete and re-enter) the Type entry.

---

### Order Types View

The Order Types view defines the types of orders that are available. The administrator chooses order types from a drop-down list. The choices available in this menu are set in the Applications Administration screen, List of Values view.

The Type Code field determines whether an order is a sales or service order.

## Orders Screen

The Orders screen includes views that relate to fulfillment.

### Line Items View

The Line Items view records all items included in an order. [Table 83](#) describes items in Line Item records.

**Table 83. Selected Items in the Line Items View**

Item	Description
Customize	This button invokes Siebel eConfigurator for products categorized as customizable. See <i>Product Administration Guide</i> .
Fulfill	This command creates an inventory transaction that allocates parts from inventory and creates pick tickets for the selected line item.
Fulfill All	This button creates an inventory transaction that allocates parts from inventory and creates pick tickets for all the line items in a selected order.
Locate/Locate All	These buttons appear in the view only when the Part Locator subview tab is selected (see <a href="#">“Part Locator Subview” on page 309</a> ).
Reprice	This command activates the Pricing Engine to calculate the price for the selected line item based on the associated price list and pricing model.
Reprice All	This button activates the Pricing Engine to calculate the price for all line items based on the associated price list and pricing model.
Qty	The quantity of the item in an order. This is normally an integer, but may be set to a decimal field. Note that the Replenishment and Fulfillment Engines may truncate decimal values.

## Configuration Note

Because of the special behavior of the Line Items business component (based on special class CSSBCLineItem), a Line Item record can be updated only if its parent Order record is exposed (present and active) in the Orders screen. If the screen exposes only the Line Items view without the Service Order view, the Line Item records are read-only.

## Totals Subview

The Totals subview provides a breakdown of products and services sold in terms of the price for a selected line item, a discount, and a price adjustment. The result is the total for the selected line item before adding tax and shipping.

## Line Detail Subview

The Line Detail subview contains more information about a selected order line item, including details specific to service products, shipping and billing information, and pricing. [Table 84](#) describes items in Line Detail records.

**Table 84. Selected Item in the Line Detail Subview**

Item	Description
Billable	When selected, indicates to the Invoice Engine that this order line item is billable to the customer. The engine adds this item to the invoice. Can be selected regardless of the order's type or status.
Loaner	When selected, indicates that a line item is on loan.
Ship Complete	When cleared, this check box indicates that a service center may ship only some of the line items, as needed. This is for information only.
Related Activity	Associates parts and tools, selected from the Pick Related Activity dialog box.
Warranty Recovery	When selected, indicates that a warranty credit is being requested for this line item.
Qty Shipped	Updated with the sum of the line item action Quantity for records of type Ship where the line item action Status is Complete.

## Attributes Subview

If the selected product is customizable with attributes, users can use the Attributes view to select specific attributes or to view the default attributes. For information about customizable products, see *Product Administration Guide*.

## Activity Plans Subview

The Activity Plans subview associates activity templates with order line items. The activities that belong to this plan appear in Activities subview. For more information, see [“Activity Plans View” on page 70](#).

## Part Locator Subview

The Part Locator subview finds the product to allocate to a line item in an order. The Locate buttons that appear in the Line Items view activate the Part Locator Engine to determine the inventory locations for line items.

Once located, the Allocate command (in the pull-down menu in the Part Locator view) reserves products for the order and the Generate PickTickets button (in the Service Order view) creates pick ticket records for the allocated line items.

The Part Locator view has these lists:

- **Available / Substitute.** This view lists the inventory locations at which the selected line item or a substitute for the selected line item is available.
- **Line Allocation.** This view lists the quantities of the selected line item that are allocated to each inventory location.

## Actions Subview

The Actions subview records all transactions created for the selected line item (for example, Allocate, De-Allocate, Ship, and Receive). The Fulfillment and Part Locator Engines automatically create Allocate transactions. The shipping process can automatically create De-Allocate transactions (see [“Process Shipment Button” on page 357](#)).

This view also records manual transactions for selected line items. The De-Allocate command in the pull-down menu creates a transaction of the type De-allocate.

For each line item action recorded, the values available in the Type field's picklist vary according to the transactions that have occurred previously. For example, the picklist does not offer the choice De-Allocate if no Allocate action has previously been performed on the line item.

### **Warranty Subview**

The Warranty subview shows the warranties associated with a product. Pre-existing warranties can also be associated with the selected line item. For more information about warranties, see [Chapter 15, "Warranties."](#)

### **Repair Subview**

The Repairs view shows the repair numbers associated with a line item. Repair # is the same as Defective Tag. This view is read-only.

## **Fulfillment View**

The Fulfillment view has an Auto Receive flag that applies to Internal Orders. Selecting this flag automatically generates receiving line items and processes their receipt for the field engineer trunk inventory location when Process Shipment is done at the source inventory location. If the order is an Internal Order and the destination inventory location type is Trunk, then the flag is selected by default.

## **Service Inventory**

# **9**

This chapter describes how a field service business sets up and maintains a service inventory.

# Service Inventory Overview

Service businesses use the Service Inventory module to manage parts throughout their life cycles and to monitor parts consumption during order fulfillment and field engineer activities. Service Inventory also allows mobile field engineers to manage their trunk inventories using a disconnected client.

[Figure 6 on page 313](#) shows the flow of goods through a service inventory. At the center of the flow is the service parts life cycle, a closed-loop process. The service parts life cycle consists of the following stages: receiving (good), order placement, picking and shipping, in-transit, customer, receive, test and sort, repair, restock to good, back again to receiving (good), and so on. Incoming goods from the manufacturer arrive at the receiving (good) stage. Goods go out to field engineers during the in-transit and receive stages. Through the field engineers, these goods go to customer sites through an in-transit stage for on-site repairs or replacements. Goods also leave the service parts life cycle during the repair stage, where the goods may be tested, repaired, scrapped, recycled or replaced by the outsource vendor.



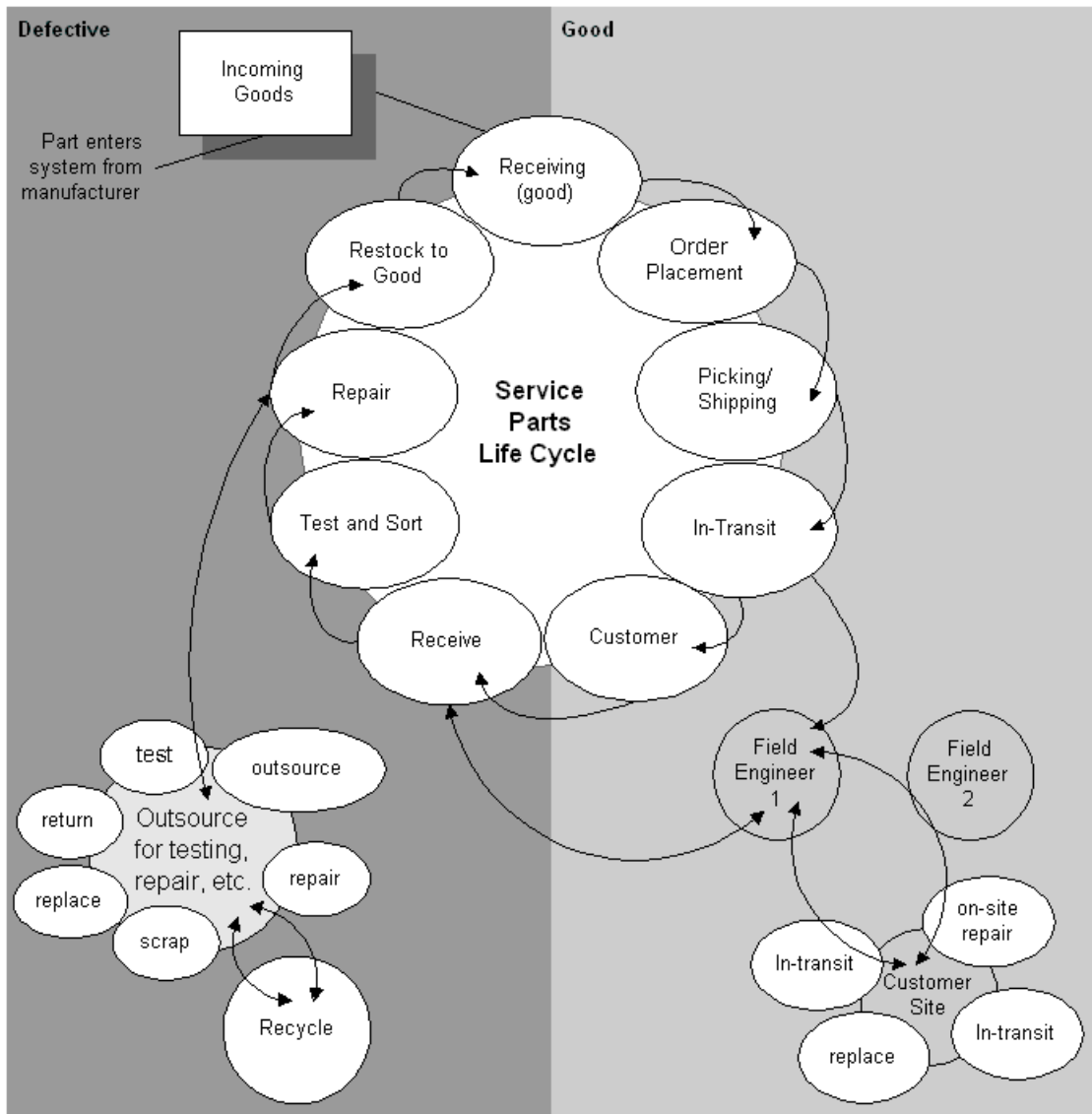


Figure 6. Flow of Goods in Service Inventory

A materials manager can automate all of these tasks using the Fulfillment or Part Locator Engines. The Replenishment Engine automates the production of orders to restock inventory locations (see [Chapter 11, “Cycle Counting and Replenishment”](#)).

## Setting Up an Inventory

A primary objective of Service Inventory is to record the organization of inventory.

[Figure 7 on page 315](#) shows an example of an inventory structure. The structure is hierarchical. At the top level is US Inventory. At the next level, this is broken out into California Field Service Engineers, Dallas (warehouse), Boston Repair Center (warehouse), and Field Offices.

California Field Service Engineers is broken out into Fred Roberts' trunk and Chris Smith's trunk. Fred Roberts' trunk has product inventory levels classified as On-Hand and Reserved. Dallas (warehouse) is broken out into Aisle A, Aisle B, and Aisle C. Aisle A has Shelf 1 and Shelf 2. Shelf 1 is broken out into Bin A and Bin B. Bin B has product inventory levels for Disk Drives and CD-ROM drives. Boston Repair Center (warehouse) is likewise broken out into Aisle A and Aisle B. Field Offices is broken out into Boston, Los Angeles, and San Francisco (warehouse).

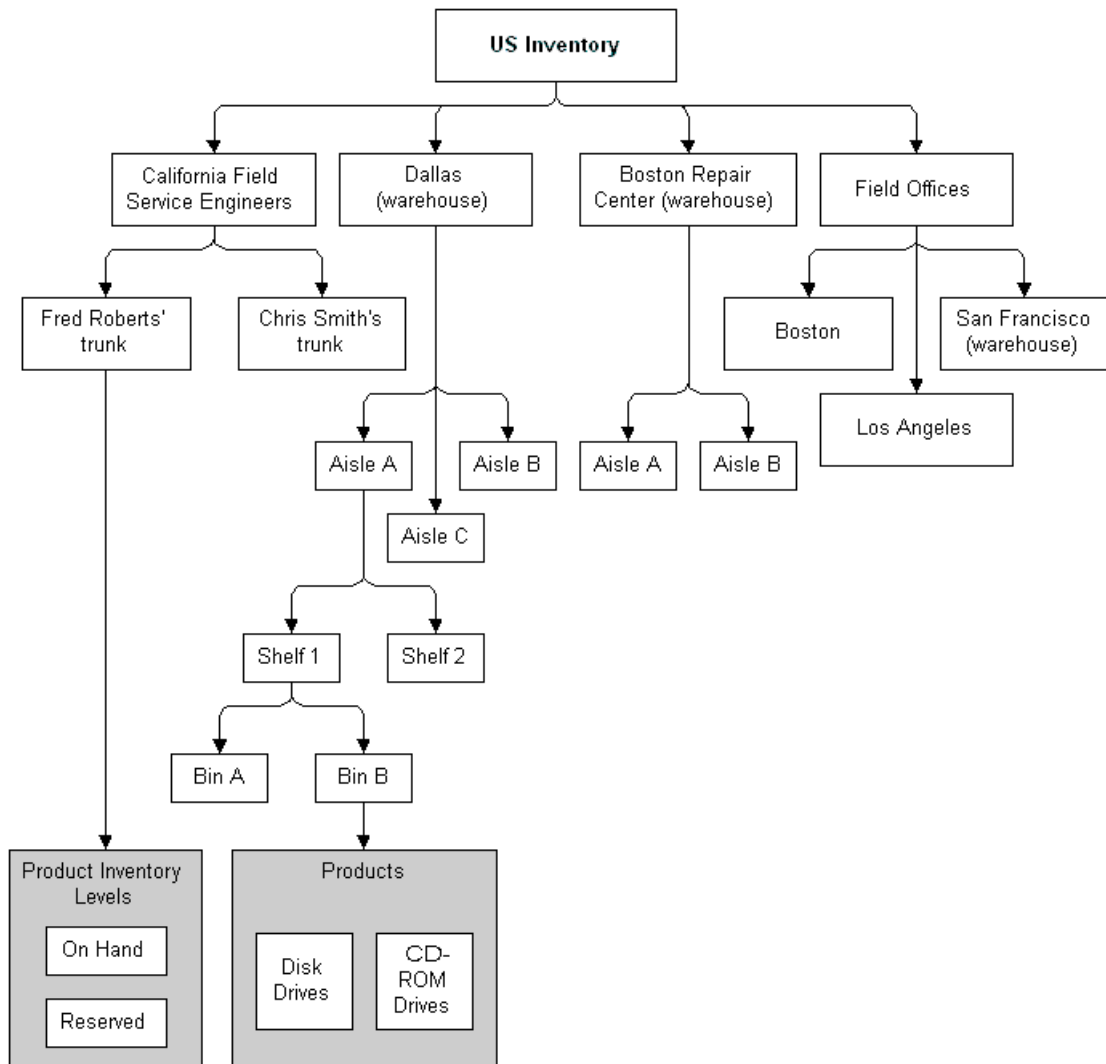


Figure 7. Sample of a Service Inventory Structure

### Inventory Locations

Inventory locations consolidate and manage all records having to do with service inventory (see “[Inventory Locations View](#)” on page 346). An inventory location can be a field engineer’s trunk, a warehouse, or a sublevel of a warehouse, such as a shelf or an aisle. An *inventory level*, which specifies availability and status of an item, may be added to any location in an inventory structure.

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**NOTE:** Inventory levels were called *product buckets* in previous releases of Siebel Field Service.

---

Building an inventory requires answers to the following questions:

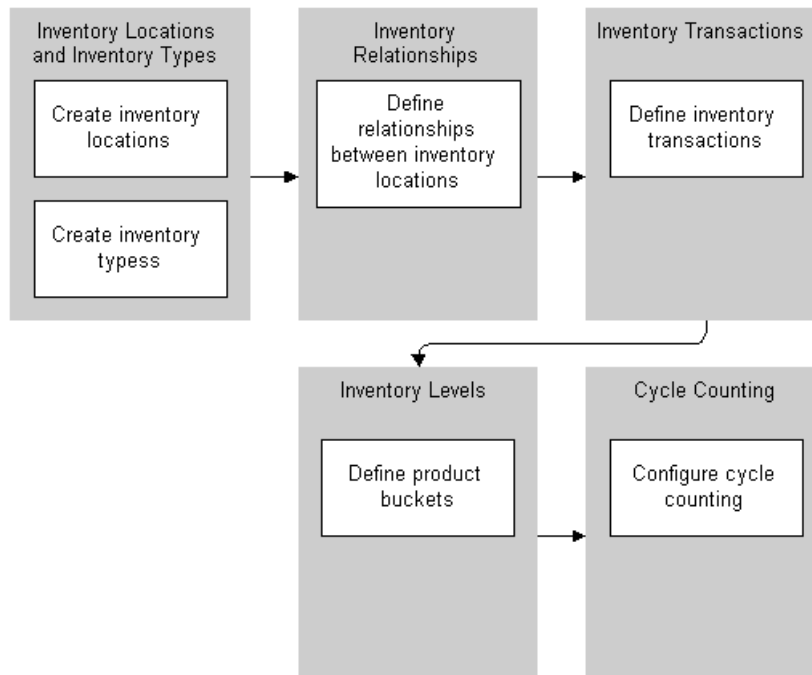
- Which inventory locations does Service Inventory track, and which are tracked by other means, such as an external back office inventory system?
- How many hierarchical levels are appropriate for each inventory location?

Different types of inventory locations can be defined. The following locations are basic to Service Inventory:

- **Warehouse.** Default inventory location where the inventory fulfillment and replenishment relationships are defined. Also, pick tickets are generated at this level. All other inventory locations may be defined as subcategories of the warehouse.
- **Trunk.** Mobile inventory that is assigned to a field service engineer. Each engineer has one trunk inventory.
- **Field Office.** May supply several field service engineers. It is intermediate between a warehouse and a trunk inventory.
- **Virtual.** A logical, rather than a physical, inventory location. One virtual inventory location named External is essential for proper functioning of inventory transactions. The External location is part of the seed data, with ROW\_ID value VIRTUAL\_INVLOC. This location allows an inventory system to receive items from the outside: a virtual inventory location is the source, while the destination is one of the physical inventory locations (for example, a shelf).

Figure 8 shows the sequence of tasks for setting up a service inventory. The steps are as follows:

- 1 Create inventory locations and inventory types.
- 2 Define relationships between inventory locations.
- 3 Define inventory transactions.
- 4 Define inventory levels.
- 5 Configure cycle counting.



**Figure 8. Setting Up a Service Inventory**

### Trunk Inventory

Managing a trunk inventory location requires recording part movements on the field service engineer's laptop computer. Field service engineers periodically connect their laptop computers to a Siebel server and synchronize data.

To maximize performance during synchronization to and from the field service engineer's local database, docking rules control the number and context of the records that are extracted, initialized, and synchronized. Because of these rules, an engineer may not have visibility to asset records required to commit a field part movement involving a serialized product. To solve this problem, the Field Service application allows the engineer to write in asset numbers. Upon synchronization, the write-in asset number is reconciled by an administrator with the corresponding database record, and the transaction is committed. Once committed, the field service engineer must synchronize again to update the local database.

At the time of synchronizing the laptops in the field, an administrator can use the Parts Movement Administration view (see [“Parts Movement Administration View” on page 342](#)) to review and commit transactions.

## Inventory Relationships

An inventory location is linked to other locations by relationships that define physical spaces, replenishment sources, fulfillment sources, and cycle counting lists. An inventory structure consists of a network of relationships.

Siebel Field Service can implement an inventory structure in several ways:

- Create one inventory location (for example, a warehouse), maintain the products at this location (in inventory levels), and then attach the physical location to the inventory level.
- Assign locator numbers to logically divide an inventory location. Locators have values like A1S3B7, meaning Aisle1, Shelf3, and Bin7. A locator number does not imply an inventory type (for example, a bin). The locator numbers should be used, along with the locator order, to optimize shipping and cycle counting.

- Define each aisle, shelf, and bin as a separate inventory location. Only bin-level inventory has products; typically only one or two products reside in each bin. The inventory name can reflect the combination of location and product. These different inventory locations can be linked to each other with the relationship type Sub-level, which indicates, for example, that Aisle1 is a sublevel inventory location of Warehouse.

While considering fulfillment, generating cycle counting lists, or running the Replenishment Engine at the warehouse level, all inventories below the Warehouse level (and connected using sublevels) are automatically considered.

To boost performance (for example, to avoid traversing a tree every time it is necessary to find all sublevels of inventory for a warehouse), Field Service uses a denormalized table. This table stores every child, direct child, or grandchild (to any number of levels deep) of a parent inventory. If an inventory hierarchy is defined as follows:

- Inventory A is parent of Inventories B, C, and D
- Inventory B is parent of inventories E and F

Then [Table 85](#) summarizes the entries in the denormalized table.

**Table 85. S\_INVLOC\_ROLLUP**

Parent Invloc	Invloc
A	B
A	C
A	D
A	E
A	F
B	E
B	F

Inventory locations may also be related through replenishment. However, replenishment relationships should be defined for inventory locations of type Warehouse only. For example, configuring the replenishment relationship “Oakland field office replenishes trunk” may result in the trunk inventory being overstocked if the trunk location is already a sublevel of a parent inventory.

---

**NOTE:** Fulfillment and replenishment relationships between inventory locations should be set at the warehouse level, and not at lower levels; for example, aisles, bins, or shelves. When using relationships, the Fulfillment, Replenishment, and Part Locator Engines automatically search for parts at lower levels by using sublevel relationships.

---

## Tracking an Inventory Location

There are two methods to track a part’s physical location in an inventory:

- If inventory locations are defined down to the shelf or bin level, attach the inventory level to a bin or shelf, whose fixed location identifies the part.
- Enter a description of the part’s inventory location in the Locator fields of the Product Inventory view. This view provides three Locator fields to allow for multiple possible locations; for example, a part called Defective 1 GB HD might be found first in the northeast corner of the San Francisco field office, second on shelf A in the supplies room, and third on shelf B in the supplies room.

## Inventory Levels

Inventory levels are categories of products defined by a combination of availability and status. Both availability and status can have a variety of values. Availability values are Customer Owned, In Transit, On Hand, On Order, and Reserved. Status values are Good and Defective.

Here are examples of inventory levels for one product:

<b>Availability</b>	<b>Status</b>
On Order	Good
On Hand	Good



Availability	Status
Reserved	Good
In Transit	Defective

The Inventory screen (see [“Inventory Screen” on page 346](#)) records inventory levels and asset numbers for each product in inventory. New products and inventory levels can be added to an inventory in this view, but it is not necessary to create these records manually. When an inventory transaction occurs, products and inventory levels are automatically created if they do not exist. However, products created this way are not assigned Min, Max, and Safety values or a cycle counting class (A, B, or C; X, Y, or Z), so product records may need updating on the Service Inventory screen.

You can create or update inventory levels by loading them through the EIM\_PRODINVLOC table. You can also create or update inventory transactions by loading them through the EIM\_INV\_TXN table. For more information about these tables, see *Interface Tables Reference*.

### Negative Inventory Levels

Negative inventory levels may result from certain inventory transactions. Negative inventory levels are possible only for non-serialized products. Inventory levels may acquire negative values under the following circumstances:

- When the logical inventory does not match the physical inventory (in other words, if the item is on the shelf but the database does not show that it is available).
- When reconciling transactions to or from an External Location. The External Location must have negative quantities so that it can receive inventory from an external source.

#### Best Practice: Managing Inventory Levels

If the Inventory levels do not exist, they are automatically created by inventory transactions. However, Siebel Systems recommends that inventory levels be initiated as part of the Authorized Stock List for an inventory location. As part of the Authorized Stock List, the default inventory levels (for example, On Hand - Good) should be created when an inventory location is created or when a new product is added to an inventory location. If your company plans to stock a particular inventory level, then you should not rely on an inventory transaction to create it.

Creating an inventory level when a product is added to an inventory location can be automated by setting up a workflow process. For more information about Siebel workflows and how to set them up, see *Siebel Business Process Designer Administration Guide*.

#### Location Order

Service Inventory can specify a preferred order for using inventory at several different locations. By specifying which location to use first, Service Inventory minimizes the time required for a warehouse clerk to find an item for shipping (pick tickets), to stock inventory (replenishment), or for cycle counting. Location order can suggest order management strategies, like First-In-First-Out (FIFO). However, allocation takes place inventory levels and does not follow plans like FIFO or LIFO.

---

**NOTE:** Location Order is for information only. It has no effect on the Fulfillment or Cycle Counting Engines.

---

Location order is represented by locator numbers (1, 2, and 3). Each locator number is defined by a locator code that applies to a specific warehouse or inventory system. For example, part H3 may occur at three different inventory locations that have these locator codes:

Locator Number	Example of a Locator Code	Meaning of Code
1	A3S1B1	Aisle 3, shelf 1, bin 1

Locator Number	Example of a Locator Code	Meaning of Code
2	A3S2B6	Aisle 3, shelf 2, bin 6
3	A15S3B1	Aisle 15, shelf 3, bin 1

The location order can be any sequence of locator numbers; for example, 123 or 213. Make sure that the location order represents the optimized path through the warehouse.

Inventory locations 1, 2, and 3 (or Locators) are specified for inventory levels in the Inventory screen, Product Inventory view, Inventory Level subview (see [“Inventory Level Subview” on page 348](#)). Location Order appears as a read-only field in the Products screen, Inventory Locations view. Locations (1, 2, and 3) appear as read-only fields in the Cycle Counts screen, Part List view.

---

**NOTE:** To see the Inventory Options subview, choose Inventory Options from the Show drop-down list in the Service Details view. To see the Substitute Products subview, choose Substitutes from the Show drop-down list in the Service Details view.

---

## Inventory and Product Serialization

If a product is serialized by selecting the Serialized check box in the Product Service Details view (see [“Product Field Service Details View” on page 302](#)), then a serial number is required for all movements and transactions of assets of this product, including the following:

- Inventory transactions
- Field part movements
- Cycle counts
- Shipments
- Receipts

Serialized products are treated differently from non-serialized ones. If a product is serialized, the user needs to enter assets for the product. Whenever a serialized product is shipped or received, Field Service expects the right number of assets with serial numbers. For example, if four serialized hard drives are shipped or received, Field Service expects that four separate serial numbers are entered.

---

**NOTE:** When a serialized asset is allocated through a manual order, the system allocates the product quantity specified in the order, not the asset itself. Consequently, the asset remains in the On Hand - Good/Defective inventory level.

---

## Asset Transactions

The asset transactions that maintain an install base are Install, Uninstall, Upgrade, and Downgrade. These transactions do not directly update quantities in inventory levels.

When a field service engineer reports part movements in the field, inventory and asset transactions are generated automatically. For example, a record in the Part Movement list with a source of Customer and a destination of Trunk means that the field service engineer has taken a part out of the customer's install base and has put it in his or her trunk. The Mobile Inventory Transaction Engine reflects this transfer by creating an inventory transaction (to receive the part into a trunk) and an asset transaction (to change the install base).

When a field service engineer is repairing, updating, or replacing items referenced in a service order, the engineer selects Service Order as a source and specifies Customer as the destination. Since the item is added to the customer install base, only an asset transaction is generated.

You can create asset transactions manually in the Assets screen's Transactions view.

If you perform any inventory transaction on a hierarchical asset, then only the Inventory Location field of the parent component will show the correct location. The Inventory Location field of the child sub-components will be blank or will have a value of External Location.

Changes can occur in some other fields of the asset's parent component according to the type of inventory transaction. Whether these effects occur on the fields of the hierarchical asset's child sub-components depends on whether the fields are set to cascade their values from the parent to the child. For more information about hierarchical assets, see [“Hierarchical Assets” on page 492](#).

## Inventory Transactions

The Service Inventory module is transaction-based. Field Service uses inventory transactions to update inventory levels in response to parts movements between two locations or whenever there is change in an inventory level. Each inventory transaction has a product, a quantity, a source, and a destination.

Here are some examples of business activities that create inventory transactions:

- Perform a part movement by doing an install or uninstall of a part and move it into or out of the service engineer's trunk.
- Allocate or de-allocate a part against a line item on an order, either manually or through the Fulfillment engine.
- Ship an order and click the Process Shipment button on the Shipping screen.
- Receive an order and click the Generate Transaction button on the Receiving screen.
- Create a transactions manually in the Inventory Transactions screen.

Table 86 summarizes the types of inventory transactions.

**Table 86. Summary of Types of Inventory Transactions**

Type	Description
<b>Adjustment</b>	Adjusts inventory levels; for example, if after a cycle count there is a variance between original inventory and counted inventory. Manually generated in the Inventory Transactions screen, or automatically in Cycle Counts > Variance (see <a href="#">“Cycle Counts Screen” on page 410</a> ).
<b>Allocate</b>	Adds inventory to an inventory level with an availability of Reserved. Automatically generated when an Allocate action is called for an order line item.
<b>De-Allocate</b>	Clears inventory from an inventory level with an availability of Reserved. Automatically generated when a De-Allocate action is called for an order line item.
<b>Exchange Between FSEs</b>	Moves inventory from one trunk inventory to another. Intended to move inventory between field service engineers. Manually generated in the Inventory Transactions screen.
<b>Over-the-Counter</b>	Moves inventory from one inventory location or level to another. Intended to move inventory from warehouses to field service engineers’ trunks. Manually generated in the Inventory Transactions screen.
<b>Receive from TP</b>	Moves inventory from a third-party location that is defined in the inventory system (in the Orders screen, Fulfillment view) to the inventory location defined in the Receiving screen, Line Item Receipts view.
<b>Receive Internal</b>	Moves inventory from an inventory level with the availability of In Transit to a defined physical inventory level, such as a shelf in a warehouse. A stock transfer, automatically generated in the Receiving screen.
<b>Receive Other</b>	Enters inventory, on receipt, into an inventory level. Part of a transaction with a customer, which uses a virtual inventory location called External Location or Customer. These locations come as seed data with Field Service. Received from the Customer location to the location specified in the Receiving screen, Line Item Receipts view.

**Table 86. Summary of Types of Inventory Transactions**

Type	Description
<b>Ship Internal</b>	For internal orders, moves inventory from a physical inventory level to an inventory level with the availability of In Transit. A stock transfer, automatically generated in the Shipping screen.
<b>Ship Other</b>	For outside orders, moves inventory from a physical inventory level to an inventory level with the availability of In Transit. Part of a transaction with a customer that uses a virtual inventory location called Customer. The Customer location comes as seed data with Field Service.
<b>Ship to TP</b>	Moves inventory from the location from which the item was allocated and the pick ticket generated to the destination location defined in the Orders screen, Fulfillment view.
<b>Stock Transfer</b>	Moves inventory from one inventory level or location to another, whether the inventory levels or locations are in the same warehouse or in different warehouses. Manually generated in the Inventory Transaction screen.

## Conditions for Generating Transactions

[Table 87](#) defines the types of inventory transactions created for combinations of source and destination locations, inventory levels, and serialized versus non-serialized assets.

**Table 87. Conditions for Generating Transactions Types**

Inventory Transaction	Inventory Txn Type	Source			Destination		
		Inventory	Inventory Level	Assets <sup>1</sup>	Inventory	Inventory Level	Assets <sup>1</sup>
Part movement on activity	Ship Other	Trunk of FE	On Hand	Yes	Customer	On Hand	Yes
	Receive Other	Customer	On Hand	Yes	Trunk of FSE	On Hand	Yes
Allocate action Insertion on order entry	Allocate	Customer	On Order	No	Ord Part Movement Source Invloc ID	Reserved	No

## Service Inventory

### Service Inventory Overview

**Table 87. Conditions for Generating Transactions Types**

Inventory Transaction	Inventory Txn Type	Source			Destination		
		Inventory	Inventory Level	Assets <sup>1</sup>	Inventory	Inventory Level	Assets <sup>1</sup>
De-allocate action Insertion on order entry	De-allocate	Ord Part Movement Source Invloc ID	Reserved	No	Customer	On Order	No
Ship other	Ship Other	Ord Part Movement Source Inv	On Hand	Yes	Customer	On Hand	Yes
	De-allocate	Ord Part Movement Source Inv	Reserved	Yes	Customer	On Order	Yes
Ship internal	Ship Internal	Ord Part Movement Source Inv	On Hand	Yes	Order header. Destination Invloc ID	In Transit	Yes
	De-allocate	Ord Part Movement Source Invloc ID	Reserved	Yes	Customer	On Order	Yes
Receive RMA/PO	Receive Other	Customer	On Hand	Yes	Ord Part Movement Dest Inv	Ord Part Movement Avail/Status	Yes
Receive internal	Receive Internal	Order Hdr Destination Inv	In Transit	Yes	Ord Part Movement Dest Inv	On Hand	Yes



**Table 87. Conditions for Generating Transactions Types**

Inventory Transaction	Inventory Txn Type	Source			Destination		
		Inventory	Inventory Level	Assets <sup>1</sup>	Inventory	Inventory Level	Assets <sup>1</sup>
Ship RO	Ship to TP <sup>2</sup>	Ord Part Movement Source Inv	On Hand	Yes	Order header. Destination Invloc ID	On Hand	Yes
	De-allocate	Ord Part Movement Source Invloc ID	Reserved	Yes	Customer	On Order	Yes
Receive RO	Receive from TP <sup>2</sup>	Order Hdr Destination Inv	On Hand	Yes	Ord Part Movement Dest Inv	On Hand	Yes

1. The assets rows are included in the transaction validation if the product is serialized.
2. Third-party provider.

The following rules regulate the generation of inventory and asset transactions:

- If a product is serialized:
  - The asset for the part movement must be specified.
  - The quantity of the part movement must be 1.
  - The asset must belong to the source inventory.

When these conditions are met, the inventory transaction is validated and the inventory database is updated.

- If the product is not serialized and no asset number is specified, a committed inventory transaction is generated *without* validation and committed successfully.
- If the product is not serialized and no asset number is specified, neither an asset validation nor an asset transaction takes place. The inventory location is not stamped on the asset.

### Mobile Inventory Transactions

Siebel Field Service can record part movements in the field (mobile inventory) without synchronizing with the Field Service server. This allows field service engineers to record transfers of assets without having the asset number or serial number on their laptop computers.

Normally, recording transfers of assets without having asset numbers or serial numbers would cause a transaction to fail. However, with Field Service, the part movement is recorded but not applied to the inventory database.

If the mobile computer is disconnected, the local database is updated. When the mobile computer is synchronized with the Siebel server, the information about the part movement is transferred to the server. If the asset was identified in the database on the remote computer, the server records the change in inventory location in the database and then creates a transaction.

If a part movement was not validated on the remote computer (this includes all write-in assets), an uncommitted part movement appears in Service Administration > Parts Movement Administration (see [“Parts Movement Administration View” on page 342](#)). An administrator must review uncommitted part movements and reconcile write-in serial numbers with existing asset numbers. The Commit button then creates transactions (see [“To commit transactions reported by mobile clients” on page 340](#)). For information on the types of transactions created for specific combinations of source and destination locations, see [“Setting Up Service Inventory” on page 332](#).

The next time the remote computer is synchronized, its database is updated from the server database.

#### Mechanism of the Commit Buttons

Commit buttons appear on the Activities screen’s Expense Tracker, Part Tracker, and Time Tracker views; and on the Service Administration screen’s Parts Movement Administration view. The commit step of a transaction begins when the record is saved with the Commit flag set. The field service engineer uses the Commit button on the Activities screen to perform the following validations:

- Are source and destination inventories specified? This condition must be met first. If the asset does not belong to the source inventory level, leave it uncommitted.

- Is the position of the owner of the activity associated with a trunk inventory (location type Trunk)?
- If an asset number is provided, is it valid?
- For each asset transaction, is the asset at the specified inventory source location? This validation is not performed for the External location or the Customer location (see [“Setting Up an External Location” on page 347](#)).
- Is the item available? Availability and status are verified. This validation is not performed for the External location.
- Does the source inventory have the quantity of assets specified? This quantity is 1 if the part is serialized.
- If the product is serialized, does the total quantity for an inventory transaction equal the total number of asset entered for this transaction?

If these validation checks are successful, the Commit flag is set in Part Tracker records and records are generated to record inventory movements. In detail, the following steps are carried out:

- Create a committed inventory transaction; for example, Receive Other.
- Create assets for the inventory transaction.
- Create new database records for the inventory location: source and destination.
- Update the asset record (ID).
- Create asset transactions; for example, Install.
- Commit the part movement by updating the database.

# Setting Up Service Inventory

These are procedures for setting up the structure and operation of an inventory system using Siebel Field Service. The procedures may require administrative access.

## Defining Products for Field Service

Before you set up an inventory system, you must define the products that the inventory system will track. For more information on defining products, see *Product Administration Guide*.

### **To create serialized and non-serialized products**

- 1 Navigate to the Product Administration screen.
- 2 Select a product.
- 3 From the Show drop-down list, select Product Service Details.
- 4 If the product has a serial or asset number, select Serialized.

### **To specify an asset for a product**

- 1 Navigate to the Assets screen.
- 2 Create an asset record.
- 3 In the Product field, select a product.
- 4 If the asset has a serial number, enter it in the Serial # field.

### **To specify allocation of products**

- 1 Navigate to the Product Administration screen.
- 2 Select a product.
- 3 From the More Info view tab's Show drop-down list, select Product Service Details.

- 4 In the More Info view tab, select the desired allocation modes: Allocate Below Safety, Auto Allocate, or Auto Substitute.

See [“Product Field Service Details View” on page 302.](#)

---

**CAUTION:** If you change the Allocate Below Safety, Auto Allocate, or Auto Substitute flags, you must restart the Parts Locator and Fulfillment Server components. (You do not have to restart the entire server.) If you do not restart these components, the system will not reset the product attribute settings in the Part Locator Engine and the Fulfillment Engine. For information about how to restart server components, refer to *Siebel Server Administration Guide*.

---

- 5 Click the Inventory Options subview tab.
- 6 In the Inventory Options subview, create records for each type of inventory location from which this product may be allocated.

This view inherits Allocate Below Safety, Auto Allocate, and Auto Substitute values from the More Info view.

- a In the Inventory Type field, select a type of inventory location.
- b Set the Allocate Below Safety, Auto Allocate, and Auto Substitute values if different than those specified for the product.
- c In the Class ABC and Class XYZ fields, set the cycle counting basis values of A, B, or C and X, Y, or Z.

See [“Configuration of the Cycle Counting Engine” on page 381.](#)

## Setting Up an Inventory

Follow these procedures to set up an inventory.

### **To define inventory types**

- 1 Navigate to Site Map > Service Administration > Service Inventory.
- 2 Make sure the Inventory Location Types view tab is selected.
- 3 Create an inventory location type record.

- 4 In the Location Type field, select an inventory type.
- 5 Set the parameters for cycle counting, as required. See [“Inventory Location Types Subview” on page 343](#) and [“Configuration of the Cycle Counting Engine” on page 381](#).

#### **To create an inventory location**

- 1 Navigate to the Inventory screen.
- 2 Add an inventory location record.
- 3 In the Name field, type in the name of the physical inventory location.  
The Name field uniquely identifies the inventory location.
- 4 In the Type field, select an inventory location type.
- 5 Enter values for other fields as needed.

#### **To add a product to inventory**

- 1 Navigate to the Inventory screen.
- 2 Select an inventory location.
- 3 Click the Product Inventory view tab.
- 4 Add a product record for the selected inventory location.
- 5 In the Product field, select a product.
- 6 Specify Min, Max, and Safety Levels for this product in inventory.
- 7 Specify the cycle counting basis in the ABC and XYZ fields.  
See [“Configuration of the Cycle Counting Engine” on page 381](#).

#### **To create an inventory level**

- 1 Navigate to the Inventory screen.
- 2 Select an inventory location.
- 3 Click the Product Inventory view tab.

- 4 Select a product.
- 5 Click the Inventory Level subview tab.
- 6 In the Inventory Level subview, create an inventory level for the selected product.
- 7 In the Availability field, select a set of Availability and Status values.

**To associate an employee with an inventory location**

- 1 Navigate to the Inventory screen.
- 2 Select an inventory location.
- 3 In the Ownership field, select Owned from the drop-down list.
- 4 In the Position field, select a position.

The inventory location appears in the My Inventory Locations view for the employee associated with the selected position.

**To associate a vendor with an inventory location**

- 1 Navigate to the Inventory screen.
- 2 Select an inventory location.
- 3 Click the Vendors view tab and add a vendor record.
- 4 In the Account field, select a vendor account.

**To associate an inventory location with an organization**

- 1 Navigate to the Inventory screen.
- 2 Select an inventory location.
- 3 In the More Info tab, click the show more button to see more fields.
- 4 In the Organization field, click the select button and select an organization from the Organizations dialog box.
  - a To set the primary (default) organization for this inventory location, select the Primary field.

- b** If an organization does not appear in the dialog box, click New and select an organization from the Add Organizations dialog box. Click OK.
- c** In the Organizations dialog box, click OK.

The organization marked as primary appears in the Organization field.

#### **To define inventory levels**

- 1** Navigate to Site Map > Service Administration > Service Inventory.
- 2** Click the Inventory Level Categories view tab.
- 3** Create a new record.
- 4** In the Availability and Status fields, select values.

#### **To define the relationships between inventory locations**

- 1** Navigate to the Inventory screen.
- 2** Select an inventory location.
- 3** Click the Relationships view tab and add a relationship record.
  - a** In the Name field, select an inventory location.
  - b** In the Relationship field, select a relationship (Fulfills, Replenishes, or Sublevel).

## Setting Up Inventory Transactions

Follow these procedures to define inventory transactions.

#### **To define types of inventory transactions**

- 1** Navigate to Site Map > Service Administration > Service Inventory.
- 2** Click the Inventory Transaction Types view tab and create an inventory transaction type record.
- 3** In the Name field select, the name of a transaction type.



## **Synchronizing Remote and Local Databases**

Siebel Remote allows mobile or remote clients (typically laptop computers) to connect to a Siebel Server and exchange updated data and files, a process known as synchronization. For information about setting up and using Siebel Remote, see *Siebel Remote and Replication Manager Administration Guide*.

# Using Service Inventory

Follow these procedures to verify inventory and create inventory transactions.

## Tracking Inventory

Follow these procedures to verify inventory.

### **To verify inventory status using the Inventory screen**

- 1 Navigate to the Inventory screen.
- 2 Select an inventory location.
- 3 Click the Product Inventory view tab.
- 4 Select a product.

The Inventory Level subview shows the inventory status for all products at the selected location.

### **To verify inventory status using the Part Browser**

- 1 Navigate to the Part Browser screen.
- 2 Select a product and inventory location.

The Inventory Level subview shows the inventory status for this product.

### **To generate inventory status reports**

- 1 Navigate to the Inventory screen.
- 2 Select an inventory location.
- 3 From the application-level menu, select View > Reports > Product List by Location or Products Below Minimum Level by Location.

### **To view cycle counting parameters for a selected location**

- 1 Navigate to the Inventory screen.

- 2 Select an inventory location.

Cycle counting parameters appear in the Inventory Locations form on the More Info tab.

**To view all inventory transactions**

- Navigate to View > Site Map > Inventory Transactions.

## Creating Inventory Transactions

Follow these procedures to process inventory transactions.

**To create inventory transactions manually**

- 1 Navigate to View > Site Map > Inventory Transactions.
- 2 Create an inventory transaction record.
- 3 In the Type field, select a transaction type.
- 4 Enter values for all required fields.

**To add an asset to an inventory transaction**

- 1 Navigate to the Inventory Transactions screen.
- 2 Select the inventory transaction for a serialized product with which you want to associate an asset.
- 3 Click the Assets view tab.
- 4 Add an asset record.

Available assets vary dynamically according to the Source Location in the inventory transaction record. The assets available to select are only those at that Source Location. If the Source Location is External Location, Field Service shows all assets not currently assigned to any location.

**To receive a product as a stock transfer or over-the-counter transaction**

- 1 Navigate to View > Site Map > Inventory Transactions.
- 2 Add an inventory transaction record.

**a** In the Type field, select Stock Transfer or Over-the-counter.

**b** Enter values for all required fields.

If the product for this inventory transaction is serialized, the Serialized check box is selected.

**3** If the product is serialized, click the Assets tab and add a new asset record for the transaction.

**a** In the Asset # field, select an asset.

**b** In the Inventory Transaction form, select the Commit check box.

#### **To move an item from one trunk to another: source mobile client**

**1** Navigate to View > Site Map > Inventory Transactions.

**2** Add an inventory transaction record.

**3** In the Type field, select Exchange Between FSEs.

**4** Enter values for all required fields.

**5** Select the Commit check box.

#### **To move an item from one trunk to another: destination mobile client**

**1** Navigate to the Activities screen.

**2** Select an activity.

**3** Click the Part Tracker view tab.

**4** Create a part movement record.

**5** In the Product field, select a product.

**6** Enter a value in the Write-in Serial # field.

**7** Select the Commit check box.

#### **To commit transactions reported by mobile clients**

**1** Navigate to Site Map > Service Administration > Parts Movement Administration.

**2** Click the show more button in the More Info tab.

**3** Select an uncommitted part movement record.

An uncommitted part movement record shows a cleared Commit check box in the More Info form.

**4** In the Asset # field, select an asset.

The asset should correspond to the write-in serial number entered by the mobile field service engineer.

**5** Select the Commit check box.

This action generates an inventory transaction that decrements the source inventory location and increments the destination location.

## Scrapping Inventory

If you need to create inventory transactions to scrap or write off an inventory of a product, follow this procedure.

### **To scrap or write off inventory**

**1** Assign one of the following inventory transaction types:

- The existing type Ship Other
- A new type that you create; for example, Scrap

For information about assigning a transaction type, see [“To create inventory transactions manually” on page 339](#). For information about creating a transaction type, see [“To define types of inventory transactions” on page 336](#).

**2** Send the inventory to one of the following inventory locations:

- The existing virtual location External Location
- A new virtual location that you create; for example, Scrap Location

For information about assigning an inventory location, see [“To add a product to inventory” on page 334](#). For information about creating a virtual inventory location, see [“To create an inventory location” on page 334](#).

# Service Administration Screen

The Service Administration screen has views for managing inventory transactions that have taken place in the field and for defining inventory transaction types, and for defining inventory level categories.

## Parts Movement Administration View

A field service administrator uses the Parts Movement Administration view to commit transactions that occurred in the field, but are not yet committed. These transactions can be the result of the movement of parts between trunks, customer sites, and service orders.

The administrator commits each part movement record by entering an asset number that is already in the database and clicking Commit. The Commit button creates the appropriate transactions (see [“Mobile Inventory Transactions” on page 330](#)) in the database. Upon synchronizing with mobile computers, the changes are transferred to the databases on the local laptops.

## Service Inventory View

The Service Inventory view contains subviews for setting the types of inventory categories that appear in drop-down lists in the Service Inventory screen.

## Inventory Location Types Subview

The Inventory Location Types subview defines the inventory locations that are available in the Type field in Inventory > Inventory Location (see [“Inventory Locations View” on page 346](#)). Examples of location types are Aisle, Trunk, and Virtual.

---

**CAUTION:** Do not delete Inventory Types, Inventory Level Categories, or Inventory Transaction Types. Their Row IDs provide values for tables elsewhere in Service Inventory. To change or replace an Inventory Type, Inventory Transaction Type, or Inventory Level Category, modify the List of Values and then update (do not delete and re-enter) the Type entry.

Also, do not delete the Inventory table row with the name External Location and the type Virtual, which is shipped as seed data with Field Service. Inventory transactions use this row, and cannot take place without it. Changing the name is acceptable.

---

## Inventory Transaction Types Subview

The Inventory Transaction Types view defines the transaction types that are available in the Type field of the [“Inventory Transactions View” on page 352](#). For more information concerning these transaction types, see [“Inventory Transactions” on page 325](#).

### **Inventory Level Categories Subview**

The Inventory Level Categories subview defines the inventory levels that are available in Inventory > Product Inventory (see [“Inventory Level Subview” on page 348](#)). An inventory category consists of a pairing of two values, availability and status. Examples of availability are On Hand, On Order, and Reserved. Examples of Status are Good and Defective.

---

**NOTE:** It is not necessary to create products and inventory levels manually. When an inventory transaction occurs, products and inventory levels are automatically created in the database if they do not exist. However, products created automatically in this way are not assigned specific levels, allocation values, substitution values, or cycle counting classes. It might be necessary to go to the Service Inventory screen and update newly created records in the Product Inventory and Inventory Level views.

---



## Product Administration Screen

The Product Administration screen defines products. For more information, see *Product Administration Guide*. You can select the following views from the Show drop-down list in the More Info view.

### Products View

The Products view records basic information about each product; for example, product name, part number, and revision.

### Product Service Details View

The Product Service Details view provides the information used in locating and allocating products for use in field service activities. For details, see [“Product Field Service Details View” on page 302](#).

---

**NOTE:** This view has two subviews, Inventory Options and Substitutes. To navigate to these subviews, use the Show drop-down list in the More Info view.

---

### Inventory Options Subview

The Inventory Options subview sets the inventory locations for a product. It determines how the Fulfillment Engine allocates a product from inventory or chooses a substitute when filling an order. It also sets the cycle counting parameters for each product at a specific location (see [Chapter 11, “Cycle Counting and Replenishment”](#)). For details, see [“Inventory Options Subview” on page 304](#).

### Substitute Products Subview

The Substitute Products subview specifies the products that the Fulfillment Engine can use to fill an order when the specified product is unavailable from inventory. The user chooses from products that are specified in the Products view (see [“Products View” on page 345](#)). The Fulfillment Engine can choose this product if the Auto Substitute flag is set. For details, see [“Substitute Products Subview” on page 305](#).

## Inventory Screen

The Inventory screen sets up and manages inventory locations and the products stored at these locations. For each product, it defines the inventory levels and records information about assets of these products. For replenishing inventory, it generates orders, displays the authorized vendors, and displays pending orders (see [“Replenishment” on page 393](#)). For cycle counting of inventory, parameters are defined and cycle counting lists are generated (see [“Cycle Counting” on page 378](#)).

In addition, the Inventory screen defines the roles of personnel at each inventory location.

### Inventory Locations View

The Inventory Locations view defines the inventory locations in a service business. The drop-down list below the view bar provides these choices for inventory locations: My Inventory Locations, All Inventory Locations, and All Inventory Locations Across Organizations.

#### All Inventory Locations Across Organizations

An organization is a category that limits the visibility of data within a company. The All Inventory Locations Across Organizations view shows the inventory locations for all organizations within a company. Inventory transactions can take place only between locations within the same organization (set in the Inventory Locations list). For more information on setting up organizations, see the chapter on access control in *Security Guide for Siebel eBusiness Applications*.

The person owning a record can see this record in the My Inventory Locations view, even if it is in a different organization. However, for the same person, this record does not appear in the All Inventory Locations view.

---

**CAUTION:** Improper configuration of organizations and inventory locations can lead to unintended effects. It may not be possible to carry out inventory transactions between certain locations.

---

## Setting Up an External Location

The seed data supplied with Field Service contains an External Location with the type Virtual. This is used as the default location in the absence of a source or destination location. It also allows inventory transactions between locations in different organizations (see [“Inventory Transactions Across Organizations” on page 352](#)).

The administrator cannot delete the External Location record. The Row Id (for example, VIRTUAL\_INVLOC) makes this value unique. Certain C++ code in Field Service references this value. If the administrator were to delete this row and recreate it, the record would be assigned a new Row ID and certain transactions would fail. The administrator can rename the location.

Using the Organization field, associate all organizations in the company with the External Location. This assures that all field service engineers in any organization within the company can use the External Location.

## Product Inventory View

The Product Inventory view associates inventory locations with products, sets quantities of each product, and sets cycle counting parameters for the product at the selected location. Products are specified in the Product Administration screen ([“Product Administration Screen” on page 345](#)). [Table 88](#) describes items in Product Inventory records.

**Table 88. Selected Items in the Product Inventory View**

Item	Description
Min	Minimum acceptable quantity of inventory at this location and product.
Max	Maximum acceptable quantity of inventory at this location and product.
Safety	Safe quantity of inventory for the selected location and product. The safe quantity ( $\leq$ Min) is the quantity below which the Fulfillment Engine should not allocate a product.
Serialized	Indicates whether instances of this product must have serial numbers recorded in the database.

## Inventory Level Subview

The Inventory Level subview associates inventory levels (availability and status) with products and defines the Location Order (see [“Location Order” on page 322](#)) for each inventory level. [Table 89](#) describes items in Inventory Level records.

**Table 89. Selected Items in the Inventory Level View**

Item	Description
Location Order	Indicates the preferred order for use of Locators 1 through 3. For example, 213 means that the item is best obtained from location 2, then 1, and finally 3. This order is used for the physical process of shipping and cycle counting. It has no effect on the Fulfillment or Cycle Counting Engines.
Locator 1-3	Description of the physical location of a product at an inventory level.

## Assets Subview

The Assets subview describes all of the assets of the selected product at an inventory location. Fields on this subview indicate both asset numbers and serial numbers.

## Generate Orders View

The Generate Orders view automatically produces orders to restock products in inventory, either by internal transfer between inventory locations or by purchase from an outside vendor. For replenishment, an inventory level must be defined for a product. For replenishment from a vendor, the authorized vendor must also be defined.

The Order button runs the Replenishment Engine to replenish all items that are below minimum at the selected location.

The replenishment process describes either a source inventory location to replenish a selected location or a target location to be replenished from the selected location. Specific relationships between locations are defined in the Relationships view (see [“Relationships View” on page 349](#)). For a full discussion of replenishment, see [Chapter 11, “Cycle Counting and Replenishment.”](#)

## Pending Orders View

The Pending Orders view lists orders that have been placed to replenish a location, either by part movement between inventory locations or by purchases from vendors. This view is read-only.

For a full discussion of replenishment, see [Chapter 11, “Cycle Counting and Replenishment.”](#)

## Vendors View

The Vendors view records vendors who may supply products for a selected inventory location.

## Relationships View

The Relationships view records the relationships between a selected inventory location and other inventory locations. If a business uses more than one inventory location, relationships among inventory locations are useful for automating inventory replenishment and order fulfillment. A relationship may be physical (for example, a shelf belongs to an aisle) or logistical (replenishment of inventory or fulfillment of orders). [Table 90](#) shows items in relationships records.

**Table 90. Items in the Relationships View**

Field	Description
Type	Type of location; for example, Warehouse or Trunk.
Relationship	Relationship of this inventory location to the location selected in the Inventory Locations tab. The choices are Fulfills, Replenishes, and Sublevel.
Order Priority	Priority of an order to be fulfilled from the inventory location, if the relationship type is Fulfills (for example, Low, Medium, or High).

### **Roles View**

The Roles view sets the roles of personnel associated with a selected inventory location.

### **Cycle Count View**

The Cycle Counting Administration view shows the parameters for cycle counting at a selected inventory location and the status of cycle counts for this location. To reach this view, choose Cycle Counts from the Show drop-down list in the Inventory screen. Cycle counts and cycle count periods are discussed in [“Cycle Counts View” on page 408](#).

## **Part Browser Screen**

The Part Browser screen presents a catalog of all parts in a service inventory. The fields in this screen are read-only.

### **Product Inventory View**

The Product Inventory view presents a summary of products at every inventory location in a service business. Any product may be at more than one location.

#### **Inventory Level Subview**

The Inventory Level subview shows the quantity, availability, and status of products at each selected inventory location.

#### **Substitutes Subview**

The Substitutes subview shows the quantity, availability, status, and part number of every substitute for a selected product and inventory location.

## Inventory Transactions Screen

The Inventory Transactions screen contains views that record the movement of products through inventory.

### Inventory Transactions View

The Inventory Transactions view lists all inventory transactions created automatically (in other screens and views) to allocate, ship, receive, transfer, or adjust the quantity and inventory levels for a product. The same transactions can be created manually in this view. [Table 91](#) shows items in inventory transaction records.

**Table 91. Button in the All Inventory Transactions View**

Field	Description
Commit	The button records a transaction in the database. Once committed, the record is read-only. This button performs all of the validations for an inventory transaction (see <a href="#">“Mechanism of the Commit Buttons”</a> on page 330).

### Inventory Transactions Across Organizations

Inventory transactions can take place between organizations by using two transactions and the virtual location named External Location:

- The first transaction is from the source location (Inv1) in one organization to the External Location. This transaction is committed by a user who can see Inv1 and the External Location.
- The second transaction is from the External Location to the destination location (Inv2) in a different organization. This transaction is committed by a user who can see Inv2 and the External Location.

For more information, see [“Setting Up an External Location”](#) on page 347.

### Assets View

The Assets view shows the asset number of the product associated with the selected transaction. If the part is serialized, the view shows its serial number.



## Activities Screen

The Activities screen has a view for recording movement of parts in the field, between two trunks, or between a trunk and a customer site.

### Part Tracker View

The Part Tracker view records the movement of parts used to carry out a selected activity. This view records the movements of parts that have an asset or serial number registered in the database on the mobile computer and parts that do not correspond to a registered asset. See also [“Part Tracker View” on page 107](#).

The Commit button in this view checks that the appropriate information is provided, then creates a record that triggers an inventory transaction when connected to the Siebel server. Once committed, a record becomes read-only.

## Inventory Reports

The Inventory screen provides the reports listed in [Table 92](#).

**Table 92. Inventory Reports**

<b>Report</b>	<b>Description</b>
Products Below Minimum Level by Location	A list of products of good quality and below the minimum stock level at a selected inventory location.
Product List by Location	A list of stock levels for products of good quality at a selected inventory location.
Inventory Cost Detail	A list of all products at a selected inventory location with itemized and total costs.

# Shipping and Receiving **10**

This chapter describes the shipping and receiving of orders and the records that Field Service creates to track orders.

# Shipping

Shipments may be to a customer or to another inventory location belonging to the service business. Internal shipments may be triggered by the replenishment process.

Shipping activities focus on two documents, the pick ticket and the waybill. The pick ticket provides detailed information about the items required to fill orders. The waybill, which records data related to the shipment, normally travels with the shipment and mediates between shipping and receiving.

Shipping begins where fulfillment ends; with the generation of a pick ticket. [Figure 9](#) illustrates the shipping process, which consists of the following steps:

- 1 Get pick ticket.
- 2 Pick parts.
- 3 Update pick ticket with parts shipped.
- 4 Choose carrier and update waybill.
- 5 Process shipment.



**Figure 9. Shipping Process**

## Process Shipment Button

The Process Shipment button is located on the Pick Ticket view of the Shipping screen. This button produces the following processes:

- 1** Examines all the records for allocated lines (in the table S\_ORDPART\_MVMT) for the selected pick ticket, validating the Ship transaction for each allocated line. If one of the validation constraints (for example, Product, Source Inventory Location, Source Availability, or Source Status) fails, the entire transaction is rolled back.
- 2** For each shipped record against an allocated record, generates an inventory transaction with a type of Ship and another type of De-Allocate. Process Shipment generates inventory transactions (for example, Ship Internal or Ship Other) based on the order type of the pick ticket. For a description of these inventory transactions, see [Table 86 on page 326](#).
- 3** If the shipped quantity is less than the allocated quantity, then inserts a De-Allocate action for this line item for any extra items and generates an inventory transaction of type De-Allocate. This transaction is in addition to the De-Allocate transaction in [Step 2](#).
- 4** Checks whether the Auto Receive flag is selected in the Order Fulfillment view (see [“Fulfillment View” on page 310](#)). If this condition is met, generates the receiving line item corresponding to the shipping line items being processed and processes receipt of the order (see [“Process Receipt Button” on page 359](#)).

---

**NOTE:** [Step 2](#) and [Step 3](#) are independent processes, so they generate separate De-Allocate transactions. This is useful for auditing.

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## Receiving

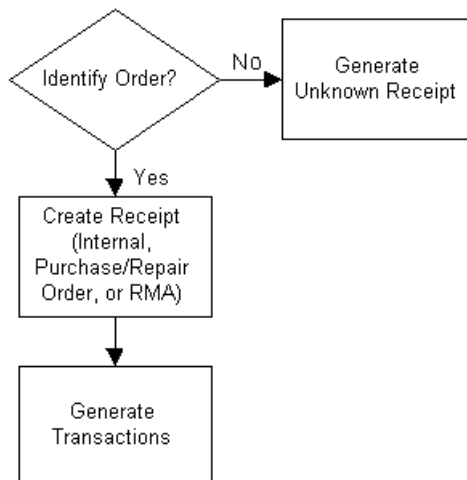
Receiving applies to all types of orders:

- Replenishment of internal orders or internal transfers received by a field office, a repair center, or a field service engineer.
- RMAs (returns from a customer).
- Purchase orders and repair orders (receipt from an external vendor).
- For convenience, another receipt type, Unknown, is included to encompass any other items received.

When an item is received, a receipt is generated as proof that the item arrived.

Figure 10 illustrates the receiving process, which consists of the following steps:

- 1 If the order is unidentified, generate unknown receipt. If the order is identified, create a receipt (Internal, Purchase/Repair Order, or RMA).
- 2 Generate transactions.



**Figure 10. Receiving Process**

Field Service performs the necessary inventory transactions and creates the necessary line item actions on received orders.

## Checks and Validations for Shipping and Receiving

Siebel Field Service provides these automatic validations for shipping and receiving transactions:

- Quantity to ship should be less than or equal to the quantity allocated.
- Quantity to receive should be less than or equal to the quantity shipped.
- Total number of assets should be equal to the total quantity of a serialized product.
- While generating inventory transactions, validates the source location of serialized asset.

After an inventory transaction is generated, no update is allowed for the shipped or received line item. However, it is possible to receive partial shipments for all order types except internal orders. New receive actions may be added as long as the quantity of items received does not exceed the quantity in the order.

### Process Receipt Button

The Process Receipt button is located in the Receive Internal Order, Receive Purchase Order, and Receive RMA views in the Receiving screen. This button generates the following processes within Siebel Field Service:

- Verifies that the asset physically exists at the source inventory location.
- Based on an Order Type of Internal/Other, generates the appropriate inventory transactions (for example, Receive Internal, Receive Other, and Receive from TP) affecting inventory levels. Refer to [Table 86 on page 326](#).
- If the product received was serialized, checks that the total number of assets received matches the product quantity.

# Shipping and Receiving Hierarchical Assets

When you ship or receive a hierarchical asset, changes occur in certain fields of the asset's parent component according to the type of shipping or receiving transaction that occurs. Whether these effects occur on the fields of the hierarchical asset's child sub-components depends on whether the fields are set to cascade their values from the parent to the child. For more information about hierarchical assets, see [“Hierarchical Assets” on page 492](#).



## Processing and Tracking Shipments

Follow these procedures to process the shipping of orders.

### **To ship an order**

- 1** Navigate to the Shipping screen.  
The Pick Tickets view appears.
- 2** In the Pick Tickets list, select a pick ticket.
- 3** Click the Pick Ticket subview tab.
- 4** In the Allocated Lines list, select a line item.
- 5** If the selected line item is a serialized product, add a new record for it in the Serial Numbers list.
- 6** In the Allocated Lines list, click Ship to ship one or more selected line items, or click Ship All to ship all line items.

This generates a shipped quantity in the Shipped Line subview that is equal to the allocated quantity for the line items.

- 7** In the Pick Ticket form, click Process Shipment to create inventory transactions for the line items selected in the Allocated Lines list and for the quantities specified in the Shipped Line form.

---

**NOTE:** If the Qty field on the Shipped Line form does not contain a value, clicking Process Shipment will not create inventory transactions.

---

### **To find a pick ticket for a line item**

- 1** Navigate to the Orders screen.
- 2** From the Show drop-down list, select an option for displaying service orders or sales orders.
- 3** Select an order.
- 4** Click the Line Items view tab and select a line item.

- 5** In the Actions list, select the Action record and copy the number in the Pick Ticket field.
- 6** Navigate to the Shipping screen.
- 7** In the Pick Tickets list, query the pick ticket number.

#### **To consolidate pick tickets**

- 1** Navigate to the Shipping screen.

The Pick Tickets view appears

- 2** In the Pick Tickets list, select a pick ticket.
- 3** From the Show drop-down list, select Consolidation.
- 4** In the Qualified Lines tab, select one or more other pick tickets to add to the consolidation.
- 5** Click Consolidate.

Line items move from the Qualified Lines applet to the Consolidated Lines applet.

#### **To fill in waybills for pick tickets**

- 1** Navigate to the Shipping screen.

The Pick Tickets view appears.

- 2** In the Pick Tickets list, select a pick ticket.
- 3** Click the Waybill view tab.
- 4** Complete the fields as needed to ship the items in the selected pick ticket.

## Processing and Tracking Receipts

Follow these procedures to process the receiving of orders.

### **To receive an order**

- 1 Navigate to the Receiving screen.
- 2 Select an order in the Pending Internal Orders list or the Pending POs/ROs/RMAs list.
- 3 Click the hyperlink in the Receive Type field.

Either the Receive Internal Order, Receive PO, Receive Repair Order, or Receive RMA view appears.

- 4 In the Line Items list, select a record for a line item to receive.
- 5 In the Received Line Item subview, create new records and enter details of the line items received.
- 6 For serialized line items, in the Serial Numbers subview, create new records and enter details of the line items received.
- 7 In the Receive Order form, click Process Receipt.

This generates the appropriate inventory transactions (see [“Process Receipt Button” on page 359](#)).

### **To receive repaired items from a third-party vendor**

- 1 Navigate to the Receiving screen.  
The All Pending Orders view appears.
- 2 Select a repair order in the Pending POs/ROs/RMAs list.
- 3 Click the hyperlink in the Receive Type field.  
The Receive Repair Order view appears.
- 4 In the Line Items list, select a record for a line item to receive.
- 5 In the Received Line Item subview, create a record that defines the conditions of receipt for the selected line item.

**6** In the Repairs subview, create a repair record for the selected line item.

**7** In the Receive Order form, click Process Receipt.

This records the movement of inventory from the third-party repair vendor to the specified inventory location.

#### **To review all line items for all orders**

**1** Navigate to the Receiving screen.

**2** In the Show drop-down list, select Line Item Receipts.

The Line Item Receipts list shows all received parts.

**3** Select a line item and do one or more of the following:

- Click the hyperlink in the Type field.

The receipt form for the selected order type shows the status of the receipt and the line items received.

- Click the hyperlink in the Order # field.

The receipt form for the selected order number shows details of the original order.

- Click the hyperlink in the Waybill # field.

The receipt form for the selected waybill number shows the shipping waybill for this order.

#### **To add Unknown Receipt records**

**1** Navigate to the Receiving screen.

**2** In the Show drop-down list, select All Unknown Receipts.

The Unknown Receipts view shows all shipments received with incomplete information.

**3** In the Unknown Receipts list, select an item.

- 4** Click the hyperlink on Shipment #.  
The Receive Unknown form appears.
- 5** In the Receive Unknown form, create a new record for the unknown receipt and enter values in the fields as needed.
- 6** If the order number is unknown, you can select a possible order number in the Match Order # field.
- 7** If the receipt has line items with serial numbers, do the following:
  - a** Select a serialized line item.
  - b** In the Received Serial Numbers list, create a new record for the selected line item and enter the serial number.

***To review all line items received with incomplete documentation***

- 1** Navigate to the Receiving screen.
- 2** In the Show drop-down list, select All Unknown Receipts.  
The Unknown Receipts view shows all shipments received with incomplete information.
- 3** In the Unknown Receipts list, select an item and do one or more of the following:
  - If a value is present in the Shipment # field, click the hyperlink.  
The Receive Unknown form shows the status of the receipt and the line items received.
  - If a value is present in the Match Order # field, click the hyperlink.  
The Order form shows information about this order.
  - If a value is present in the Waybill # field, click the hyperlink.  
The Waybill Information form shows the shipping waybill for this order.

## Shipping Screen

The Shipping screen provides information for processing shipments.

### Pick Tickets View

The Pick Tickets view displays pick ticket records generated for specific orders. Pick tickets are generated automatically, by the Fulfillment and Part Locator Engines, or interactively by using the Generate Pick Tickets button on the Orders screen (see the [“Generate PickTickets Command” on page 284](#)). The user can also create pick ticket records in this view.

The Pending Pick Ticket views, selected from the Show drop-down list, display only pick ticket records with a status of Open. The user can create records in this view with any status, but only records of status Open appear on return to this view.

[Table 93](#) describes items in the Pick Tickets view.

**Table 93. Selected Items in the Pick Tickets View**

Item	Description
Shipment #	A type-in field for a shipping number. The default is the pick ticket number.
Waybill #	A type-in field for a waybill number. This field is linked to the Waybill # field in the Waybill view.

The Pick Ticket view (see [“Pick Ticket View” on page 367](#)) lists the allocated line items included in each pick ticket and associated order.

### Pick Tickets and Orders

Pick tickets and orders have the following relationship:

- 1 Orders have one or many line items.
- 2 Line Items may have one or many records (actions) in the database.
- 3 One or many records (of type Allocate) can be associated with one pick ticket.

While Order ID and Order Item ID do not appear in the Pick Tickets view, these values reside in the database:

- S\_SHIPMENT\_ID and S\_ORDER\_ITEM\_ID in the S\_ORDPART\_MVMT table
- S\_ORDER\_ID in the S\_ORDER\_ITEM table

### Pick Ticket View

The Pick Ticket view records the allocated parts that appear in a pick ticket record and allows the user to generate inventory transactions (see [Table 86 on page 326](#)) affecting shipping and allocation of inventory. [Table 94](#) describes a button in the Pick Ticket view.

**Table 94. Selected Item in the Pick Ticket View**

Item	Description
Process Shipment	<p>Button and command. Generates Ship and De-Allocate inventory transactions, when appropriate, for the allocated pick ticket line items (that appear in the Allocated Lines subview). For the mechanism of this button, see <a href="#">“Process Shipment Button” on page 357</a>. After this button is activated, the Pick Ticket Status field in the Pick Tickets view (see <a href="#">“Pick Tickets View” on page 366</a>) is set automatically to Closed.</p> <p>Note that for orders of type Internal, the status becomes Shipped instead of Closed.</p>

The Pick Ticket view has three subviews, Allocated Lines, Shipped Line, and Serial Numbers.

#### Allocated Lines Subview

The Allocated Lines subview shows the allocated line items associated with a pick ticket. It also shows the preferred locations in inventory to obtain each line item. This view is read-only. [Table 95](#) describes items in the Pick Ticket view.

**Table 95. Selected Items in the Pick Ticket View**

Item	Description
Ship/Ship All	These buttons create a record or records in the Shipped Line subview with the same quantity as the Qty field in the Allocated Lines subview. These buttons do not create inventory transactions.
Qty	The number of items (of this product) shipped. This number matches the quantity processed for shipping, displayed in the Shipped Line subview. The Process Shipment button determines this value.
Location 1/2/3	These fields may be used to optimize the pick-pack-ship process. They are informational only.

#### Shipped Line Subview

The Shipped Line subview shows the number of items allocated in the database for shipment by the Ship button (see the [“Allocated Lines Subview” on page 368](#)). The Qty field is read-write and accepts values less than the value in the Qty field in the Shipped Lines subview. [Table 96](#) describes items in the Shipped Lines subview.

**Table 96. Selected Items in the Shipped Line Subview**

Item	Description
New	This button allows the user to enter the shipped quantity (in the Qty field) when that quantity is less than the allocated quantity. This creates a record of the type Ship.
Qty	The number of items shipped.

**NOTE:** If the Shipped Line quantity is less than the quantity in a selected record in the Allocated Lines list, the excess is de-allocated through a De-Allocate transaction. The De-Allocate transaction (and any other transaction) takes place when the user clicks the Process Shipment button.



**Serial Numbers Subview**

The Serial Numbers subview accepts serial numbers for the selected Allocated line items. Serial numbers for items available in inventory are selected from a dialog box. The number of records cannot exceed the quantity in the Shipped Line subview. The quantity in the Shipped Lines subview cannot be greater than the quantity in the Allocated Lines subview.

This view is active only if the Shipped Lines subview displays a number of shipped items. The New command for adding records is available only if the selected, allocated line references a serialized product.

---

**NOTE:** If a product is serialized by checking the Serialized check box in the Product Field Service Details view (see [“Product Field Service Details View” on page 302](#)), then a serial number is required for all movements and transactions of assets of this product.

---

**Repair Pick Ticket View**

The Repair Pick Ticket view processes the shipment of line items allocated for a repair order. The Pick Ticket, Allocated Lines, and Shipped Line views are identical to those in the Pick Ticket view (see [“Pick Ticket View” on page 367](#)). Instead of associating serial numbers with shipped products, this view uses the Repair # subview to associate repair numbers.

The number of repair numbers records must match the Qty field in the Shipped Lines subview. This validation constraint is enforced both for selected products that are serialized and non-serialized.

## Waybill View

The Waybill view associates waybill records with pick tickets. [Table 97](#) describes items in the Waybill view.

**Table 97. Selected Items in the Waybill View**

Item	Description
Shipment #	A type-in field for a shipping number. The default is the pick ticket number.
Waybill #	A type-in field for a waybill number. This field is linked to the Waybill # field in the Waybill view.

## Consolidation View

The Consolidation view is a variation of the Pick Ticket view, selected from the Show drop-down list, that combines line items from existing pick tickets into a single pick ticket. The purpose is to reduce shipping costs. The line items must have the same Ship To address, be shipped from the same inventory location, and have the same order type. All order types, except for Repair Orders, are processed in the this view.

The Consolidation view has two subviews, Qualified Lines and Consolidated Lines.

### Qualified Lines Subview

The Qualified Lines subview displays lines allocated for pick tickets that have the following attributes:

- Open or pending status
- Same Ship To address
- Same source inventory location
- Same order type

[Table 98](#) describes a button in the Qualified Lines subview.

**Table 98. Selected Item in the Qualified Lines View**

Item	Description
Consolidate	Button and command. Copies the qualified line to the selected pick ticket. The result of this consolidation appears in the Consolidated Lines subview. The donor pick ticket no longer appears in the All Pick Tickets view.

### **Consolidated Lines Subview**

The Consolidated Lines subview shows the products and quantities combined into one pick ticket. The consolidated lines are processed as though they were part of the original order.

## **Shipping Reports**

Shipping provides the Pick Ticket Details (Barcode) report and the Pick Ticket Details (No Barcode) report. These reports describe each pick ticket and its associated products.

## Receiving Screen

The Receiving screen tracks incoming orders and their line items. These orders originate on the Service Orders screen. For information about service orders, see *Siebel Order Management Guide*.

### All Pending Orders View

The All Pending Orders view, selected from the Show drop-down list, shows all orders not yet received. The view contains two subviews: Pending Internal Orders and Pending POs/ROs/RMAs.

---

**NOTE:** All fields in this view are read-only.

---

#### Pending Internal Orders Subview

The Pending Internal Orders view shows all orders arriving from internal inventory locations. The line items that appear have a Receive Type of Internal and a status of Shipped. The data in this subview originates on the Shipping screen (see [“Shipping Screen” on page 366](#)).

#### Pending POs/ROs/RMAs Subview

The Pending POs/ROs/RMAs view shows all orders arriving from external locations and resulting from purchase orders, repair orders, and return material authorizations of all types.

The line items that appear here are from orders that do *not* have a Receive Type of Sales Order, Web Order, Service Order, or Internal Order and do *not* have a status of Cancelled or Closed.

### Receive Orders Views

Clicking on any Receive Type value in the All Pending Orders view exposes a corresponding Receive Order view:

- Receive Internal Order
- Receive PO

- Receive Repair Order
- Receive RMA

---

**NOTE:** The Receive Unknown view is available only from the All Unknown Receipts view. For the procedure, see [“To add Unknown Receipt records” on page 364](#).

---

The Receive Orders views have a Process Receipt button that carries out validations for the selected receipt and creates the appropriate inventory transaction (see [“Process Receipt Button” on page 359](#)).

### Line Items Subview

The Line Items subview lists the items received in the selected receipt. The Qty field shows the number of each line item in the received order. The records are read-only.

### Received Line Item Subview

The Received Line Item subview records the inventory level (availability and status) and destination inventory location of received line items. The total quantity cannot exceed the Qty value in the selected Line Items record.

### Serial Numbers Subview

The Serial Numbers subview records the serial/asset number for each serialized asset received as part of the selected line item. This view accepts only as many records as the total quantity in the Received Line Item view.

---

**NOTE:** The Serial Number subview does not verify the uniqueness of serial numbers.

---

## Line Items Receipts View

The Line Items Receipts view, selected from the Show drop-down list, shows all line items, pending, processed, and closed, for all orders. This view is useful for auditing receipts. For example, a Query by Example (QBE) could return all line items received at a location during a specific time interval. All fields in this view are read-only.

## **All Unknown Receipts View**

The All Unknown Receipts view, selected from the Show drop-down list, shows received items that arrive with incomplete documentation. Users create this data and an administrator matches records with existing orders. All fields in this view are read-only.

### **Receive Unknown View**

The Receive Unknown view is available only from the All Unknown Receipts view. For the procedure, see [“To add Unknown Receipt records” on page 364](#).

The Match Order # field in this view lets the user choose an order, from the Pick Order dialog box, to which this unknown receipt might belong.

## **Shipping and Receiving**

*Receiving Screen*



# Cycle Counting and Replenishment **11**

This chapter presents the features of Siebel Field Service for maintaining inventory: cycle counting and replenishment. These functions are part of the Logistics Management module.

# Cycle Counting

Cycle counting is a method of counting inventory by grouping products into classes and counting the products in each class at designated intervals over a period of time. Only part of the products are counted at one time, but over the designated time period all products are counted. Products of class A, for instance, might be counted once every three months, products of class B once every six months, and products of class C once a year.

Since assets are moving in and out of inventory, cycle counting creates a dynamic, statistical view of inventory. To enhance statistical accuracy, cycle counting uses two methods of product classification (the cycle count basis): ABC and XYZ.

- The ABC cycle count basis ranks products according to their financial value. The Cycle Counting Engine counts the items with a larger dollar value more often than those with a lower value.
- The XYZ cycle count basis ranks products according to their turnover. Higher-turnover products are counted more often, resulting in a higher accuracy of counting.

Cycle counting is configured for inventory location types, inventory locations, and products.

---

**NOTE:** If a configuration parameter for cycle counting can be set at different levels, the parameter for the more specific level takes precedence. For example, the cycle count basis (ABC or XYZ, meaning cycle counting based on the value of items versus their turnover rate) for an inventory location takes precedence over that for an inventory type. The cycle count class, A, B, or C; X, Y, or Z (meaning that it has high, medium, or low relative value or turnover rate), for an inventory type takes precedence over that for a product.

---

The Cycle Counting Engine requires this input:

- One or more inventory locations
- A start date for creating inventory lists for cycle counting
- An end date for creating inventory lists for cycle counting

Whenever the Cycle Counting Engine runs, it produces the following output:

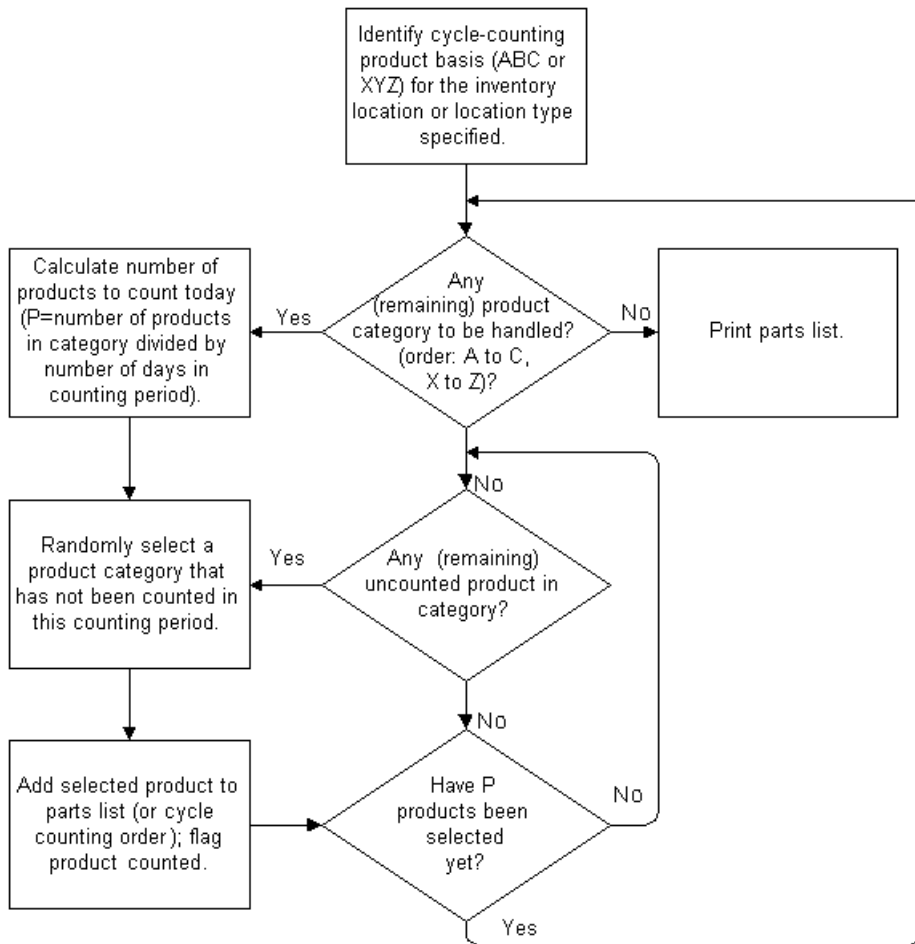
- Cycle counting periods, which define the calendar dates covered by a cycle count.
- Cycle counting records (headers).
- Part lists for each cycle counting record. The part list provides instructions for the next physical count of inventory.

The Cycle Counts screen, Part List view accepts manual input of the count data. The Cycle Counting Engine compares this to the inventory records in its database, and, if there is a variance, allows for an adjustment of inventory.

[Figure 11 on page 380](#) illustrates the decision path that the Cycle Counting Engine uses to generate a parts lists. In following the decision path, the Cycle Counting Engine goes through the following steps:

- 1** Identifies the cycle-counting basis (ABC or XYZ) for the specified inventory location or location type.
- 2** If any remaining product category is to be handled, calculates the number of products to count today. If no remaining product category is to be handled, prints a parts list.
- 3** If there are any remaining uncounted products in the category, selects a product category that has not been counted in this counting period.
- 4** Adds the selected product to the parts list (or cycle counting order); flags the product counted.

- 5 If the products to be counted today have been selected, returns to [Step 2](#). If the products to be counted today have not been selected yet, returns to [Step 3](#).



**Figure 11. Logic of the Cycle Counting Engine**

## Configuration of the Cycle Counting Engine

The Cycle Counting Engine generates cycle counting headers and cycle counting part lists by using the configuration information from the Cycle Counts view (see “[Cycle Counts View](#)” on page 408).

Cycle counting uses these configuration parameters:

- **ABC or XYZ count basis.** The method used for cycle counting of an inventory location: ABC = financial value basis, XYZ = turnover basis.
  - **A, B, or C classification.** The classification of products based on the financial value of an item, where  $A > B > C$ .
  - **X, Y, or Z classification.** The classification of products based on the turnover of an item, where  $X > Y > Z$ .

A product receives any combination of class A, B, or C and X, Y, or Z; for example, AY. However, cycle counting is based on either ABC or XYZ, not both.

- **Frequency.** The interval in days between physical counts of inventory at a location; for example, if counting frequency is 7 days, inventory is counted every seven days.
- **Period.** The time period in days allotted to counting all A or X, B or Y, or C or Z class items at this location. For example, if the counting period for class A or X products is 90 days, the Cycle Counting Engine makes sure that all the products in this class are included in the part list at least once every 90 days.
- **Start Date and End Date.** The time span in calendar days during which the Cycle Counting Engine will create cycle count records.

Here is an example of a cycle counting scenario:

An inventory location is configured to count on a financial value basis (ABC). There are approximately 100 A-class products in inventory. Every five days (Frequency = 5 days) someone spends as much time as needed to count one-quarter (5/20) of the A-class items, with the goal of counting all of the A-class items within 20 days (Counting Period A/X = 20 days). Counting periods do not have to be even multiples of frequency.

## Configuration Information for the Cycle Counting Engine

Configuration of cycle counting takes place at several levels, on different screens (see [Table 99](#)).

**Table 99. Configuration of Cycle Counting**

Configuration Parameter	Applies to	View
Cycle count basis: ABC or XYZ	Inventory locations	See “ <a href="#">Inventory Locations View</a> ” on page 405.
	Inventory location types	See “ <a href="#">Inventory Location Types View</a> ” on page 402.
Cycle count class: A, B, or C and X, Y, or Z	Products associated with a specific inventory types	See “ <a href="#">Inventory Options Subview</a> ” on page 403.
	Products associated with specific inventory locations	See “ <a href="#">Product Inventory Subview</a> ” on page 406.
Frequency	Inventory locations	See “ <a href="#">Inventory Locations View</a> ” on page 405.
	Inventory location types	See “ <a href="#">Inventory Location Types View</a> ” on page 402.
Count period for A/X, B/Y, and C/Z	Inventory locations	See the “ <a href="#">Inventory Locations View</a> ” on page 405.
	Inventory location types	See the “ <a href="#">Inventory Location Types View</a> ” on page 402.
Start date and end date	Inventory locations	See the “ <a href="#">Cycle Counts Views</a> ” on page 410 (on the Cycle Counts screen).

**NOTE:** If a configuration parameter can be set at different aspects of inventory, the parameter for the more specific aspect takes precedence. For example, the count basis (ABC or XYZ) at an inventory location takes precedence over the basis specified for an inventory type. The cycle count class (A, B, or C; X, Y, or Z) for an inventory type takes precedence over that for a product.

## System Preferences for the Cycle Counting Engine

The Field Service engines have system preferences (Table 100 on page 383) that determine the behavior of each engine. These system preferences are stored in the table S\_SYS\_PREF. The BusComp is System Preferences. These are the columns of main interest:

- **SYS\_PREF\_CD.** Name of the System Preference.
- **VAL.** Value of the System Preference.

Changing the values of these preferences changes the default behavior of the engine.

---

**NOTE:** To register changes to System Preferences, restart the Field Service server.

---

**Table 100. System Preferences for the Cycle Counting Engine**

Parameter	Default Value	Comments
BucketAvailCDtobeCounted	OnHand, Customer-Owned	Specifies the valid values for the buckets' <sup>1</sup> availability code. The values should be from the Bucket Availability Code LOV, and individual values should be LIVs.
BucketStatusCDtobeCounted	Good	Specifies the valid values for the buckets' status code. The values should be from the Bucket Status Code LOV and individual values should be LIVs.

1. The new term for bucket is *inventory level*.

Only the inventory levels (buckets) whose Availability and Status match the values defined by the above two parameters are included in the cycle counting process.

## Parameters for the Cycle Counting Engine

All engines can be invoked from the Workflow Manager or from the client. The engines require certain parameters to be passed. These parameters are set for the component FSCycCnt in Server Requests screen, My Component Requests view. [Table 101](#) describes the parameters for the Cycle Counting Engine.

**Table 101. Parameters for the Cycle Counting Engine**

Parameter	Value	Comments
Mode	SQL	Specify the WHERE clause to set up criteria and count the parts which meet that criteria.
	Id	Specify the ID of the inventory location or the inventory type and only the parts related to that loc/type will be counted.
	TempTbl	Put all the required parameters into a temporary table with a temporary Client Request ID and pass that ID to the server to retrieve the parameters from Temp Table.
ClientId	A row ID for retrieving params from the temp table	Required when Mode = TempTbl.
RowID	Row ID of an Inventory location or Inventory type	Required when Mode = ID.
StartDT	Start Date	Required. The proposed start date of cycle counting.
EndDT	End Date	Required. The proposed end date of cycle counting.
Where	Where Clause	Business Component search spec mode. Required when Mode = SQL.
Loc/Type	Inventory Location or Inventory Type	Required when Mode = ID or TempTbl.



## **Methods to Run the Cycle Counting Engine**

Use these methods to invoke the Cycle Counting Engine:

- Invoke the engine from Server Administration > Enterprise Operations > Component Requests or Repeating Component Requests views.
- Invoke the engine by clicking the Generate Counts or the Generate Counts (All Locations) button in the Inventory screen, Cycle Counts view.
- Invoke the engine through the server manager on the application server.

## **Tracing for the Cycle Counting Engine**

You can set different tracing levels for the Cycle Counting Engine, depending on the type and quantity of information you want to collect. For information about this functionality, see [Appendix A, “Engines Logging Levels.”](#)

# Setting Up Cycle Counting

Follow these procedures to set up cycle counting.

### **To specify asynchronous operation of the Cycle Counting Engine for a specific user**

- 1** From the application-level menu, choose View > User Preferences.
- 2** From the Show drop-down list, select Service.
- 3** In the section ASYNCHRONOUS GENERATION OF, select Cycle Counts.

### **To set component request parameters for the Cycle Counting Engine**

- 1** Insert or edit a component request for the Field Service Cycle Counting Engine server component.
- 2** Add or modify the server component parameters as needed.

For information about server components and component parameters, see *Siebel Server Administration Guide*.

### **To set a repeating component request for the Cycle Counting Engine**

- 1** Navigate to Site Map > Server Administration > Enterprise Operations.
- 2** In the Enterprise Servers list, select the server on which you want the Cycle Counting Engine component to run.
- 3** Click the Repeating Component Requests view tab.
- 4** In the Repeating Component Requests form, create a new record.
- 5** In the Component/Job field, select Field Service Cycle Counting Engine.
- 6** Complete the other fields, as needed.

- 7 In the Component Request Parameters list, create new records with field values as shown in the following table.

Name	Value
Start Date	Date for the repeating component request to start running. Enter the date in the format MM-DD-YYYY. For example, if you want the request to start running on May 22, 2003, enter 05-22-2003.
End Date	Date for the repeating component request to stop running. Enter the date in the format MM-DD-YYYY. For example, if you want the request to stop running on July 15, 2003, enter 07-15-2003.

**NOTE:** If the value of Start Date is equal to the value of End Date, then all the parts will appear on one list that can be used for physical inventory.

**CAUTION:** The Field Service Cycle Counting Engine server component accepts date value parameters *only* in the exact format MM-DD-YYYY. If you enter the date in another format, the field will display your entry, but the Cycle Counting Engine will not start.

- 8 Add additional component request parameters, if needed.

For information about server components and component parameters, see *Siebel Server Administration Guide*.

**To change system preferences for the Cycle Counting Engine**

- 1 Navigate to Site Map > Application Administration > System Preferences.
- 2 In the System Preference Name column, locate the system preference whose value you want to change.

**NOTE:** For cycle counting engine-related system preferences, see [Table 100 on page 383](#)).

- 3 In the System Preference Value field, enter a new value.
- 4 To register changes to system preferences, restart the Field Service server.

#### **To set up cycle counts for specific inventory locations**

- 1 Navigate to the Inventory screen.
- 2 In the Inventory Locations list, select an inventory location.
- 3 In the More Info form, enter values for the Count Basis, Frequency, and Period fields.

#### **To define the start date and end date for cycle counting**

- 1 Navigate to Inventory > Cycle Counts.
- 2 In the Inventory Locations list, select an inventory location.
- 3 In the More Info list, locate the cycle count whose start and end dates you want to set.
- 4 Enter values for the Started and Ended dates.

#### **To define the cycle count basis for inventory locations**

- 1 Navigate to the Inventory screen.
- 2 In the Inventory Locations list, select an inventory location.
- 3 In the More Info form, in the Count Basis field, select ABC or XYZ.

#### **To define the cycle count basis for inventory location types**

- 1 Navigate to Site Map > Service Administration > Service Inventory.
- 2 In the Inventory Location Types list, select an existing inventory type record or add a new one.
- 3 In the Count Basis field, select ABC or XYZ.

#### **To define cycle count classes for products at specific inventory locations**

- 1 Navigate to the Inventory screen.
- 2 In the Inventory Locations list, select an inventory location.

- 3** Click the Product Inventory tab.
- 4** Select a product.
- 5** In the ABC Class and XYZ Class fields, select the relevant cycle counting classes (A, B, or C; X, Y, or Z).

***To define the cycle count class for products associated with specific inventory types***

- 1** Navigate to Site Map > Product Administration.
- 2** In the Products list, select a product.
- 3** In the More Info view tab's Show drop-down list, select Product Service Details.
- 4** On the Inventory Options subview tab, select an existing inventory type or add a new type.
- 5** In the Class ABC and Class XYZ fields, select the relevant cycle counting classes (A, B, or C; X, Y, or Z).

***To define cycle counting frequency and periods for an inventory location***

- 1** Navigate to the Inventory screen.
- 2** In the Inventory Locations list, select an inventory location.
- 3** On the More Info tab, click the show more button.
- 4** In the Frequency field, enter the number of days.
- 5** In the Period A/X, Period B/Y, and Period C/Z fields, enter the relevant numbers of days.

***To define cycle counting frequency and periods for an inventory location type***

- 1** Navigate to Site Map > Service Administration > Service Inventory.
- 2** In the Inventory Location Types list, select an existing inventory location type or add a new inventory location type.
- 3** In the Frequency field, enter the number of days.
- 4** In the Period A/X, Period B/Y, and Period C/Z fields, enter the relevant numbers of days.

#### **To configure tracing for the Cycle Counting Engine**

- 1** Navigate to Site Map > Server Administration > Servers.
- 2** Click the Server Parameters view tab.
- 3** In the Server Parameters list, locate the Trace Flags parameter.
- 4** Set the appropriate values for the fields in the Trace Flags parameter record.

#### **To manually specify parts for a cycle count**

- 1** Navigate to Inventory > Cycle Counts.
- 2** In the Inventory Locations list, select an inventory location where the cycle count will take place.
- 3** On the Cycle Counts subview tab, select a cycle count.
- 4** Click the hyperlink in the Cycle Counts record's Status field.
- 5** In the Part List tab, add a new record.
- 6** In the Product field, select a product.
- 7** Complete the other fields as needed.

## Running the Cycle Counting Engine

Follow these procedures to carry out cycle counts of inventory.

### **To run the Cycle Counting Engine interactively**

- 1 Navigate to Inventory > Cycle Counts.
- 2 In the Inventory Locations list, select an inventory location for cycle counting.
- 3 Do one of the following:
  - Click Generate Counts to produce cycle count lists for the selected inventory location.
  - Click the menu button and select Generate Counts (All Locations) to produce count lists for all inventory locations.

The cycle counts appear on the Cycle Counts subview tab.

### **To review pending cycle counts and parts lists for cycle counting**

- 1 Navigate to Inventory > Cycle Counts.
- 2 In the Inventory Locations list, select an inventory location.

The Cycle Counts subview shows records describing each instance of a cycle count. Pending cycle counts have a status of Open or Assigned.
- 3 Select a cycle count record.
- 4 Click the hyperlink in the Cycle Counts record's Status field.

The Part List tab shows all items included in the selected cycle count.

### **To record the results of a cycle count**

- 1 Navigate to Site Map > Cycle Counts.
- 2 In the Cycle Counts list, select a cycle count record.
- 3 Click the Part List view tab.
- 4 In the Count field of each product record, enter the quantity counted.

- 5** If a counted item is serialized:
  - a** Select the product record.
  - b** Enter a value in the Count field.
  - c** Click the Counted Serial Numbers subview tab.
  - d** In the Counted Serial Numbers list, create a record for each serialized asset that is an instance of that product.

**To complete a cycle count**

- 1** Navigate to Site Map > Cycle Counts.
- 2** In the Cycle Counts list, select a cycle count record.
- 3** Click the Part List view tab.
- 4** Click Count Complete.

This populates the records in the Variance view and the Counted Serial Numbers subview.

**To review a cycle count**

- 1** Navigate to Site Map > Cycle Counts.
- 2** In the Cycle Counts list, select a cycle count record.
- 3** Click the Variance view tab.
- 4** Review the results (Original, Count, and Variance) of the product count and counted serial numbers, if applicable.
- 5** To adjust the inventory, click Adjust.



## Replenishment

Replenishment is the process of generating orders to restock depleted parts in an inventory location. The Replenishment Engine generates internal orders to other inventory locations or purchase orders to outside vendors using the following information about a product in inventory:

- Minimum and maximum stock levels, plus a safety level
- Replenishment relationships with other inventories

There are three sources for replenishment:

- **Another service inventory location.** The Replenishment Engine generates an internal order. For example, the main service warehouse replenishes a subsidiary warehouse.
- **External provider.** The product is purchased from an external vendor. In this case, the Replenishment Engine generates a purchase order.
- **Manufacturing inventory.** The product is provided by an internal manufacturing division. Such replenishments are usually handled as if from an external provider; a purchase order is generated.

---

**NOTE:** Replenishment is different from fulfillment (see [“Fulfillment Overview” on page 282](#)). The replenishment process creates orders to restock inventory; the fulfillment process allocates items to fill outgoing orders and generates pick tickets.

---

The Replenishment Engine requires as input one or more inventory locations.

## Configuration of the Replenishment Engine

The Replenishment Engine uses the configuration parameters listed in [Table 102](#).

**Table 102. Configuration of Replenishment**

Configuration Parameter	Applies to	View
Minimum quantity of product to keep in stock	Product	See the “ <a href="#">Product Inventory View</a> ” on page 347.
Maximum quantity of product to keep in stock	Product	See the “ <a href="#">Product Inventory View</a> ” on page 347.
Relationships among inventory locations	Inventory location	See the “ <a href="#">Relationships View</a> ” on page 349.
Vendor	Product	See Product Administration > Product Field Service Details.
Vendors for an inventory location	Inventory location	See the “ <a href="#">Vendors View</a> ” on page 349.

## System Preferences for the Replenishment Engine

The Field Service engines have system preferences, listed in [Table 103 on page 395](#), which determine the behavior of each engine. These system preferences are stored in the table S\_SYS\_PREF. The BusComp is System Preferences. These are the columns of main interest:

- **SYS\_PREF\_CD.** Name of the system preference.

- **VAL.** Value of the system preference.

**Table 103. System Preferences for the Replenishment Engine**

Parameter	Default Value	Comments
InvLocTypeForReplenishRelation	Warehouse	Specifies the default replenishment level. Orders to replenish any level of an inventory location have this value as their Destination.
ReplenishOrderPriority	Medium	Specifies the default order priority for newly created orders. The values should be from the Order Priority LOV and individual values should be LIVs.
OrderItemStatusForOnOrderQty	Open, New, Pending	Specifies the valid values for the existing order item status. The values should be from the Order Item Status LOV and individual values should be LIVs.
OrderStatusForOnOrderQty	Open, New, Pending	Specifies the valid values for the existing order status. The values should be from the Order Status LOV and individual values should be LIVs.
OrderTypeForOnOrderQty	Internal Order, Purchase Order	Specifies the valid values for the existing order type. The values should be from the Order Type LOV and individual values should be LIVs.

The last three parameters specify what kind of orders, order items, and order types to look for when searching for an existing order, to avoid creating duplicate orders.

---

**CAUTION:** The Order Status List of Values should have Open as its Language Independent Value. If it does not, the Replenishment Engine will not work.

---



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**NOTE:** To register changes to System Preferences, restart the Field Service server.

---

## Parameters for the Replenishment Engine

All engines can be invoked from the Workflow Manager or from the client. These engines require certain parameters to be passed. These parameters are set for the component FSRepl in the Server Component Requests screen, My Component Requests view. [Table 104](#) lists the parameters for the Replenishment engine, and what they mean.

**Table 104. Parameters for the Replenishment Engine**

Parameter	Value	Comments
InvokeMode	Id	In this mode, specify the inventory location to be replenished and the engine will replenish the specified location.
	SQL	In this mode, specify the WHERE clause, meaning specify some criteria and replenish the inventory locations which meet that criteria.
	TEMP	In this mode, put all the required parameters into a temporary table with a particular Client Request ID and pass that ID to the server to retrieve the parameters from Temp Table.
ClientId	A row ID for retrieving parameters from the temp table	Required when InvokeMode = TEMP.
SourceType	I (Inventory Location) V (Vendor)	Required when InvokeMode = TEMP. Defaults to I when InvokeMode = Id or SQL.
DestId	Destination Inventory ID	Required when InvokeMode = Id.
WhereClause	SQL Where Clause	Business Component search spec. Required when InvokeMode = SQL.

### **To set the Implementation Logic for the Replenishment Engine**

- 1 Obtain the system preferences from the system table.

Obtain the user defined parameters to determine the defaults for the Replenishment Engine.

**2** Obtain the destination inventory location.

Obtain the value of the destination inventory location based on the Invoke mode from one of the following sources:

- Input Parameter - DestId
- Input Parameter - Where Clause
- Temp Table

**3** Generate Internal Orders for all the Destination Inventory Locations.

If the InvokeMode is Id/SQL, get the Source Inventory Location for the current Destination Inventory location.

Get the On Hand, Min, and Max Qty for all the products in the Destination inventory location and the child locations whose On Hand Qty < Min Qty.

For each product do the following:

Calculate the EffectiveQty:

Search existing orders and find the Qty on order.

EffectiveQty = Qty + Qty on order.

If EffectiveQty is less than the Min Qty:

If the order header does not exist (first time only), generate the order header of type Internal order.

Add a line item to the order header for the ReqQty =  
Max Qty – Effective Qty.

#### 4 Generate Purchase Order.

Get the On Hand, Min, and Max Qty for all the products in the Destination inventory location and the child locations whose On Hand Qty < Min Qty.

For each product do the following:

Calculate the EffectiveQty:

Search existing orders and find the Qty on order.

EffectiveQty = Qty + Qty on order.

If EffectiveQty is less than the Min Qty:

Get the Vendor for this product.

If Vendor exists in the user supplied Vendor list, then:

If the order header does not exist (first time only), generate the order header of type Purchase order.

Add a line item to the order header for the

ReqQty = Max Qty – Effective Qty.

## Methods to Run the Replenishment Engine

Use these methods to invoke the Replenishment Engine:

- Invoke the engine using the Workflow Manager to generate internal and purchase orders, based on stock levels.
- Invoke the engine by clicking the Orders button in the Inventory screen, Generate Orders view.
- Invoke the engine through the Server Manager on the application server.

## Setting Up Replenishment

Follow these procedures to set up replenishment.

Some procedures for setting up replenishment are the same as for setting up cycle counting. When beginning to set up replenishment, use the following procedures, and for “cycle counting,” substitute “replenishment.”

- [“To specify asynchronous operation of the Cycle Counting Engine for a specific user” on page 386](#)
- [“To set component request parameters for the Cycle Counting Engine” on page 386](#)
- [“To change system preferences for the Cycle Counting Engine” on page 387](#)

### ***To set the maximum and minimum quantity of products to keep in stock***

- 1 Navigate to the Inventory screen.
- 2 In the Inventory Locations list, select an inventory location.
- 3 Click the Product Inventory view tab.
- 4 Select a product.
- 5 For the selected product, enter values in the Max, Min, and Safety fields.

### ***To set up replenishment relationships between inventory locations***

- 1 Navigate to the Inventory screen.
- 2 In the Inventory Locations list, select an inventory location.
- 3 Click the Relationships tab.
- 4 Create a new relationship record.
- 5 In the Name field, select another inventory location.
- 6 In the Relationship field, select Replenishes.

### ***To set up a vendor for a product***

- 1 Navigate to the Products screen.

## Cycle Counting and Replenishment

---

### *Setting Up Replenishment*

- 2** Select a product.
- 3** Click the Service Details view tab.
- 4** From the Show drop-down list, select Inventory Options.
- 5** In the Primary Vendor field, select a vendor.



## Replenishing Inventory

Follow these procedures to replenish inventory.

### **To replenish inventory by placing orders**

- 1 Navigate to the Inventory screen.
- 2 In the Inventory Locations list, select an inventory location.
- 3 Click the Generate Orders view tab.

This view displays a read-only list of authorized vendors for this inventory location. The subviews show the source and target locations.

- 4 Click Order.

This generates orders to replenish every product at the selected inventory location that is under the minimum level.

### **To verify pending replenishment orders**

- 1 Navigate to the Inventory screen.
- 2 In the Inventory Locations list, select an inventory location.
- 3 Click the Pending Orders view tab.

This view displays the numbers and types of pending orders for this location.

### **To set a vendor for an inventory location**

- 1 Navigate to the Inventory screen.
- 2 In the Inventory Locations list, select an inventory location.
- 3 Click the Vendors tab.
- 4 Create a new vendor record.
- 5 In the Account field, select a vendor.
- 6 In the Type field, select Vendor or Primary Vendor.

## Service Administration Screen

The Service Administration screen contains one view that allows assignment of cycle counting parameters to types of inventory locations.

### Inventory Location Types View

You access the Inventory Location Types view by navigating to the Service Administration screen and selecting Service Inventory from the Show drop-down list. The Inventory Location Types view assigns the following cycle counting parameters to all inventory locations of a specific type (see [Table 105](#)).

**Table 105. Selected Items in the Inventory Location Types View**

Item	Description
Count Basis	A method of inventory classification that determines how often to count a product during cycle counting; ABC or XYZ chosen from a list. Inventory locations with the inventory type ABC are counted based on their relative value and locations with XYZ are counted based on their relative turnover.
Frequency	The interval in days between physical counts of inventory at any location with this inventory type.
Period A/X	The time period in days allotted to counting all A or X class items at any location with this inventory type.
Period B/Y	The time period in days allotted to counting all B or Y class items at any location with this inventory type.
Period C/Z	The time period in days allotted to counting all C or Z class items at any location with this inventory type.

## Products Screen

The Products screen has one view, Service Details, that displays information for cycle counting and replenishment. All fields are read-only.

### Service Details View

The Service Details view provides the information used in locating and allocating products. The Allocate Below Safety, Auto Allocate, and Auto Substitute check boxes in this view do not apply to cycle counting or replenishment. This view has two subviews, Inventory Options and Substitutes.

#### Inventory Options Subview

The Inventory Options subview sets the inventory locations for a product and determines the cycle counting parameters for each product at a specific location. The Allocate Below Safety, Auto Allocate, and Auto Substitute fields in this view do not apply to cycle counting or replenishment. [Table 106](#) describes items in Inventory Options records.

**Table 106. Selected Items in the Inventory Options View**

Item	Description
Class ABC	The classification of a product, A, B, or C, that indicates its value. Class A has the greatest financial value.
Class XYZ	The classification of a product, X, Y, or Z, that indicates its turnover rate. Class X has the greatest turnover rate.

**NOTE:** A product can receive any combination of class ABC and XYZ; for example, AY. However, cycle counting must be based on either ABC or XYZ, not both.

### **Substitutes Subview**

The Substitutes subview specifies the products that the Replenishment Engine may use to fill an order when the specified product is unavailable from inventory. The user chooses from products that are specified in the Products view (see [“Products View” on page 301](#)).

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**NOTE:** Substitutions are unidirectional. Product A may substitute for product B, but B cannot substitute for A unless that substitution is explicitly defined.

---

## Inventory Screen

The Inventory screen contains two views for managing cycle counting at inventory locations and for inventory replenishment.

### Inventory Locations View

The Inventory Locations view sets the cycle counting parameters for each location. [Table 107](#) describes items in Inventory Locations records. To see these fields, click the show more button in the More Info view.

**Table 107. Selected Items in the Inventory Location Views**

Item	Description
Count Basis	A method of inventory classification that determines how often to count a product during cycle counting: ABC or XYZ chosen from a list. Products with ABC are counted based on their relative value and products with XYZ are counted based on their relative turnover.
Frequency	The interval in days between physical counts of inventory at a location.
Period A/X	The time period in days allotted to counting all A or X class items at this location.
Period B/Y	The time period in days allotted to counting all B or Y class items at this location.
Period C/Z	The time period in days allotted to counting all C or Z class items at this location.

## Product Inventory Subview

The Product Inventory subview associates inventory locations with products and sets quantities of product, whether the product is serialized, and cycle counting parameters for the product at this location. Products are specified in the Product Administration screen (see [“Product Administration Screen” on page 301](#)).

[Table 108](#) describes items in Product Inventory records.

**Table 108. Selected Items in the Product Inventory View**

Item	Description
ABC Class	The classification of a product, A, B, or C, that indicates its value. Class A has the greatest financial value. This value overrides the Class ABC on the Product Administration screen.
Max	A type-in field for the maximum acceptable quantity of inventory at this location and product.
Min	A type-in field for the minimum acceptable quantity of inventory at this location and product.
Safety	A type-in field for the safe quantity of inventory at this location and product. This quantity ( $\leq$ Min), is that below which the Fulfillment Engine a product should not allocate. The user can override this value.
Serialized	Indicates that instances of this product must have serial numbers recorded.
XYZ Class	The classification of a product, X, Y, or Z, that indicates its turnover rate. Class X has the greatest turnover rate. This value overrides the Class XYZ on the Product Administration screen.

## Generate Orders View

The Generate Orders view automatically produces orders to restock products in inventory, by either an internal transfer between inventory locations or by purchase from an outside vendor. For replenishment, an inventory level must be defined for a product. For replenishment from a vendor, the authorized vendor must also be defined. These read-only records are derived from data in the Inventory screen (see [“Inventory Screen” on page 346](#)).

The Order button and command runs the Replenishment Engine and creates purchase and internal orders to replenish all items at the selected location that are below minimum.

The replenishment process describes a source inventory location to replenish a selected location and a target location to be replenished from the selected location. Specific relationships between locations are defined in the Relationships view (see [“Relationships View” on page 407](#)).

**Source Locations Subview**

The Source Locations subview lists valid replenishment sources for the related target locations. The Order button creates internal orders to replenish the related target locations (in the Target Locations subview).

**Target Locations Subview**

The Target Locations subview lists target locations lists locations to be replenished from a related source location. The Order button creates internal orders to replenish the target locations.

**Pending Orders View**

The Pending Orders view lists internal orders or purchase orders that have been placed to replenish a location. The records in this view, generated by the Replenishment Engine, are read-only.

For a discussion of replenishment, see [“Replenishment” on page 393](#).

**Vendors View**

The Vendors view records vendors who may supply products for a selected inventory location. For replenishing a location from an outside source, vendors must be specified.

**Relationships View**

The Relationships view records the relationships of a selected inventory location with other inventory locations. If a business uses more than one inventory location, relationships among inventory locations are useful for automating inventory replenishment and order fulfillment. A relationship may be physical, hierarchical (for example, a shelf belongs to an aisle), or logistical (for example, Fulfills or Replenishes).

## Cycle Counts View

The Cycle Counts view sets specifications that the Cycle Counting Engine uses to automatically generate the cycle count lists. To reach this view, choose Cycle Counts from the Show drop-down list.

The Inventory Locations view is the same as previously described (see [“Inventory Locations View” on page 405](#)), with the addition of a Generate Counts button and a Generate Counts (All Locations) command. [Table 109](#) describes commands and buttons in the Inventory Locations view for Cycle Counts records.

**Table 109. Selected Items in the Inventory Locations View for Cycle Counts**

Item	Description
Generate Counts	This button produces a list of products to count for the selected inventory location. The list appears in the Parts List view (see <a href="#">“Part List View” on page 410</a> ).
Generate Counts (All Locations)	This command produces a list of products to count for all inventory location. The list appears in the Parts List view (see <a href="#">“Part List View” on page 410</a> ).

## More Info Subview

The Cycle Counts view has a More Info subview containing the following items specific to cycle counting ([Table 110](#)). These fields are read-only.

**Table 110. Selected Items in the More Info Subview for Cycle Counts**

Item	Description
ABC Class	The classification of product, A, B, or C, that indicates its value. Class A has the greatest value.
Ended	The actual end date for a cycle count.
Started	The date for the actual start of a cycle count.
Status	The status of a cycle count; for example, Assigned, Closed, or Open.
XYZ Class	The classification of product, X, Y, or Z, that indicates its turnover rate. Class X has the greatest turnover rate.



## Cycle Counts Subview

The Cycle Counts subview contains read-only records that are derived from the data recorded in the Cycle Counts view (see [“Cycle Counts View” on page 408](#)). [Table 111](#) describes fields in the Cycle Counts subview.

**Table 111. Fields in the Cycle Counts View**

Field	Description
Assigned To	The employee assigned to carry out this cycle count.
Due	The date on which the counts of products specified in the Parts List view (see <a href="#">“Part List View” on page 410</a> ) should be completed.
End	The date the cycle count period ends, which is inherited from the Cycle Counts screen.
Inventory Location	The name of the inventory location for this cycle count.
Start	The date the cycle count period starts.
Status	The status of a cycle count; for example, Assigned, Closed, or Open.

## Cycle Counts Screen

The Cycle Counts screen contains views for defining cycle counts at specific inventory locations, providing lists that direct the physical counting of inventory, recording the results of cycle counts, and adjusting inventory levels.

### Cycle Counts Views

The Cycle Counts views define cycle counts at specific inventory locations and specify the timing of these counts. [Table 112](#) describes items in Cycle Count records.

**Table 112. Selected Items in the Cycle Count Views**

Item	Description
Due	A type-in field containing the date on which the counting cycle should be completed. This field is for information only; the Cycle Counting Engine does not use the date.
End	A type-in field containing the actual date that the cycle count was completed. This date is used when generating Cycle Count Detail reports.
Start	A type-in field containing the date on which the cycle count should start. This date is used when generating Cycle Count Detail reports.
Status	The status of a cycle count; for example, Assigned, Closed, or Open.

### Part List View

The Part List view displays a list of the products to count at a selected inventory location and records the count results. The records in the Part List are created by clicking Generate Counts or the Generate Counts (All Locations) in the Inventory screen's Cycle Counts view (see "[Cycle Counts View](#)" on page 408). Records can also be entered manually. [Table 113](#) describes a button in Part List records.

**Table 113. Selected Items in the Part List View**

Item	Description
Count Complete	This button compares the value entered in the Count field and the number of items in the database, produces the data in the Variance view, and lists the missing assets in the Missing Assets subview.

### Counted Serial Numbers Subview

The Counted Serial Numbers subview accepts serial numbers for each serialized product that is counted.

### Variance View

The Variance view shows the differences between the quantity in the Field Service database and an actual product count. [Table 114](#) describes a button in the Variance view.

**Table 114. Selected Items in the Variance View**

Item	Description
Adjust	This button creates database transactions to match the quantity recorded in the database with the physical count. The transactions are either Receive Other (from the External location) or Ship Other (to the External Location). The Cycle Counting Engine does not validate (quantity or source) for the External location. For more information, see <a href="#">“Setting Up an External Location” on page 347</a> and <a href="#">“Inventory Transactions” on page 325</a> .

## Cycle Counting Report

The Reports menu on the Cycle Counts screen provides the Cycle Count Detail report ([Table 115](#)).

**Table 115. Cycle Count Detail Report**

Report	Description
Cycle Count Detail	Presents all information about selected cycle counts.

This chapter describes Quality Management, the Quality screen, change requests, and patch requests.

Siebel Quality supports the product development and maintenance life cycle by managing *change requests*, or *CRs*. A change request (CR) is a formal report or recommendation aimed at correcting a defect in or adding an improvement to a product. Such products can include hardware, software, manufactured goods, and capital equipment. Siebel Quality can manage multiple types of change requests, including enhancement requests and product defect reports.

Siebel Quality supports the work of the various groups that use the change management process, such as quality assurance, development engineering, and product marketing.

Siebel Quality provides tools for creating, responding to, and tracking CRs. Siebel Quality manages CRs by doing the following:

- Managing CRs from creation through resolution
- Tracking and analyzing details about CRs
- Coordinating and integrating CR management activities across multiple departments
- Displaying status information on product stability

If a customer has an urgent need to resolve a CR and cannot wait for the next product release, Siebel Quality can generate a *patch request*, or *PR*. A patch request (PR) is a recommendation to create a maintenance release to implement a product defect fix or improvement.

## Features of Siebel Quality

Siebel Quality operates through the Quality screen in your Siebel application. This section summarizes some features of Siebel Quality.

- Create, track, and close the various types of CRs. These features allow an organization to manage a CR from beginning to the end, and also allow different process owners to manage specific phases of the CR life cycle.
- Log, track, and resolve multiple occurrences of a CR. When an issue is found in one product, it sometimes occurs in other, related products. In such cases, end users can create child CRs, or multiple occurrence CRs, from a primary CR and link them together so that they can be managed as a single unit through resolution.

Siebel Quality also allows end users to designate other types of relationships, such as CRs that are dependent upon each other or are duplicates of each other.

- Analyze and report on product issues. Because reports and charts are run on demand, organizations can gauge the overall health and stability of products in development.
- Track the history of a CR. Siebel Quality displays information about who the CR was assigned to, whether ownership has been reassigned, and whether the product area associated with the CR has been modified.

### **Quality and Release Manager**

Siebel Quality is packaged with Siebel Release Manager, a tool that allows an organization to manage product development through functions such as feature tracking, engineering allocation, test plan management, and test pass management.

Together, Quality and Release Manager support the product life cycle management process from beginning to end. For more information, see [Chapter 13, “Release Manager.”](#)

## Best Practices

The following section provides some best practices for administering and using the Quality functionality.

- **Assign CRs automatically.** As a productivity aid, you can automate the CR assignment process. Use Siebel Business Process Designer to detect the creation of a new CR and invoke the Siebel Assignment Manager to assign this CR to the appropriate person.

For information about Siebel Business Process Designer, see *Siebel Business Process Designer Administration Guide*. For information about Siebel Assignment Manager, see *Siebel Assignment Manager Administration Guide*.

- **Link multiple occurrences.** When the same issue occurs in different builds, testing environments, or platforms, you can link the CR records as multiple occurrences of each other. When you do this, it is possible to track multiple CRs together and close them together.
- **Appoint multiple owners.** To help make sure of follow-up, assign at least two people to be involved in processing each CR. For example, one person may log, prioritize, and assign the CR while another person implements a solution.
- **Write descriptively.** End users can help make the CR life cycle more efficient by writing clear and descriptive CRs that can be understood by everyone involved in CR processing.
- **Query frequently.** Because the system does not automatically alert owners when a new CR has been logged or an existing one updated, end-users in all teams that work with CRs should query often for their CRs.
- **Add comments.** To help the people involved in processing a CR to trace what has gone before and to understand what the current status is, make sure that everyone who updates a CR writes a comment describing the update.

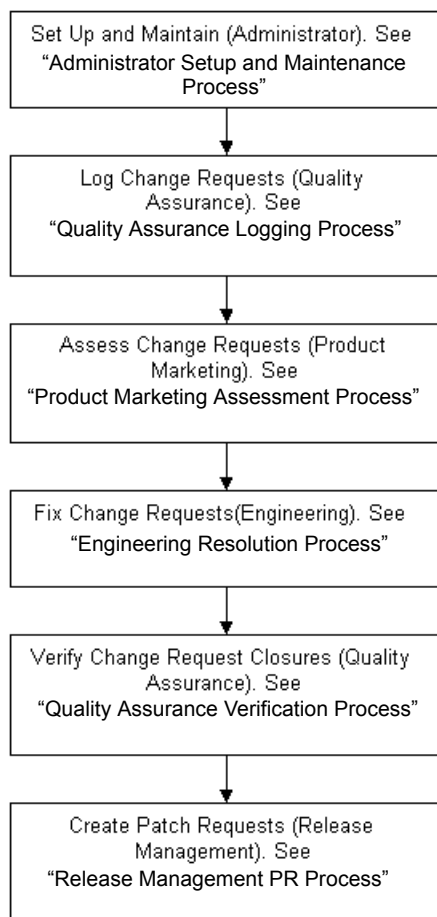
# Example Process for Quality

This section provides a summary of the Siebel Quality CR life cycle. The stages of the Quality process are described in the following sections, in the order listed.

- 1 Set Up and Maintain (Administrator).** See [“Setup and Maintenance”](#) on page 418.
- 2 Log CRs (Quality Assurance).** See [“Logging Change Requests”](#) on page 419.
- 3 Assess CRs (Product Marketing).** See [“Assessing Change Requests”](#) on page 420.
- 4 Resolve CRs (Engineering).** See [“Resolving Change Requests”](#) on page 422.
- 5 Verify CR Closures (Quality Assurance).** See [“Verifying Change Request Closures”](#) on page 424.
- 6 Create Patch Requests (Release Management).** See [“Creating Patch Requests”](#) on page 425.



Figure 12 illustrates this overall process for Siebel Quality. Each cross-reference in a box refers to the title of another figure that illustrates its details.



**Figure 12. Overall Quality Process**

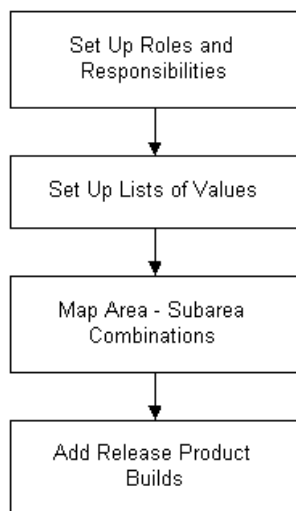
Details of each of these operations are depicted by the descriptions and diagrams in the sections that follow.

### Setup and Maintenance

Before end users can begin working with Quality, the administrator must set it up. The tasks applications administrators perform to set up Quality are listed below. It is recommended that you do them in the order shown.

- 1 Set Up Roles and Responsibilities.** Set up roles and responsibilities to allow the employees who will use Siebel Quality to access the Quality screen and its views. See [“Setting Up Roles and Responsibilities” on page 427.](#)
- 2 Set Up Lists of Values.** Set up lists of values (LOVs) for the fields in the Quality screen. See [“Setting Up Lists of Values” on page 428.](#)
- 3 Map Area-Subarea Combinations.** After field value LOVs are entered, map Area and Subarea field values to one another. Link each Area-Subarea combination to Product Line, Engineering Group, and QA Owner field values. See [“Mapping Area-Subarea Combinations” on page 430.](#)
- 4 Add Release Product Builds.** Add product builds that can be linked to CRs. See [“Adding Release Product Builds” on page 432.](#)

These tasks are illustrated in [Figure 13](#). They are part of ongoing maintenance as well as setup.



**Figure 13. Administrator Setup and Maintenance Process**

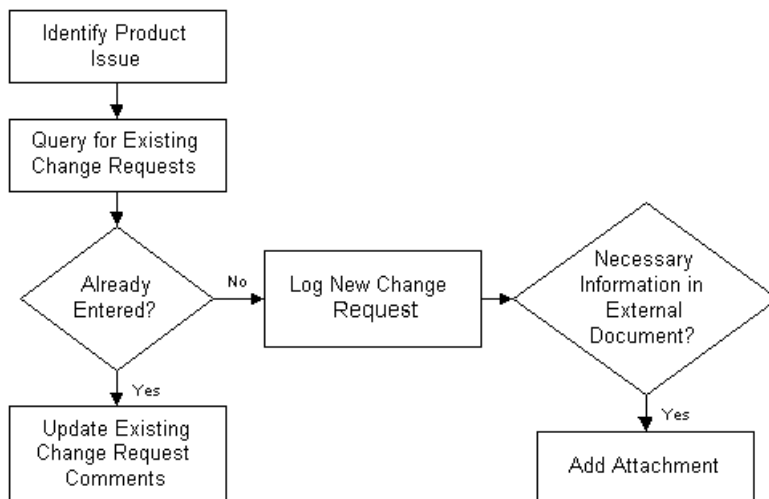
## Logging Change Requests

After you have set up Siebel Quality, Quality Assurance testers and others can log CRs.

- 1 Query for Existing CRs.** After identifying a product issue, but before logging a new CR, the CR creator queries to see whether a duplicate issue already exists. See [“Querying for Existing Change Requests” on page 434](#).
  - **Update Existing CR Comments.** If the search reveals an existing CR for the issue, the CR creator enters a comment with relevant information that may not already be recorded.
  - **Log New CR.** If the CR creator cannot find an existing issue, she then creates a new CR. See [“Logging Change Requests” on page 434](#) and [“Generating Change Requests from Service Requests” on page 436](#).

- 2 Add Attachment.** Optionally, the CR creator can add attachments such as screen captures and configuration files to clarify the issue. See [“Adding Attachments to a Change Request”](#) on page 436.

These tasks are illustrated in [Figure 14](#).



**Figure 14. Quality Assurance Logging Process**

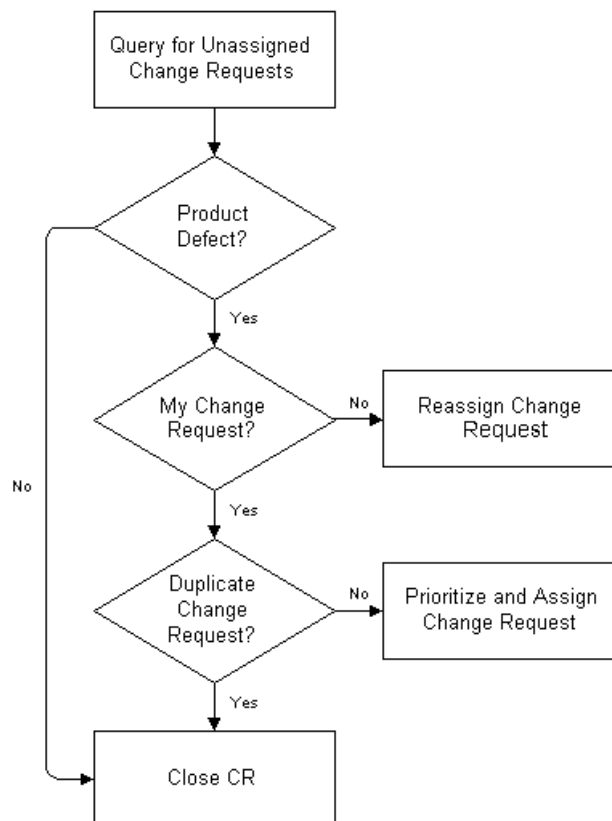
## Assessing Change Requests

After CRs are entered in the system, product marketing managers assess the CRs to determine how important they are and who should resolve the issues.

- 1 Query for Unassigned CRs.** The product manager queries for new CRs in his area of responsibility. See [“Querying for Unassigned Change Requests”](#) on page 438.
  - **Close CR.** If the product manager decides the CR is not a real issue, he closes it. See [“Closing Unassigned Change Requests”](#) on page 439.
  - **Reassign CR.** If the product manager decides that the CR is a real issue, he determines whether it can be resolved by his team. If he finds that the CR’s functional area was incorrectly set, he assigns it to a new owner. See [“Reassigning Change Requests”](#) on page 439.

- **Close CR.** The product manager investigates whether the CR is a duplicate of an existing issue. If it is, he closes the new CR as a duplicate. See [“Closing Unassigned Change Requests”](#) on page 439.
- 2 Prioritize and Assign CR.** If the product manager determines that the CR represents a real issue in his area of responsibility and is not a duplicate of another CR, he prioritizes the CR and assigns it to an engineering manager. See [“Prioritizing and Assigning Change Requests”](#) on page 440.

These tasks are illustrated in [Figure 15](#).



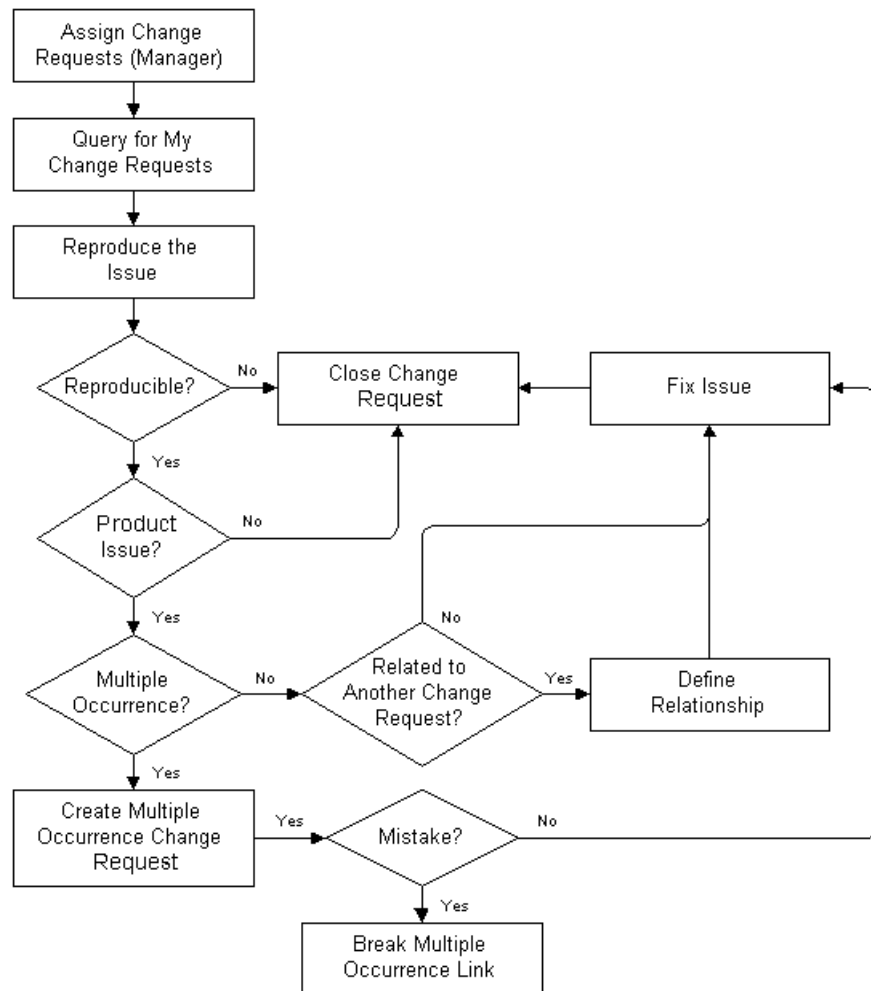
**Figure 15. Product Marketing Assessment Process**

## Resolving Change Requests

After Product Management has assigned CRs to Engineering, Engineering can proceed to resolve the CRs.

- 1 Assign CRs (Manager).** The engineering team manager to whom the product manager assigned the CR, in turn assigns it to an engineer on her team. See [“Assigning Change Request to Engineers \(Manager\)” on page 441.](#)
- 2 Query for My CRs.** The engineer performs a query to find CRs assigned to him.
- 3 Reproduce the Issue.** Upon receiving a newly assigned CR, the engineer tries to reproduce the issue in the CR.
- 4 Close CR.** At this point, the engineer may close the CR for the following reasons:
  - The engineer cannot reproduce the issue.
  - The engineer can reproduce the issue, but it is not an issue with your company’s current product.See [“Closing Resolved Change Requests” on page 445.](#)
- 5 Create Multiple Occurrence CR.** If the engineer determines that the CR contains a real issue with your company’s current product, he checks whether the same issue occurs in multiple versions of the same product. If it does, he creates a multiple occurrence CR for each product variant or version that has the same issue. See [“Creating Multiple Occurrence Change Requests” on page 441.](#)
- 6 Break Multiple Occurrence Link.** If subsequent investigation shows that the issue does not occur in one of the other product versions, or occurs differently, the engineer breaks the multiple occurrence link. See [“Breaking Multiple Occurrence Links” on page 442.](#)
- 7 Define Relationship.** If the CR is not a multiple occurrence, the engineer tries to determine whether it is related to other CRs in some other way. For example, correcting the issue in one CR might depend on first correcting the issue in another. If this is the case, he determines the relationship. See [“Linking Related Change Requests” on page 443.](#)
- 8 Fix Issue.** The engineer then applies the appropriate fix and closes the CR. See [“Closing Resolved Change Requests” on page 445.](#)

These tasks are illustrated in [Figure 16](#).



**Figure 16. Engineering Resolution Process**

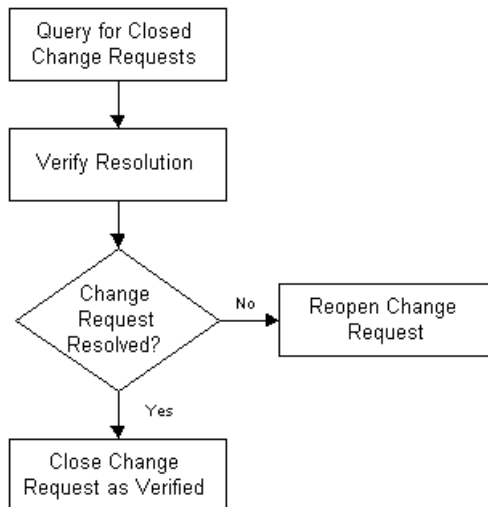
## Verifying Change Request Closures

After engineers resolve CRs, the CR creator attempts to verify the resolutions.

- 1 Query for Closed CRs.** The creator queries for CRs that she has logged that are now closed. See [“Querying for Closed Change Requests” on page 448](#).
- 2 Verify Resolution.** The creator tries to verify the resolution.
  - **Reopen CR.** If she determines that the issue is not resolved, she reopens the CR. This sends the CR back to engineering for further review. See [“Reopening Change Requests” on page 448](#).
  - **Close CR as Verified.** If she determines that the CR is correctly resolved as stated, she closes the CR as verified. See [“Closing Change Requests as Verified” on page 448](#).

At this point, the CR life cycle is complete.

These tasks are illustrated in [Figure 17](#).



**Figure 17. Quality Assurance Verification Process**

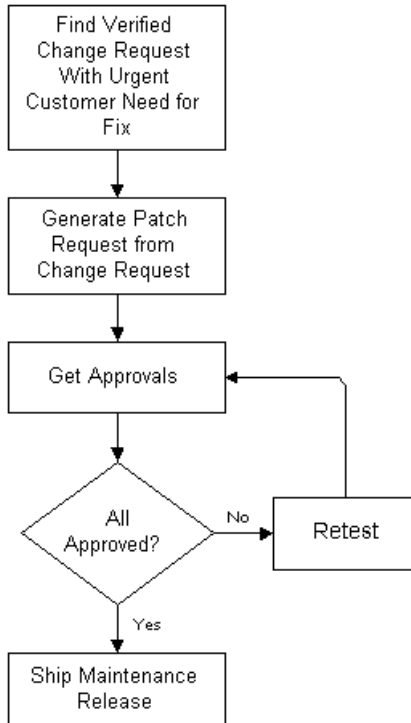


## Creating Patch Requests

After CRs have been closed as verified, the Release Management group may determine that a particular CR fix needs to go to a customer immediately rather than in the next release of the product.

- 1 Find Verified CRs With Urgent Customer Need for Fix.** A member of the Release Management group identifies a closed and verified CR that represents a fix for which a customer cannot wait until the next scheduled release.
- 2 Generate PR from CR.** A release manager generates a PR from a CR. See [“Generating Patch Requests from Change Requests” on page 450](#).
- 3 Enter Approvals.** The release manager obtains the approvals necessary for shipping the patch and records the approvals in the PR record. See [“Approving and Shipping Patch Requests” on page 451](#).
- 4 Retest.** If all approvers do not agree that the patch is ready to ship, the patch is sent back for further development, testing, and another approval cycle.
- 5 Ship Maintenance Release.** After all approvals are gathered for the PR, the maintenance release is ready to go to the customer. See [“Approving and Shipping Patch Requests” on page 451](#).

These tasks are illustrated in [Figure 18](#).



**Figure 18. Release Management PR Process**

## Setting Up Roles and Responsibilities

You are typically responsible for setting up access to your Siebel application's screens and views by assigning roles and responsibilities. This includes access to the Quality screen and its associated views.

For information about setting up roles and responsibilities and associating screens and views with them, see *Security Guide for Siebel eBusiness Applications*.

## Setting Up Lists of Values

You are typically responsible for setting up lists of values (LOVs) for use in Siebel eBusiness Applications. This includes LOVs that are specific to Siebel Quality. For information on setting up LOVs, see *Applications Administration Guide*.

[Table 116](#) lists the LOVs to be set up before using Siebel Quality.

**Table 116. Quality LOVs**

Field	Type Value for LOV Items	Description	Example LOV Items
Area	PROD_DEFECT_AREA	Functional product area	Accounts Orders
Browser	PSTASK_CLIENT_BROWSER	Type of Web browser running in the test environment	IE 5.5 NS 6.2
Client OS	PSTASK_CLIENT_OS	Type of operating system running on the client computer	Win 2000 Mac OS
Database	PSTASK_CLIENT_DB	Type of database running in the test environment	IBM DB2 MS SQL Svr 7.0
Priority	PROD_DEFECT_PRIORITY	Relative importance of the issue	P1-Critical P3-Medium
Server OS	PSTASK_SERVER_OS	Type of operating system running on the server	HP-UX 11i Solaris 8
Severity	PROD_DEFECT_SEVERITY	How severe the issue is	3-Wrong Behavior 4-Minor Error
Special Tag	PD_SPEC_TAG	Statuses or actions that are not identified by the other fields, for reporting, querying, exporting, or localization purposes	BETA3 HIGH RISK
Status	PROD_DEFECT_SUB_STATUS	Implementation or development stage	Open-Disagree Closed-Verified

**Table 116. Quality LOVs**

<b>Field</b>	<b>Type Value for LOV Items</b>	<b>Description</b>	<b>Example LOV Items</b>
Subarea	PROD_DEFECT_SUB_AREA	Functional product area subdivision	Expenses Fulfillment
Substatus	PROD_DEFECT_SUB_STATUS	Implementation or development substage	Unassigned Approved
Type	PROD_DEFECT_TYPE	Type or classification for the CR	Product Defect Enhancement
Web Server OS	PSTASK_SERVER_OS	Type of operating system running on the Web server	AIX 4.3.3 Win NT 4.0

## Mapping Area-Subarea Combinations

When an end user navigates to the Quality screen and selects any combination of Area and Subarea field values, the Product Line, Engineering Group, and QA Owner fields are automatically populated. You activate this process by setting up mappings for Area and Subarea combinations. After defining the lists of values, or LOVs, for Area and Subarea, you define each Area-Subarea combination. Then you designate the Product Line, Engineering Group, and QA Owner field values for each Area-Subarea combination.

As product parameters change in the course of development, you may need to map new Area-Subarea combinations.

### **To add an Area-Subarea combination**

- 1** Navigate to Site Map > Quality > Quality Administration.
- 2** In the Quality Administration list, add a record for each Area-Subarea combination.

For example, if you want a selection of Inventory in the Area field to constrain the choices in the Subarea field to Shipping, Receiving, and Cycle Counting, then create three records with the Area and Subarea fields completed as shown in the following table.

<b>Area</b>	<b>Subarea</b>
Inventory	Shipping
Inventory	Receiving
Inventory	Cycle Counting

- 3 Complete the other fields. These fields are described in the following table.

<b>Field</b>	<b>Comments</b>
Engineering Group	Engineering team with which this Area-Subarea combination is associated.
Product Line	Grouping of products with which this Area-Subarea combination is associated.
QA Owner	Quality Assurance team owner with which this Area-Subarea combination is associated.

When these mappings are set up, the pick list values available in the Subarea field on the Quality screen's views change dynamically according to the value an end user selects in the Area field. When the end user then selects a value in the Subarea field, the system automatically populates the Product Line, Engineering Group, and QA Owner fields.

## **Adding Release Product Builds**

You control product version information for the organization by setting up release product builds. Because every Release Manager and Quality record must be associated with a specific release product build, you must set these up before end users enter any records.

As a product progresses through the release cycle, increasingly advanced product prototypes are created. (In the case of software development, these prototypes are known as *builds*.) As each new prototype becomes available, you are responsible for entering it into Quality. This allows end users of Quality and Release Manager to record each record against the appropriate build.

There are two types of releases, as follows:

- **Future Releases.** Though only one active release may be in progress, you must set up records for future releases as well. That way, if a feature or fix is deferred from the current release, an end user can target it to a specific future release.
- **Unspecified Releases.** Sometimes the appropriate future release for a given feature or fix may be unknown. For this contingency, you must set up at least one artificial release called “Unspecified Release” or some similar term. Orphan items can be linked to this release. When the appropriate future release has been determined, an item can then be retargeted to that release.

### **To add a release product build**

- 1** Navigate to Site Map > Quality > Release Product Administration.
- 2** Add a record for a build.



- 3 Complete the fields. Some fields are described in the following table.

<b>Field</b>	<b>Comments</b>
Build	Number or code that identifies this build.
End Date	To cause this build to disappear from the Build and Target fields of the Change Requests view after a certain time, enter a date after which it should not appear.
Language	Three-letter language code.
Product	Product of which this build is a prototype.
Target Version	Select to make this build available as a choice in the Target field of the Change Requests view.
Version	Version number of the product.

When you create a record in the Release Product Administration screen, the information in the Build, Language, Product, and Version, fields becomes available to end users in the Build field in the Release screen's QA Tests view and Quality screen's Change Requests view. If you selected the Target Version check box, this information also becomes available in the Target field in the Quality screen's Change Requests view.

## **Logging Change Requests (QA End User)**

Anyone can log a CR. The Quality Assurance organization, however, creates the vast majority of CRs. Quality Assurance discovers most product issues during testing. When a QA tester discovers a product issue, she creates a new CR.

To add CR records and fill them out with necessary information, follow the procedures in this section.

### **Querying for Existing Change Requests**

Before logging a new CR, a CR creator should query to see whether a duplicate issue is already recorded in an existing CR. She can do this by searching on various combinations of key words used to describe the problem.

- 1** Navigate to Site Map > Quality.

The Change Requests view appears.

- 2** Initiate a query.

- 3** In the Summary field, enter a phrase that might describe the issue in other CRs.

For example, if you find a problem with attaching documents to a record, you might query on phrases such as “attachment not working” and “attachment function broken.”

- 4** Run the query.

- 5** If the query reveals that a CR already exists for the issue, update the Comments field with relevant information that is not already recorded.

### **Logging Change Requests**

If the CR creator cannot find an existing CR that describes the issue, she creates a new CR. The CR creator must enter all relevant details including the functional area in which the problem was found, the environment (operating system, server type, and so on) where the problem occurred, and the precise steps for reproducing the issue.

Most of this information is entered in the left side of the Change Requests form, labeled “Change Request Description.”

**To log a change request**

- 1 Navigate to Site Map > Quality.

The Change Requests view appears.

- 2 In the More Info form, click the show more button.
- 3 Create a new CR record.
- 4 Enter values for the fields, as needed.

Some fields in the Change Requests view are listed in [Table 117](#).

**Table 117. Fields for Logging a CR**

Field	Comments
Area	Functional product area to which the CR pertains.
Comments	Enter a comment describing what was done with this CR, and any additional information that may be needed by other users to understand, track, or resolve the issue.
Description/How to Reproduce	Detailed description of the issue. If the CR describes a product defect, write complete step-by-step directions for reproducing the issue.
Build	Product build in which the issue occurs.
Product Line	Product line affected by the CR. Automatically filled in when the Subarea value is set.
QA Owner	Quality Assurance team owner of the CR. Automatically filled in when the Subarea value is set.
Severity	Creator's assessment of the seriousness of the issue.
Special Tag	Allows you to select statuses or actions that are not identified by the other fields. Special tags may be used for purposes such as reporting, tracking, querying, exporting, and localization. You can select one or more values.
Subarea	Functional product area subdivision to which the CR pertains. When you make a selection in this field, the Product Line, QA Owner, and Engineering Group fields are populated automatically.

**Table 117. Fields for Logging a CR**

Field	Comments
Summary	Brief description of the CR. Should be concise enough so a reader can immediately understand the overall issue.
Tag Summary	Displays all the tags selected in the Special Tag field.
Type	CR type. Accept the default Product Defect, or select another value to identify the CR as an enhancement request, a user interface issue, and so on.

## Generating Change Requests from Service Requests

Occasionally, a CR originates from a customer by way of a service request. If the technical support person who receives the customer's service request decides that it represents a product issue, she can log a CR for the service request.

For more information about service requests, see [Chapter 2, "Service Support."](#)

### **To log a change request for a service request**

- 1** Navigate to the Service screen.
- 2** Select a Service Request record.
- 3** Click the Change Requests tab.
- 4** Create a new CR record.
- 5** Complete the fields, as needed, from the information in the service request.

For a description of CR fields, see [Table 117 on page 435](#).

- 6** In the Comments field, note that this CR originated from a service request, and add any additional information that may be relevant.

The new CR appears in the Quality screen's Customer Change Requests view.

## Adding Attachments to a Change Request

Optionally, after adding a CR, the CR creator might want to add documents or graphics to further explain or illustrate the issue. In this case, the creator can add attachments, such as screen captures or configuration files.

For information about how to add an attachment, see the chapter on working with data in *Fundamentals*.

## Assessing Change Requests (Product Marketing End User)

After CRs have been logged, the Product Marketing team assesses the new CRs in its functional areas.

Product managers assess and assign CRs. A product manager reviews each new CR logged in his area of responsibility. If he determines that an issue is a real one, he defines the priority and assigns the CR to the appropriate engineering manager.

### Querying for Unassigned Change Requests

The product manager queries for unassigned CRs in his functional area.

#### *To query for unassigned change requests*

- 1 Navigate to Site Map > Quality.

The Change Requests view appears.

- 2 Create a query with the appropriate field values. Some values you can use in the query are listed in the following table.

<b>Field</b>	<b>Value</b>
Area	(your product area)
Owner	IS NULL
Priority	IS NULL
Status	Open
Subarea	(your product subarea)
Substatus	Open

- 3 Run the query.

## Reassigning Change Requests

If the product manager decides that the CR describes a real issue, he first confirms that the CR is in his functional area. If he determines that the CR's functional area was incorrectly set, he reassigns the CR to the appropriate area.

### *To reassign a change request*

- 1 Navigate to Site Map > Quality.

The Change Requests view appears.

- 2 Change the values in the Area and Subarea fields, as needed.
- 3 In the Comment field, add a brief explanation of why you reassigned the CR.

## Closing Unassigned Change Requests

If the product manager decides the CR is not a real issue, he closes it with various possible reasons. For example, he may determine that the issue is not a product defect, or he may decide to decline an enhancement request.

### *To close an unassigned change request*

- 1 Navigate to Site Map > Quality.

The Change Requests view appears.

- 2 In the Status field, select Closed.
- 3 In the Substatus field, do one of the following:
  - If the CR does not reflect a real issue in the current product, select a value such as Not a Bug or No Longer Applicable.
  - If the CR is an enhancement request and you decide that the request cannot be accommodated, select Enhancement Declined.
  - If the CR is a duplicate of an existing issue, select Dup-Double Entry. Enter the existing issue's CR number in the Primary Occurrence field.
- 4 In the Comments field, add a note explaining the reason for closing the CR.

## Prioritizing and Assigning Change Requests

If the assessment of a CR is complete and the product manager determines this is a new issue that needs to be resolved, he assigns a priority, a target release, and an owner to the CR. The product manager usually assigns the CR to the engineering manager who is in charge of the product area where the issue occurs.

The product manager enters priority and assignment information on the right side of the Change Requests form, labeled “Resolution.”

### To prioritize and assign a change request

- 1 Navigate to Site Map > Quality.

The Change Requests view appears.

- 2 In the Comments field, add a comment summarizing why you prioritized and assigned this CR as you did.
- 3 Complete the other fields as needed. Some fields are described in the following table.

Field	Comments
Engineering Group	Displays the group responsible for delivering the fix. Automatically filled in when the Subarea value is set.
Owner	Select the engineering manager responsible for resolving the issue reported in the CR.
Priority	How urgent it is to resolve the issue compared to other issues at hand. Does not have to be the same as the value in the Severity field.
Special Tag	Allows you to select statuses or actions that are not identified by the other fields. Special tags may be used for purposes such as reporting, tracking, querying, exporting, and localization. You can select one or more values.
Tag Summary	Displays all the tags selected in the Special Tag field.
Target	Release in which the CR issue is to be fixed.



## Resolving Change Requests (Engineering End User)

The engineering manager who owns an open CR assigns the CR to an engineer on her team. The engineer first tries to re-create the issue by following the description entered by the CR creator. He debugs the issue and isolates its cause. He then makes the appropriate fix, updates the CR with all relevant details, and closes the CR.

### Assigning Change Request to Engineers (Manager)

After the product manager assigns the CR to an engineering manager, the engineering manager assigns the CR to an engineer who has the right expertise to resolve the issue.

#### **To assign a change request to an engineer**

- 1 Navigate to Site Map > Quality.

The Change Requests view appears.

- 2 In the Owner field, select the engineer you want to assign to resolve the issue.
- 3 In the Comment field, enter any comment or explanation that might be necessary for the engineer to understand the issue.

### Creating Multiple Occurrence Change Requests

In the course of resolving a CR, an engineer might find the same problem in another testing environment, another language version, or another product release version. For this situation, your Siebel application allows end users to create parent-child relationships between CRs. With this functionality, end users can create *multiple occurrence CRs* and link them to a parent CR.

CRs are multiple occurrences when they have the same functional description but are logged against more than one critical factor such as environment, language, or product. Alternatively, multiple occurrence CRs can describe different symptoms that originate from the same problem and require the same resolution. Multiple occurrence CRs must have the same owner, and the files or other components to be fixed must be the same.

The ability to create multiple occurrence CRs allows end users to manage related issues from one source, eliminate double-counting of product issues, and track the linked CRs together.

To create a new multiple occurrence CR (child) for an existing primary occurrence CR (parent), use the following procedure.

**To create a multiple occurrence change request**

- 1 Navigate to Site Map > Quality.

The Change Requests view appears.

- 2 Select a CR that will be the parent to multiple occurrences.

- 3 On the Change Request form, click the view menu button and choose Create Multiple Occurrence.

The system creates a copy of the original record with a new CR number. The number of the original CR (the parent) appears in the Primary Occurrence field.

- 4 In the new CR record, change the field values for information that is different from the original CR. Some fields in the Change Requests view are listed in [Table 117](#).

- 5 In the Comments field, record the action you have taken and note any additional information that may be relevant.

The parent and child CRs are linked and the new CR becomes a multiple occurrence CR.

**Breaking Multiple Occurrence Links**

In some cases, links between multiple occurrence CRs need to be removed. For example, further investigation may reveal that multiple occurrence CRs are not related to each other.

You can break a multiple occurrence link either from a parent CR or from a child CR. To break Multiple Occurrence links, use the following procedures.

**To break a multiple occurrence link from the parent change request**

- 1 Navigate to Site Map > Quality.

- 2 Select a CR record for a parent multiple occurrence CR.

- 3 Click the Related CRs view tab.

The Related CRs list displays the CRs with child relationships to the selected primary CR.

- 4 In the Related CRs list, select the multiple occurrence CR you wish to remove.

---

**NOTE:** Child multiple occurrence CRs are identified by a value of Multiple Occurrence in the Relationship Type field.

---

- 5 In the Related CRs list, click the view menu button and select Delete Relationship.
- 6 In the confirmation window, click OK.  
The CR is removed from the Related CRs list.
- 7 In the Comments field, record the action you have taken and note any additional information that may be relevant.

#### **To break a multiple occurrence link from the child change request**

- 1 Navigate to Site Map > Quality.
- 2 Select a CR record for a child multiple occurrence CR.
- 3 Delete the value in the Primary Occurrence field. (The value in this field is the parent CR.)
- 4 In the Comments field, record the action you have taken and note any additional information that may be relevant.
- 5 Click the menu button.

If the link was broken successfully, the Go To Primary Occurrence option is unavailable.

### **Linking Related Change Requests**

In addition to multiple occurrence, Siebel Quality uses several other designations to define the relationships that can occur among CRs. Related CRs are useful when investigating a solution for a CR that may be similar to others.

- **Duplicate (Dup-Double Entry).** The same CR entered more than once. Not only is the functional description the same, but other critical factors such as environment, language, or product are also the same.
- **Dependent Upon.** A CR that cannot be resolved until it receives a fix from another CR.
- **Miscellaneous (Misc).** An arbitrary relationship between CRs. Allows you to track multiple CRs together, though they may not be dependent on one another or match one another.

This section contains procedures for creating and managing the related CRs. To create a relationship between two existing CRs, use the following procedures.

#### ***To link a related change request from a parent change request***

- 1** Navigate to Site Map > Quality.
- 2** Select the primary CR to which you want to relate another CR.
- 3** Click the Related CRs view tab.
- 4** In the Related CRs list, create a new record.
- 5** In the Add Change Request dialog box, select the CR you want to relate to the primary CR as a child and click Add.
- 6** In the Relationship Type field, select the type of relationship the related CR has to the parent CR.
- 7** In the Comments field, record the action you have taken and note any additional information that may be relevant.

#### ***To link a related change request from a child change request***

- 1** Navigate to Site Map > Quality.
- 2** Select the CR you want to link to another CR as a child.

---

**NOTE:** The child CR cannot have any related child CRs of its own. To verify this, check its Related CRs view tab.

---

- 3** On the Change Request form, in the Primary Occurrence field, select the CR number of the parent CR.
- 4** In the Comments field, record the action you have taken and note any additional information that may be relevant.
- 5** Click the view menu button and choose Go to Primary Occurrence.  
  
The Change Request form displays the CR you just designated as the parent (primary occurrence).
- 6** Click the Related CRs view tab.
- 7** In the Related CRs list, select the child CR you just linked to the parent as related.
- 8** In the Relationship Type field, select the type of relationship the child CR has to the parent CR.

## Closing Resolved Change Requests

Upon receiving a newly assigned CR, the engineer tries to reproduce the issue. At this point, the CR may be closed for several reasons, such as the issue being with a third-party product, no longer applicable to the current release, or the engineer being unable to reproduce it.

If the engineer determines that the CR is a real issue, he investigates further, makes the appropriate fix, and tests the fix. When the fix is complete, he closes the CR and enters relevant information about the fix.

When closing a primary occurrence CR, an engineer can close a parent CR and all its child CRs at once, close the parent CR only, or close a child CR independently of its parent.

When closing a CR, the engineer enters information in the right side of the Change Requests form, labeled “Resolution.” Use the following procedures to close CRs that have been fixed or otherwise resolved.

### **To close a resolved change request**

- 1** Navigate to Site Map > Quality.
- 2** Select a CR record that you want to close as fixed.
- 3** Set the Status field to Closed.

**4** In the Comments field, add a comment explaining the resolution.

Complete the other fields as needed. Some fields in the Change Requests view are listed in [Table 118](#).

**Table 118. Fields in the Change Requests View**

Field	Comments
Approvals	Allows the employees involved in processing the CR to mark and track approvals for the stages of the fix.
Files Fixed	Filename and archiving system location of each electronic file modified for the fix. Becomes a required field when the Substatus or Integration Status changes to Fixed.
Fixed Build	Product version where the resolution is implemented.
Integration Fixed Build	Integration branch build number in which the fix was made.
Integration Fixed Date	Date when the fix was made in the integration branch.
Integration Status	Status of the CR on the integration branch. When the Integration Status field is set to Closed, the Integration Fixed Date field is automatically populated and the Integration Fixed Build field becomes required.
Special Tag	Allows you to select statuses or actions that are not identified by the other fields. Special tags may be used for purposes such as reporting, tracking, querying, exporting, and localization. You can select one or more values.

**Table 118. Fields in the Change Requests View**

Field	Comments
Substatus	Reason for closing the CR. Some values are as follows: <ul style="list-style-type: none"> <li>■ <b>FOL.</b> Fact of Life. Because of a limitation such as dependency on a third-party product, your company's development team has no control over the issue.</li> <li>■ <b>No Longer Applicable.</b> The issue applies to an older or different version of the product, but not to the current version or the version under development.</li> <li>■ <b>Not Reproducible.</b> The issue cannot be reproduced as described. (In cases where the CR issue cannot be reproduced, Siebel Systems recommends that before closing the CR, you contact the CR creator directly to obtain clarification.)</li> <li>■ <b>Fixed.</b> The issue has been corrected.</li> </ul>
Tag Summary	Displays all the tags selected in the Special Tag field.

**To close a resolved parent multiple occurrence change request**

- 1 Follow the steps of [“To close a resolved change request” on page 445](#) for a parent CR.

When you save the record, a message box appears.

- 2 Do one of the following:
  - Click OK to close all the associated multiple occurrence CRs with the same resolution information as the primary CR.
  - Click Cancel to close only the primary CR.

## **Verifying Change Request Closures (QA End User)**

After the engineer resolves a CR, the QA tester or other CR creator who reported the issue verifies that the resolution is correct.

### **Querying for Closed Change Requests**

The CR creator queries for closed CRs in her functional area.

#### ***To query for closed change requests***

- 1** Navigate to Site Map > Quality > Change Requests Reported by Me.

The Change Requests view appears.

- 2** Create a query with Status = Closed.
- 3** Run the query.

### **Reopening Change Requests**

The CR creator tries to verify the resolution on the version identified by the engineer. If she determines that the issue is not resolved, she reopens the CR, which sends it back to the engineer for further review.

#### ***To reopen a change request***

- 1** Navigate to Site Map > Quality.

The Change Requests view appears.

- 2** In the Status field, select Open-Disagree.
- 3** In the Comment field, enter an explanation of why you disagree with the resolution.

### **Closing Change Requests as Verified**

If the creator determines that the CR is correctly resolved, she closes out the CR as verified. At this point, the CR life cycle is complete.



**To close a change request as Verified**

- 1** Navigate to Site Map > Quality.

The Change Requests view appears.

- 2** In the Status field, select Closed-Verified.
- 3** In the Comment field, enter a note that you agree with the resolution.

## Creating Patch Requests (Release Management End User)

The release management team, which may consist of representatives from the major functional groups, tracks the overall health of the product release. They monitor product status and stability. They monitor the development effort's progress through Siebel Quality's reports and charts. They then provide the final recommendations for shipment of the product.

The release management group also manages *patch requests (PRs)*. A patch request (PR) is a resolved product issue whose fix must be delivered to a customer prior to the next scheduled release, through a maintenance release. The release management group makes sure that critical issues for which customers need fixes immediately get resolved as maintenance releases.

### Generating Patch Requests from Change Requests

A member of the release management team generates a PR from a CR. The PR then forms the basis of a maintenance release. To generate a PR, use the procedure that follows.

#### **To generate a patch request from a change request**

- 1 Navigate to Site Map > Quality.

The Change Requests view appears.

- 2 In the Change Requests list, select the closed and verified CR from which you want to generate a PR.
- 3 In the Change Requests form, click the view menu button and choose Copy To Patch.

The Patch Requests view appears with the new PR record generated from the CR. Most fields are filled in from the CR.

- 4 In the Account field, select the customer that is to receive the patch.
- 5 In the Date Required field, enter the date on which the PR fix must be delivered to the customer.

## Approving and Shipping Patch Requests

A PR is approved for shipping as a maintenance release in the Patch Requests view, which is used by the release management team. The main groups involved in product development must approve a patch before it can be delivered to a customer.

To record approvals and clear a patch for shipping, use the procedure that follows.

### **To approve and ship a patch request**

- 1** Navigate to Site Map > Quality > All Patch Requests.

The Patch Requests view appears.

- 2** Find the patch you want to ship.
- 3** As you receive approvals for the patch to be shipped, complete the Technical Services, Product Marketing, Engineering, and QA fields.
- 4** When all teams have approved the PR, in the Patch Status field, select Approved to Ship.
- 5** When the patch is shipped, in the Patch Status field, select Closed-Shipped.



# Release Manager 13

By reading this chapter, an applications administrator can gain an overview of product development and release management as it is processed through your Siebel application, including both administrator and end user tasks. An applications administrator can also learn the information and procedures that all users must know to do their parts in the release cycle.

Applications administrators can use this chapter for guidance in setting up the Siebel application so end users can use Release Manager, and in keeping Release Manager information current. Product Marketing, Engineering, Quality Assurance (QA), and Technical Publications managers can use this chapter to guide them in monitoring their teams' progress. End users (product marketers, engineers, QA testers, and technical writers) can refer to this chapter for procedures for recording their development tasks.

The Release Manager and Quality modules of Siebel Service work together. After a product is released, the Quality module tracks the product improvement process and channels requests for improvements to future releases. For more information about the Quality module, see [Chapter 12, "Quality."](#)

# About Release Manager

The Release Manager module helps to manage new product development and release cycles from beginning to end. Release Manager uses data collected in your Siebel application to help guide product feature selection and development.

Release Manager assists with a number of release-related activities. With Release Manager, users can do tasks including the following:

- Communicate feature descriptions throughout the organization
- Prioritize features so that the most important ones get implemented
- Develop marketing requirements documents (MRDs) for engineers to use as product specifications
- Allocate engineering resources and track engineering tasks
- Track QA test plan development and test execution
- Track documentation development
- Track activities associated with release-related items
- Monitor development status

## Release Manager Structure

You can think of a product release as a composite of features. The decision to implement these features generates multiple release-related items: MRDs to further specify the features, engineering tasks to implement the features, QA test plans to test the features, and documentation to describe the features. The system helps to make sure that each task, test plan, and document derives from one or more new features.

Release Manager is built around features. In Release Manager, engineering tasks, MRDs, QA test plans, and technical publications documents are linked to their associated features. Users gain benefits such as the following:

- Executives can justify decisions on how to allocate engineering resources and schedule QA testing.

- Product marketing managers can see the features specified in MRDs, and determine the development, testing, and documentation status for a given feature.
- Engineering and QA managers can know what new features need to be incorporated into their project plans and test plans.

[Figure 19 on page 456](#) shows how the various release-related items are linked to features. This illustration shows an area that represents Release Manager. Within the area, tests are linked to test plans, and test plans, engineering tasks, MRDs, and documentation are all linked to features at the center.

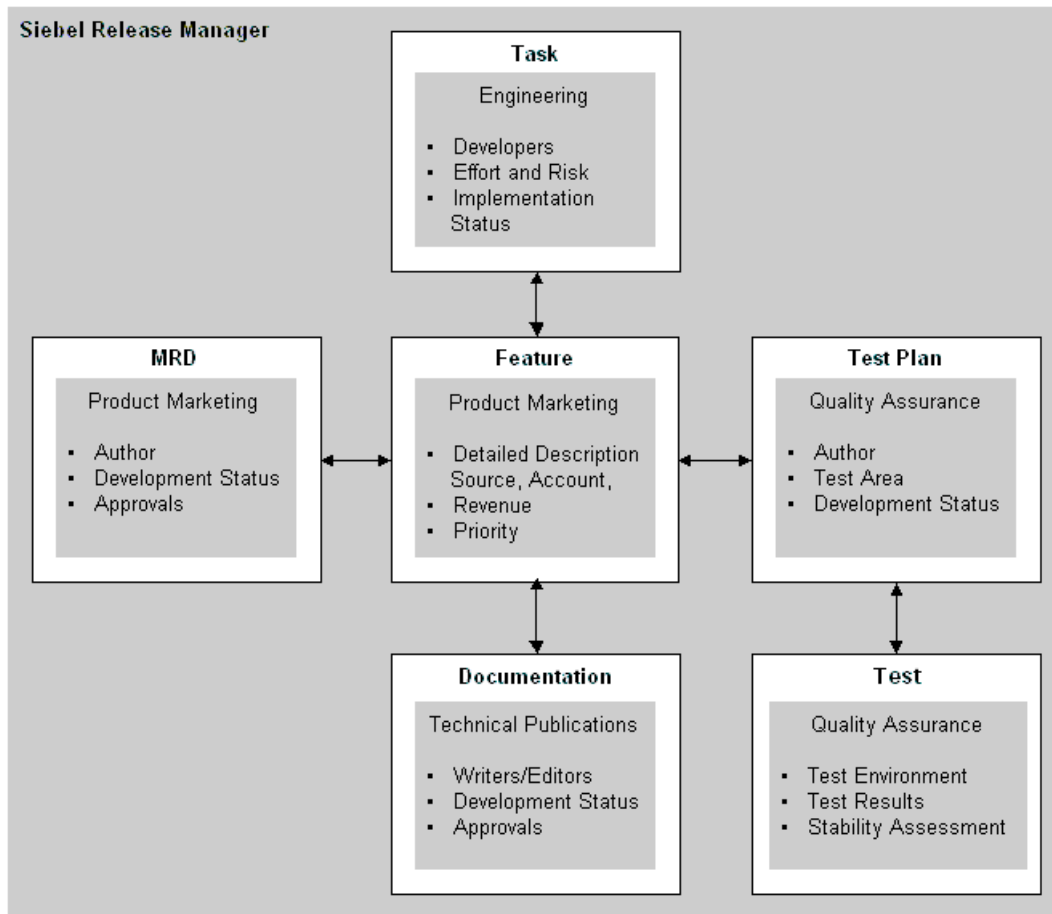


Figure 19. Release Manager Release-Related Items and Attributes



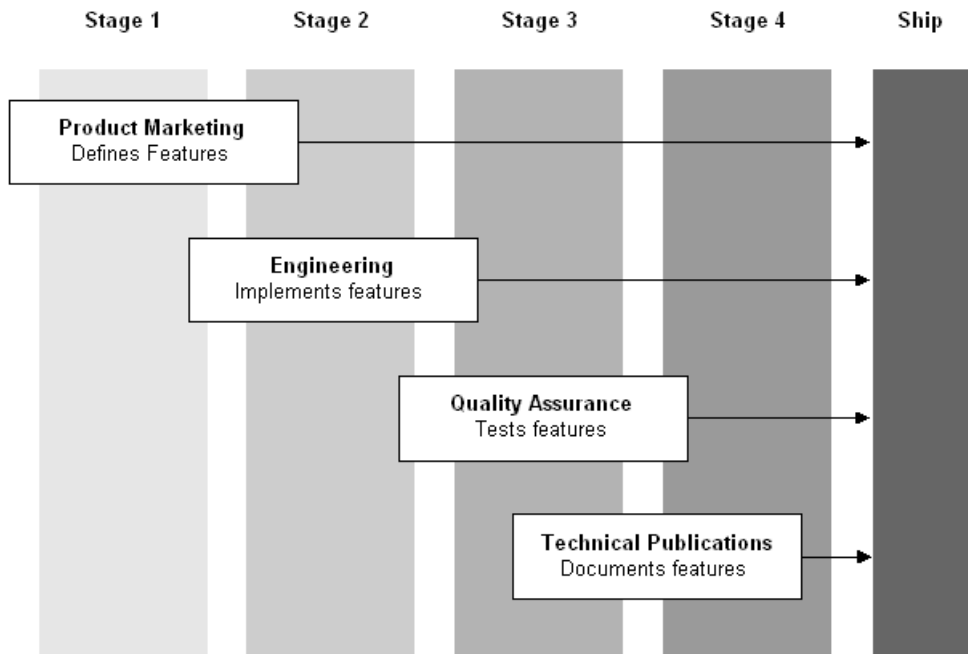
## Product Release Process

The product release process consists of the following stages:

- **Stage 1.** Product Marketing begins the release cycle by defining product features, entering those features into the system, determining which features will be implemented, and developing marketing requirements documents (MRDs).
- **Stage 2.** Engineering builds the features. Engineering defines the tasks required to implement the features, builds the features, and uses the system to track task completion.
- **Stage 3.** Quality Assurance (QA) defines test plans to be run against the new features, and uses Release Manager to track the test plan development. QA then tests the features by executing the test plans in various operating environments, and records the details of each test iteration.
- **Stage 4.** Technical Publications documents each feature in the appropriate publication and uses Release Manager to track document development status.

In practice, these stages are not rigidly sequential. At any given point in the release's development cycle, activities for several of the stages may overlap as teams pursue their goals simultaneously.

As illustrated in [Figure 20](#), Stage 1 (Product Marketing), Stage 2 (Engineering), Stage 3 (Quality Assurance), and Stage 4 (Technical Publications) all lead toward the final stage, Ship.



**Figure 20. The Product Release Process**

## Business Scenario for Release Manager

This scenario provides an example of a process flow performed by an applications administrator and managers and line employees in product marketing, engineering, QA, and technical publications. Your company may follow a different process flow according to its business requirements.

### Siebel Administrator, Setup

Before the release cycle begins, the administrator sets up a master record for the release in the Siebel application. Then the administrator defines an *access list* of people who will be associated with the release. Afterward, the administrator designates the people on the access list for *project teams* that will be associated with various stages of the release. The administrator also sets up lists of values for picklist fields in the Release Manager views. Finally, the administrator sets up activity templates by which end users can associate lists of specific activities with certain stages of the release process.

### Product Marketing

At the beginning of a release cycle, the Product Marketing group defines a set of *release-defining features*, requirements and enhancements for the products based on customer needs. After the detailed features list has been finalized and prioritized, Product Marketing enters the features into Release Manager as Feature records. If a feature is a complex one with multiple components, Product Marketing enters each component as a Feature record, then designates the main feature as its parent feature.

After the features for a release have been entered, Product Marketing writes Marketing Requirement Documents (*MRDs*) and enters them into Release Manager. Product Marketing creates a new record for each MRD or logical group of MRDs. After the MRD records have been created, Product Marketing links the MRD document files to their respective MRD records as attachments. Finally, Product Marketing links the MRDs to the features they reference.

### Engineering

As Product Marketing defines release features, Engineering writes *engineering tasks* to implement those features in the product. Each engineering task is entered as an individual record in Release Manager. Each engineering task is linked to the features it is designed to implement. If a task is a complex one with multiple components, Engineering enters each component as a subtask record, then links it to the main engineering task.

### Quality Assurance

As Product Marketing defines release features and Engineering implements them, Quality Assurance writes *test plans* to validate the features. Each completed test plan is entered as an individual record in Release Manager. Each test plan is linked to the features it is designed to validate.

Next, Quality Assurance creates *test strategies*, which are logical groupings of test plans. (For example, all test plans for one application module might be grouped together as a test strategy. Alternatively, all test plans to be executed on the same platform and browser combination might be grouped together as a test strategy.) Each completed test strategy is entered as an individual record in Release Manager. Each test strategy is linked to the test plans that it groups together.

After test strategies have been defined, Quality Assurance runs test plan executions, or *test passes*. Each test plan execution is logged as a test pass record. As the test passes are recorded, Quality Assurance links the test pass records to their respective test plans. Defects found during testing are recorded as change request records and linked to the test passes from which they were recorded.

During and after testing, Quality Assurance managers can run various reports on test pass results to monitor the health and progress of the product release effort.

## **Technical Publications**

As the other teams design, implement, and test the release features, Technical Publications writes technical documents to describe the product and explain how to use it. Each technical document is entered as an individual record in Release Manager. Each technical document is linked to the features it describes. Technical Publications then links an activity plan with standard milestones and deadlines to each technical document record. After the technical document records have been created, Technical Publications links the technical document files to their respective records as attachments.

## **Siebel Administrator, Maintenance**

While release work is ongoing, the administrator may need to do certain maintenance tasks to make sure Release Manager continues to run smoothly for end users. As Engineering completes builds of the product, the administrator adds *product prototype* records for Quality Assurance to record tests against. As product parameters change in the course of development, the administrator may need to add new Area and Subarea category combinations to add to Release Manager's lists of values. When a new release cycle begins, the release administrator determines the need for new and revised test plans and test strategies.

# Example Process Flow for Release Manager

This section presents an example process flow for setting up, using, and maintaining the Release Manager module.

## Administrator Setup Procedures

Before end users can begin working with Release Manager, the administrator must set it up. The tasks applications administrators perform to set up Release Manager are listed below. It is recommended that you do them in the order shown.

- 1 Set up releases.** (See [“Setting Up Releases”](#) on page 465.)
- 2 Set up the access list.** (See [“Setting Up the Access List”](#) on page 466.)
- 3 Set up project teams.** (See [“Setting Up Project Teams”](#) on page 466.)
- 4 Set up activity templates.** (See [“Setting Up Activity Templates”](#) on page 469.)
- 5 Set up lists of values.** (See [“Setting Up Lists of Values”](#) on page 467.)

## Product Marketing End-User Procedures

After the administrator has set up Release Manager, Product Marketing begins its work. The tasks that Product Marketing personnel perform when using Release Manager are listed below. It is recommended that end users do them in the order shown.

- 1 Create features and subfeatures.** (See [“Creating Features and Subfeatures”](#) on page 470.)
- 2 Create MRDs.** (See [“Adding MRDs”](#) on page 472.)
- 3 Associate features with MRDs.** (See [“Associating Features With an MRD”](#) on page 472.)

## Engineering End-User Procedures

When Product Marketing has created features, Engineering begins its work. The tasks that Engineering personnel perform when using Release Manager are listed below. It is recommended that end users do them in the order shown.

- 1 Add engineering tasks and associating features.** (See [“Adding Engineering Tasks and Linking Features”](#) on page 473.)
- 2 Adding Subtasks.** (See [“Adding a Subtask to an Engineering Task”](#) on page 475.)

## Quality Assurance End-User Procedures

When Engineering has implemented tasks, Quality Assurance begins its work. The tasks that Quality Assurance personnel perform when using Release Manager are listed below. It is recommended that end users do them in the order shown.

- 1 Create test plans and associate features.** (See [“Creating Test Plans and Linking Features”](#) on page 476.)
- 2 Create test strategies.** (See [“Creating Test Strategies”](#) on page 478.)
- 3 Associate test plans with test strategies.** (See [“Associating a Test Plan with a Test Strategy”](#) on page 479.)
- 4 Record test pass results.** (See [“Recording a Test Pass and Linking a Test Plan”](#) on page 480.)
- 5 Associate change requests with test passes.** (See [“Associating Change Requests with a Test Pass”](#) on page 481.)
- 6 View test plan results.** (See [“Viewing Test Plan Results”](#) on page 482.)

## Technical Publications End User Procedures

When Product Marketing has written MRDs, Technical Publications begins its work. The tasks that Technical Publications personnel perform when using Release Manager are listed below. It is recommended that end users do them in the order shown.

- 1 Creating technical documents and linking features.** (See [“Creating Technical Documents and Linking Features”](#) on page 483.)
- 2 Add activity plans to technical documents.** (See [“Adding Activity Plans to Technical Documents”](#) on page 484.)

### **Administrator Maintenance Procedures**

While end users are working with Release Manager, the administrator must maintain it. The tasks applications administrators and release administrators perform to maintain Release Manager are listed below. You can do them as needed, in any order.

- 1 Add product prototypes.** (See [“Adding Product Prototypes”](#) on page 485.)
- 2 Add new area and subarea combinations.** (See [“Adding New Area/Subarea Combinations”](#) on page 485.)
- 3 Update test plans and test strategies.** (See [“Updating Test Plans and Test Strategies”](#) on page 487.)



# Administrator Setup Procedures for Release Manager

A number of areas of Release Manager must be set up in advance to make sure of the application's usability for product marketers, quality assurance testers, engineers, and technical writers. Depending on your company's structure and policies, these activities might be the duties of the organization's Release Manager, Applications Administrator, or other person responsible for setting up the system. For convenience and brevity, this chapter refers to this person as the administrator.

This section provides instructions for the following procedures:

- [“Setting Up Releases” on page 465](#)
- [“Setting Up the Access List” on page 466](#)
- [“Setting Up Project Teams” on page 466](#)
- [“Setting Up Activity Templates” on page 469](#)
- [“Setting Up Lists of Values” on page 467](#)

## Setting Up Releases

When entering a release item record, an end user is required to associate it with a particular release. In Release Manager, a release is a type of project, and releases are tracked in the same way as projects in Siebel Professional Services. For more information on setting up projects, see *Siebel Professional Services Automation Guide*.

There are two types of releases, as follows:

- **Future Releases.** Because each release item must be associated with a particular release, you must set up the release (project) before entering any records. Though only one active release may be in progress, you must set up records for future releases as well. That way, if a feature is deferred from the current release, the product marketing manager can immediately target it to a specific future release.

- **Unspecified Releases.** There may be times when the appropriate future release for a given feature or other release item is unknown. Because all release items must be associated with a release, you should set up at least one artificial release called “Unspecified Release” or some similar term. Orphan release items can be linked to this release. When the appropriate future release has been determined, an item can then be retargeted to that release.

### Setting Up the Access List

Release Manager is based on the Siebel Professional Services model for project management, which includes the concept of an access list. Each project has a group of people (the ones on its access list) who are associated with a release. To be on a release’s access list, an employee must be associated in your Siebel application with that release project.

To be added to an access list, a person must first be added as an employee in your Siebel application. For information on setting up employees, see *Security Guide for Siebel eBusiness Applications*.

For information about adding employees to an access list, see the chapter on project management in *Siebel Professional Services Automation Guide*.

### Setting Up Project Teams

Release Manager is based on the Siebel Professional Services model for project management, which includes the concept of project teams. Each project has a group of people (the project team) who own, approve, or otherwise are associated with each release item (feature, MRD, engineering task, QA test plan, QA test, or document). To be associated with any release item, an employee must be a member of the project team.

To be added to a project team, a person must first be added to the release’s access list. See [“Setting Up the Access List.”](#) For information about setting up project teams and adding employees to them, see the chapter on project management in *Siebel Professional Services Automation Guide*.

## Setting Up Lists of Values

The Siebel Administrator is typically responsible for setting up lists of values (LOVs) for use in Siebel eBusiness Applications. Although the Status field is shared by all types of release items, the LOVs for the Status field are likely to be specific to each release item.

For example, while the Status values for an engineering task typically relate to the development phase of the task (Unit Test, Final, and so on), the Status values for a technical publications document typically relate to the production phase of the document (Draft, Final Edit, and so on). To prevent end users from having to sift through long lists of LOV values for phases that are related to their work, you may need to restrict the views in which specific LOV values appear.

For information on setting up LOVs and restricting the views associated with specific LOV values, see *Applications Administration Guide*.

[Table 119](#) displays information about the LOVs to be set up before using Release Manager.

**Table 119. Release Manager LOVs**

View Label	Associated Release Items	Type <sup>1</sup>	Usage	Typical Values
Client OS	QA Tests	PSTASK_CLIENT_OS	Type of operating system running on the client test machine.	Windows 2000, Mac OS
Client Type	QA Tests	PSTASK_CLIENT_TYPE	Type of test machine used by the tester.	Dedicated, HTML
Database	QA Tests	PSTASK_CLIENT_DB	Type of database running in the test environment.	IBM DB2, Microsoft SQL Server 7.0
Effort	Engineering Tasks	PSTASK_ENGINEER_EFFORT	Level of effort required of the engineer to complete the task.	High, Low, 1 Man Month
Priority	Features	PSTASK_PRIORITY	Relative importance of the feature.	High, Medium, P1-Critical

**Table 119. Release Manager LOVs**

<b>View Label</b>	<b>Associated Release Items</b>	<b>Type<sup>1</sup></b>	<b>Usage</b>	<b>Typical Values</b>
Revenue	Features	PSTASK_REVENUE	Amount of revenue that can be expected if the feature is implemented.	High, Low, > 5M, < 1M
Risk	Engineering Tasks	PSTASK_ENGINEER_RISK	Level of risk to destabilizing the product by undertaking this engineering task.	High, Low
Server OS	QA Tests	PSTASK_SERVER_OS	Type of operating system running on the server.	Windows NT
Source	Features	PSTASK_SOURCE	Source of the feature.	Customer Input, Market Survey
Status	All	PSTASK_STATUS	Current implementation or development phase of the release item.	Draft, Unit Test, Final
Test Class	QA Tests	PS_QA_TEST_STRATEGY_TEST_CLASS	Sequence category of the test.	Certification Pass, Full Pass, Final Pass, Acceptance Pass, Browser Certification
Test Set	QA Tests	PS_QA_TEST_PLAN_TEST_SET	Product area to which the test was applied.	Install, Upgrade, Report, Charts, General
Type	QA Tests	PSTASK_ALT_TYPE	Type of test that was conducted.	Blitz, Ad Hoc, Detailed, White Glove

1. Type value of the picklist record in the Application Administration List of Values view.

## Adding Special Tag LOVs

You must also add a list of values for the Special Tag field on the QA Test Plans view. [Table 120](#) shows an example of how you might set the fields of several new LOV records to populate the Special Tag field with values.

**Table 120. Special Tag LOV Examples**

Field	Record 1	Record 2	Record 3	Record 4
Type	LOV_TYPE	PS_TEST_PLAN_ SPEC_TAG	PS_TEST_PLAN_ SPEC_TAG	PS_TEST_PLAN_ SPEC_TAG
Display Value	PS_TEST_PLAN_ SPEC_TAG	Browser Specific	EBIZ Specific	Config. Specific
Language Independent Code	PS_TEST_PLAN_ SPEC_TAG	Browser Specific	EBIZ Specific	Config. Specific
Language Name	English-American	English-American	English-American	English-American
Active	True	True	True	True
Replication Level	All	All	All	All

## Setting Up Activity Templates

The QA and Technical Publications teams have access to activity templates. An activity template contains multiple “canned” activities that can be associated with a release item. This saves end users from having to enter each activity manually, and helps to standardize activities for groups or teams. If end user teams need activity templates, set them up before anyone uses Release Manager.

For information about how to create activity templates and add activities to them, see [“Setting Up Field Service Activity Templates” on page 93](#).

# Product Marketing End-User Procedures for Release Manager

After Release Manager is set up, product marketers can record the progress and results of their product design efforts into the system. Their managers can monitor the information they enter.

This section provides instructions for the following procedures:

- [“Creating Features and Subfeatures” on page 470](#)
- [“Adding MRDs” on page 472](#)
- [“Associating Features With an MRD” on page 472](#)

## Creating Features and Subfeatures

Product marketing managers can use Release Manager to enter new product features and, if appropriate, subfeature components of the features.

### **To add a feature**

- 1** Navigate to Site Map > Release > All Features.
- 2** Add a new feature record.
- 3** Complete the fields. Some fields are described in the following table.

<b>Field</b>	<b>Comments</b>
Account	Account that requested the feature or to which your company is contractually obligated to deliver the feature.
Area	Product area associated with the feature.
Associated Parties	Individuals associated with the feature. The product marketing manager responsible for the feature should be set as Primary.

Field	Comments
Parent	Parent feature to the current feature. You can use this field to set up an n-level hierarchy of parent features and child subfeatures. However, linking to a parent feature with the Parent field does not add this feature to the parent feature's Subfeatures list. See <a href="#">"To add a subfeature to a feature."</a>
Priority	Priority of this feature relative to other features targeted for the same release.
Product Line	The list of product line choices depends on the selection in the Subarea field.
Release	Name or number of the product release for which the feature is a candidate.
Revenue	Indicator of the level of revenue tied to delivering this feature in the targeted release.
Source	Source of the idea for this feature.
Status	Shows color codes with the following meanings: <ul style="list-style-type: none"> <li>■ Green - Approved for the release</li> <li>■ Yellow - May make the release</li> <li>■ Red - Not going to make the release</li> </ul>
Subarea	Product subarea associated with the feature. The list of subarea choices depends on the selection in the Area field.

### **To add a subfeature to a feature**

- 1** Navigate to Site Map > Release > All Features.
- 2** In the Features list, select a feature to which you want to add a subfeature.
- 3** Click the Subfeatures view tab.
- 4** In the Subfeatures list, add a new record and complete the fields as needed.

### Adding MRDs

Product marketing managers can group like features together into an MRD and track the development of the MRD in Release Manager. Authors of the MRDs can attach electronic copies to MRD records.

#### **To add an MRD**

- 1 Navigate to Site Map > Release > MRDs.
- 2 Add a new MRD record.
- 3 In the Related Features field, select the features you want to link to this MRD.
- 4 Complete the other fields. Some fields are described in the following table.

<b>Field</b>	<b>Comments</b>
Associated Parties	Individuals associated with the MRD. The author should be set as Primary.
Release	Name or number of the product release with which the MRD is associated.

### Associating Features With an MRD

Product marketing managers can link an MRD with the features that it incorporates.

#### **To associate a feature with an MRD**

- 1 Navigate to Site Map > Release > MRDs.
- 2 Select an MRD record.
- 3 Click the Features subview tab.
- 4 In the Features list, add a new feature record.
- 5 In the Add Features dialog box, select a feature you want to link to this MRD.



# Engineering End-User Procedures for Release Manager

After features and MRDs are entered in Release Manager, engineers can begin recording the progress and results of their development efforts into the system. Their managers can monitor the information they enter.

This section provides instructions for the following procedures:

- [“Adding Engineering Tasks and Linking Features” on page 473](#)
- [“Adding a Subtask to an Engineering Task” on page 475](#)

## Adding Engineering Tasks and Linking Features

After product marketing managers have entered some features and their corresponding MRDs into Release Manager, engineering managers can begin analyzing the development work and identifying the discrete tasks required to implement the features. These tasks can be entered directly into Release Manager. As engineering task records are created, they are linked to the features they are designed to implement.

The product marketing and engineering managers match the requested features with the available engineering resources. During this process, the relative importance of the features are weighed against the investment required to implement them. Some features may be deferred to a future release. The end result is a final set of release features for which the necessary engineering resources are available.

### ***To add an engineering task and link features***

- 1** Navigate to Site Map > Release > Engineer Tasks.
- 2** Add a new task record.
- 3** In the Related Features field, select the features you want to link to this task.

- 4 Complete the other fields, as needed. Some fields are described in the following table.

<b>Field</b>	<b>Comments</b>
Associated Parties	Individuals associated with the engineering task. The engineering manager responsible for the task should be set as Primary.
Code Review	For software releases. Date when the code review took place.
Comp %	Portion of the task that has been completed to date.
Design Review	Date when the design review took place.
Effort	Indicator of the level of effort required on the part of the engineer to complete the task.
Engineering Group	Engineering group responsible for the task. Usually, this is the group to which the engineering manager (owner) of the task belongs.
Parent Task	Parent task to the current task. You can use this field to set up a hierarchy of parent tasks and child subtasks.
Release	Name or number of the product release with which the engineering task is associated.
Risk	Level of risk of destabilizing the product by undertaking this engineering task.
Target Date	Date when the task is expected to be completed.

## Adding a Subtask to an Engineering Task

If a task is a complex one with multiple components, Engineering enters each component as a subtask record, then links it to the main engineering task.

### ***To add a subtask to an engineering task***

- 1** Navigate to Site Map > Release > Engineer Tasks.
- 2** In the Engineer Tasks list, select a task to which you want to add a subtask.
- 3** Click the Subtasks view tab.
- 4** In the Subtasks list, add a new record and complete the fields as needed.

# Quality Assurance End-User Procedures for Release Manager

After engineering tasks are entered in Release Manager, QA testers can begin recording the progress and results of their testing efforts into the system. Their managers can monitor the information they enter.

This section provides instructions for the following procedures:

- [“Creating Test Plans and Linking Features” on page 476](#)
- [“Creating Test Strategies” on page 478](#)
- [“Associating a Test Plan with a Test Strategy” on page 479](#)
- [“Recording a Test Pass and Linking a Test Plan” on page 480](#)
- [“Associating Change Requests with a Test Pass” on page 481](#)
- [“Viewing Test Plan Results” on page 482](#)

## Creating Test Plans and Linking Features

After the features for a release have been identified, QA can begin revising existing test plans or developing new ones to exercise new product functionality. Test plan development is tracked in Release Manager, with the test plan available as an attachment to the record. Parties such as product marketers who are associated with the development of the test plan are linked to the record, and their approvals are recorded.

For each test plan, the fraction completed and the target completion dates are logged so that potential issues will be flagged before they become critical. The QA manager decides whether they need to run a particular test plan against one or more test strategies, and if so, specifies those strategies.

### **To add a test plan and link features**

- 1** Navigate to Site Map > Release > Test Plan Administration.

The QA Test Plans view appears.

- 2** Add a new test plan record.

- 3 In the Related Features field, select the features you want to link to this test plan.
- 4 Complete the other fields, as needed. Some fields are described in the following table.

Field	Comments
% Auto	Percent of the test that is automated.
% Auto Horizontal	Percent of the horizontal version of the product that the test is automated on.
% Auto International	Percent of the international version of the product that the test is automated on.
% Auto Platforms	Percent of platforms that the test is automated on.
Auto Complete Date	Date the automated test is completed.
Automated	If selected, indicates this test is automated.
Complete %	Portion of the test plan that has been completed to date.
Product Line	Automatically populated based on the values selected in the Area and Subarea fields.
QA Owner	Person responsible for doing the testing.
Release	Name or number of the product release with which this test plan is associated.
Special Tag	Tags defined by your company for convenience in grouping or querying tests. You can specify multiple tags. For information about defining special tags, see <a href="#">“Adding Special Tag LOVs” on page 469</a> .
Suggested Strategies	Test strategies to apply to this test plan. Available selections come from test strategy records entered in the Strategy Administration view. See <a href="#">“Creating Test Strategies” on page 478</a> .
Tag Summary	Expanded area field that makes multiple tags visible in the view. For convenience in querying tags that are selected in, but that might not appear on the view in, the Special Tag field.
Target Date	Date when the test plan is expected to be completed.

Test Plan Owner	Individuals associated with the test plan. The author of the test plan should be set as Primary.
Test Set	Indicates what grouping of tests this test belongs to. Groupings may reflect, for example, parts of the product being exercised through multiple tests.
Tools	Software used to automate this test.

### Adding Activity Plans to Test Plans

An activity plan derives from a predefined activity template. An activity template contains multiple “canned” activities that can be associated with a release item. This saves end users from having to enter each activity manually, and helps to standardize activities for QA teams.

#### **To add an activity plan to a test plan**

- 1 Navigate to Site Map > Release > QA Test Plans.
- 2 In the QA Test Plans list, select a test plan to which you want to add activities.
- 3 Click the Activity Plans view tab.
- 4 In the Activity Plans list, add a new record.
- 5 In the Template field, select an activity template on which to base this activity plan.
- 6 Complete other fields as needed.

When you have associated the activity plan with the test plan, all the activities in the activity plan become associated with the test plan and appear in the Activities view tab.

### Creating Test Strategies

At the beginning of a release cycle, you define a set of criteria (or matrix) showing the various combinations that any given QA test plan can be run against. For example, the matrix for a software product might include criteria such as Server, Database, Browser, and so on. These criteria sets are known as *test strategies*.

**To create a test strategy**

- 1 Navigate to Site Map > Release > Strategy Administration.

The QA Test Strategy view appears.

- 2 Add a new test strategy record.
- 3 Complete the other fields. Some fields are described in the following table.

Field	Comments
Interactivity	Specifies whether the test is either in High Interactivity Mode or in Standard Interactivity Mode.
Release	Name or number of the product release with which this test strategy is associated.
Test Class	Type of test pass to be done with this test strategy.
Web Srv App	Application that runs on the selected Web server.

After the test strategy is saved, it appears as a choice in the Suggested Strategies field in the QA Test Plan Administration view, where QA managers can associate their test plans with test strategies.

**Associating a Test Plan with a Test Strategy**

A QA Release Administrator can select a test strategy record and associate one or more test plans with it. This is based on the Test Matrix selection that the QA managers made on the Test Plan Administration view. See [“Creating Test Plans and Linking Features” on page 476](#).

**To add a test plan to a test strategy**

- 1 Navigate to Site Map > Release > Strategy Test Plan Admin.
- 2 In the QA Test Strategy form, query for the test strategy to which you want to add test plans.
- 3 In the QA Test Plans list, add a new record.

- 4 In the Test Plan # field, select the test plan you want to add to the current test strategy.

## **Recording a Test Pass and Linking a Test Plan**

When a QA test plan is complete and is associated with a test strategy, tests can be done against it. Because test plans are linked to their features in Release Manager, QA managers can focus their teams' efforts on those test plans that are associated with the greatest number of new features. As each test is executed, QA testers record the results in Release Manager. Each test pass is linked to the test plan that it executes.

### **To record a test pass and link a test plan**

- 1 Navigate to Site Map > Release > QA Tests.
- 2 Add a new test record.
- 3 In the Test Plan field, select the test plan on which the test pass is based.
- 4 Complete the other fields, as needed. Some fields are described in the following table.

<b>Field</b>	<b>Comments</b>
Build	Product prototype that was tested.
Client OS	Type of operating system running on the client test machine.
Client Type	Type of test machine used by the tester.
Cover %	Portion of the test plan that was executed (covered) by this test.
Database	Type of database running in the test environment.
Date	Date when the test was conducted.
Interactivity	Specifies whether the test is either in High Interactivity Mode or in Standard Interactivity Mode.
Pass %	Portion of the test plan that passed this test.
Release	Name or number of the product release with which the test is associated.



Server OS	Type of operating system running on the server machine in the test environment.
Status	Stability of the prototype as assessed by the tester during that test.
Tester	Individuals associated with the test. The individual who conducted the test should be set as Primary.
Type	Type of test that was conducted.

## Associating Change Requests with a Test Pass

While doing a test pass, QA testers encounter product defects and ideas for design improvements. QA testers record these defects and ideas as change request records and associate them with the test pass in which they were found.

### **To associate a change request with a test pass**

- 1 Navigate to Site Map > Release > QA Tests.
- 2 Select the test record to which you want to link a change request.
- 3 In the Change Requests list, click Add.
- 4 In the Add Change Request dialog box, do one of the following:
  - To link an existing change request to the test pass, select a change request record and click OK.
  - To log a new change request against the test pass, click New.

The Change Requests view tab displays a change request entry form. For information about entering change requests, see [Chapter 12, “Quality.”](#)

### Viewing Test Plan Results

After test passes are logged, Quality Assurance personnel can view the test pass results that were logged against a test plan.

**To view the results of test passes against a test plan**

- 1 Navigate to Site Map > Release > QA Test Plans.
- 2 Select a test plan.
- 3 Click the QA Tests view tab.
- 4 View the information in the fields. Some fields in the QA Test Plans form are listed in the following table.

Field	Comments
Last Build	Read-only. From the most recent test pass recorded against this test plan. Last product prototype version tested, and stability of the prototype as assessed by the tester.
Passes	Read-only. Number of test passes that have been executed against this test plan.

# Technical Publications End User Procedures for Release Manager

As design, development, and test data are entered in Release Manager, technical writers can begin recording the progress and results of their documentation efforts into the system. Their managers can monitor the information they enter.

This section provides instructions for the following procedures:

- [“Creating Technical Documents and Linking Features” on page 483](#)
- [“Adding Activity Plans to Technical Documents” on page 484](#)

## Creating Technical Documents and Linking Features

After release features have been identified, Technical Publications can begin revising existing documentation or developing new documents to describe new product functionality.

Documentation development is tracked in Release Manager, with the document available as an attachment to the record. Associated features are linked to the document. Parties such as product marketers who may be associated with the development of the document are linked to the record, and their approvals are recorded. For each document, the fraction completed and the target completion date are logged so that potential issues can be flagged before they become critical.

### ***To add a document and link features***

- 1** Navigate to Site Map > Release > Technical Documents.
- 2** Add a new technical document record.
- 3** In the Related Feature field, select the features you want to link to the document.

- 4 Complete the other fields. Some fields are described in the following table.

<b>Field</b>	<b>Comments</b>
Associated Parties	Individuals associated with development of the document. The author should be set as Primary.
Complete %	Portion of the document that has been completed to date.
Est Pages	Estimated number of pages for the completed document.
New %	Portion of the document that will be new in this version.
Release	Name or number of the product release with which the document is associated.
Target Date	Date when the document is expected to be completed.

## **Adding Activity Plans to Technical Documents**

An activity plan derives from a predefined activity template. An activity template contains multiple “canned” activities that can be associated with a release item. This saves end users from having to enter each activity manually, and helps to standardize activities for technical publications teams.

### **To add an activity plan to a technical document**

- 1 Navigate to Site Map > Release > Technical Documents.
- 2 In the Technical Documents list, select a technical document to which you want to add activities.
- 3 Click the Activity Plans view tab.
- 4 In the Activity Plans list, add a new record.
- 5 In the Template field, select an activity template on which to base this activity plan.
- 6 Complete other fields as needed.

When you have associated the activity plan with the technical document, all the activities in the activity plan become associated with the technical document and appear in the Activities view tab.

# Administrator Maintenance Procedures for Release Manager

You must perform some Release Manager maintenance tasks on an as-needed basis. These tasks are your ongoing responsibility.

This section provides instructions for the following procedures:

- [“Adding Product Prototypes” on page 485](#)
- [“Updating Test Plans and Test Strategies” on page 487](#)
- [“Adding New Area/Subarea Combinations” on page 485](#)

## Adding Product Prototypes

As a product progresses through the release cycle, increasingly advanced product prototypes become available for testing. (In the case of software development, these prototypes are known as *builds*.) When QA testers execute a test plan, they select the version number of each tested prototype. As each new prototype becomes available, you are responsible for entering it into Release Manager so that QA can record tests against it.

You enter builds as products in the Quality screen, Release Product Administration view.

## Adding New Area/Subarea Combinations

Area and Subarea fields are linked so that the values available in the Subarea field change dynamically according to the value selected in the Area field. These lists of values appear in both the Release Manager and Quality modules of your Siebel application. In Release Manager, an area value is associated with a feature.

As product parameters change in the course of development, you may need to add new Area and Subarea combinations to Release Manager.

### **To add an area/subarea combination**

- 1** Navigate to Site Map > Quality > Quality Administration.

- 2 In the Quality Administration list, add a record for each area/subarea combination.

For example, if you want a selection of Inventory in the Area field to constrain the choices in the Subarea field to Shipping, Receiving, and Cycle Counting, then create three records with the Area and Subarea fields completed as shown in the following table.

Area	Subarea
Inventory	Shipping
Inventory	Receiving
Inventory	Cycle Counting

- 3 Complete the other fields in each of the records. Some fields are described in the following table.

Field	Comments
Product Line	Grouping of products with which this Area/Subarea combination is associated.
QA Owner	Quality Assurance team owner with which this Area/Subarea combination is associated.
Engineering Group	Engineering team with which this Area/Subarea combination is associated.

**NOTE:** Because of the mappings created by Area records in this view, when a feature record is added, selecting a value in the Area field automatically populates the Subarea, Product Line, QA Owner, and Engineering Group fields.

## Updating Test Plans and Test Strategies

When a new release cycle begins, some test plans and test strategies from the previous release are relevant to the new release, while some are not. Existing test plans and test strategies must be sifted for relevance to the new release, and the relevant ones updated. Gaps in the existing resources must be identified and filled with new test plans and test strategies. These are ongoing tasks for a QA Release Administrator.

For information about adding and linking test plans and test strategies, see [“Quality Assurance End-User Procedures for Release Manager”](#) on page 476.

## **Release Manager**

*Administrator Maintenance Procedures for Release Manager*



# Assets **14**

This chapter describes the capabilities in Siebel Field Service for tracking and managing assets. Field Service also provides for automating the collection of data from assets in the field, providing information for preventive maintenance, repairs, billing, and marketing.

## Properties of Assets

An *asset* in Siebel Field Service is an instance of a product that has an individual identity and an association with a customer. An asset can be created for any product by assigning it a unique asset number. An asset has a quantity, a location, and a monetary value. An asset is associated with a product and an organization.

In Siebel Field Service, assets have these additional properties:

- An asset can be physical or virtual.
- Assets can have serial numbers or not.
- Assets can exist individually or they can have components.
- Assets can be related to or dependent upon other assets.

Assets can be associated with other Siebel business objects as well as with internal data and calculations. Some examples are as follows:

- Assets can contain a hierarchy of other assets as components. There is no restriction to the number of tiers and the number of components that comprise a multi-tiered asset.
- Actions such as install, uninstall, upgrade, or downgrade can be performed on an asset. Install and uninstall actions are recorded as asset transactions.
- The same asset can have different products over time. For example, the product on which an asset is based may become obsolete and be replaced with a different product. In this case, the same asset record can remain in your Siebel application but the product with which it is associated can be changed.
- When an asset is serviced, service requests, preventive maintenance records, and repair records can be associated with the asset, and a service history is maintained for that asset.
- Assets can have multiple types of measurements set up, including gauges, counters and sensors. Each measurement can have multiple readings recorded manually or automatically and stored for diagnosis or for usage tracking.
- The current value of an asset can be calculated or revalued and stored based on its condition, value basis, and cost method.

## Asset Serialization

Not every asset requires a serial number. If an asset requires a serial number, it is known as *serialized*.

If an asset is serialized, then a serial number is required for all movements and transactions for this asset, including the following:

- Inventory transactions
- Field part movements
- Cycle counts
- Shipments
- Receipts

For all inventory transactions involving serialized products, an asset is considered equivalent to one part (quantity = 1).

If a product is serialized (see [“Product Field Service Details View” on page 302](#)), then the assets of this product must also be serialized. However, an asset can be an instance of a non-serialized product and still have a serial number.

Serialized assets are treated differently from non-serialized ones. For example, whenever serialized assets are shipped or received, Siebel Field Service expects the right number of assets with matching serial numbers.

## Asset Registration

An asset can be associated with an account and with an account site. An asset can also have an owner and one or more contacts associated with it. If a customer buys an asset, then the owner and the account are the same. If, however, the asset is leased or rented, then the account is where the asset is located, and the owner is the lessor or rental agent for the asset. All registered assets for an account can be viewed from the Accounts screen.

### Hierarchical Assets

Assets can be hierarchical with other asset components.

A *hierarchical asset* is an asset with a hierarchical structure consisting of asset or product components. The hierarchical structure of a complex asset can consist of multiple levels and sub-levels of asset or product components and sub-components. There is no restriction on the number of levels or the number of components that can comprise a complex hierarchical asset. Asset components can be serialized or non-serialized. For example, a computer is a parent asset that has child assets: a motherboard (Part # M, Qty 1, Serial # 123), RAM (Part # RAM, Qty 16, no Serial #), and so on.

A *customizable asset* is an asset that is instantiated from a configurable product. It can be customized by eConfigurator. For information about configurable products, see *Product Administration Guide*.

Components of a hierarchical asset inherit some properties of the top-level asset. Changing the following fields of the top or parent level asset of a hierarchical asset changes the same fields in all installed components: Account (and all Account-related fields; for example, Site, Address Line 1, and so on), Owner, Ownership, and Organization.

Inheritance applies whether the change is initiated by a user action or by an automated process. Changes to the components occur when a user updates the fields mentioned in the previous paragraph and the record is saved. Only the top-level asset's fields can be updated. The fields of component assets are read-only.

Siebel Field Service offers views to display complex asset hierarchies. See [“Explorer View” on page 514](#) and [“Explorer Across Organizations View” on page 514](#).

## Asset Transactions

The installed base or BOM for an asset is maintained with asset transactions of the types Install, Uninstall, Upgrade, and Downgrade. These transactions must be created manually.

For example, a computer (asset A) has a defective disk drive (asset H) that must be replaced with another disk drive (asset N). The change is effected by two asset transactions. The first uninstalls the defective asset (H) from the parent asset (A). The second installs the new part (N) in the parent asset (A).

If an asset has components, a transaction done to that asset automatically includes its components.

Some asset transactions change inventory levels directly. For details, see [“Mobile Inventory Transactions” on page 330](#).

## Setting Up Assets

Follow these procedures to set up assets.

### **To create an asset**

- 1 Navigate to the Assets screen.
- 2 In the More Info form, click the show more button to see all of the fields for an asset.
- 3 Create an asset record.
- 4 In the Product field, select a product.
- 5 Enter values for the other fields, as needed.

---

**NOTE:** If a predefined query on the Assets view limits the displayed records to a subset of all the assets, creating an asset with a customizable product and clicking Customize refreshes the view. This causes the new asset record to disappear from the visible part of the view. To find the record again, you must query for it, then click Customize again to complete the configuration.

For information about the Customize button, see [“Assets View” on page 507](#).

---

### **To associate change requests with an asset**

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Change Requests view tab.
- 4 Add a new change request record.
- 5 In the Add Change Request dialog box, select an existing change request or create a new change request.

### **To associate a backup or dependent asset with a primary asset**

- 1 Navigate to the Assets screen.
- 2 Select an asset.

- 3 Click the Relationships view tab and create a related asset record.
  - a In the Asset # field, select an asset.
  - b In the Relationship field, select Backup or Dependent.
- 4 Enter values for other fields, as needed.

## Transactions and Components

End users must create transactions to add components to an asset.

### ***To manually associate a transaction with an asset***

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Transactions view tab and create an asset transaction record.
  - a In the Type field, select a transaction type.
  - b In the Asset # field, select the parent asset or any one of its components.
  - c Enter values for other fields, as needed.

### ***To create components***

- 1 Follow the steps of [“To manually associate a transaction with an asset.”](#)
  - a In the Type field, select Install as the transaction type.
  - b In the Asset # field, select an asset.
- 2 Click the Components tab.

The asset selected in the transaction record appears in the Components list for the primary asset.

## Creating a Hierarchical Asset From a Product Bundle

You can generate a hierarchical asset from a product bundle. For information about hierarchical assets, see [“Hierarchical Assets” on page 492](#).

#### **To generate a hierarchical asset from a product bundle**

- 1 Navigate to the Assets screen.
- 2 Create an asset record.
- 3 In the Product field, select a product bundle.
- 4 Enter values for the other fields, as needed.
- 5 Click the Components tab.

The Components list shows the asset components created from the child products in the product bundle.

---

**CAUTION:** To successfully generate a hierarchical asset, a product bundle can consist *only* of parent and child products; for example, a laptop computer that comes with a CD-ROM drive. It cannot include grandchild products; for example, an airplane that comes with an engine, which in turn comes with a fuel tank.

---

### **Asset Mapping**

Asset mapping records the factors that adjust the cost of assets. Adjustments depend on the Condition, Value Basis, Cost List, and Cost Method fields for each asset. These factors are used to calculate the Asset Values and the Replacement Costs on the Asset Valuation screen (see [“Value View” on page 508](#)).

---

**NOTE:** Asset mapping applies to product lines and to all assets that belong to the same product line and cost list.

---

#### **To map the cost of assets for specific product lines**

- 1 Navigate to Site Map > Pricing Administration > Cost List.
- 2 Select a cost list.
- 3 Click the Asset Mapping view tab.
- 4 In the Asset Mapping form, click New.



- a** Select values in the Cost List, Product Line, and Cost Method fields.

The Cost Method field should match the cost method used in the Cost List Line Items view.

- b** In the Cost Field field, select Asset Value or Replacement.

Asset value and Replacement specify two different methods of calculating the cost. See [“Value View” on page 508](#) for details.

- c** Select values for Condition and Value Basis fields, if needed.

- d** Enter a value (percentage) for the Factor field.

---

**NOTE:** To assign the same factor to various cases of Condition and Value Basis, leave these values blank in the corresponding records and add a value for Factor. This factor applies to all of the unspecified cases of Condition, Value Basis, or both. If another record specifies either Condition or Value Basis, that record overrides the default record.

---

If there are no asset mapping records and a cost list is specified, the Value view (see [“Value View” on page 508](#)) uses the asset cost from Cost List Line Items views. For more information, see *Pricing Administration Guide*.

Writer’s note: Replace the whole preceding procedure with a cross-reference to the Pricing Admin. Guide?

**To associate a preventive maintenance plan with an asset**

- 1** Navigate to the Assets screen.
- 2** Select an asset.
- 3** Click the Preventive Maintenance view tab.
- 4** From the Preventive Maintenance tab’s Show drop-down list, select Plans.
- 5** In the Preventive Maintenance view, create a new record.
- 6** In the Name field, select a PM plan.

### **Asset Measurements**

Measurements are defined for a product and apply to the assets of that product.

#### ***To define measurements for assets***

- 1** Navigate to Site Map > Product Administration.
- 2** Select a product.
- 3** From the More Info tab's Show drop-down list, select Product Measurements.
- 4** Create a new record in the Product Measurements subview tab.
- 5** Enter the name of the product measurement and complete other fields as needed.

The defined measurement applies to all assets generated from the selected product.

## Obtaining Information About Assets

Follow these procedures to obtain information about assets.

### **To review all change requests for a selected asset**

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Change Requests view tab.

---

**NOTE:** Click the hyperlink in the Change Request # field to see more information about a change request.

---

### **To review all repairs for a selected asset**

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Repairs view tab.

The Repairs view shows all recorded repairs to the selected asset.

### **To review all activities associated with an asset**

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Activities view tab.

### **To review preventive maintenance activities associated with an asset**

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Preventive Maintenance view tab.
- 4 In the Show drop-down list, make sure that History is selected.

#### **To view the status of a preventive maintenance plan for an asset**

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Preventive Maintenance view tab and select Plans from the Show drop-down list.

#### **To view an asset hierarchy**

- 1 Navigate to the Assets screen.
- 2 In the Show drop-down list, do one of the following:
  - To view assets associated with your organization, select Assets Explorer.
  - To view assets associated with all organizations, select Assets Explorer Across Organizations.
- 3 In the explorer list in the left pane, click the plus sign (+) in front of each asset to see a hierarchical list of its components.

## Calculating the Value and Cost of an Asset

Follow these procedures to calculate the costs and value of assets.

### **Adjusted Cost**

The following procedure calculates the adjusted cost of an asset from the original cost, plus the value of enhancements, minus the value of depreciation, write-downs, and so on.

#### **To calculate the adjusted cost of an asset**

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Value view tab.
  - a In the Original Cost field, enter the original cost, if it is not already there.
  - b In the Value Basis field, select Adjusted.

- c In the Condition field, select the asset's condition.
- 4 To create a record for an action that affects the value of the selected asset, create a new record in the Asset Valuation subview.
- 5 On the Value view tab, click Recost.

Field Service calculates the adjusted cost as the original cost plus or minus the sum of values in the Amount column of the Asset Valuation subview. The calculation also includes a factor for the asset's condition.

Field Service calculates and returns the Adjustment amount and Adjusted Cost to the corresponding fields on the Value form. The adjusted cost is calculated as the original cost, plus or minus the sum of values in the Amount column of the Asset Valuation subview. The calculation also includes a factor for the asset's condition. See [“Asset Mapping” on page 496](#).

## Value-based Cost

The following method of determining the cost of an asset uses the value basis for the asset. These variables are defined in the [“Asset Mapping View” on page 505](#).

### **To calculate the value and replacement cost of an asset**

- 1 Navigate to the Assets screen.
- 2 Select an asset that has one or more associated cost lists.

---

**NOTE:** An asset is associated with a cost list through the product on which it is based. To display the selected cost list's associated products, navigate to Site Map > Pricing Administration > Cost Lists and click the Cost List Line Items tab.

---

- 3 Click the Value view tab.
- 4 In the Cost List field, select a cost list.
- 5 In the Value Basis field, select a value other than Adjusted.

#### 6 Click Recost.

Field Service calculates and returns the Asset Value and Replacement Cost to the corresponding fields on the Value form. The calculation is done by one of the following methods:

- $\text{Asset Value} = \text{Factor} * \text{Original Cost}$
- $\text{Replacement Cost} = \text{Factor} * \text{Cost List Value of Product}$

---

**NOTE:** To specify which method to use for the value-based cost calculation, navigate to Pricing Administration > Cost List and click the Asset Mapping view tab. In Cost Field, selecting Asset Value or Replacement. See [“Asset Mapping” on page 496](#).

---

## Setting Up Asset Measurements

Follow these procedures to set up measurements for assets.

### **To associate measurements with an asset**

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Measurements view tab.
- 4 In the Measurements list, create a record for a measurement type to associate with this asset.
- 5 Enter information in the required fields.

---

**NOTE:** You are only allowed to select measurement types that are already defined for the product. To define the measurement types that are associated with assets, see [“To define measurements for assets” on page 498](#).

---

## Recording Readings From Assets

Follow these procedures to record readings of measurements from assets.

### **To record a reading for an asset**

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Readings view tab and select a measurement type record.
- 4 Click the Readings subview tab.
- 5 In the Readings form, create a new record for a reading associated with this asset and measurement type.
- 6 In the Reading field, enter the value of the reading.
- 7 Enter information in the required fields.
- 8 When the reading is complete, select the Done check box.

The record becomes read-only. This check box must be selected in order for the reading to be charted.

---

**CAUTION:** If the product of an asset has been changed since the asset was created, then measurement types that are not defined for the current product may remain associated with the asset. Thus it is possible to record a measurement that is invalid for the asset. This may cause a database integrity failure. Therefore, it is recommended that you validate measurement types between the asset and its product every time you take a reading.

---

### **To record a reading for an asset associated with a selected activity**

- 1 Navigate to the Activities screen.
- 2 Select an activity with an associated asset.
- 3 Click the Readings view tab and select a measurement type record.
- 4 In the Readings form, create a new record for a reading associated with this asset and measurement type.

- 5** In the Reading field, enter the value of the reading.
- 6** Enter information in the required fields.

***To analyze the results of readings for a selected asset***

- 1** Navigate to the Assets screen.
- 2** Select an asset.
- 3** Click the Charts view tab.
- 4** From the Show drop-down list, select Measurement Analysis.
- 5** In the Charts list, select a measurement type record.

The Readings subview tab shows the readings from a selected measurement type as a function of the date of the readings.



## Pricing Administration Screen

The Pricing Administration screen has one view for configuring the calculation of an asset's value. To see this view, navigate to Site Map > Pricing Administration > Cost List, and click the Asset Mapping view tab.

### Asset Mapping View

The Asset Mapping view records the factor (percentage) that is used to adjust the cost of an asset. These factors are used to calculate the Asset Values and the Replacement Costs in the Value view (see [“Value View” on page 508](#)). [Table 121](#) describes items in Asset Mapping records.

**Table 121. Selected Items in the Asset Mapping View**

Item	Description
Cost Field	The field in the Asset Value view to which this calculation applies; for example, Asset Value or Replacement Cost.
Factor	A percentage of the cost, from the cost list, for the selected asset. If a mapping is unspecified, the factor defaults to 100%.

Asset mapping values apply to specific cost lists at the level of product lines (including their hierarchies of products and assets). Each combination of cost field, cost list, product line, condition, value basis, and cost method can have a record for asset mapping.

For a complete discussion of costs lists and asset mapping, see *Pricing Administration Guide*.

## Product Administration Screen

The Product Administration screen has a view for defining measurements of specific products. To see this view, navigate to Site Map > Product Administration, click the More Info view, and then select Product Measurements from the Show drop-down list.

### Product Measurements View

The Product Measurements view defines measurements that may be obtained from specific assets. [Table 122](#) describes items in product measurements records.

**Table 122. Selected Items in the Product Measurements View**

Item	Description
Maximum	The largest possible value for the measurement device.
Minimum	The smallest possible value for the measurement device.
Upper Limit	The upper control limit for readings. This is less than or equal to the Maximum.
Lower Limit	The lower control limit for readings. This is greater than or equal to the Minimum.
Use Plan Bill Method	The method of accumulating data from readings, chosen from a list: <ul style="list-style-type: none"> <li>■ <b>Incremental.</b> Counter increments continuously with each reading.</li> <li>■ <b>Absolute.</b> Counter is set to a predetermined minimum or zero after each reading.</li> </ul>
Expected Usage	A numeric value for the expected use, which the Invoice Engine uses to bill for usage if readings of usage are unavailable and if Estimate is checked (see <a href="#">“Use Plans View” on page 225</a> ).
Use Basis (Days)	The time period, in days, over which the expected use is to occur.

Upper and lower limits for readings may indicate threshold or trigger values for an asset. For example, exceeding an upper limit could trigger a preventive maintenance action.

Measurements associated with a product are not automatically associated with assets of the product.

## Assets Screen

The Assets screen records all information about assets, including service and repair history, components, associated activities, and preventive maintenance.

### Assets View

The All Assets view defines assets. Some fields in the Assets view are described in [Table 123](#).

**Table 123. Selected Fields in the Assets View**

Field	Comments
Serialized	Selected if the product selected is a serialized product. Read-only in the Assets screen.
Reference	Indicates that the asset can be referenced to customers or to other vendors, depending on the organization's business process.
Operating Status	Whether the asset is operational and at what level.
Purchase Site	Location of the asset.
Product Line	Inherited from the product from which this asset is derived.
Class	Inherited from the product from which this asset is derived.
Parent Asset #	Read-only. The next higher level asset that the selected asset is currently installed under. For example, the parent asset of a disk drive is a computer.

A Customize button appears in the top bar of the Asset form. The button is available only if your company has a license for eConfigurator and the asset was instantiated from a configurable product. When an end user clicks this button, Siebel Field Service launches eConfigurator for the asset displayed in the form. For information about configurable products and eConfigurator, see *Product Administration Guide*.

### Activities View

The Activities view associates activities with specific assets. For more information, see [Chapter 3, “Field Service Activities.”](#)

### Warranty View

For information about this view, see [“Warranty View” on page 524.](#)

### Value View

The Value view calculates the current value of an asset based on its history.

There are two ways that assets can be valued:

- **Changes in asset value.** An asset value is based on the original cost of the asset, plus or minus changes to the asset (such as upgrades or damage). This is an accurate method for tracking assets, but requires entry of detailed asset information. This information is entered in the Asset Valuation subview.

---

**NOTE:** Asset Valuation records can have negative cost values to reflect devaluation in the asset cost.

---

- **Asset mapping.** An asset is valued as a percentage of its value on the cost list. The percentage is based on the current condition of the asset. For example, a new asset in excellent condition would be 100% of the cost list value, while a used asset in average condition would be 40% of the cost list value. For information about setting these percentages, see [“Asset Mapping View” on page 505.](#)

Both cost and value are important because they allow businesses to report the value of their inventory accurately and to make repair versus replace decisions based on asset valuation.

## Recost

A Recost function is available as both a button and a menu command in the Asset Screen's Value view. Recost assesses an asset's cost by applying data from asset value records. To calculate the current cost and the replacement value of the asset, an end user must select a cost list, condition, and value basis and then click the Recost button or choose Recost from the view menu. Recost calculates the values by taking the cost of the asset from the cost list, factoring in the cost method, and applying the factor from Asset Mapping. Asset Mapping must provide mapping for Asset Value and Replacement Cost. If the mapping is unavailable, the factor defaults to 100%.

## Readings View

Together with the Measurements view, the Readings view does the following:

- Captures asset usage and compares actual versus expected usage.
- Captures data needed for preventive maintenance.
- Automates meter reading, fee-per-use, and other usage-based service models.
- Captures performance and quality data.

The Readings view records data from measurements of an asset. The Done check box indicates that the reading is complete and the record becomes read-only.

## Charts View

The Asset screen has a Measurement Analysis chart that shows the readings from a selected measurement as a function of the date of the readings. The upper and lower limits of readings, set in the Product Measurements view (see [“Product Measurements View” on page 506](#)), are also shown on the graphs.

## Components View

The Components view displays immediate components of specific assets. The parent asset record appears in the Asset form, while the parent asset's child components appear in the Components list below. The sub-components of these components do not appear in the list. To view the sub-components of a child component, click on the hyperlink in the Asset # field and click on the Components view tab.

For example, asset A has a component asset B, which in turn has a sub-component asset C. The Component list for asset A displays only asset B. To view asset C, click on the hyperlink for asset B and click on the Components view tab. Asset C is displayed in asset B's Component list.

You can build a hierarchy of assets by defining each level in the hierarchy as a component. Components are themselves individual assets that must exist before being entered into component relationships. Component relationships are defined in the Transactions view.

## Transactions View

The Transactions view allows an end user to create asset transactions manually. These transactions are of the types Install, Uninstall, Upgrade, and Downgrade.

Transactions of the type Install can create a hierarchy of components for existing assets. Removing a component requires another transaction of the type Uninstall. An Install transaction sets the Status and Install Date. An Uninstall transaction clears the Status and Install Date. Install and uninstall transactions can be entered manually in the Transactions list, or field part movements can create these transactions automatically. See [“Parts Movement Administration View” on page 342](#).

Depending on which transaction type you select, assets become available for selection as follows:

- Uninstall - Only assets that are currently installed
- Downgrade - All assets
- Install - Only assets that are not currently installed and are in the same inventory location, an external location, or no location

- Upgrade - All assets

---

**NOTE:** The asset transactions (Install, Uninstall, Upgrade, and Downgrade) do not directly update quantities for inventory levels.

---

## Change Requests View

For information on Change Requests, see [Chapter 12, “Quality.”](#)

## Repairs View

The Repairs view lists all of the repair numbers recorded for an asset. See [“Repairs View” on page 574](#) for details.

## Relationships View

The Relationships view records backup assets for a primary asset and assets that depend on the operation of a primary asset.

An example of a dependent asset is a hospital power system; hospital medical equipment is dependent on the power system. By checking this view, the engineer can tell what other assets may be affected by a defective asset. The field service engineer can then take steps to make sure that no unintended disruptions occur. In this example, the engineer would make sure that the medical equipment was switched to the backup power supply before down taking the primary power supply.

## Measurements View

Together with the Readings view, the Measurements view does the following:

- Captures asset usage and compares actual versus expected usage.
- Captures data needed for preventive maintenance.
- Automates meter reading, fee-per-use, and other usage-based service models.
- Captures performance and quality data.

Measurement records are defined for a product. One or more measurement type records can be inherited by an asset of this product and adapted for the selected asset. See [“Product Measurements View” on page 506](#).

### Preventive Maintenance View

The Preventive Maintenance view contains two subviews, accessible from the Show drop-down list:

- **History.** Displays preventive maintenance actions associated with assets.
- **Plans.** Associates preventive maintenance plans with assets. The Active check box indicates that the Preventive Maintenance Engine can use this plan to schedule preventive maintenance action.

In the Asset form, an End Date field allows an end user to set the latest date that the Preventive Maintenance Engine considers when generating preventive maintenance actions. Setting a date in the future allows the Preventive Maintenance Engine to generate a future schedule of preventive maintenance actions. The Run PM button runs the Preventive Maintenance Engine for the selected asset.

For more information about the PM plans, PM actions, and the Preventive Maintenance Engine, see [Chapter 16, “Preventive Maintenance.”](#)

### Audit Trail View

The Audit Trail view displays an audit trail for a selected asset.

When any of the following fields in an asset record are modified, the change is automatically recorded and time stamped in the Audit Trail view.

- Account
- Status
- Operating Status
- Revision
- Inventory Location
- Contacts



- Employees
- Ownership
- Owner
- Installed Date
- Registered Date
- Shipped Date
- Manufactured Date
- Purchased Date
- Primary Warranty
- Organization

The following actions are also tracked as part of the audit trail:

- Changes to the asset's components; that is, when components are installed or uninstalled.
- Changes to the asset's value.

## Entitlements View

The Entitlements view displays all entitlements that cover the selected asset. This view is read-only.

## Uptime Data View

The Uptime Data view displays a selected asset's operating status, operating history, and a chart showing its operating status over time.

This view shows a timestamp of when the Operating Status field of the asset was changed, the original value, the new value, the employee who made the change, and comments. This view shows when the asset was taken down and why. The view also displays a chart titled Operating Status Over Time. This chart plots the Operating Status value (y-axis) over time (x-axis).

### Attributes View

The Attributes view shows the attributes associated with the selected asset. This is a read-only view. Attributes are associated with configurable products and can only be changed by invoking the eConfigurator through the Customize button on the Asset form.

### Explorer View

The Explorer View is accessed through the Assets Show drop-down list. This view shows an explorer-format view of assets, including a hierarchical view of assets that have components. This view displays only the assets in the user's organization.

For each hierarchical parent asset, a + sign is displayed to the left of the first column, denoting a tree structure under it. Clicking the + sign expands the tree to the next level of components. If there are further levels below, a + sign is displayed next to each line item that has more sub-components at a lower level.

### Explorer Across Organizations View

The Explorer Across Organizations View is accessed through the Assets Show drop-down list. This view is the same as the Assets Explorer View, except that it shows all assets across organizations.

# Warranties **15**

This chapter describes how to use Siebel Field Service to track the warranties for products.

# Warranties Overview

Field Service offers multi-level warranty tracking, immediate recognition, and closed-loop handling. Warranties are categorized into three types: product, manufacturer, and component. Each warranty includes a duration and specifies the covered products, costs, and service providers. These warranties are separate from entitlements that are sold to a customer.

When an asset is created for a product that is covered by warranties, the user can verify the applicable warranties by clicking the Get Warranties button. The number of days remaining on the warranty is automatically tracked.

When creating a service request or repair number for repairing an asset, the user can choose the Check Warranty menu command to immediately find out the valid warranty coverage based on a specified day.

When an asset returned from the field is still under warranty, an order can be created for the warranty provider, and each line item is tracked through closure, based on the warranty recovery process.

## Setting Up Warranties

Follow these procedures to set up warranties.

### **To create a new warranty**

- 1 Navigate to Site Map > Service Administration > Warranties.
- 2 Create a new warranty record.
- 3 Enter values for the required fields.

### **To specify the products covered by a warranty**

- 1 Navigate to Site Map > Service Administration > Warranties.
- 2 Select a warranty.
- 3 Click the Products view tab.
- 4 Create a record and associate a product with the selected warranty.
- 5 Enter values for the required fields.
- 6 Repeat [Step 4](#) and [Step 5](#) for each additional product covered by the selected warranty.

### **To associate a warranty with warranty service providers**

- 1 Navigate to Site Map > Service Administration > Warranties.
- 2 Select a warranty.
- 3 Click the Service Providers view tab.
- 4 Create a new record to associate a service provider with the current warranty.

### **To associate warranties with an asset manually**

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Warranty view tab.
- 4 Create a record to associate a warranty with the selected asset.

- 5 Enter values in the Start Date, End Date, and Name fields.

---

**NOTE:** Before a warranty can appear in the Pick Warranty dialog box, a product must be associated with that warranty in the Service Administration screen, Warranties view, Products subview.

---

#### **To associate warranties with an asset automatically**

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Warranty view tab.
- 4 Click Get Warranty.

All warranties that are associated with the asset's product and that are applicable to the asset will be automatically instantiated in the Warranty list.

- 5 Modify the values in the Start Date, End Date, and Name fields of the Warranty records as required.

---

**CAUTION:** The Start Date Type field in a warranty record specifies which field value in the current asset record to use as the start date of the warranty's coverage of that asset. For example, if the Start Date Type of the warranty is Installed Date, then the Installed Date of the asset is used as the start date of the warranty associated with that asset. If the date field specified by Start Date Type is not populated in the asset record, then the Get Warranty command will fail.

---

#### **To associate warranties with an order line item**

- 1 Navigate to the Orders screen.
- 2 In the Show drop-down list, make sure one of the Service Orders options is selected.
- 3 Select an order.
- 4 Click the Line Items view tab.
- 5 Select a line item.

- 6** Click the Warranty subview tab.
- 7** Create a record to associate a warranty with the selected line item.
- 8** Enter values for the required fields.

---

**NOTE:** Before a warranty can appear in the Pick Warranty dialog box, a product must be associated with that warranty in the Service Administration screen, Warranties view, Products subview.

---

# Obtaining Information About Warranties

### **To verify warranties and related information for an asset**

- 1 Navigate to the Assets screen.
- 2 In the Assets list, select an asset.
- 3 In the More Info form, click the show more button.

The form shows the Status, Installed date, and the Registered date for the selected asset.

- 4 Click the Warranty view tab.
- 5 In the Warranty list, click Get Warranty.

The Warranties dialog box displays all warranties associated with the selected asset. Each warranty record shows the start date, the end date, and the number of days left on the warranty.

### **To verify the warranties for a product**

- 1 Navigate to the Products screen.
- 2 Select a product.
- 3 Click the Warranties view tab.

The Warranties list shows the warranties associated with this product.

### **To check the products covered by a warranty**

- 1 Navigate to Site Map > Service Administration > Warranties.
- 2 Select a warranty.
- 3 Click the Products view tab.

The Products list shows the products covered by this warranty.

### **To verify warranties for a service request**

- 1 Navigate to the Service screen.



- 2** Select a service request that has an associated product or asset.
- 3** Click the Service Details view tab.
- 4** In the Warranty As of field, enter a date on which you want to assess the warranty status of the selected service request. (The default date is the date the service request was created.)
- 5** Click Check Warranty.

This shows which warranties, if any, are in effect on the date you entered.

**To verify warranties for an order**

- 1** Navigate to the Orders screen.
- 2** In the Show drop-down list, make sure one of the Service Orders options is selected.
- 3** Select an order.
- 4** Click the Line Items view tab.
- 5** Select a line item.
- 6** Click the Warranty subview tab.

The Warranty list displays the warranties for the selected line item.

**To identify the service providers for a warranty**

- 1** Navigate to Site Map > Service Administration > Warranties.
- 2** Select a warranty.
- 3** Click the Service Providers view tab.

The Service Provider list shows the service providers for this warranty.

#### **To track warranty recovery**

- 1** Navigate to the Orders screen.
- 2** In the Show drop-down list, make sure one of the Service Orders options is selected.
- 3** Select an order with the type RMA Return, RMA Repair Return, or RMA Advance Exchange.
- 4** Click the Line Items view tab.
- 5** Select a line item.
- 6** Click the Warranty subview tab.
- 7** In the Warranty list, select or add a record for the appropriate warranty.
- 8** Record the warranty claim information in the Status, Planned Recovery, and Actual Recovery fields.

#### **To verify the warranty status for defective parts**

- 1** Navigate to the Repairs screen.
- 2** Select a repair record.
- 3** On the More Info view tab, click the show more button.
- 4** In the Warranty As of field, enter a date on which you want to assess the warranty status of the selected repair.
- 5** Click Check Warranty.

This shows which warranties, if any, are in effect on the date you entered.

## Service Administration Screen

The Service Administration screen provides views for defining warranties offered to customers.

### Warranties View

The Warranties view lists warranties and their terms for all products and service providers. [Table 124](#) describes the check boxes in the Warranties view.

**Table 124. Selected Items on the Warranties View**

Item	Description
Parts	Indicates that this warranty covers the cost of replacement parts.
Labor	Indicates that this warranty covers the cost of labor.
Transportation	Indicates that this warranty covers the cost of transportation.
Expenses	Indicates that this warranty covers the cost of expenses incurred by field service agents.

### Products Subview

The Products subview specifies the products covered by a warranty. The products are selected from a dialog box. Products are configured on the Product Administration screen (see *Product Administration Guide*).

### Service Providers Subview

The Service Providers subview records the accounts that supply services for a warranty. The service providers are selected from a dialog box.

# Assets Screen

The Assets screen has one view that displays information about warranties.

## Warranty View

The Warranty view displays the warranties associated with selected assets. [Table 125](#) describes the Get Warranty button in this view.

**Table 125. Selected Item on the Warranty View**

Item	Description
Get Warranty	This button and command lists all warranties associated with a product and fills in the fields that describe the warranty.

## **Orders Screen**

The Orders screen associates warranties with line items in an order.

### **Warranty Subview**

The Warranty subview (under the Line Items view) associates warranties with line items in an order and allows users to record details of expected credit recovery.

# Products Screen

The Products screen has one view for warranties.

## Warranties View

The Warranties view shows the warranties that apply to selected products.  
This view is read-only.

## **Repairs Screen**

The Repairs screen provides a Check Warranty button and menu command.

### **More Info View**

A Check Warranty button and command in the More Info tab's menu provides warranty information for an asset. Choosing this menu command checks the appropriate warranty boxes (Product Warranty, Component Warranty, and Manufacturer Warranty) as of the date specified in the Warranty As of field.

## Service Screen

The Service screen has one view with a Check Warranties button and menu command.

### Service Details View

The Service Details view contains a Check Warranty button and command. This command identifies the warranties that are associated with a service request on a selected date.



# Preventive Maintenance **16**

This chapter describes the Preventive Maintenance module for Siebel Field Service and the automatic generation of service requests and activities for maintenance.

# Preventive Maintenance Overview

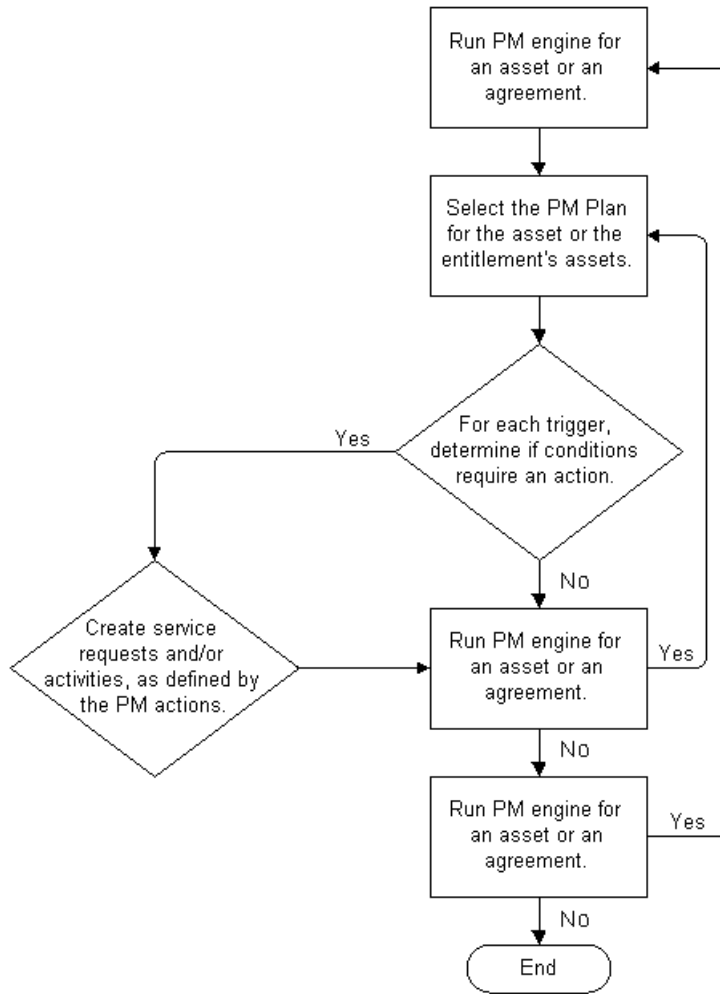
The Preventive Maintenance Engine can automatically generate preventive maintenance (PM) service requests and actions (or activities), triggered by elapsed time, asset usage, measurement thresholds, or events (see [Figure 21 on page 532](#)):

- Time-based triggers call for maintenance actions at regular time intervals.
- Usage-based triggers are for equipment that can keep track of usage with a counter (for example, number of copies for photocopiers).
- Threshold-based triggers initiate a service activity when a measurement falls above or below a set level (similar to an alarm or engine warning light).
- Event-based triggers use predefined events to determine if a PM activity is required.

When a PM activity is required, Field Service creates service requests and detailed activities. [Figure 21 on page 532](#) shows the process of the Preventive Maintenance Engine, which is as follows:

- 1** Run the PM Engine for an asset or an agreement.
- 2** Select the PM Plan for the asset or for the entitlement's assets.

- 3** For each trigger, if conditions require an action, create service requests or activities, then run the PM Engine. If conditions do not require an action, run the PM Engine.
- 4** Continue the process until all necessary service requests and activities have been created.



**Figure 21. Logic of the Preventive Maintenance Engine**

## Preventive Maintenance Triggers

Preventive Maintenance triggers set off processes in Field Service to plan and schedule routine service activities. The Preventive Maintenance Engine responds to triggers and plans service activities. The Optimization Engine can schedule these activities (see [“Best Practice: Preventive Maintenance and the ABS” on page 173](#)).

There are five types of triggers for preventive maintenance plans: Time Interval, Date (see [“Date Triggers” on page 534](#)), Usage, Threshold, and Event.

### Logic Governing Triggers

The following rules regulate the operation of Preventive Maintenance triggers:

- Time Interval and Date triggers are the only trigger type that can fire for a date in the future. All other triggers can fire only for the current date (when the engine runs).
- Triggers never fire in the past. If the Preventive Maintenance Engine finds a trigger that should have fired in the past, it fires for the current date unless some other constraint or condition prevents that.
- No trigger can fire more than once a day.
- No trigger can fire while there is an outstanding (future) PM activity for the asset and its associated PM plan.

When the trigger logic evaluates whether a trigger should fire, it prevents the creation of a new PM action whenever there is an existing action for the current date or any date in the future. This behavior is by design, to prevent triggers from firing multiple times for the same trigger condition. However, it means that plans with a Time or Date trigger combined with another trigger should not be run with end dates too far in the future. Time- or Date-triggered preventive maintenance actions in the future might prevent other valid triggers (such as Usage triggers) from firing, thus preventing valid service actions from being created.

---

**NOTE:** There are no constraints built into the PM module limiting multiple triggers.

---

For example, a plan with Time and Usage triggers might run with an end date one year in the future. All the PM actions for the next year are created based on the Time trigger, and during that time the Usage trigger will never fire, whatever the actual usage. This conflict can be avoided by only scheduling PM actions a few weeks or one month in advance. Then, in the worst case, the engine runs and schedules a PM action based on the Time trigger even though the asset meets the usage criteria tomorrow. The actual difference in the time between when the PM action should have been scheduled and when it was scheduled is, at most, the difference between the end date passed to the engine and the current date (when the engine runs).

## Time Interval Triggers

A Time Interval trigger activates a PM plan after a fixed time interval, measured in days. Each time interval record has a start and end age (in days from the asset's install date) so that the frequency of PM service requests can change, depending on the age of the asset. For example, in the first year, PM service can take place every 6 months (180 days). After the first year, service calls can occur more often; for example, every 3 months (90 days).

---

**NOTE:** The age of the asset is determined by the Install Date (see [“Assets View” on page 507](#)). If the Install Date is missing, the asset is considered to be 0 days old.

---

Although the interval could be less than 1 day, currently higher-level logic prevents triggers from firing more than once a day.

## Date Triggers

Date triggers fire on a specific date. Like Time Interval triggers, they may have a valid start and end that are measured from the asset's install date.

---

**NOTE:** In the out-of-the-box configuration, Date triggers are not exposed on the user interface.

---

## Usage Triggers

Usage triggers activate a PM plan when the reading from an asset changes by a specified amount. Each usage trigger record has start and stop values, so that the activation of a PM plan can change with the usage of the asset. For example, a service request may be generated every 3,000 counts for the first 15,000 counts, then every 10,000 counts after 15,000.

---

**NOTE:** For Time Interval and Usage triggers (which use Valid Start and Valid End settings), if the interval falls beyond the Valid End, the trigger does not fire.

---

The trigger fires if the readings for the specified measurement have a delta greater than the specified interval. The delta is determined by the difference between the most recent reading and the reading at the time of the last PM action. To be considered, the readings must be marked as Done (see [“Warranty View” on page 508](#)). If the most recent reading is less than the reading at the time of the last PM action, then the measurement is assumed to have wrapped around and the delta is calculated as follows:

$$\text{delta} = (\text{max} - \text{last}) + (\text{new} - \text{min}) + 1$$

Usage triggers may also specify a valid start and end, defining the values of the reading for which the trigger is valid.

A measurement is specified only by its type (see [“Measurements View” on page 511](#)). If an asset is given more than one measurement of the type specified by a Usage trigger, then if any of the measurements exceed the usage specified by its type, the trigger fires. To avoid this, it is recommended that specific types be defined, as applicable, in the measurement type LOV (ASSET\_MEAS\_TYPE).

## Threshold Triggers

A Threshold trigger activates a PM Plan when a reading from an asset exceeds a set value. Threshold triggers can fire in response to a change in a binary value; for example, a threshold of 0.5 would trigger a PM plan when an on/off alarm changes state.

Threshold triggers examine the readings since the most recent PM action. If any completed reading exceeds the lower or upper limit, the trigger fires.

Like Usage triggers, Threshold triggers specify a measurement type to which they apply. The same potential issues and solutions for [“Usage Triggers” on page 535](#) apply to Threshold triggers.

## Measurements and Readings

Measurements are defined for products on the Product Administration screen (see [“Product Measurements View” on page 227](#)).

The Measurements view on the Assets screen (see [“Measurements View” on page 511](#)) associates measurements from an asset’s product with the selected asset. The view allows these measurements to be customized for this asset. For example, a relevant measurement for a copy machine would be the number of copies, read from a counter; for a car it would be the distance traveled, read from an odometer; and for a pump it might be oil level, oil, pressure, and temperature, read from gauges.

The Readings view on the Assets screen allows a technician to record the readings for specific measurements and specific assets. These readings may act as triggers for usage and threshold triggers.

## Event Triggers

An Event Trigger activates a PM Plan when the number of service requests for an asset exceeds a threshold number in a specified time period. This trigger is useful for activating a higher level PM plan when a certain number of routine PM plans have taken place. For example, this trigger could activate a complete overhaul.

Currently, the only event supported is the number of service requests in a specified period.



## PM Plans and Actions

PM plans define sets of activities for preventive maintenance. The steps in setting up a PM plan are also useful for understanding the function of a plan:

- 1** Create an SR template. Each SR template defines a type of preventive maintenance; for example, 5,000 mile service, or major overhaul.
- 2** Associate one or more activity templates with each SR template. An activity template (described in [“Using Activity Templates and Plans” on page 89](#)) is a set of activities to carry out a preventive maintenance objective.
- 3** Create a PM plan. Define triggers and products or assets covered by the PM plan. Associate one or more SR templates with the PM plan. You can also directly associate activity templates with the PM plan.

## Service Request Templates

A Service Request Template is used to create service requests whenever a preventive maintenance trigger is activated. An SR Template includes one or more activity templates and holds default values for the following service request fields:

- Name
- Description
- Area
- Subarea
- Symptoms
- Severity
- Status
- Substatus
- Priority
- Resolution

SR templates apply only to preventive maintenance.

# The Preventive Maintenance Engine

When a trigger fires, the Preventive Maintenance Engine creates a service request. Activities are created in two ways:

- Activities are derived from SR templates (and PM plans). These activities are associated with the service request. See [“Service Request Template Activities View” on page 547](#) and [“Actions View” on page 552](#).
- Activities are derived from activity templates associated directly with a PM plan. See [“Actions View” on page 552](#), Activities subview.

---

**NOTE:** The association between activities and activity templates is made in the Activity Templates view in the Applications Administration screen (see [“Application Administration Screen” on page 102](#)).

---

## Validating PM Plans for an Asset

The Products view on the Preventive Maintenance screen allows you to associate products and assets with PM plans. The PM Engine retrieves these products and assets as follows:

- The products are obtained by querying the database for all the products that are associated with the PM plan and have their All Assets flags set to TRUE.
- The assets are obtained by querying for all the assets that are associated with the PM plan and have their products’ All Assets flags set to FALSE.

You set the All Assets flag for products associated with PM plans on the Products view of the Preventive Maintenance screen. See [“Products View” on page 551](#).

---

**NOTE:** PM plans are always associated with products and not with product lines.

---

To determine if a plan is applicable to an asset, the Preventive Maintenance Engine applies the following logic:

- 1 The engine checks the product of the asset against the collection of products held in the plan. If a match is found, the plan applies to the asset; otherwise processing continues.
- 2 The engine checks the asset against the collection of assets held in the plan. If a match is found, the plan applies to the asset; otherwise the plan does *not* apply.

## Running the Preventive Maintenance Engine

There are two methods of invoking the Preventive Maintenance Engine: through server requests and through the Field Service client.

### Using Server Requests

Administrators can set up requests (one-time or repeating) for tasks that are serviced by the Preventive Maintenance Engine. The component-specific parameters specified by the request determine what the engine does for that request. For a detailed explanation, see [“Parameters for the Preventive Maintenance Engine” on page 540](#).

In general, tasks must define these variables:

- A set of objects for the engine to operate on.
- A date that is the latest date to schedule preventive maintenance during the run.
- The mode in which the task is to be run. When invoking the PM Engine through server requests, you can specify either ID or SQL mode for this variable. (The Field Service client uses another mode, TempTbl, when invoking the PM engine.)
- The sub-mode, which determines the entities that are specified for the selected mode.

## Preventive Maintenance

### The Preventive Maintenance Engine

The set of objects must include either assets and plans or agreements, as defined by the sub-mode parameter in the request. In the case of assets and plans, if only assets or only plans are specified, then all of the other object types are assumed. For example, if only assets are specified (SubMode = Assets), then the Preventive Maintenance Engine checks the specified assets against all plans. When agreements are specified, each agreement implicitly defines a set of assets and plans (entitlements have both associated assets/products and PM plans) that the engine is to process for that agreement.

## System Preferences for the Preventive Maintenance Engine

The Preventive Maintenance Engine uses the two system preferences described in [Table 126](#).

**Table 126. System Preferences for the Preventive Maintenance Engine**

Sys. Pref.	Default Value	Comments
FSPrevMnt: Default Org ID	Org ID	The value of this system preference is the ROW_ID of the default organization. This default organization is stamped on generated service requests when the asset for which the service request is being generated does not have a specified account. If the owner account is specified for the asset, then the account's BU_ID is used.
FSPrevMnt: Def Act Owner ID	Act Owner ID	The value of this system preference is used when creating activities from a template in which the activity owner (Employees) has not been defined. The value specified should be the ROW_ID of the desired employee.

## Parameters for the Preventive Maintenance Engine

Siebel Business Process Designer or the client can invoke all engines. These engines require certain parameters to be passed. [Table 127](#) contains the parameters for the Preventive Maintenance Engine, and what they mean.

**Table 127. Preventive Maintenance Engine Parameters**

Parameter	Values	Explanation
Mode	{SQL, Id, TempTbl}	This required parameter specifies how the engine locates the entities to process. Only SQL or ID is intended to be specified in user requests. TempTbl is used by the client applications for submitting requests.
Sub-mode	{Assets, Plans, Assets&Plans, Agreements}	This required parameter specifies what entities are specified. A SubMode of Assets implies ALL PM Plans, and a SubMode of Plans implies ALL Assets.
EndDT	YYYY-MM-DD format	This required parameter specifies the date furthest into the future for which the engine will generate PM Actions. Note that currently, only time-based triggers can fire for a future date.
AssetID	Row ID of an asset	This parameter specifies a specific asset. It is required when the Mode is Id and the SubMode is either Assets or Assets&Plans.
PlanID	Row ID of a PM Plan	This parameter specifies a specific PM Plan. It is required when the Mode is Id and the SubMode is either Plans or Assets&Plans.
AgreementID	Row ID of an agreement	This parameter specifies a specific Agreement. It is required when the Mode is Id and the SubMode is Agreements.
AssetSQL	Where clause in the form [BusComp Field Name] = 'Value'	This parameter specifies a search specification for assets. It is required when the Mode is SQL and the SubMode is either Assets or Assets&Plans.
PlanSQL	Where clause in the form [BusComp Field Name] = 'Value'	This parameter specifies a search specification for PM plans. It is required when the Mode is SQL and the SubMode is either Plans or Assets&Plans.
AgreementSQL	Where clause in the form [BusComp Field Name] = 'Value'	This parameter specifies a search specification for agreements. It is required when the Mode is SQL and the SubMode is Agreements.

# Setting Up the Preventive Maintenance Engine

Follow these procedures to set up the Preventive Maintenance Engine.

### **To set asynchronous operation of the Preventive Maintenance Engine**

- 1 From the application-level menu, choose View > User Preferences.
- 2 From the Show drop-down list, select Service.
- 3 In the Asynchronous Processing Of section, select Preventive Maintenance.

### **To set parameters for the Preventive Maintenance Engine**

- 1 Insert or edit a component request for the Preventive Maintenance Engine server component.
- 2 Add or modify the server component parameters as needed.

For information about server components and component parameters, see *Siebel Server Administration Guide*.

### **To change system preferences for the Preventative Maintenance Engine**

- 1 Navigate to Site Map > Application Administration > System Preferences.
- 2 Locate the name of the system preference (System Preference Name column).  
For the names of applicable system preferences, see [Table 126 on page 540](#).
- 3 Type in a new value for System Preference Value.
- 4 To register changes to system preferences, restart the Field Service server.

For information on how to restart servers, see *Siebel Server Administration Guide*.

### **To define preventive maintenance plans**

- 1 Navigate to Site Map > Preventive Maintenance.  
The Plans view appears.
- 2 Add a new preventive maintenance plan record.

- 3** Enter the name for a plan.
- 4** Enter values for other fields, as needed.

**To define triggers for a selected PM plan**

- 1** Navigate to Site Map > Preventive Maintenance.  
The Plans view appears.
- 2** Select a preventive maintenance plan.
- 3** Click the Triggers view tab.
- 4** Create a new trigger record in any applicable subviews (Time Interval, Usage, Threshold, and Event).
- 5** Enter values for the fields, as needed.

---

**NOTE:** PM plans can have any number of triggers of any type (Time Interval, Usage, Threshold, and Event).

---

**To associate a PM plan with an agreement**

- 1** Navigate to the Agreements screen.
- 2** Select an agreement.
- 3** Click the Entitlements view tab.
- 4** Select an entitlement.
- 5** Click the Preventive Maintenance subview tab.
- 6** In the Preventive Maintenance subview's frame, make sure that PM Plans is selected in the drop-down list.
- 7** In the Preventive Maintenance list, create a new record and associate a PM plan.

**To associate assets with PM plans**

- 1** Navigate to the Assets screen.
- 2** Select an asset.

- 3** Click the Preventive Maintenance view tab.
- 4** In the Preventive Maintenance view's Show drop-down list, select Plans.
- 5** In the Preventive Maintenance list, create a new record and associate a PM plan.

#### ***To associate activity templates with a PM plan***

- 1** Navigate to Site Map > Preventive Maintenance.  
The Plans view appears.
- 2** Select a preventive maintenance plan.
- 3** Click the Actions view tab.
- 4** In the Activity Templates list, create a new record and associate an activity template.

### **Creating Service Request Templates for Preventive Maintenance**

Service Request Templates provide one or more activity templates to carry out preventive maintenance.

#### ***To create a service request template for preventive maintenance***

- 1** Navigate to Site Map > Service Administration > Service Request Templates.
- 2** Add a new service request template record.
- 3** Enter values for the fields, as needed.
- 4** Click the Service Request Template Activities view tab.
- 5** Add activity templates as needed for preventive maintenance.



## Generating Preventive Maintenance Activities

Use the following procedures to generate preventive maintenance activities (actions).

### **To run PM plans for an asset**

- 1 Navigate to the Assets screen.
- 2 Select an asset.
- 3 Click the Preventive Maintenance view tab.
- 4 From the Show drop-down list, select Plans.
- 5 Create a new record to associate a preventive maintenance plan to the selected asset.
- 6 In the Assets view bar, complete the End Date field.

This is the latest date that the PM Engine considers when generating PM actions. The field defaults to the current date and can be set to any date in the future.

- 7 Do one of the following:
  - To run the PM Engine for the selected asset and all its associated maintenance plans, click Run PM in the Assets view.
  - To run the PM Engine for all assets and all their associated maintenance plans, click the menu button in the Assets view and click Run PM All.

### **To review generated PM actions**

- 1 Navigate to Site Map > Preventive Maintenance.  
The Plans view appears.
- 2 Select a PM plan.
- 3 Click the History view tab.
- 4 The History list displays the PM actions for this plan.

***To review generated PM actions for an asset***

- 1** Navigate to the Assets screen.
- 2** Select an asset.
- 3** Click the Preventive Maintenance view tab.
- 4** From the Show drop-down list, select History.

The History list displays the PM actions generated for this asset and the plans that initiated the actions.

## Service Administration Screen

Two views in the Service Administration screen are for configuring activity templates for preventive maintenance. These templates become part of PM plans (see [“Preventive Maintenance Screen”](#) on page 548).

### Service Request Templates View

The Service Request Templates view creates templates for preventive maintenance service requests. An SR template includes one or more activity templates plus default values for a preventive maintenance service request; for example, Area, Status, Priority, Symptoms, and Resolution. The preventive maintenance trigger, when activated, creates the service request using this template.

---

**NOTE:** Service request templates apply only to preventive maintenance.

---

### Service Request Template Activities View

The Service Request Template Activities view associates activity templates with preventive maintenance service request templates.

Activity templates are set up in the Application Administration screen, Activity Templates view. For more information, see [“Setting Up Field Service Activity Templates”](#) on page 93.

# Preventive Maintenance Screen

The Preventive Maintenance screen configures preventive maintenance plans for specific products and assets.

## Plans View

The Plans view defines preventive maintenance plans for specific products and assets.

The Active check box in this view allows the Preventive Maintenance Engine to process this plan. It may be useful to uncheck this box while completing the definition of a plan or to temporarily disable specific plans. When the plan definition is complete, or a plan is reinstated, the administrator checks this box to activate the preventive maintenance plan.

## Triggers View

The Triggers view provides four subviews to define the triggers that activate PM plans.

## Time Interval Subview

The Time Interval subview sets the interval in days between triggers that activate a selected plan. A plan can have more than one Time Interval trigger (see [“Time Interval Triggers” on page 534](#)). [Table 128](#) describes items in Time Interval records.

**Table 128. Items in the Time Interval Subview**

Item	Description
Interval	Length of the interval between triggers, in number of days. Must be an integer.
Valid Start	The age of an asset, in days, at which this trigger becomes effective. Required.
Valid End	The age of an asset at which this trigger is no longer effective. Leaving this value blank sets the end to infinity.

**NOTE:** The age of the asset is measured from the Install Date (see the [“Assets View” on page 507](#)). If the Install Date is missing, the asset is considered to be 0 days old.

### Usage Subview

The Usage subview defines the measurement and measurement parameters that trigger a PM plan. A plan can have more than one Usage trigger (see [“Usage Triggers” on page 535](#)). [Table 129](#) describes items in Usage records.

**Table 129. Items in the Usage Subview**

Item	Description
Measurement Type	A type of reading, chosen from a dialog box.
Interval	The change in a reading that triggers a PM plan. Interval uses the units set in Measurement Type.
Valid Start	The measurement at which the trigger becomes valid. The value is in the same units as the interval.
Valid End	The measurement at which the trigger is no longer valid. The value is in the same units as the interval. Leaving this value blank sets the end to infinity.

**NOTE:** For Time Interval and Usage triggers (which use Valid Start and Valid End settings), if the interval falls beyond the Valid End, the trigger does not fire.

### Threshold Subview

The Threshold subview defines a reading from an asset that triggers a PM plan. A plan can have more than one Threshold trigger (see [“Threshold Triggers” on page 536](#)). [Table 130](#) describes the item in Threshold records.

**Table 130. Items in the Threshold Subview**

Item	Description
Measurement Type	A type of measurement, chosen from a dialog box.

## Event Subview

The Event subview defines the number of service requests in a time interval that trigger a PM plan. A plan can have only one Event trigger (see “[Event Triggers](#)” on page 536). [Table 131](#) describes items in the Event subview. Both items are required.

**Table 131. Items in the Event Subview**

Item	Description
# of SRs	The number of service requests which, when exceeded, triggers a PM plan.
Over # of Days	The time interval, in days, during which the number of service requests must occur.

## Products View

The Products view associates specific products and assets with PM plans. [Table 132](#) describes the check box in the Products subview.

**Table 132. Item in the Products Subview**

Item	Description
All Assets	A check box that indicates all assets of this product are covered by the PM plan, whether or not they appear in the Assets list. To cover only the specified assets, make sure that All Assets is not checked.

**CAUTION:** You must set up the correct measurement types in the Product Administration screen for the products covered in the preventive maintenance plan. In the Product Administration screen’s More Info view, select Product Measurements from the Show drop-down list. If you do not set up measurement types, then Usage and Threshold triggers will cause unpredictable and undesired results. For more information about setting up products, see *Product Administration Guide*.

If the asset is already associated through the All Assets flag, adding the PM plan as a record has no effect other than displaying the relationship directly.

---

**NOTE:** To perform this procedure, navigate to the Assets screen, select the Preventive Maintenance view, and then select the Plans subview. See [“To associate assets with PM plans” on page 543](#).

---

### Assets Subview

The Assets subview lists the assets for each product covered under the PM plan.

### Actions View

The Actions view associates service request templates and activity templates with PM Plan records. The application does not verify duplication of activity templates, so the same activity template may be associated directly with a PM plan and indirectly through an SR template.

To create SR templates, see [“Service Administration Screen” on page 547](#).

### History View

The History view displays past preventive maintenance actions for each selected PM plan. This view is read-only.



## Assets Screen

The Preventive Maintenance view on the Assets screen associates PM plans with specific assets and shows the history of PM plans scheduled or carried out. The Preventive Maintenance view has two subviews, Plans and History, selected from the Show drop-down list.

### Plans Subview

The Plans subview associates PM plans with selected assets.

The Active check box in this view allows the Preventive Maintenance Engine to process this plan. You can clear this check box while completing the definition of a plan or to temporarily disable specific plans. When the plan definition is complete, or a plan is reinstated, select this check box.

---

**NOTE:** The All Assets check box in the Products view (see [“Products View” on page 551](#)) associates all assets of a product line with a selected PM plan. If the asset is not already associated with a PM plan (the All Assets check box is not checked for the product), users can cover the asset by adding the PM plan as a record in this subview.

---

### History Subview

The History subview reports all of the PM actions in the history of a selected asset. All fields in this form are read-only except for the Completed field, which accepts the date that the activities in a plan are completed.

# Agreements Screen

The Agreements screen, Entitlements view, has one subview for preventive maintenance, which shows the PM plans that are associated with specific agreements and their entitlements and PM actions for this entitlement and agreement that are scheduled or completed. This subview is read-only.

## Preventive Maintenance Subview

Select PM Plans or PM Actions from the drop-down list at the top on the Preventive Maintenance subview.

# Repairs **17**

This chapter describes how to use the Repair module to process and track equipment repairs.

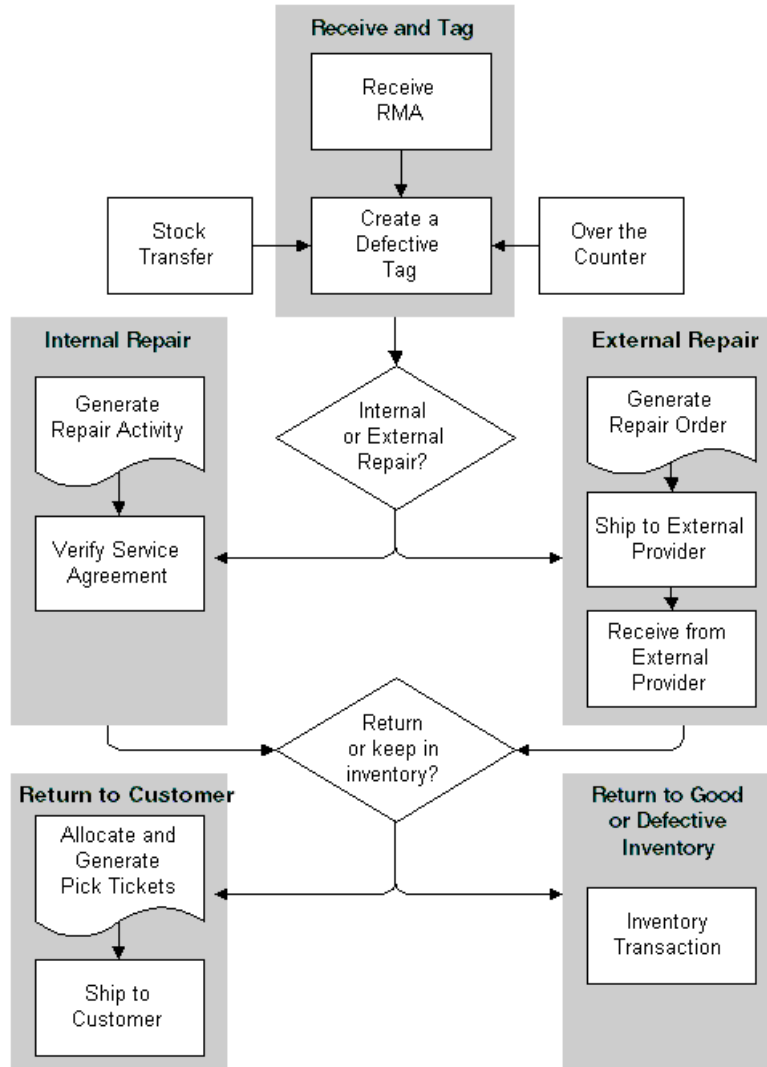
# Overview of Siebel Repair

Siebel Repair generates repair activity plans, assigns and schedules repair activities, tracks symptoms and resolutions, and stores repair histories.

The workflow for repairs is illustrated in [Figure 22 on page 557](#), which shows the steps of the process as follows:

- 1 Receive and tag.** Receive RMA and create a repair order. The item may have been received as a stock transfer or over the counter.
- 2 Internal or external repair.** If this is an internal repair, generate a repair activity and verify the service agreement. If this is an external repair, generate a repair order, ship to the external provider, and receive from the external provider.

- 3 Return or keep in inventory.** After the repair is done, if the item is returned to the customer, allocate the item, generate the pick ticket, and ship. If the item is returned to good or defective inventory, generate the inventory transaction.



**Figure 22. Repair Workflow**

Repairs begin when a customer calls a service center about a defective product. The customer service representative assigns an RMA (Return Material Authorization) to the product, and requests that the customer ship the product to the service center. The RMA (either RMA Repair Return or RMA Advance Exchange) signifies that the product is to be repaired.

## Receiving Items for Repair

At the service center, the defective item is either repaired or shipped to a third-party provider for repair. If an external repair is chosen, a repair order (RO) number is assigned, which can track the item to and from the external vendor. When an external repair vendor performs the repair, the item's repair is tracked to completion using the ship and receive dates to and from the external vendor. Siebel Repair generates the inventory transactions that record the product's travels.

The defective product may be repaired and returned to the customer, or the product may be repaired and placed in good stock.

There are three routes for placing defective parts in the repair process:

- Repair items from customers generally arrive by a freight carrier and have an attached RMA. If no RMA is attached, it is necessary to create one.
- The field service engineer or an internal department can deliver a defective part over the counter to a repair center agent.
- The repair center may receive transfers from other internal locations (for example, if defective parts were collected at a field office and then sent to a repair facility). In the latter case, an internal order can track the parts transferred from one inventory location to another, or a stock transfer (inventory transaction) can be issued directly.

## Repair Numbers

A repair number is a number assigned to a repair record, uniquely identifying the product to repair. A repair center agent physically attaches a tag containing this number to the product. The repair number, either a card or a marker (often a bar-coded label), lets the service business track defective parts through the repair process, whether or not they have serial numbers. For methods to customize this number, see [“Numbering Service Requests and Other BusComp Object Types” on page 64](#).

If the product is serialized, add the asset number to the repair record. This automatically provides the product name, inventory location, and inventory level (status and availability).

Some businesses prefer to speed up the receiving process by creating batches of repair numbers in advance. To do this, they create multiple blank repair records. When a defective part arrives, the repair center uses one of these blank records and its repair number. An agent then completes the record for this part.

### Serialized Products and Inventory Locations

To generate a repair number for a serialized product, an asset number must be assigned. The transactions that accompany receiving the asset, through an RMA or field part movement, identify the destination inventory locations for these incoming parts.

## Repair Activities

For the repair of an item, Siebel Field Service provides activity plans and activities:

- Repair activity plans automatically set up activities and generate activity records.
- Field service staff can manually create or update activity records.

Repair activities, activity plans, and activity templates function much as they do for other field service activities. See [Chapter 3, “Field Service Activities,”](#) for more information.

As an item moves among inventory locations, Field Service records its movements by updating the Location, Status, or Availability fields in the repair record. These updates automatically generate inventory transactions.

### Repair Orders

If a third-party provider performs repairs, Field Service can create a repair order. These orders record the transactions involved in shipping items to the external vendor and receiving the repaired items back from this vendor. For more information, see *Siebel Order Management Guide*.

### Asset Repair Histories

Repair histories can be attached to assets to track defects over time. A repair history can associate several repair numbers with an asset. Failure trends can be detected from asset repair histories. Based on the occurrence of repair numbers, an asset can be identified as a financial liability. The decision to scrap may be justified if the repair cost is too high and a more reliable substitute product can be found.

### Inventory Transactions for Repairs

Repair activities, generated from an activity plan, move parts from inventory location to inventory location. Each time a part moves, an inventory transaction is generated. Validations are performed for each transfer; for example, to move an asset to a destination inventory location, it must belong to a source inventory location. These steps summarize the transaction process for an internal repair:

- 1 Generate an inventory transaction as a Stock Transfer.
- 2 Commit the inventory transactions.
- 3 Update the inventory location ID (Prod\_INV\_ID) on the repair number (S\_PART\_RPR).



The rules for these inventory transactions are summarized in [Table 133](#).

**Table 133. Rules for Inventory Transactions: Internal Repair**

Inventory Level <sup>1</sup> (InvLoc + Status + Avail)		Transactions Required?
Old Value	New Value	
NULL	NULL	No
NULL	INV1	No
INV1	INV1	No
INV1	INV2	Yes. Normal inventory transaction as <i>Stock Transfer</i> , with all validations.
INV1	NULL	No

1. Previously a “bucket.”

## Repairs Sent to a Third-Party Vendor

In Shipping > Repair Pick Ticket (see [“Repair Pick Ticket View”](#) on page 369), the Process Shipment button generates transactions of the type Ship to TP (Third Party) to move a product from the defective inventory location to the third-party vendor, and sets the variables Defective and On Hand. This transaction updates the variables INVLOC\_ID, INV\_STATUS\_CD, and INV\_AVAIL\_CD. These steps summarize the transaction process:

- 1** Generate inventory transaction as Ship to TP and De-Allocate.
- 2** Commit inventory transactions.
- 3** Update the inventory location ID (Prod\_INV\_ID), inventory location (INVLOC\_ID), status (INV\_STSTATUS\_CD), and availability (INV\_AVAIL\_CD) on the Repair Number (S\_PART\_RPR), using the BusComp FS Repair Without Update logic.

The rules for these inventory transactions are summarized in [Table 134](#).

**Table 134. Rules for Inventory Transactions: Send to Third-Party Vendor**

Inventory Transaction Type	Source			Destination		
	Inventory	Inventory Level <sup>1</sup>	Assets <sup>2</sup>	Inventory	Inventory Level <sup>1</sup>	Assets <sup>2</sup>
Ship to TP	Source Invloc ID Comes from the Service Order screen, Line Items view, Actions subview and is the Source Location field.	On Hand Good/Defective	Yes	Destination Invloc ID Comes from the Service Order screen Line Items view, Actions subview and is the Destination Location field.	On Hand Defective	Yes
De-Allocate	Source Invloc ID Comes from the Service Order screen, Line Items view, Actions subview and is the Source Location field.	Reserved	No	Customer	On Order	No

1. Previously a “bucket.”
2. The assets rows are included in the transaction validation if the product is serialized.

### Repairs Received from a Third-Party Vendor

On the Receiving screen, the Receive PO, Receive RMA, and the Receive Internal Order views, the Process Receipt command generates transactions, of the type Receive from TP, to move a product from a third-party vendor to the desired inventory location. This transaction updates the variables INVLOC\_ID, INV\_STATUS\_CD, and INV\_AVAIL\_CD.

To receive an item from a third-party location, define the third-party location in the Orders screen, Terms view and the receiving location in the To Inventory field in the Receiving screen, Line Item Receipts view.

To go to the Receive PO, Receive RMA, or the Receive Internal Order view, first navigate to the Receiving screen, All Pending Orders view, and then click on a Receive Type field for any record. This exposes the Receive PO, Receive RMA, or Receive Internal Order views, with their subviews: [Receipt] Line Items, Received Line Item, and Serial Numbers.

These steps summarize the transaction process:

- 1 Generate an inventory transaction as Receive from TP.
- 2 Commit the inventory transaction.
- 3 Update the inventory location ID (Prod\_INV\_ID), inventory location (INVLOC\_ID), status (INV\_STSTATUS\_CD), and availability (INV\_AVAIL\_CD) on the Repair Number (S\_PART\_RPR), using the BusComp FS Repair Without Update logic.

The rules for these inventory transactions are summarized in [Table 135](#).

**Table 135. Rules for Inventory Transactions: Receive from Third-Party Vendor**

Inventory Transaction Type	Source			Destination		
	Inventory	Inventory Level <sup>1</sup>	Assets <sup>2</sup>	Inventory	Inventory Level <sup>1</sup>	Assets <sup>2</sup>
Receive from TP	Source Invloc ID Comes from Service Order screen, Line Items view, Actions subview and is the Destination Location field.	On Hand Defective	Yes	Destination Invloc ID Comes from Service Order screen, Line Items view, Actions subview and is the Source Location field.	On Hand Good/Defective	Yes

1. Previously a “bucket.”
2. The assets rows are included in the transaction validation if the product is serialized.

### **Third-Party Vendor Swaps an Asset During Repair**

If the third-party repair vendor returns a different part, the inventory transactions fails unless the new asset exists in the third-party inventory location. The user can accomplish this in one of two ways:

- Use the same Asset ID and change the serial number associated with this record.
- Create a new asset. Receive it from the third-party vendor using a Receive Other transaction. Then delete the previous asset, using another transaction.

### **Returning to Good Inventory**

To return a product to good inventory:

- For internal repairs, set the Inventory Location, Availability, and Status (usually Good) in the repair record.
- For repair orders, set the Inventory Location, Availability, and Status in the repair record.

Changing the values in the repair record triggers an inventory transaction which changes the inventory quantity.

### **Shipping to a Customer**

If the defective part was received with an RMA Repair/Return, then the repair center returns the part using the regular shipping process (Allocate, Pick Ticket, and Ship).

When the part is repaired, either internally or by a third-party vendor, it receives an inventory level; for example, On Hand/Good. When the part is shipped, the inventory transaction records the product movement, but the information on the Repairs screen still points to the same inventory level, that indicates the last location for the repaired item in inventory. The inventory movements for a product do not update the last location of the product in the repair record.

## Setting Up and Configuring Repairs

The following sections describe the configuration and transactions for repairs.

### Setting Up Repair Activities

Follow these procedures to set up repair activities.

#### **To create activity templates for repairs**

- See [“To define activity templates” on page 93](#).

#### **To associate activities with a template**

- See [“To associate activities with activity templates” on page 93](#).

#### **To define activity plans for repairs**

- 1 Navigate to the Repairs screen.
- 2 Select a repair.
- 3 Click the Activity Plans view tab.
- 4 Add a new activity plan record.

This action populates the fields in the Activities Plans and Activities lists.

### Processing Defective Items for Repair

#### ***To receive defective parts with an RMA***

- 1** Navigate to the Receiving screen.
- 2** In the Show drop-down list, make sure All Pending Orders is selected.
- 3** In the Pending POs/ROs/RMAs list, select an RMA Repair Return order.
- 4** Click the hyperlink in the Receive Type field.  
The Receive RMA view appears.
- 5** In the Line Items list, select a line Item.
- 6** In the Received Line Item list, create a record describing the received item.
- 7** Enter values in the fields, as needed.
- 8** If the item is a serialized asset, in the Serial Numbers list, create a record for it.
- 9** Enter values in the fields, as needed.
- 10** In the Receive RMA form, click Process Receipt.

#### ***To receive defective parts over the counter***

- 1** Navigate to the Repairs screen.
- 2** Do one of the following:
  - Query for the repair item record with the repair number.
  - Create a new repair record.
- 3** Copy the value in the Repair # field.
- 4** Navigate to Site Map > Inventory Transactions.
- 5** In the More Info view, click the show more button.
- 6** Create an inventory transaction record.
  - a** In the Type field, select Over-the-counter.

- b** In the Repair ID field, enter (paste) the repair number.
- c** Enter values for the required fields.

**To receive defective parts by stock transfer**

- 1** Navigate to the Receiving screen.
- 2** In the Show drop-down list, make sure All Pending Orders is selected.
- 3** In the Pending Internal Orders list, select an order.
- 4** Click the hyperlink in the Receive Type Field.

The Receive Internal Order view appears.

- 5** In the Line Items list, select a record.
- 6** In the Received Line Item list, create a new record.
- 7** Enter receipt details, as needed.
- 8** In the Serial Numbers list, create a new record.
- 9** Enter serialized asset details, as needed.
- 10** In the Receive Internal Order list, click Process Receipt.

**To create a repair record**

- 1** Navigate to the Repairs screen.
- 2** Create a new repair record.
- 3** If this repair record is for a serialized item, in the Asset # field, select an asset.
- 4** Associate the repair record with its service request by entering it in the SR # field.
- 5** Associate the repair record with its RMA by clicking the show more button and selecting it in the RMA # field.

**To add an activity plan and generate activities for a repair**

- 1** Navigate to the Repairs screen.

- 2** Select a repair record.
- 3** Click the Activity Plans tab.
- 4** Add an activity plan record.
- 5** In the Template field, select an activity template.

This populates the Activities list with the activities in the template.

***To view or update repair activities***

- 1** Navigate to the Repairs screen.
- 2** Select a Repair record.
- 3** Click the Activities tab.
- 4** Select an activity record.
- 5** Change the value of any field.

***To track the movement of a defective part***

- 1** Navigate to the Repairs screen.
- 2** Select a repair record.
- 3** In the More Info view, click the show more button.
- 4** Update the Location, Status, and Availability fields to show the current location and inventory level for a part.

***To associate a repair order, RMA, or service request with a repair record***

- 1** Navigate to the Repairs screen.
- 2** Select a repair record.
- 3** In the More Info view, click the show more button.
- 4** Do one of the following:
  - a** To associate a repair order, in the Repair # field, select a repair order.
  - b** To associate an RMA repair return, in the RMA # field, select an RMA.



- c To associate a service request, in the SR # field, select a service request.

**To create a repair order**

- 1 Navigate to the Orders screen.
- 2 In the Show drop-down list, make sure one of the Service Orders options is selected.
- 3 Add a new order record.
  - a In the Type field, select Repair Order.
  - b Enter values for the required fields.
- 4 Click the Line Items view tab.
- 5 Create a record for each item to be repaired.
- 6 Complete the required fields.

**To ship a defective part to an external repair provider**

- 1 Navigate to the Repairs screen.
- 2 Select a repair record or create a new repair record.
- 3 Copy the value in the Repair # field.
- 4 Navigate to Site Map > Inventory Transactions.
- 5 Create a transaction record.
- 6 In the More Info tab, click the show more button.
- 7 In the Type field, select Ship to TP.
- 8 In the Repair ID field, enter (paste) the repair number.
- 9 Complete the required fields.

**To receive a repaired item from a third-party vendor**

- See [“To receive repaired items from a third-party vendor”](#) on page 363.

### **To return a repaired or exchanged part to a customer**

- 1** Navigate to the Orders screen.
- 2** In the Show drop-down list, make sure one of the Service Orders options is selected.
- 3** Add a new order record.
  - a** In the Type field, select RMA Repair Return or RMA Advance Exchange.
  - b** Enter values for the required fields.
- 4** Click the Line Items view tab.
- 5** Create a record for each item to be repaired or exchanged.
- 6** Complete the required fields.

### **To record time and expenses for a repair activity**

- 1** Navigate to the Repairs screen.
- 2** Select a repair record.
- 3** Click the Activities view tab.
- 4** Select an activity record.
- 5** Click the hyperlink in the Type field.

The Activity Attachments view appears.
- 6** Click the Time Tracker view tab.
- 7** Create a time record and complete the required fields.

For more information, see the [“Time Tracker View” on page 112](#).
- 8** Click the Expense Tracker view tab.
- 9** Create an expense record and complete the required fields.

### **To view an asset's repair history**

- 1** Navigate to the Repairs screen.

- 2** Select a repair record.
- 3** Copy the value in the Asset # field.
- 4** Navigate to the Assets screen.
- 5** Query the asset, using the asset number.
- 6** Click the Repairs view tab.

The Repairs list shows the repair records for this asset.

# Repairs Screen

The Repairs screen identifies repairs and the activities associated with these repairs.

## More Info View

The More Info view records the information that is necessary to identify a repair, such as location, status, asset number, service request number, assigned technician, repair station, and relevant dates. Clicking Check Warranty button or selecting the Check Warranty command provides information about warranties for the asset requiring repair.

## Activity Plans View

The Activity Plans view associates an activities plan and its activities with a repair number record. For more information, see [“Activity Templates View” on page 102.](#)

## Activities View

The Activities view associates individual activities with a repair number record. Users can create and associate numerous activities with a single repair record.

## Repair Reports

The Repairs screen provides the reports listed in [Table 136](#).

**Table 136. Repair Reports**

Report	Description
Repair Summary	A summary of each repair.
Repair Detail (Barcode)	One page for each repair and its associated activities. Includes barcodes.
Repair Detail (No Barcode)	One page for each repair and its associated activities. Does not include barcodes.

## Assets Screen

The Assets screen records all information about assets, including service and repair history, components, associated activities, and preventive maintenance.

## Repairs View

The Repairs view lists all the repair records for a selected asset.

# Barcodes 18

This chapter presents the feature of Siebel Field Service that allows end users to enter data through barcodes.

## Concepts and Terms

The following terms and concepts are specific to the Barcode module.

Barcode	A series of vertical bars printed or stamped on parts, containers, labels, or other media. These bars represent information that can be read by an electronic barcode reader attached to a computer system.
Barcode types	Multiple types of barcodes exist. Some can encode only numbers, while others can encode numbers, letters, and special computer control characters. Each uses a series of varying-width bars and spaces to represent characters.  For information about supported barcode types, see the system requirements and supported platforms documentation for your Siebel application.
Barcode scanner	An electronic device that detects a barcode's pattern of bars and spaces and transmits the pattern to a barcode reader.
Barcode reader	An electronic device that decodes the barcode patterns sent from a scanner into the characters they represent, and transmits those characters to a computer as though the data were typed in.



## Barcode Reader Input

Control character sequences before and after the barcode information notify your Siebel application that input is from a barcode reader, as follows:

- Ctrl - \ is the prefix signalling that the next input will be from a barcode reader.
- Ctrl - / is the suffix signalling that the barcode reader input has ended.

Any programmable barcode reader that can be configured to send this prefix and suffix before and after the barcode can be used with Siebel Field Service's barcode automation functionality. To program the scanning preamble into a barcode reader, refer to the user manual or product reference guide provided with the barcode reader.

## Using the Barcode Interface

This section includes procedures for using the screens and features for reading barcode data. For guidelines and details of configuration, see [“Setup and Configuration for Barcode Reading” on page 586](#).

Siebel Field Service accepts data from a barcode reader into individual, active fields in your Siebel application. Data such as the following is often available in barcode format:

- Part numbers
- Asset numbers
- Repair numbers
- Order numbers
- Service request numbers
- Pick ticket numbers

---

**CAUTION:** The automated barcode module does not accept serial numbers as input. If end users need to scan serial numbers, make sure that the asset numbers are the same as the serial numbers.

---

With data from the barcode reader, an end user can perform the following types of operations:

- **New.** Enter the number from the barcode in a new line (record) in the view. In this mode, an end user goes to the view that is to receive a number, then clicks on a specific tab. Siebel Field Service creates a new record and fills the appropriate field in this record.
- **Update.** Update the number in a selected line (record) in the view. The new number replaces the existing number. In this mode, an end user goes to the view that is to receive a number, clicks on a specific tab, and selects a record. Siebel Field Service fills the appropriate field in the selected record.

- **Find.** Search the Siebel application for the place where the barcode input should go. In this mode, the incoming barcode finds its own destination, opens the appropriate view, selects a tab, and fills in the appropriate fields.

An end user can do the following operations:

- Enter individual barcodes of any acceptable type. Individual barcodes are entered with either the New or Update option.
- Read multiple barcodes in succession, all of the same type (for example, either asset numbers or repair numbers). Individual barcodes are entered with the New option only.

---

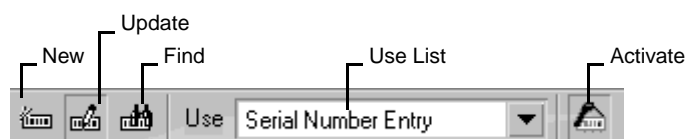
**CAUTION:** If end users will be creating multiple barcodes in succession, make sure that all required fields in the records, except for the target field for the barcode data, have a default value.

---

## The Barcode Toolbar

Siebel Field Service provides a barcode toolbar that sets Siebel Field Service to use incoming data from a barcode reader. The barcode toolbar appears immediately below the application-level menu in the Siebel Service application.

The barcode toolbar is shown in [Figure 23](#). It contains the following controls, from left to right: a New button, an Update button, a Find button, a Use drop-down list, and an Activate button.



**Figure 23. The Barcode Toolbar**

The barcode toolbar is shown or hidden according to the following factors:

- For a mobile client, the sfs.cfg file's ShowBarcodeToolbar parameter must be set. A value of TRUE shows the barcode toolbar, while a value of FALSE hides it. If your Siebel application is licensed to include barcode automation functionality, the parameter is set to TRUE by default.
- For a server configuration, a barcode toolbar parameter must exist in the SFSObjMgr. The name of this parameter is Barcode Toolbar Enable Flag. A value of TRUE enables the barcode toolbar, while a value of FALSE disables it.

---

**CAUTION:** A Siebel client running on an individual workstation cannot have both the Barcode toolbar and the CTI toolbar displayed at the same time.

---

Table 137 summarizes the functionality of the barcode toolbar buttons.

**Table 137. Barcode Toolbar Buttons, from Left to Right**

Button	Action
New	Enters a value of the specified type (Use) into a new record in the selected view.
Update	Enters a value of the specified type (Use) into an existing record and field in a selected record, replacing the number that was there.
Find	Locates the appropriate view and field, and enters a value of the specified type. When an end user scans the barcode, the application brings up the applicable view with the query already executed. The displays only those records that match the value scanned from the barcode.
Activate	Turns the barcode functionality on or off.

Of the first three buttons (New, Update, or Find), only one at a time can be active. Once clicked, a button remains active until another button is selected.

The Use drop-down list contains entry modes that define the type of information coming from the next barcode to your Siebel application. The contents of the Use drop-down list changes according to the following factors:

- Whether the New, Update, or Find button is selected
- The active screen and view

It is necessary to select a value in the drop-down list only if more than one value appears in it.

## Keyboard Shortcuts for the Barcode Toolbar

Shortcut keys for barcode operation are shown in [Table 138](#).

**Table 138. Additional Keyboard Shortcuts for the Barcode Toolbar**

Shortcut	Action
Ctrl - \ Ctrl - /	<p>The first shortcut precedes the barcode data input and the second one follows it. When your Siebel application receives such input, it carries out a series of steps to copy the data from the barcode into the correct field in a view:</p> <ol style="list-style-type: none"> <li><b>1</b> Determines the current view, tab, and active button on the Barcode toolbar.</li> <li><b>2</b> Examines the records in the Barcode Mapping list to determine if there is a record for this combination of view, tab, and button selection. See <a href="#">“Setting Up a Barcode Interface” on page 586</a>.</li> <li><b>3</b> From the Barcode mapping record, determines the field in the corresponding record to receive the data.</li> <li><b>4</b> Enters the barcode data in the target field defined in the Barcode Mapping list.</li> </ol> <p>Normally, these commands are programmed into the barcode reader and delivered as a prefix and suffix to the barcode data; they are not entered from the keyboard. See <a href="#">“Barcode Reader Input” on page 577</a>.</p>

### Printing Barcodes in Reports

The following reports include barcodes, when available:

- **Pick Ticket Details (Shipping screen).** The Pick Ticket number is barcoded.
- **Repair Detail (Repairs screen).** The Repair Number number is barcoded.
- **Order Detail (Orders screen).** The Order number is barcoded.
- **Service Request Detail (Service screen).** The Service Request number is barcoded.





The Reports menus display two versions for each report: barcoded and not barcoded. For information about barcode fonts, see the system requirements and supported platforms documentation for your Siebel application.

### Scanning Barcodes for Toolbar Actions

You can scan barcodes into Field Service to trigger the same actions as clicking the toolbar buttons. This is for the convenience of end users who do not have access to a mouse for clicking the toolbar buttons, or who need to shift frequently between the New, Update, and Find operations.

Table 139 shows the barcode character combinations and their associated actions. The middle column, labeled Barcode Example, shows the actual barcodes that correspond to the Barcode Values (such as \*New\*), in a typical barcode font.

**Table 139. Barcode Actions**

Barcode Value	Barcode Example	Action Name
*NEW*	 * N E W *	<b>New Button.</b> Scanning this barcode simulates clicking New on the barcode toolbar.
*UPDATE*	 * U P D A T E *	<b>Update Button.</b> Scanning this barcode simulates clicking Update on the barcode toolbar.
*FIND*	 * F I N D *	<b>Find Button.</b> Scanning this barcode simulates clicking Find on the barcode toolbar.
*OPTIONS*	 * O P T I O N S *	<b>Use ComboBox Selection.</b> Scanning this barcode toggles between the various Use drop-down list selections in the barcode toolbar.

**CAUTION:** If you scan only the letters in barcode without the leading and trailing asterisks, the operation will fail. For example, to represent NEW, you must use this form: \*NEW\*

## **Entering Information from a Barcode Reader**

This section explains how to enter information from a barcode reader into your Siebel application.

### ***To create new records for barcode data***

- 1** On the Barcode toolbar, click New.
- 2** Navigate to the view that is to receive the barcode information.
- 3** If more than one value appears on the Use drop-down list, select the type of information contained in the barcode; for example, an asset number.
- 4** Scan the barcode.

The system creates a new record in the active tab and populates the appropriate field in the new record with the information from the barcode.

- 5** If you want to create multiple records, continue scanning the barcodes.

### ***To update a record with barcode data***

- 1** On the Barcode toolbar, click Update.
- 2** Navigate to the view that is to receive the barcode information.
- 3** If more than one value appears on the Use drop-down list, select the type of information contained in the barcode; for example, a part number.
- 4** Click the tab and select the record that is to receive the number from a barcode.
- 5** Select the record where you want the barcode information to go.
- 6** Scan the barcode.

The system populates the appropriate field in the selected record with the information from the barcode. If the field already has a value, the barcode information replaces it.



## Finding Information With a Barcode Reader

This section explains how to find information in your Siebel application with a barcode reader.

### ***To find a record with barcode data***

- 1** On the Barcode toolbar, click the Find button.
- 2** If more than one value appears on the Use drop-down list, select the type of information contained in the barcode; for example, a repair number.
- 3** Scan the barcode.

If the data exists in the database, the system displays the record that matches the barcode input.

## Setup and Configuration for Barcode Reading

This section describes the setup and configuration procedures for barcode reading.

### Setting Up a Barcode Interface

The FS Barcode Mapping view on the Service Administration screen sets the destinations for barcode data. Based on these mappings, barcode data is copied to specific views, tabs, and fields. The data may create a new record or update an existing record. When mapping barcode data to fields, you add a record for each field that is to receive data from a barcode.

---

**NOTE:** Your Siebel application comes with a complete series of barcode mappings. You do not have to add or change any mappings unless you want to configure custom mappings.

---

To set the destinations for barcode data in specific views, tabs, and fields, use the procedure that follows.

#### **To map barcode data to views, tabs, and fields**

- 1** Choose Site Map > Service Administration > FS Barcode Mapping.
- 2** Add a new record for every field that is to receive barcode data.
- 3** Complete the fields. Some fields are described in the following table.

<b>Field</b>	<b>Description</b>
View Name	View that is to receive the data.
Applet Name	Applet (tab) that is to receive the data.
Field Name	Field that is to receive the data.
Entry Mode	Type of information to receive from the barcode input. Corresponds to the values in the Use drop-down list.
Process Mode	Type of operation that will bring focus to the specified field (New, Update, or Find).

## **Changing the Barcode Font for a Report**

You can change the barcode font in reports that include barcodes. For instructions about how to change the font, see the chapter on global report modifications in *Siebel Reports Administration Guide*.

## Operation of Barcode Reading

This section describes the mechanism of operation your Siebel application uses for barcode reading.

### Barcode Data Destinations

In the New or Update mode for barcode input, the data goes to a specified field or fields in the active view. The end user is responsible for selecting the appropriate view and tab. In the Update mode, the end user must also select the record to update. Barcode mappings specify the views, tabs, and fields where the specified data type (for example, asset number or part number) is added. In the Find mode, Siebel Field Service selects the view, tab, and field for the barcode data.

Barcode mappings specify the views, tabs, and fields where the specified data type is added.

### Barcode Data Processing

In the New or Update mode, your Siebel application follows this process to add barcode data to the database:

- 1** Checks for these settings in the Barcode toolbar:
  - New or Update mode
  - Data type in the Use drop-down list
- 2** Checks in the Barcode Mapping table to determine the following:
  - Whether the barcode data is to update an existing record or create a new record in the selected view
  - Which field the barcode data goes to
- 3** Writes the barcode data to the selected view, tab, and field.

---

**NOTE:** When the system creates new records for barcode data, it also fills in other fields as appropriate; for example, the current date and time.

---

## Barcode Data Searching

In the Find mode, Field Service follows this process to find data that matches input from a barcode:

- 1** Checks for these settings in the Barcode toolbar:
  - Find mode
  - Data type in the Use drop-down list
- 2** Checks in the Barcode Mapping table where the selected data type is defined.
- 3** Searches the database for the data in the view, tab, and field specified in the barcode mapping record.
- 4** If a record exists that matches the barcode data and mapping, displays that record on screen.

## **Barcodes**

*Operation of Barcode Reading*

## **Engines Logging Levels**

# **A**

This appendix provides reference information about logging levels for the engines available in Siebel Field Service as business services.

## Business Service Engines

To facilitate configuration, maintenance, and multi-language support, the following engines within Siebel Field Service are implemented as business services:

- Cycle Counting Engine
- Fulfillment Engine
- Mobile Inventory Transaction Engine
- Part Locator Engine
- Preventive Maintenance Engine
- Replenishment Engine

## Server Component Aliases

As with every component of the Siebel Server, each of these engines has an alias. These aliases are used as parameters in SRVRMGR commands. [Table 140](#) lists the aliases for the server components associated with each engine.

**Table 140. Engine Server Component Aliases**

<b>Engine</b>	<b>Server Component Alias</b>
Cycle Counting	FSCyccnt
Fulfillment	FSFulfill
Mobile Inventory Transaction	FSInvTxn
Part Locator	FSLocate
Preventive Maintenance	FSPrevMnt
Replenishment	FSRepl



## Logging Levels

Each engine has an associated logging level. A *logging level* is a level of detail for automatic event logging when a Siebel application component is running. The logging level is expressed as a number, with higher numbers representing greater levels of detail. [Table 141](#) shows the logging levels and their definitions.

**Table 141. Engine Logging Levels**

Level	Name	Comments
1	Error	Logs anything that goes wrong.
2	Warning	Logs anything exceptional even if it does not stop the operation.
3	Trace	Traces the functioning of the engine. Generates a chronology of events even if they are not errors or warnings.
4	Debug	Generates a very detailed log. Mainly for use by Siebel developers.

The default logging level for each of the engines is 1. If you need more detail in testing or troubleshooting, you can specify a higher logging level for the engine. You can modify the logging level by using one of the following methods:

- **For individual event types.** Navigate to Site Map > Server Administration > Components > Component Event Configuration. For the component selected in the Components list, the Component Event Configuration list shows every type of event that can be logged, and its associated logging level.
- **For all event types.** Invoke the SRVRMGR.EXE command line utility. The command to pass is as follows:

```
change evtloglvl <parameter> = <log level> for comp <parameter>
```

For example,

```
change evtloglvl FSPrevMnt = 3 for comp FSPrevMnt
```

This changes the logging level for all event types associated with the engine.

---

**NOTE:** This command is case insensitive except for the parameter.

---

## **Engines Logging Levels**

---

### *Business Service Engines*

For more information about configuring business services, see the chapter on business services in *Integration Platform Technologies: Siebel eBusiness Application Integration Volume II*.

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## A

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