Siebel

Field Service Guide

January 2023

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Preface

This preface introduces information sources that can help you use the application and this guide.

Using Oracle Applications

To find guides for Oracle Applications, go to the Oracle Help Center at *http://docs.oracle.com/*.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the *Oracle Accessibility Program website*.

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1 What's New in This Release

What's New in This Release

This chapter tracks the changes in the documentation. It includes the following topics:

- *What's New in Siebel Field Service Guide, Siebel CRM 23.1 Update*
- *What's New in Siebel Field Service Guide, Siebel CRM 22.2 Update*
- *What's New in Siebel Field Service Guide, Siebel CRM 20.7 Update*
- *What's New in Siebel Field Service Guide, Siebel CRM 20.6 Update*
- *What's New in Siebel Field Service Guide, Siebel CRM 20.1 Update*

What's New in Siebel Field Service Guide, Siebel CRM 23.1 Update

The following table lists the changes in this revision of the documentation to support this release (23.1) of the software.

Topic	Description
Scheduling Using Oracle Field Service	New topic. It describes how to integrate Siebel CRM with Oracle Field Service, by developing an accelerator in Oracle Integration Cloud and leverage the scheduling capabilities of Oracle Field Service.

What's New in Siebel Field Service Guide, Siebel CRM 22.2 Update

The following table lists the changes in this revision of the documentation to support this release (22.2) of the software.

Topic	Description
About Running Contract Scheduling	Modified topic. The Contract Schedule button is obsolete. Use the Insert Activity button to schedule an appointment.
Configuring the JavaScript Files *Changing Colors for Periods on the Dispatch Board Gantt Chart* *Create a New Color for the Employee Name Text*	Modified topics. In Siebel CRM 21.2 Update, the applicationcontainer directory was replaced by two directories, as follows: • applicationcontainer_external (for Siebel Application Interface) • applicationcontainer_internal (for all other Siebel Enterprise components) For more information, see *Siebel Installation Guide*.

What's New in Siebel Field Service Guide, Siebel CRM 20.7 Update

The following table lists the changes in this revision of the documentation to support this release (20.7) of the software.

Topic	Description
Configuring the Display of Employees on Dispatch Dashboard Gantt Chart	New topic. It describes how to configure the user property to limit the display of number of employees on the Dispatch Dashboard.

What's New in Siebel Field Service Guide, Siebel CRM 20.6 Update

The following table lists the changes in this revision of the documentation to support this release (20.6) of the software.

Topic	Description
Creating a New Time Zoom Interval	Modified topic. It describes how to create a new custom Time Zoom Interval.
Configuring the Applet Control and User Properties	Modified topic. It describes how to configure Applet Control and User properties of the new custom Time Zoom Interval.
Configuring the JavaScript Files	Modified topic. It describes how to configure JavaScript files of the new custom Time Zoom Interval.

What's New in Siebel Field Service Guide, Siebel CRM 20.1 Update

No new features have been added to this guide for this release (20.1). This guide has been updated to reflect only product name changes.

2 Overview of Siebel Field Service

Overview of Siebel Field Service

This chapter provides overview information about Oracle's Siebel Field Service. It includes the following topics:

- *About Field Service Process*
- *Application Design for Siebel Field Service*
- *Engines for Siebel Field Service*
- *Administrative Tasks for Siebel Field Service*

Note: The procedures in this guide assume that you do not use the Tree navigation control option to access screens and view. However, you can choose to use the Tree navigation control if required. For more information setting navigation options, see *Siebel Fundamentals Guide* .

Note: The term *drag-and-drop* is used in relation to certain items in this guide to signify that you can move or relocate the item on the UI using a mouse or similar device. You move the item by first selecting the item and (with the mouse button depressed) then moving the item elsewhere on the UI (where you release the mouse button).

About Field Service Process

The field service process begins with service requests and orders. A *service request* is a customer request for information about or assistance with products or services. For more information about service requests, see *Service Requests and Solutions*.

An *order* is a commitment from the customer to purchase products and services at a specific price. For more information about orders, see *Siebel Order Management Guide* .

Note: The *Siebel Bookshelf* is available on Oracle Technology Network (http://www.oracle.com/technetwork/indexes/documentation/index.html) and Oracle Software Delivery Cloud. It might also be installed locally on your intranet or on a network location.

The field service process typically includes one of the following situations:

- A customer reports a problem to a service center, and the service center dispatches field service engineers to repair the product.
- A customer places an order through a service center, and the service center dispatches field service engineers to install the product.

Separate functional groups such as the service center employees, dispatch employees, field service engineers, and employees who manage service products must share information. Siebel Field Service integrates service center and dispatch information, field activities, and service product information into a single application. Service center agents,

warehouse staff, and field service engineers can use Siebel Field Service to respond to service requests and orders. Siebel Field Service allows users to perform the following tasks:

- Receive service calls.
- Verify service agreements and entitlements.
- Create service requests.
- Search for solutions.
- Create activities for service requests.
- Assign and dispatch field service engineers.
- Track part inventories for inventory depots and trunk stock.
- Manage detailed information about customers.
- Track service product consumption and logistics.
- Manage inventory replenishment.
- Integrate return materials authorizations and service orders.
- Provide field service engineers with complete service details, including the required skills, tools, and parts for service activities.
- Manage repair of defective products.
- Set up and manage preventive maintenance plans.
- Track and analyze service costs.
- Prepare invoices for service and track payments.
- Define characteristics of assets and record readings from equipment (assets) in the field for preventive maintenance, billing, and service.

Note: A customer implementation might not include all the features described in this guide. The CRM modules that a customer purchases determine the features that are available to the customer.

Siebel Field Service contains the following base modules for functions that most service businesses require:

- Account and Contact Management
- Knowledge Management
- Asset Management
- On-Site Services Management
- Call Management
- Service Inventory
- Dispatch Board
- Service Order Management
- Field Activities Management
- Warranty Management

Siebel Field Service contains the following optional modules for functions that services businesses can add to accommodate additional requirements:

- Barcodes
- Repair
- Contract Management

- Shipping and Receiving
- Logistics Management
- Siebel Scheduler
- Preventive Maintenance
- Siebel Pricer
- Quality Management

Service Center Calls

You manage inbound service center calls in the following sequence:

1. Create a service request.
   You can create activities for the service request throughout its life cycle.
2. Verify the service-level agreements for the caller.
3. 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 products to the customer or the field service engineer.
5. Assign activities to a field service engineer who has the appropriate skill set and tools, who has available time, and who located near the service location.

After a call is 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 product inventory on a just-in-time basis. You can issue an invoice for the work to the customer. You can also track pending return material authorizations from customers through receiving the products and manage defective products through the repair cycle.

Numbers for Business Components

In Siebel Field Service, each new business component record (for example, a record for a service request, an order, or an activity) is automatically assigned a unique record ID (for example, a service request number, an order number, or an activity number).

By default, all Siebel Business Applications use the row number for this record ID. The row number is an alphanumeric value that has a segment number followed by a sequential value. For example, the 12-63Q0XT row number has the segment number of 12 and the sequential value of 63Q0XT. To see the row number for any selected record, select About Record from the Help menu. The dialog box that appears contains a value for the row number.

To display alternative values for the record ID, use one of the following 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.)

Dispatch Board

The Dispatch Board is a graphical user interface that allows service 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. Selecting unplanned activities and then moving them to the schedules of field service engineers automatically assigns and schedules these activities.

Siebel Scheduler

Siebel Scheduler provides automatic scheduling of activities and optimization of the 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 and emergency events). Siebel Field Service includes worldwide scheduling capability.

Siebel Scheduler includes the following features:

- Customer service representatives can automatically schedule visits to customers without exceeding current labor capacity. You can schedule appointments that are based on a window of time in hours.
- Siebel Scheduler optimizes deployment schedules by using business-defined constraints (for example, minimizing travel and labor costs) while making sure that you meet contractual commitments. You can schedule high-priority calls 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 such as a vehicle breakdown or unavailable field service engineers.
- Siebel Scheduler can use Assignment Manager to provide an optimized list of field service engineers for assignment to each service request or activity. Siebel Scheduler also provides data about availability of employees to Assignment Manager.
- Schedules are optimized in batch mode. Business-defined criteria determine this optimization.

Mobile Computing Support

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

Siebel Field Service accommodates uncommitted transactions for inventory transfers in the field so that users can track part movements without immediate access to records in the corporate computer. When these transactions are synchronized with a Field Service server, they are committed and recorded in the server database.

Information for Service Products

Siebel Field Service includes information about availability of service products, including installation instructions, operational constraints, warranty information, and manufacturing data. The field service engineer can graphically navigate through the base configuration of any complex product and review the on-site configuration for the customer. Service product comparison and replacement information allows field service employees to quickly identify alternative service products.

Information for Field Service Engineers

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

Activities for Field Service Engineers

When you record a service request, you can define the steps, tools, parts, and skills required to address the service request. You can link information such as safety data, schematics, and technical notes on the products, to the service activities and part data. You can also capture billing information related to an activity at a customer site, including parts, expenses, and labor charges.

Service Inventories

The Service Inventory module helps you to manage service inventory. You can track inventory, including trunk inventory, in real time across locations and businesses, and you can access inventory information from anywhere in the company. Service Inventory provides a Part Browser screen to find products during the return material authorization (RMA) process, the order process, and the dispatch process. The Part Locator Engine provides real-time access to inventory so that users can make accurate and informed decisions about product shipments.

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

Agreements and Siebel Contract Management

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

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

Additionally, Siebel Contract Management allows users to specify the terms of installment payments, renting, leasing, financing, and usage-based pricing. After you establish a service agreement, the recurring, nonrecurring and usage-based charges for the agreement can be automatically invoiced. Users can also track and forecast financial and service revenue information resulting from the sale of service offerings, individual service agreements, and across the service organization overall.

Service providers can use product warranty and off-warranty agreement expiration data to reprioritize service sales resources. Combined with Oracle Business Intelligence Applications, Siebel Contract Management allows 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 you to automatically generate preventive maintenance management services. You can automatically create predefined preventive maintenance service requests and related activities that are based on usage or frequency.

Certain equipment (for example, a photocopier or printer) requires regular maintenance to stay in good condition. Service businesses often provide preventive maintenance services for such equipment. These businesses sometimes include maintenance service in warranty agreements, or sell these services to the customer as part of the service agreement.

Monitoring applications can automatically request maintenance when certain conditions are met (for example, when a meter reading passes a threshold or a fixed time period elapses). These conditions initiate the creation of a service request.

To facilitate preventive maintenance, Siebel Field Service facilitates the collection and processing of asset measurements. Readings manually or automatically taken from equipment in the field are recorded in Siebel Field Service. These readings can come from gauges, counters, or meters attached to assets. You can use this data to automatically create service requests for repairs or preventive maintenance. You can use usage readings for billing on a fee-for-each-use basis.

Shipping and Receiving

Siebel Shipping and Receiving are integrated with Siebel Service Inventory, and track customer orders to shipment. You can manage internal orders to transfer stock between inventory locations and receive return material authorizations (RMAs) and orders, closing the loop with each customer.

Oracle Business Intelligence

Managers can use Oracle Business Intelligence Applications to analyze large volumes of records. The results of this analysis appear in charts and reports. For more information, see *Oracle Business Intelligence Infrastructure Installation and Configuration Guide* , *Oracle Business Intelligence Applications Installation and Configuration Guide* , and *Oracle Business Intelligence Answers, Delivers, and Interactive Dashboards User Guide* .

Project and Resource Management for Siebel Field Service

Siebel Field Service includes resource management, cost tracking, and service project billing features. For more information about these features, see *Siebel Project and Resource Management Administration Guide* .

Reports for Siebel Field Service

You can run preconfigured and custom reports from various screens in Siebel Field Service. When you are in a view, click Reports in the toolbar to see the Run Reports dialog box. From this dialog box, you can select a report for the data in that view. For more information about running reports, see *Siebel Reports Guide* .

Usage of Application Deployment Manager

You use the Application Deployment Manager (ADM) to customize Siebel Field Service. For more information, see *Siebel Application Deployment Manager Guide* .

Application Design for Siebel Field Service

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

Engines for Siebel Field Service

Siebel Field Service includes the following engines:

- **Renewal Engine.** Automatically renews agreement line items.
- **Charge Engine.** Automatically creates charges. The Charge Consolidation Engine can then consolidate these charges.
- **Charge Consolidation Engine.** Automatically generates invoices by using defined charge consolidation plans.
- **Fulfillment Engine.** Analyzes orders, locates the products for each order line item, returns the located products or substitute products to the user, allocates the products, and generates pick tickets.
- **Part Locator Engine.** Analyzes orders, locates the products for each order line item, and returns the located products or substitute products to the user. The user can manually allocate these products and generate the pick tickets.
- **Replenishment Engine.** Selects source and target inventories for needed restocking 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 (or part lists).
- **Preventive Maintenance Engine.** Generates service requests to maintain assets by using 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 engines are implemented as business services. For more information about business services, see *Integration Platform Technologies: Siebel Enterprise Application Integration* . For more information about setting logging levels for these engines, see *Engine Logging Levels*

Administrative Tasks for Siebel Field Service

This topic describes the types of administrative tasks required for Siebel Field Service. This guide and other guides in the documentation set for Siebel Business Applications include instructions for performing these tasks.

The following administrative tasks are required:

- **Implementation and administration.** You must define and structure numerous elements in Siebel Field Service. These elements include currencies, exchange rates, organizations, divisions and positions in your organization, users and their responsibilities, service territories, and so on. For more information about these tasks, see *Siebel Applications Administration Guide* .
- **Product management and administration.** Siebel Field Service includes 2 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 product settings that are tracked in inventory. You can also define price lists and associate the price lists with products. For more information about these tasks, see *Siebel Applications Administration Guide* and *Siebel Pricing Administration Guide* .
- **Marketing administration.** You must define and set up the various elements of marketing information for your implementation. These elements include accounts, contacts, and so on. For more information about these tasks, see *Siebel Marketing User Guide* .
- **Assignment administration.** Assignment Manager allows you to automatically assign the appropriate users to specific tasks. For more information about using Assignment Manager, see *Siebel Assignment Manager Administration Guide* .
- **Templates.** Service and preventive maintenance plans use activity and service request templates to define efficient service calls. For more information about these features, see *Service Requests and Solutions* and *Service Activities*.
- **Agreements and Entitlements.** Service and preventive maintenance plans are based on agreements and entitlements that customers purchase. For more information about service agreements and entitlements, see *Agreements and Entitlements*.
- **Inventory.** You must set up a logical inventory structure and maintain a physical inventory. For more information about these tasks, see *Service Inventories* and *Cycle Counting and Replenishment*.

3 Service Requests and Solutions

Service Requests and Solutions

This chapter describes how service center employees process service calls from customers, set up service requests, and attempt to find immediate solutions. It includes the following topics:

- *About Service Requests*
- *About the Process Flow for Service Requests*
- *Service Request Charts*
- *About Solutions*
- *About Answers*
- *About Siebel Audit Trail*
- *Process of Administering Service Requests*
- *Process of Administering Solutions*
- *Process of Managing Service Requests*
- *Process of Managing Solutions*
- *Process of Managing Answers*

About Service Requests

When responding to a service call, a customer service representative can create a service request. This service request includes all the activities associated with the call and information about the response to the call, such as orders, part movements, and assignments.

Entitlement Selection

For entitlement selection, the Siebel database is searched for entitlements that match the following data in 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 that appears after you click the Verify button for a service request. If no entitlements appear, then the selected service request is not entitled to receive service. After you select an entitlement from the Pick Entitlement dialog box, the committed date and time for the service request is calculated from the service calendar associated with the entitlement and from the response time associated with the entitlement metrics. For more information about configuring the Verify button, see *Changing System Preferences for Entitlements*.

Note: The FS Holiday API Service business service provides APIs to calculate the Commit Time for a service request according to a specific schedule. For example, if you create a service request for a customer call at 4:30 P.M. EST on Friday, and the business requirements mandate a 4-hour response time, then the FS Holiday API Service business service can call the GetResponseTime method to set the Commit Time to 12:30 P.M. EST on Monday. For more information, see *FS Holiday API Service Business Service*.

Date Committed

Date Committed represents the contractual response period for service. Clicking the Verify button determines the value of the Date Committed field for a service request. The committed date and time are calculated by using the Date Opened field, the response time metric, and the service calendar (schedule hours and exception hours). The result appears in the Date Committed field. The Date Committed field value for the service request populates the Due field for activities in the service request.

The committed time allows the agent either to schedule an event in acceptable time frames, defined by the service calendar, or to tell the customer that a requested event is outside of the service calendar and is therefore billable.

Activities associated with a service request directly (in the Activities view) and indirectly (in the Activity Plans view) inherit the date and time in the Date Committed field.

Note: If the response time metric used to calculate the Date Committed field value is not correctly defined in the Metrics view of the Entitlements screen, then the Date Committed field value is not calculated. For more information, see *Adding Metrics for Entitlements (End User)*.

Assign Command

The Assign menu command produces a dialog box containing a list of field service employees who are ranked using administrative criteria. You select the employee who is best suited for ownership of the selected service request.

The Assign menu command activates Assignment Manager in interactive mode to provide a ranked list of field service engineers who are qualified and available to work on a service request. Assignment Manager can also run in dynamic and batch modes for any Assignment objects, including Accounts, Opportunities, and Campaigns. For more information about mobile users and Assignment Manager, see *Siebel Assignment Manager Administration Guide* .

Assignment Manager evaluates employees for assignment by using the following rules:

- **Check calendar.** If this option is enabled, then an employee must have calendar availability to perform the task. Calendar availability is based on the assignment rule, the Earliest Start field and Latest Start field for a schedule, and the Duration field for an activity. If the employee is not available, then the employee is removed from the list of candidates.
- **Assignment availability.** Assignment Manager passes a list of potential employees to the Appointment Booking System (ABS). The ABS checks the service schedules (including the geographic service region assignments) for the employees and the activities already on their calendars. The ABS then returns the list of available employees to Assignment Manager. In an optional step, Assignment Manager can request that the ABS create and schedule a new activity for the selected employee. For more information about the ABS, see *Scheduling Using Siebel Scheduler*.

- **Workload.** For each specified workload rule, the number of activities assigned to the employee that meet all of the workload criteria is calculated. This number is reduced by the maximum workload. This result is used to generate a score that is inversely proportional to the workload rule weight [workload score = weight * (1 – (current workload/maximum workload)]. For example, if the workload rule is for Unassigned and Critical Service Requests, and if the maximum workload for this rule is 10 and the weight for this workload is 20, then an employee workload of 10 or greater receives a score of zero, and an employee with a workload of 2 receives a score of 16.
- **Attribute match.** For each specified condition, the criteria are evaluated. If a condition is met, then the score equals the specified weight. Otherwise, the score is zero. If the condition is not met, and the condition is required, then the total score for that employee or position is zero.
- **Expertise weighting.** For each condition that uses advanced weighting, the score for the condition is adjusted by using the advanced weighting criteria. For the employee column that is matched, the expertise for that attribute type is also applied. For example, if a condition specifies a product (product expertise) match, with a weighting of 15, and expertise weightings of Expert, Intermediate, and Novice are 3, 2, and 1, respectively, then the resulting scores for this factor are 15, 10, and 5, respectively.

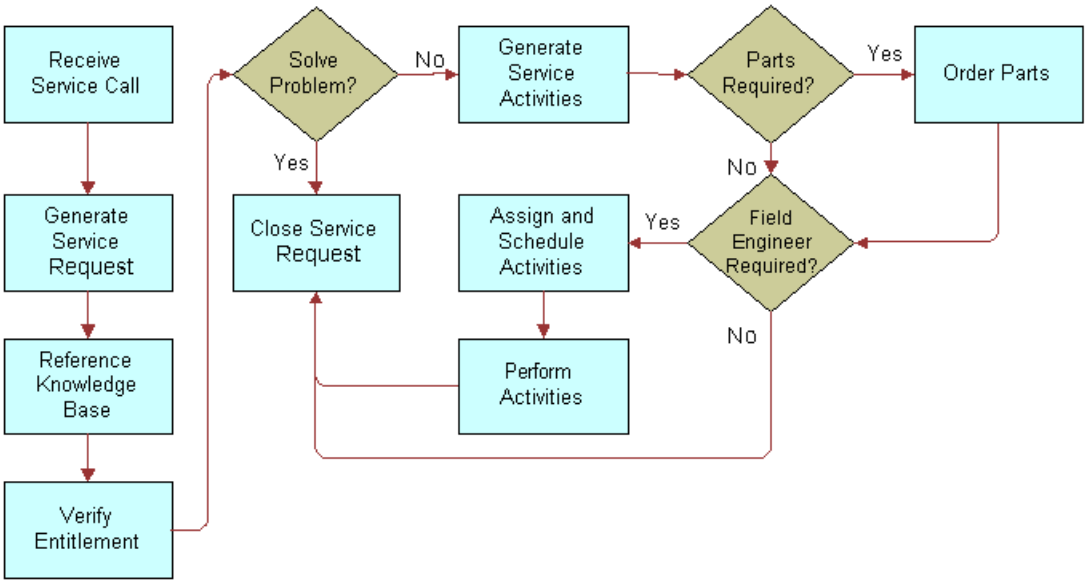
The total score for an employee is a sum of the scores for each individual factor, modified by the factors that override the total score and set the score to zero (check calendar, required attribute matches, and so on). The highest score represents the best employee for assignment.

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

> **Note:** You can see all assignment rules by navigating to the Administration - Assignment screen. For more information, see *Siebel Assignment Manager Administration Guide* .

About the Process Flow for Service Requests

The following figure shows the process flow for managing a service request from a customer.



This process flow includes the following steps:

1. Receive a request for service.
2. Generate a service request.
3. Verify the request by confirming the following information:
    - The account
    - The caller (contact)
    - Assets
    - Entitlements for service
    - Warranties
4. Try to solve the problem by using known solutions.
5. If known solutions do not solve the problem, then generate activities for service.
6. Order parts, if needed.
7. Schedule a field service engineer, and assign activities to that field service engineer, if needed. For more information, see *Scheduling Using Siebel Scheduler* and *Dispatch Board*.
8. Perform the activities.
9. Close the service request.

Service Request Charts

The following table lists the descriptions of the charts in the Agent Charts view for service requests.

Chart	Description
Aging Analysis by Priority	The duration of a service request as a function of priority.
Aging Analysis by Product	The duration of a service request as a function of product.

Chart	Description
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.
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 for each calendar period.
New Service Requests by Owner	The number of new service requests assigned to a field service engineer for each calendar period or for each product.
New Service Requests by Product	The number of new service requests for each product for each 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	This chart contains the following graphs: • The number of service requests as a function of severity. • The number of service requests as a function of priority.
Status and Area Analysis	This chart contains the following graphs: • The number of service requests as a function of status. • The number of service requests as a function of field service product area.
Symptom and Resolution Analysis	This chart contains the following graphs: • The number of service requests as a function of symptom. • The number of service requests as a function of resolution.
Trend Analysis by Product	The number of service requests for each product as a function of calendar period.

Chart	Description
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 route (email, phone, and so on) as a function of calendar period.
Trend Analysis by Status	The number of service requests with a status as a function of calendar period.

About Solutions

For many new service requests, customer service representatives previously resolved similar problems. To minimize costs and maximize the effectiveness of a service center, an organization can reuse the solutions for previously resolved problems. You can store, organize, associate, and search a knowledge base for resolutions successfully used for similar problems or for published solutions of potential problems.

After you successfully resolve a problem, you can associate the solution with the service request so that the solution information is available if the customer later reopens the service request. Also, you record the solution so that you can resolve similar service requests without extensive research. You might find an existing service request, solution, or resolution document that provides information relevant to another service request that you are investigating, and you can quickly review the information and associate it with your service request.

Note: You can configure full text search of service requests. For more information about configuring the search engine for service requests, see *Siebel Search Administration Guide* .

About Answers

Sometimes customer service representatives must answer a customer inquiry to resolve a problem that is associated with a service request. Oracle Knowledge includes a database of information that customer service representatives can use to find answers to customer inquiries. Oracle Knowledge uses a patented Intelligent Search technology to search unstructured content, structured data sources, and transactional business applications in parallel. The Oracle Knowledge technology can automatically incorporate customer context and call context in the search for answers to customer inquiries.

To use Oracle Knowledge functionality in Siebel Field Service, you must integrate Oracle Knowledge with Siebel Field Service. For information about completing this integration, see *Oracle Knowledge iConnect for Siebel Contact Center Integration Guide* on the Oracle Knowledge bookshelf on Oracle Technology Network.

The user interface for Oracle Knowledge is embedded within Siebel Field Service and is designed to maximize the productivity of customer service representatives and to improve call-resolution rates. The answers are more than just links to source content. They also include relevant excerpts that have a high probability of answering the inquiry.

The user interface for Oracle Knowledge significantly streamlines the call wrap-up process by automatically providing embedded links to associate the correct enterprise knowledge with each resolution task for a service request.

About Siebel Audit Trail

Siebel Audit Trail creates a history of the changes to service requests. An audit trail record shows the performed operation, the date and time of the operation, and the change to the value. Therefore, Siebel Audit Trail is useful for examining the history of a service request. Siebel Audit Trail logs information without requiring any interaction with, or input from, users.

By using Siebel Audit Trail, your users can determine the employee who modified a certain field and the data that changed. An audit trail record is created for each status change. This record includes a time stamp and the ID of the user who made the change.

For Siebel Remote users who change records, Siebel Audit Trail works for every Siebel Web deployment and configuration option, including synchronization. Audit trail records show not only successfully committed transactions, but also transactions that are not synchronized to the server because of conflicts.

Audit trail data is written directly into the Siebel database, supporting both remote users and replicated databases. Changes to a Siebel Audit Trail field are cached in the Siebel application. Exiting from a Siebel application and restarting it writes all cached changes to the Siebel database. Alternatively, when the cache size is reached, all cached entries are automatically written to the Siebel database even when a user does not exit from the Siebel application.

Note: Siebel Audit Trail supports the Service Requests and Asset Mgmt - Asset business components.

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

Siebel Audit Trail Content

Siebel Audit Trail records the following information:

- Field
- Row ID of the changed record
- Performed operation (for example, Update, New, Delete, or Copy)
- Original value
- Changed value
- User ID for the user who performed the operation
- Date and time the operation was performed

Siebel Audit Trail for Remote Users

The following information applies to remote users:

- Disconnected users cannot view audit trail records. However, after they synchronize with the server, audit trail records are created on the server for their transactions.

- Information that is used to create audit trail records is synchronized, but the records are not synchronized.
- If the transaction is rejected during the conflict resolution, then the corresponding audit trail record is also rejected.

Note: It is recommended that you do not change the Audit Trail business service.

Process of Administering Service Requests

The following list shows the tasks that administrators typically perform to administer service requests. Your company might follow a different process according to its business requirements.

To administer service requests, administrators perform the following tasks:

- Create service activity templates. For more information, see *Creating Activity Templates* and *Adding Information to Activities in Activity Templates*.
- Set up service metrics. For more information, see *Setting Up Service Metrics*.
- Set up the default date and time for the Opened field in new service requests. For more information, see *Setting Default Date and Time for Opened Field*.

Setting Up Service Metrics

You can set up service metrics for service requests. A metric provides a benchmark to measure performance for a service request.

Note: You name service metrics in the Service Metrics view, but you define service metrics in detail in the Entitlement Templates view. After you define entitlements and service metrics, users can associate an entitlement with a service request. For more information, see *Defining Metrics for Entitlement Templates* and *Selecting Entitlements for Service Requests (End User)*.

This task is a step in *Process of Administering Service Requests*.

To set up a service metric

1. Navigate to the Administration - Service screen, then the Service Metrics view.
2. Create a new service metric record, and complete the fields as appropriate.

Setting Default Date and Time for Opened Field

The Post Default Created Date To Date Saved user property in the Service Request business component controls the behavior of the Opened field in new service requests. For more information about user properties, see *Using Siebel Tools* .

The values for the Post Default Created Date To Date Saved user property follow:

- **TRUE (Default).** Sets the value in the Opened field of a new service request (the creation date and time) to the date and time when a user first saves the record (when the record is committed to the Siebel database).

This setting can help your organization to meet its service-level commitments. If the Opened field on a service request displays the time and date a user opens it, instead of the time and date that a user first saves it, then the service request ages by the length of time that it takes the user to enter the service request data before a customer service representative (CSR) can see the service request in Siebel Field Service. If Siebel Field Service uses the time when (and not before) a user completes and saves the service request, then your service personnel can use the fully allotted time to respond to service requests.

For example, a customer has a 24x7 entitlement with a 1-hour response time metric. This customer enters a service request in Siebel Field Service. Note that 30 minutes elapse from the time this customer opens and begins entering a service request until the time the customer completes and saves it. If the time in the Opened field is when the customer first created the service request, then your company CSRs must respond in only 30 minutes. If the time in the Opened field is when the service request is committed to the Siebel database, then your company must respond in 1 hour.

This setting can, however, set the value of the Opened field later than the Last Updated field because the value for the Last Updated field is set when a user creates the record, but not when a user first saves it.

- **FALSE.** Sets the value of the Opened field of a new service request to the date and time when a user first creates the record. If your company business process mandates that the time for a service request starts from when a CSR starts answering a customer call, then use this setting.

This task is a step in *Process of Administering Service Requests*.

To set the default date and time for the Opened field

1. Log in to Siebel Tools as an administrator.
2. Lock the appropriate project for editing.
3. In the Object Explorer, navigate to Business Component.
4. Query for the Service Request business component.
5. Navigate to Business Component, then Business Component User Prop.
6. Query for the Post Default Created Date To Date Saved user property.
7. In the Value field, enter the appropriate value.

Process of Administering Solutions

The following list shows the tasks that administrators typically perform to administer solutions. Your company might follow a different process according to its business requirements.

To administer solutions, administrators perform the following tasks:

- *Creating Solution Records*
- *Associating Additional Information with Solutions*
- *Allowing Editing of Resolution Documents*

Creating Solution Records

Solution records contain information that employees can use to resolve service requests. Administrators create solution records in the Administration - Solution screen. Users can view these records in the Solutions screen.

This task is a step in *Process of Administering Solutions*.

To create a solution record

1. Navigate to the Administration - Solution screen, then the Solutions view.
2. Create a new solution record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
FAQ	Type frequently asked questions that relate to the solution.
Publish Internal	Select this check box to indicate the information is available to internal users. The solution does not appear in solution lists that customers view on the Web, but appears on internal solution lists.
Publish External	Select this check box to indicate the information is available to external users. The solution appears both in solution lists that customers view on the Web and on internal solution lists.

3. Drill down on the Name field for the solution record, and click the Resolution Documents view tab.
4. Create a new resolution document record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
File Name	Displays the name of the resolution document that you select. This document contains details about the solution. In the Administration - Resolution Documents screen, administrators set up the resolution documents that you can select.
Description	Displays a description of the resolution document that you select.

Associating Additional Information with Solutions

After you create a solution, you can associate additional information with the solution. This information includes service requests, change requests, solution categories, and other solutions that relate to the solution. Solution categories contain information relevant to a solution.

This task is a step in *Process of Administering Solutions*.

To associate additional information with a solution

1. Navigate to the Administration - Solution screen, then the Solutions view.

2. Drill down on the Name field for a selected solution.
3. To associate additional information with the solution record, complete the following steps:
    a. Click the Service Requests view tab, create a new service request record, and complete the fields as appropriate.
    b. Click the Change Requests view tab, create a new change request record, and complete the fields as appropriate.
    c. Click the Solution Categories view tab, create a new solution record, and complete the fields as appropriate.
    d. Click the Related Solutions view tab, create a new related solution record, and complete the fields as appropriate.

Allowing Editing of Resolution Documents

Resolution documents are, by default, read-only. Perform the following procedure to allow administrators to edit these documents in the Administration - Solution screen.

This task is a step in *Process of Administering Solutions*.

To allow editing of resolution documents

1. Log in to Siebel Tools or Web Tools as an administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. In the Object Explorer, navigate to Applet.
4. Query for the SR Resolution Item List Frame applet.
5. Navigate to Applet, List, and then List Column.
6. Select the ResFileName list column, and clear the check in the Read Only field.
7. Deliver the changes to the Integration Branch.
8. Navigate to the Administration - Solution screen to test document editing.

Process of Managing Service Requests

The following list shows the tasks that end users typically perform to manage service requests. Your company might follow a different process according to its business requirements.

To manage service requests, end users perform the following tasks:

- *Viewing Account Information (End User)*
- *Creating Service Requests (End User)*
- *Selecting Entitlements for Service Requests (End User)*
- *Associating Activities with Service Requests (End User)*
- *Associating Change Requests with Service Requests (End User)*
- *Adding Assets to Service Requests (End User)*
- *Creating Orders for Service Requests (End User)*

- *Generating Quotes for Service Requests (End User)*
- *Viewing Part Movements for Service Requests (End User)*
- *Viewing Metrics for Service Requests (End User)*
- *Researching Service Requests (End User)*
- *Resolving Service Requests (End User)*

Viewing Account Information (End User)

When creating a service request for an account, you might want to review information about contacts for the account, the service profile of the account, agreements and entitlements that apply to the account, and other account information. For more information about using the Accounts screen, see *Siebel Applications Administration Guide* .

This topic contains the following related information:

- *Viewing Contacts and Service Profiles for Accounts*
- *Viewing Agreements and Entitlements for Accounts*
- *Viewing Other Information for Accounts*

This task is a step in *Process of Managing Service Requests*.

Viewing Contacts and Service Profiles for Accounts

You can view the service profile for the account. This profile contains information about the products and assets that are associated with the account. You can also view information about the customer contacts who handle an account. For more information about using the Contacts view, see *Siebel Fundamentals* .

To view the contacts and the service profile for an account

1. Navigate to the Accounts screen, then the Accounts List view.

   Some fields are described in the following table.

Field	Comments
Account Name	Displays the name of the account.
Organization	Displays the organization for the account. The organization limits the visibility of data. If you select All Accounts Across Organizations in the visibility filter, then the accounts for all organizations appear. For more information about setting up organizations, see *Siebel Security Guide* . If you own a record, then you can see it when you select My Accounts in the visibility filter, even if the record does not apply to your organization. However, you do not see the record when you select All Accounts in the visibility filter if the record does not apply to your organization.

2. Drill down on the Account Name field for a selected account.

   The Contacts view shows the contacts for the account.
3. Click the Service Profile view tab.

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

Viewing Agreements and Entitlements for Accounts

You can view information about agreements and entitlements for an account. For more information about using the Agreements view, see *Agreements and Entitlements*

To view the agreements and entitlements for an account

1. Navigate to the Accounts screen, then the Account List view.
2. Drill down on the Account Name field for a selected account record, and click the Agreements view tab.

   Some fields are described in the following table.

Field	Comments
Primary	Displays a check in the check box to indicate the agreement is a primary agreement for the selected account. This field is for information only, and does not affect other fields or functions.
Type	Displays the type of agreement. Values include Service Level Agreement and Price Protection.
Start	Displays the date that the agreement is effective.
End	Displays the date that the agreement is no longer effective.
Valid	Displays a check in the check box to indicate the agreement is an active agreement. An active agreement can appear in the list that appears when you click the Verify button. For more information, see *Entitlement Selection*.

3. Click the Entitlements view tab.

   Some fields are described in the following table.

Field	Comments
Current Qty	Displays the current quantity that the entitlement covers.
End	Displays the date that the entitlement is no longer effective.
Agreement	Displays the agreement that is associated with the entitlement.
Initial Quota	Displays the initial quantity that the entitlement covers.

Field	Comments
Start	Displays the date that the entitlement is effective.

Viewing Other Information for Accounts

You can view other information, such as service requests, billing information, shipping information, and invoices, for an account.

To view other information for an account

1. Navigate to the Accounts screen, then the Account List view.
2. Drill down on the Account Name field for a selected account record.
3. To see more information about the account, complete the following steps:
   a. Click the Service Requests tab to view the service requests for the account.
   b. Click the Bill To/Ship To view tab to view the billing and shipping information for the account.
   c. Click the Invoices view tab to view the invoices for the account.

Creating Service Requests (End User)

To respond to a request for service, you create a service request and attempt to resolve the problem. If you cannot resolve the problem, then you can set up service activities, select and schedule the engineers to perform the activities, and inform the engineers of their assignments.

This task is a step in *Process of Managing Service Requests*.

To create a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Create a new service request record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Status	Displays a status of Open. The state model controls the behavior of this field. For more information about the state model, see *Siebel Business Process Framework: Workflow Guide* .
Substatus	Displays a substatus of Unassigned. The state model controls the behavior of this field.
Account	Select the appropriate account for the service request. Accounts can include multiple addresses. Make sure that you select the account with the correct address.
Recommendation	Select the next action to take for the service request. Values include:

Field	Comments
	○ **Dispatch.** Creates service activities by associating an activity plan template with the service request. You can configure the activity plan name in the SR Recommendation workflow. ○ **Escalate.** Creates a new repair order that inherits the values from the following service request fields: Product, Asset, Return to Account, Price List, and Rate List. ○ **Return.** Creates a new order line item and a new repair order (with an RMA Return type) that inherits the values from the following service request fields: Account, Contact, Price List, Entitlement, and Order ID. **Note:** You must activate the SR Recommendation workflow to use the Recommendation field.
Entitlement	Displays an entitlement name. This entitlement provides special terms for billing the labor, expenses, and parts for this service request and provides the date and hours when the customer is entitled to service.
Date Opened	Displays the date and time that you create the service request. Depending on the Post Default Created Date to Date Saved user property setting, this date and time is when you first save the service request or when you first open it. For more information, see *Setting Default Date and Time for Opened Field*.
Date Committed	Select the date and time that you expect the service request to close. Selecting an entitlement automatically generates a value for this field by using the response time in the service request metrics, the service calendar, and the requested date the service. Activities associated with the service request inherit the Date Committed field value. The Date Committed field value in the service request appears in the Due field for activities of the service request. For more information, see *Date Committed*.
Date Closed	Displays the date and time that you actually close the service request.
Billable	Select this check box to indicate the activities and orders associated with the service request are billable to the account. If you select this check box, then the billable check box for the activities and orders associated with the service request is automatically selected. If you select this check box, and clear the billable check box for the activities and orders associated with the service request, then the activities and orders are not billed to the account, unless an entitlement overrides the billable flag for the activity.
Organization	Displays the organization for the service request. The organization limits the visibility of data. If you select All Service Requests Across Organizations in the visibility filter, then the service requests for all organizations appear. For more information about setting up organizations, see *Siebel Security Guide* . If you own a record, then you can see it when you select My Service Requests in the visibility filter, even if the record does not apply to your organization. However, you do not see the

Field	Comments
	record when you select All Service Requests in the visibility filter if the record does not apply to your organization.

3. Drill down on the SR number (#) field for a selected service request, and click the Service Details view tab.
4. Complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Symptoms	Select a description of the symptom that initiated the service request. A service request can be associated with multiple symptoms. A customer can report some symptoms as part of a service request, a field service engineer can report other symptoms as part of an activity, and a repair person can report other symptoms as part of a repair activity. All the reported symptoms appear in the dialog box that appears when you click the select button in this field because the symptoms are stored in an intersection table that also stores the activity and the service request ID.
Service Region	Select the service region that is associated with the service request. Activities for this service request inherit this service region. The Appointment Booking System and Optimizer require a service region. For more information, see *Scheduling Using Siebel Scheduler*.

Selecting Entitlements for Service Requests (End User)

Entitlements contain information about the level of service for a customer. For a service request, you can select only the entitlements that match the data in the service request. For more information, see *Entitlement Selection*.

This task is a step in *Process of Managing Service Requests*.

To select an entitlement for a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Select a service request that includes an associated account or contact.
3. In the menu bar, click one of the following buttons:

   - **Verify.** The Pick Entitlement dialog box appears showing only entitlements that match specific data in the service request. If no entitlements appear, then the selected service request is not entitled to receive service. For more information, see *Entitlement Selection*.
   - **Verify Best Time.** The Pick Entitlement dialog box appears showing, of the entitlements that match specific data in the service request, only the entitlement with the earliest date committed. If no entitlement appears, then the selected service request is not entitled to receive service.

   These buttons call a workflow. For more information, see *Workflows for Entitlement Creation and Verification*.

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

Entitlements also contain information about the valid hours for completing service requests. After you select an entitlement for a service request, you can view the valid hours for completing the service request.

To view the valid hours for completing a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Service Hours view tab.

   Shaded areas represent service times.

Associating Activities with Service Requests (End User)

Service requests are frequently associated with activities to perform to resolve problems for customers.

This topic contains the following related information:

- *Associating Activity Plans with Service Requests*
- *Associating Activities with Service Requests Manually*

This task is a step in *Process of Managing Service Requests*.

Associating Activity Plans with Service Requests

In the Activity Plans view, you can select an activity template to automatically associate the activities in the template with a service request. Engineers work on these activities to resolve the service request. For more information about activity plans and activity templates, see *Service Activities*

To associate an activity plan with a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Activity Plans view tab.
3. Create a new activity plan record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Planned Start	Select the date and time to begin the activities to resolve the service request. The default value is the date and time that the record is created.
Template	Select a template that contains a set of activities for recurring tasks.
Lock Assignment	Select this check box to indicate Assignment Manager cannot assign activities created as part of this activity plan.

Associating Activities with Service Requests Manually

You can manually associate activities with service requests, and then add information to the activities. This information includes the recommended steps that field service engineers can perform to complete the activity, additional instructions about the activity, items (such as parts and tools) that field service engineers need to complete the activity, and the skills (such as language proficiency and product knowledge) that field service engineers must possess to complete the activity.

Assignment Manager uses the skills for an activity to assign the activity to the appropriate employee. For more information about Assignment Manager and about setting up the skills that you can assign to an activity, see *Siebel Assignment Manager Administration Guide* .

To manually associate an activity with a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Activities view tab.
3. Create a new activity record, and complete the fields as appropriate.
4. Drill down on the Type field for the activity.
5. To add more information to the activity record, complete the following steps:
    a. Click the Service Activity Steps view tab, create new step records, and complete the fields as appropriate.
    b. Click the Service Activity Instructions view tab, create a new instructions record, and complete the fields as appropriate.
    c. Click the Service Activity Items view tab, create a new item record, and complete the fields as appropriate.
    d. Click the Assignment Skills view tab, create a new skill record, and complete the fields as appropriate.

Associating Change Requests with Service Requests (End User)

You can associate a change request with a service request. A change request might contain information about a manufacturing defect in a component that is associated with a service request.

This task is a step in *Process of Managing Service Requests*.

To associate a change request with a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Change Requests view tab.
3. Click Add, and select a change request in the Add Change Request dialog box.

    In the dialog box, you can create a new change request. For more information about creating change requests, see *Generating Change Requests from Service Requests*.

Adding Assets to Service Requests (End User)

You can add an asset to a service request. For more information about managing defective assets, see *Quality Management*.

Note: You can directly associate a service request with only 1 asset. However, to associate a service request with multiple assets, you can associate the service request with multiple activities, and then associate each activity with a different asset.

This task is a step in *Process of Managing Service Requests*.

To add an asset to a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request that is not associated with an asset, and click the Activities view tab.
3. Drill down on the Type field for a selected activity, and click the More Info view tab.
4. In the Asset number (#) field, enter or select the number for the additional asset.

Creating Orders for Service Requests (End User)

An engineer might need additional parts to complete an activity for a service request. You can create an order for the service request to obtain these needed parts.

This task is a step in *Process of Managing Service Requests*.

To create an order for a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Orders view tab.
3. Create a new order record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Type	Select the type of order.
Approved	Select this check box to indicate the order is approved. This field is for information only and does not affect other fields or functions.

Generating Quotes for Service Requests (End User)

To determine the estimated cost of completing a service request, you can generate a quote. The quote lists the costs to complete a service request, and includes labor hours and part prices. The part prices are based on the recommended parts needed to complete the activities that are associated with the service request. For more information about generating invoices for service requests, see *Creating Invoices Manually (End User)* and *Creating Invoices Automatically (End User)*.

This task is a step in *Process of Managing Service Requests*.

To generate a quote for a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Service Details view tab.
3. Click Auto Quote.

   If the button is disabled, then make sure the Price List and Rate List fields in the Service Details view contain data.

   A quote line item appears in the Quotes view.
4. To view the quote, drill down on the Name field.

   Note: The quote line items for labor are not priced.

Viewing Part Movements for Service Requests (End User)

Employees can move parts in the field so that the parts are available to complete the activities in service request. You can view these part movements for a service request.

This task is a step in *Process of Managing Service Requests*.

To view field part movements for a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Activities view tab.
3. Drill down on the Type field for a selected activity, and click the Part Tracker view tab.

Viewing Metrics for Service Requests (End User)

A metric provides a benchmark to measure performance for a service request. Before you can view the metrics for a service request, you must verify the entitlement for the service request. For more information, see *Verifying Entitlements for Service Requests (End User)*.

Administrators define service metrics in the Metrics view in the Entitlement Templates view of the Administration - Contracts screen. For more information, see *Agreements and Entitlements*

This task is a step in *Process of Managing Service Requests*.

To view the metrics for a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Metrics view tab.

Researching Service Requests (End User)

Complete the tasks in this topic to research service requests.

This topic contains the following related information:

- *Generating Correspondence for Service Requests*
- *Associating Service Requests with Related Service Requests*
- *Viewing Change Requests for Products*
- *Associating Decision Issues with Service Requests*

This task is a step in *Process of Managing Service Requests*.

Generating Correspondence for Service Requests

Periodically, you might want to generate correspondence, such as an email message, to communicate with other people about issues for a service request. For more information about correspondence, see *Siebel Applications Administration Guide* .

To generate correspondence for a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Select a service request for which you want to generate correspondence.
3. Select File, then Send Email.
4. In the Pick Recipients dialog box, select the contact associated with the selected service request, and click OK.

   Note: The selected service request is not associated with any additional contacts added to the Recipients list for service request-related correspondence.

5. In the Send Email dialog box, complete the fields as appropriate.
6. Click Send.

Associating Service Requests with Related Service Requests

While researching an issue for a service request, you might find another service request that relates to the issue. You can associate this other service request to your service request so that this additional information is readily available from your service request.

To associate a service request with a related service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Related SRs view tab.
3. Create a new related service request, and complete the fields as appropriate.

Viewing Change Requests for Products

While researching a service request, you might want to view change requests that are associated with the product in the service request.

To view the change requests for a product

1. Navigate to the Products screen, then the Internal Product List view.
2. Drill down on the Product field for a selected product, and click the Change Requests view tab.

Associating Decision Issues with Service Requests

Decision issues are explanations that can help to resolve service requests. You can use these explanations in your company, and you can provide them to customers. You associate a decision issue with your service request so that this information is readily available from your service request.

To associate a decision issue with a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Decision Issues view tab.
3. Create a new decision issue record, and complete the fields as appropriate.
4. To see more information related to the decision issue, drill down on the Name field for the decision issue, and complete the following steps:

    a. Click the Attachments view tab to view attachments related to the decision issue.
    b. Click the Literature view tab to view literature related to the decision issue.
    c. Click the Related Issues view tab to view other issues related to the decision issue.

Resolving Service Requests (End User)

Complete the tasks in this topic to resolve service requests.

This topic contains the following related information:

- *Recording Resolutions for Activities in Service Requests*
- *Closing Service Requests*
- *Conducting Customer Satisfaction Surveys*

This task is a step in *Process of Managing Service Requests*.

Recording Resolutions for Activities in Service Requests

After you complete and resolve an activity in a service request, you can record this resolution in a service request.

To record a resolution for an activity in a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Activities view tab.
3. Drill down on the Type field for the selected activity, and click the More Info view tab.
4. In the Resolution field, select a resolution.

Closing Service Requests

After you complete all of the work associated with a service request, you can close the service request.

> **Note:** After closing a service request, the record is read-only. You must change the status of a service request back to Open before you can change the record.

To close a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Select the service request you want to close, then in the Status field, select Closed.

    The Substatus field changes to Resolved, and the date and time in the Closed field is set to the current date and time.

Conducting Customer Satisfaction Surveys

After you close a service request, you can record (in a customer satisfaction survey) customer responses to questions about the effectiveness of service. These responses determine a customer satisfaction score.

To conduct a customer satisfaction survey for a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Surveys view tab.
3. Create a new survey record, and complete the fields as appropriate.

Process of Managing Solutions

The following list shows the tasks that end users typically perform manage solutions. Your company might follow a different process according to its business requirements.

To manage solutions, end users perform the following tasks:

- *Viewing Solution Records (End User)*
- *Associating Solutions with Service Requests (End User)*
- *Adding Information to Solutions (End User)*

Viewing Solution Records (End User)

Solution records contain information that you can use to resolve service requests. Administrators create solution records in the Administration - Solution screen.

This task is a step in *Process of Managing Solutions*.

To view a solution record

1. Navigate to the Solutions screen, then the Solutions view.
2. Drill down on the Name field for a selected solution, and click the Resolution Documents view tab.
3. Drill down on the Filename field for a selected resolution document.

Associating Solutions with Service Requests (End User)

To expedite the resolution of a service request, you can associate a solution record with the service request. Also, you might associate a solution with a service request so that the solution information is available if the customer later reopens the service request.

This task is a step in *Process of Managing Solutions*.

To associate a solution with a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Solutions view tab.
3. Create a new solution record, and complete the fields as appropriate.

You can drill down on the Name field for the record to view more information about the solution.

Adding Information to Solutions (End User)

After you view a solution, you can add information to the solution. This information includes service requests, change requests, customer satisfaction surveys, and other solutions that relate to the solution.

Customer satisfaction surveys contain customer responses to questions about the effectiveness of service. These responses determine a customer satisfaction score.

This task is a step in *Process of Managing Solutions*.

To add information to a solution

1. Navigate to the Solution screen, then the Solutions view.
2. Drill down on the Name field for a selected solution.
3. To add information to the solution record, complete the following steps:
    a. Click the Service Requests view tab, create a new service request record, and complete the fields as appropriate.
    b. Click the Change Requests view tab, create a new change request record, and complete the fields as appropriate.
    c. Click the Customer Satisfaction Survey view tab, create a new survey record, and complete the fields as appropriate.
    d. Click the Related Solutions view tab, create a new related solution record, and complete the fields as appropriate.

Process of Managing Answers

The following list shows the tasks that end users typically perform to manage answers. Your company might follow a different process according to its business requirements.

To manage answers, end users perform the following tasks:

- *Configuring the Find Answers View (End User)*
- *Reviewing Answers for Service Request Inquiries (End User)*
- *Finding Answers for Service Request Inquiries (End User)*
- *Associating Answers with Service Request Inquires (End User)*
- *Adding Answers to Service Request Inquiries (End User)*
- *Requesting Answers for Service Request Inquiries (End User)*
- *Viewing Linked Content for Service Request Inquiries (End User)*

Configuring the Find Answers View (End User)

You can configure the following options in the Find Answers view:

- **Show Excerpts.** Select this option to show excerpts for the answers in the Search Results list. For a more efficient review of search results, you can scan these excerpts instead of drilling down on the answer links to view the answers in the Oracle Knowledge Information Manager.
- **Show Left Column.** Select this option to show the Filter Search Results pane. You can click the links in this pane to further restrict the answers that appear in the Search Results list. The number in parentheses after a link indicates the total number documents associated with that link value in its associated category.
- **Show Right Column.** Select this option to show the My Recent Searches pane and the Search Feedback pane. You can click the links in the My Recent Searches pane to see the results of your recent searches in the Search Results list. You can click the asterisk (the star icon) in the Search Feedback pane to comment about the usefulness of the answers that appear in the Search Results list.
- **Autoshow Search Config.** Select this option so that when you click in the Search field, the dialog box for configuring searches automatically appears. You do not have to click the Search Config button to see this dialog box.

This task is a step in *Process of Managing Answers*.

To configure the Find Answers view

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Find Answers view tab.

   The Search Results list shows the answers in Oracle Knowledge that might apply to the service request inquiry.
3. Click Preferences (the button with a cogged wheel).

   The options for the current configuration of the Find Answers view appear. An option with a check is currently configured, and an option with an X is not currently configured.
4. Click each option that is not configured to configure it, and click each option that is configured to delete its configuration.
5. Click Preferences again.

   The options for the current configuration of the Find Answers view no longer appear.

Reviewing Answers for Service Request Inquiries (End User)

The Search Results list shows the answers in Oracle Knowledge that might apply to the service request inquiry. Oracle Knowledge uses the text in the Summary field of the service request obtain these possible answers. You review these possible answers to determine the answer that applies to the service request inquiry. Then you associate that answer with the service request inquiry. For more information, see *Associating Answers with Service Request Inquires (End User)*.

This task is a step in *Process of Managing Answers*.

To review the answers for a service request inquiry

1. Navigate to the Service screen, then the Service Request List view.

2. Drill down on the SR number (#) field for a selected service request, and click the Find Answers view tab.

   The Search Results list shows the answers in Oracle Knowledge that might apply to the service request inquiry.
3. For each answer, complete the following steps:
   a. Drill down on the link for the answer to view details about it.

      The Oracle Knowledge Information Manager appears.
   b. Click Back to Answers to navigate back to the Find Answers view.
   c. Drill down on the Similar Answers link for the answer to view other answers that relate to the answer.

      The related answers appear in the Search Results list.
   d. Click Back to Answers to view the original answer in the Search Results list.

Finding Answers for Service Request Inquiries (End User)

If the possible answers in the Search Results list do not answer the service request inquiry, then you can search for additional answers in Oracle Knowledge. Also, if too many answers appear in the Search Results list, then you can restrict the search criteria to limit the number of answers that appear in this list.

This task is a step in *Process of Managing Answers*.

To find an answer for a service request inquiry

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Find Answers view tab.

   The Search Results list shows the answers in Oracle Knowledge that might apply to the service request inquiry.
3. Search for additional answers by completing the following steps:
   a. (Optional) Click Search Tips (the button with a light bulb) to open a dialog box that contains general information about searching for answers, read the information in the dialog box, and close it.
   b. Type a text string on which to search in the Search field.
   c. Click Search (the button with a Q letter).

      Answers that meet the search criteria appear in the Search Results list.
4. Restrict the search criteria by completing the following steps:
   a. Click Search Config (the button with some tools).
   b. In the dialog box for configuring searches, click Forum or Article to restrict the search results to either forums or articles, select the check boxes for the answer languages to include in the search results, and click Search Q.

      The dialog box closes, and the number of search results can decrease.

Associating Answers with Service Request Inquires (End User)

You associate an existing answer with a service request so that users who access that service request can see that this answer from Oracle Knowledge applies to the service request inquiry.

An answer that you associate with a service request appears in the Linked Answers pane of the Find Answers view. When you access the service request again, this answer appears in the Linked Answers view for the service request.

This task is a step in *Process of Managing Answers*.

To associate an answer with a service request inquiry

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Find Answers view tab.

   The Search Results list shows the answers in Oracle Knowledge that might apply to the service request inquiry.
3. Select the check box for the answer.
4. Click Link.

   A link to the answer appears in the Linked Answers pane.
5. If you want to delete this association, then complete the following steps:

   a. In the Linked Answers pane, select the check box for the answer.
   b. Click Unlink.

      The link to the answer no longer appears in the Linked Answers pane.

Adding Answers to Service Request Inquiries (End User)

After reviewing the answers in Oracle Knowledge that might apply to the service request inquiry, and after searching for additional answers in Oracle Knowledge, you might not find an answer to the service request inquiry. However, after investigating the service request inquiry, you might determine its answer yourself. In this situation, you add the answer to the service request inquiry.

An answer that you add to a service request appears in the Linked Answers pane of the Find Answers view. When you access the service request again, this answer appears in the Linked Answers view for the service request.

This task is a step in *Process of Managing Answers*.

To add an answer to a service request inquiry

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Find Answers view tab.

   The Search Results list shows the answers in Oracle Knowledge that might apply to the service request inquiry.
3. Click Draft Content.
4. In the Create Siebel Channel form that appears, complete the following steps:

   a. Complete the applicable fields in the form.
   b. Click Submit.

      A link to the answer appears in the Linked Answers pane. You can drill down on this link to access the Siebel Channel.

Requesting Answers for Service Request Inquiries (End User)

After reviewing the answers in Oracle Knowledge that might apply to the service request inquiry, and after searching for additional answers in Oracle Knowledge, you might not find an answer to the service request inquiry. If you cannot determine the answer to the service request inquiry yourself, then you can ask other users for help in finding an answer. In this situation, you can recommend that another user create an answer for the service request inquiry, and you can ask the users in a discussion forum for an answer to the service request inquiry.

When you recommend that another user create an answer, your recommendation appears in the Tasks list of the inbox in the Oracle Knowledge Information Manager. A question that you ask to a discussion forum appears in the Linked Answers pane of the Find Answers view. When you access the service request again, this question appears in the Linked Answers view for the service request.

This task is a step in *Process of Managing Answers*.

To request an answer for a service request inquiry

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Find Answers view tab.

   The Search Results list shows the answers in Oracle Knowledge that might apply to the service request inquiry.
3. To recommend that another user create an answer for the service request inquiry, complete the following steps:

   a. Click Request Content.

      The Content Recommendation form appears.
   b. Complete the applicable fields in the form.
   c. Click Submit.

      The Find Answers view appears again.
4. To ask the users in a discussion forum for an answer to the service request inquiry, complete the following steps:

   a. Click Post New Topic.

      The Post New Topic form appears.
   b. Complete the applicable fields in the form.

      In the Topic Type field, select Question Topic.
   c. Click Post Topic.

      A link to the question appears in the Linked Answers pane. You can drill down on this link to access the discussion forum.

Viewing Linked Content for Service Request Inquiries (End User)

You can view the following content in the Linked answers view for a service request:

- Answers that you associate with the service request. When you drill down on the URL fields for these answers, the Oracle Knowledge Information Manager appears.
- Answers that you add to the service request. When you drill down on the URL fields for these answers, the Siebel Channel appears.
- Questions about the service request that you ask to the users in a discussion forum. When you drill down on the URL fields for these questions, the discussion forum appears.

After you link content to a service request inquiry in the Find Answers view, you must access the service request again to update the records that appear in the Linked Answers view.

This task is a step in *Process of Managing Answers*.

To view the linked content for a service request inquiry

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Linked Answers view tab.

   The Linked Answers list shows the content that is linked to the service request inquiry.
3. Drill down on the URL field for a record to view details about that record.

   Details about the record appear in a new browser session.
4. After you view the details about the record, close the new browser session.

4 Service Activities

Service Activities

This chapter shows how to manage service activities. It includes the following topics:

- *About Service Activities*
- *Activity Charts*
- *About Using the Task UI Application to Perform Service Activities*
- *Scenario for Performing Service Activities with the Task UI Application*
- *Process of Administering Service Activities*
- *Process of Managing Service Activities*

About Service Activities

Field service engineers work on activities. Selecting an activity template automatically provides a set of activities to complete for a service request. For general information about activities, see *Siebel Applications Administration Guide* .

Siebel Field Service includes the following common activity types:

- Service activities for the following categories:
  - Installation
  - Preventive maintenance
- Repair activities, including shipping and receiving

You use activities to track the tasks to complete in response to a service request, a preventive maintenance request, a change request, and a request for a repair. The Activities screen shows the activities to assign to field service or service center personnel.

A field service or repair activity can include detailed information about the steps that field service engineers can perform to complete the activity, additional instructions about the activity, items (such as parts or tools) that field service engineers need to complete the activity, and the skills (such as language proficiency and product knowledge) that field service engineers must possess to complete the activity. An activity can also include information about its field part movements, expenses, and labor.

Including activities in a service request provides the following advantages:

- The ownership of the problem remains with the call management, when required.
- The field service engineer looking at assigned activities can easily identify the required information.
- Reporting is simplified.
- You can assign activities to multiple employees.

Note: Service activities can be stand-alone (for example, preventive maintenance activities) or, more commonly, attached to service requests. For complex preventive maintenance activities, you can formalize the activity by creating a service request.

Activities in Siebel Field Service are an extension of the Activity object and have Siebel Field Service customizations that specifically meet the requirements of engineers who work on complex, standardized service activities. Activity objects can be associated with the following Siebel objects:

- Accounts
- Contacts
- Programs
- Agreements
- Messages
- Projects
- Assets
- Opportunities
- Repairs
- Campaigns
- Order line items
- References
- Change requests
- Preventive maintenance
- Service requests

After users create activities, they assign them to appropriate field service engineers. Assigned activities appear on the calendars for engineers, and the engineers can receive automatic notification about new activities through their laptop computers, mobile devices, cell phones, or pagers. Engineers can accept or decline an activity and, after accepted, use the Activities screen to provide information about its execution.

You can manually assign activities on the Activities, Service Requests, and Dispatch Board screens or use Assignment Manager (with Assign menu command) to automatically assign activities. Automatic assignment uses a variety of criteria for assignment, including skills, role priorities, availability, location, and cost.

You can manually schedule assigned engineers on the Activities screen or on the interface of the Dispatch Board screen. Also, Siebel Scheduler can automatically schedule assigned engineers. For more information about assigning and scheduling activities, see *Scheduling Using Siebel Scheduler* and *Dispatch Board*.

Service Activity Templates and Activity Plans

Users select activity templates to create activity plans. Activity templates contain a set of activities to complete a service request. Activity plans can include schedule requirements for completing these activities.

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

Fields Copied from Activity Templates

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

- Activity type
- Cost Estimate
- Employee
- Alarm
- Description
- Lock Assignment
- Category
- Display In
- Priority
- Comments
- Duration
- Status

Note: If the value of the Employee field is included in the activity template, then the field value is copied. Otherwise, the value in the Employee field depends in the value in the Category field. If the value in the Category field is not Field Engineer Activity, Repair Activity, Preventive Maintenance, or Other, then the Employee field is populated with the current login ID.

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

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

Category Field

The Category field for an activity in the Service Details view in the Activity Templates view of the Administration - Data screen determines the following information for the activity that is generated from the activity template:

- Whether the child records of the activity are generated
- The user assigned to the activity

Child Records

If the value in the Category field is Field Engineer Activity, Repair Activity, Preventive Maintenance, or Other, then any child records for the activity in the activity template, such as records for activity steps or assignment skills, are created for the activity that is generated from the activity template.

If the Category field is blank or a value other than the values listed in the previous paragraph, then no child records for the activity in the activity template are created for the activity that is generated from the activity template.

Service Activity Assignment

The values in the Category field and Employees field of an activity record determine the user assigned to the activity. The following table describes the determination of this assignment.

Employees Field Value	Category Field Value	Activity Assignment
NOT NULL	Any value (NULL or NOT NULL)	Assigned to the employee who is specified in the Employees field of the activity template.
NULL	*Not* Field Engineer Activity, Repair Activity, Preventive Maintenance, or Other	Assigned to the employee who created the activity by applying the activity template.
NULL	Field Engineer Activity, Repair Activity, Preventive Maintenance, or Other	Not assigned. The Employees field and Owner field are blank in the created activity. **Note:** It is recommended that you use this assignment when you use Assignment Manager to assign the activity.

Activity Charts

The following table lists the descriptions of the charts in the Chart view for activities.

Chart	Description
Account and Type Analysis	This chart includes the following graphs: • The number of activities for each account. • he number of activities for each type of account.
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	This chart includes the following graphs: • The number of activities for each status category. • he number of activities for each priority category.
Symptom and Resolution Analysis	This chart includes the following graphs:

Chart	Description
	• The number of activities of each symptom type. • he number of activities for each resolution code.
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.

About Using the Task UI Application to Perform Service Activities

Siebel Field Service includes the Execute Field Task Start to Finish task to streamline the process of starting and completing field repair activities. This repeatable task navigates through screens and views where you can enter multiple records easier and faster than manually navigating through individual screens. When you change status (En Route, In Process, Done, and so on), the task framework captures the time of the status change and records it as a variable that corresponds to a Time Tracker Type field LOV entry. When the status is updated, a Time Tracker entry is generated behind the scenes. For more information about using the Task UI application, see *Siebel Fundamentals* . For more information about customizing, activating, and assigning access privileges for tasks, see *Siebel Business Process Framework: Task UI Guide* .

To use the Execute Field Task Start to Finish task in the Task UI application, you must activate and assign access privileges for the following tasks:

- Execute Field Task Start to Finish
- Field Activity Execution
- Field Activity En Route
- Field Activity Invoicing
- Field Activity Preparation
- Replace Asset

Scenario for Performing Service Activities with the Task UI Application

This topic gives one example of how to perform service activities with the Task UI application. You might perform service activities with the Task UI application differently, depending on your business model.

A field service engineer must complete a Field Repair assignment. He uses the Task UI application for this activity by clicking Execute Field Task Start to Finish in the Task UI pane. He uses the Next button to move from screen to screen in the task.

He first reviews details for the activity, then checks his trunk inventory. He updates the status to Scheduled and views a map of the account service location. He updates the status to En Route and drives to the site. When he arrives, he sets

the status to In Progress. Behind the scenes, the Task UI creates a Time Tracker record for the en-route time. For more information about the Time Tracker feature, see *Recording Labor for Activities (End User)*.

On site, the field service engineer accesses the Review Instructions screen, reviews and records steps and takes readings. He records the asset transactions that he performed during the repair, and logs his time and expenses. Finally, he prints an invoice for the customer to sign.

Process of Administering Service Activities

The following list shows the tasks that administrators typically perform to administer service activities. Your company might follow a different process according to its business requirements.

To administer service activities, administrators perform the following tasks:

- *Creating Activity Templates*
- *Adding Information to Activities in Activity Templates*

Creating Activity Templates

Administrators can create activity templates. These templates can contain any number of service activities. Users select activity templates to create activity plans. Activity plans contain the activities in the selected template. For more information, see *Service Activity Templates and Activity Plans*.

This task is a step in *Process of Administering Service Activities*.

To create an activity template

1. Navigate to the Administration - Data screen, then the Activity Templates view.
2. Create a new activity template record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Public	Select this check box to indicate customer, partner, and employee applications can access the information.
Auto Trigger	Select this check box to move the activities from this template to a sales stage when a user selects the sales stage for an opportunity.

3. Click the Service Details view tab.

4. Create a new service details record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Duration	Select the complete duration (in minutes) of the activity. The complete duration of the activity is the work time and the break time.
Lead Time	Type the amount of time for travel to, or other preparation for, the activity.
Lead Units	Select the unit of measurement for the Lead Time field.
Breakable	Select this check box to allow the Optimizer to insert a break into the activity. If you do not select this check box, then a break is not allowed during the activity. For more information, see *Breaks*. For more information about the Optimizer, see *Scheduling Using Siebel Scheduler*.
Work Time	Type the amount of work time (in minutes) for the activity.
Lock Assignment	Select this check box to indicate Assignment Manager cannot reassign the activity to an employee.
Category	Select the category for the activity. For more information about the effects of selections in this field, see *Category Field*.

Adding Information to Activities in Activity Templates

After administrators create activity templates, they can add information applicable to the activities in the template. This information includes the recommended steps that field service engineers can perform to complete the activity, additional instructions about the activity, items (such as parts and tools) that field service engineers need to complete the activity, and the skills (such as language proficiency and product knowledge) that field service engineers must possess to complete the activity.

Assignment Manager uses the skills for an activity to assign the activity to the appropriate employee. For more information about Assignment Manager and about setting up the skills that you can assign to an activity, see *Siebel Assignment Manager Administration Guide* .

This task is a step in *Process of Administering Service Activities*.

To add information to an activity in an activity template

1. Navigate to the Administration - Data screen, then the Activity Templates view.
2. Select an activity template, and click the Service Details view tab.
3. Select an activity record.

4. To add more information to the activity record, complete the following steps:
    a. Click the Service Activity Steps view tab, create new step records, and complete the fields as appropriate.
    b. Click the Service Activity Instructions view tab, create a new instructions record, and complete the fields as appropriate.
    c. Click the Service Activity Items view tab, create a new item record, and complete the fields as appropriate.
    d. Click the Assignment Skills view tab, create a new skill record, and complete the fields as appropriate.

Process of Managing Service Activities

The following list shows the tasks that end users typically perform to manage service activities. Your company might follow a different process according to its business requirements.

To manage service activities, end users perform the following tasks:

- *Managing Alarms for Service Activities (End User)*
- *Creating Service Activities (End User)*
- *Adding Information to Activities (End User)*
- *Recording Expenses for Activities (End User)*
- *Recording Labor for Activities (End User)*
- *Viewing On-Hand Inventory (End User)*
- *Ordering Items for Activities (End User)*
- *Recording Part Movements for Activities (End User)*
- *Recording Asset Swaps (End User)*
- *Completing Activities (End User)*
- *Viewing Activities for Field Service Engineers (End User)*
- *Using the Task UI Application to Perform a Service Activity (End User)*

Managing Alarms for Service Activities (End User)

Activities are attached to many Siebel business objects (for example, Service Requests and Opportunities). Siebel Business Applications can notify the user of the start time for a pending activity. You select the Alarm check box in each Activity record to set up this notification.

Alarm notification displays a dialog box in the 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 check box is selected in the activity record). If the activity is repeated, then 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 initiate workflow processes.

This topic contains the following related information:

- *Setting the Alarm Lead Time for Service Activities*
- *Allowing Alarms for Service Activities*

This task is a step in *Process of Managing Service Activities*.

Setting the Alarm Lead Time for Service Activities

Alarms notify users of upcoming activities. A setting determines the time when the notification occurs.

To set the alarm lead time for service activities

1. From the application-level menu, select Tools, then User Preferences.
   The User Preferences screen appears.
2. On the link bar, click Calendar.
   The Calendar form appears.
3. In the Alarm Lead Time field, select a time from 5 to 120 minutes before the value in the Planned Start field for each activity.

Allowing Alarms for Service Activities

To set the alarm for an activity, select the Alarm check box in an activity record on any screen that includes the Activities view or in the Calendar screen. In the procedure in this topic, you set the alarm in the Calendar screen.

To allow an alarm for a service activity

1. Navigate to the Calendar screen.
2. Drill down on an activity name.
3. In the Calendar Detail view, select the Alarm check box.
4. Click Save This One.

Creating Service Activities (End User)

You can create activities that field service engineers must complete to respond to a service call. For information about creating an activity for a service request, see *Associating Activities with Service Requests (End User)*.

This task is a step in *Process of Managing Service Activities*.

To create an activity

1. Navigate to the Activities screen, then the Activity List view.
2. Create a new activity record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Due	Select the latest date and time for an activity. This field indicates contractual commitments or deadlines and is populated with the value from the Date Committed field for the service request. For more information, see *Date Committed*. This field is the same as the Latest Start field in the Schedule view of the Activities screen.
Status	Select the state of an activity. Values include Approved, Unassigned, and Done. Drill down on an Unscheduled value in the Status field to navigate to the Dispatch Board screen.

Field	Comments
Private	Select this check box to indicate this activity is visible only to its owner.
Repeat Frequency	Select the interval at which to repeat the activity. Values include Daily, Weekly, Monthly, Quarterly, and Yearly. A repeated activity appears multiple times in the calendar for the field service engineer. You cannot schedule repeated activities on the Dispatch Board.
Repeat Until	Select the ending date for repeating the activity.
Alarm	Select this check box to sound a warning if the activity does not begin by the planned start date.
Employees	Select the names of the employees assigned to complete the activity. You can identify an employee as the primary employee.
SR #	Select the service request associated with the activity.
Billable	Select this check box to indicate the activity is billable to the customer.
Duration	Type the amount of time (in minutes) required to complete an activity, including breaks and travel time. Duration is the time difference between the planned start date and the planned end date for the activity. This field appears in the form only.

3. Drill down on the Type field for a selected activity, and click the More Info view tab.
4. Complete the fields as appropriate.

Some fields are described in the following table.

Field	Comments
Private	Select this check box to indicate the activity is visible only to its owner.
CR #	Select the defect number for a product associated with the activity.
Lock Assignment	Select this check box to indicate Assignment Manager cannot reassign the activity to an employee.

Field	Comments
Category	Select a category for the activity. This field determines the type of child records that are inherited from the activity template. For more information, see *Service Activity Templates and Activity Plans*. Developers can use Siebel Tools to change the default values for the Category field. They set ASGN_USR_EXCLD_FLG to N.
Resolution	Select the solution code for an activity.
Defective Tag	Select the tag number (repair number) associated with the activity.

Adding Information to Activities (End User)

After you create activities, you can add information to them. This information includes the recommended steps that field service engineers can perform to complete the activity, additional instructions about the activity, items (such as parts and tools) that field service engineers need to complete the activity, and the skills (such as language proficiency and product knowledge) that field service engineers must possess to complete the activity.

Assignment Manager uses the skills for an activity to assign the activity to the appropriate employee. For more information about Assignment Manager and about setting up the skills that you can assign to an activity, see *Siebel Assignment Manager Administration Guide* .

This task is a step in *Process of Managing Service Activities*.

To add information to an activity

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity.
3. To add more information to the activity record, complete the following steps:

    a. Click the Steps view tab, create new step records, and complete the fields as appropriate.

    You can select the Done check box for a step to indicate the step completion. This field is for information only, and does not affect other fields or functions.

    b. Click the Instructions view tab, create a new instructions record, and complete the fields as appropriate.

    In this view, you can enter instructions that are specific to a customer site.

    c. Click the Items view tab, create a new item record, and complete the fields as appropriate.

    d. Click the Assignment Skills view tab, create a new skills record, and complete the fields as appropriate.

    You can add more details about a skill in the Service Activity Skill Item list.

Recording Expenses for Activities (End User)

You can record the expenses that you incur while working on activities. These expenses include travel costs and meals.

This task is a step in *Process of Managing Service Activities*.

To record an expense for an activity

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity, and click the Expense Tracker view tab.

   > **Note:** If you select Auto Expense Report in the application-level Tools menu, then new records are generated in the Expense Tracker view. For more information about setting up and using this Auto Gen feature, see *Siebel Project and Resource Management Administration Guide* .

3. Create a new expense record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Type	Select the category of expense for the activity.
Billable	Select this check box to indicate that the expense is billable to the customer. When you select this check box, the Charge Engine uses the record to create a charge, and the Charge Consolidation business service includes the expense for the activity in an invoice. This check box is automatically selected if the Billable check box is selected for the activity.

Recording Labor for Activities (End User)

You can record the amount of hours that you work on activities.

If an entitlement (with metrics and a schedule) is associated with the activity, then you can enter only 1 record for activity hours, even if the hours are associated with multiple rates (rates for regular, overtime, and extended overtime). The Auto Charge feature automatically determines the charges for each rate. If an entitlement (without metrics and a schedule) is associated with the activity, then you must enter a separate record for each rate. For more information about entitlements, see *Process of Administering Entitlements*.

> **Note:** The time tracker times for activities as well as the schedule and exception times for entitlements are not translated to UTC (Universal Time Coordinates). The invoicing functionality for activities interprets these times according to the time zone of the entitlement that is associated with the activity. This time zone is typically the time zone of the location that the entitlement covers.

This task is a step in *Process of Managing Service Activities*.

To record labor for an activity

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity, and click the Time Tracker view tab.

   Note: If you select Auto Timesheet in the application-level Tools menu, then new records are generated in the Time Tracker view. For more information about setting up and using this Auto Gen feature, see *Siebel Project and Resource Management Administration Guide* .

3. If you already completed the activity, then create a new time record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Type	Select the category of time for the activity. In the Work Types view of the Administration - Data screen, administrators set up the types that you can select.
Billable	Select this check box to indicate the labor for the activity is billable to the customer. When you select this check box, the Charge Engine uses the record to create a charge, and the Charge Consolidation business service includes the price of the labor for the activity in an invoice. This price is based on the rate list for the activity. You can define labor that is not billable (for example, a coffee break). This check box is automatically selected if the Billable check box is selected for the activity.

4. If you are starting the activity, then complete the following steps:
   a. Click Start to populate the Start field with the current time and to populate the Date field with the current date.
   b. When you finish the activity, click Stop to populate the Stop field with the time that you complete the activity and to populate the Elapsed field with the amount of time to complete the activity.
   c. To resume an activity, Start again to create a new time record.

Viewing On-Hand Inventory (End User)

Frequently field service engineers need specific products to complete an activity, so you might have to determine the availability of these products at inventory locations. You can view the availability of products and substitute products at inventory locations. You use the Part Browser to view this on-hand inventory.

Note: Do not confuse the Part Browser screen with the Part Locator Engine. The Part Browser displays products and associated inventory locations. The Part Locator Engine is a semi-automated mechanism for finding products at various inventory locations when fulfilling orders. For more information, see *Part Locator Engine*.

This task is a step in *Process of Managing Service Activities*.

To view on-hand inventory using the Part Browser

1. Navigate to the Part Browser screen.
2. Select a record for a product at an inventory location.

   > **Note:** A product can exist at multiple locations.

3. Review the Inventory Level list to see information about the selected product at that location.
4. Review the Substitutes list to see information about any alternatives for the selected product at that location.

You can also use the Check Trunk button to view on-hand inventory in your trunk.

To view on-hand inventory using Check Trunk

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity, and click the Items view tab.
3. Select an item record.
4. Click Check Trunk.

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

Ordering Items for Activities (End User)

An field service engineer might need additional items to complete an activity. You can create an order to obtain these needed items from a vendor or to transfer the items between inventory locations so that they are conveniently available to the appropriate engineer.

This task is a step in *Process of Managing Service Activities*.

To order an item for an activity

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity, and click the Items view tab.
3. Select an item record.

   > **Note:** If the check box in the Tool field is selected for the item, then the item is a service tool, and not a part that the customer buys. If this check box is selected, then the customer cannot order the item.

4. Click one of the following buttons:

   a. **Service Order.** The item is ordered. For the item, an order number appears in the Order number (#) field, a value of Service Order appears in the Order Type field, and value appears in the Line Status field.
   b. **Service Order All.** All items not yet ordered are ordered. For each item, an order number appears in the Order number (#) field, a value of Service Order appears in the Order Type field, and value appears in the Line Status field.

5. To view order details for an item, drill down on the Order number (#) field.

Recording Part Movements for Activities (End User)

Field service engineers can move parts in the field so that the parts are available to complete activities. You can record these part movements between customer sites, service orders, and the truck inventories of field service engineers.

You record transactions between inventories as well as between inventories and customers in the Inventory Transactions screen. For more information, see *Process of Managing Records with Barcode Readers*.

Note: Part movements that an engineer records in the field appear only after the engineer synchronizes the mobile computer. If the engineer records the part with an add-in serial number, then the part transfer appears only after administrator processing.

This task is a step in *Process of Managing Service Activities*.

To record a part movement for an activity

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity, and click the Part Tracker view tab.
3. Create a new part movement record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Asset #	Select an asset number if the part movement applies to an asset.
Source	Select the origin location for the part.
Destination	Select the destination location for the part.
Billable	Select this check box to indicate the part is billable to the customer. When you select this check box, the Charge Engine uses the record to create a charge, and the Charge Consolidation business service includes the part for the activity in an invoice. This check box is automatically selected if the Billable check box is selected for the activity.
Commit	Displays a check in the check box to indicate the transaction for the part movement is committed. If all validations for the part movement are complete, then this check box is automatically selected after you click a commit button. For more information about the validation checks for the commit buttons, see *Mobile Inventory Transactions*.
Write-In Asset	Select this check box to indicate the serial number for an asset is not in the local database. If you select this check box, then you enter a serial number in the Write-In Serial Number field. This field is for information only, and does not affect other fields or functions.

Field	Comments
Write-In Serial #	Type a serial number for an asset that is not yet in the local database. An administrator generates the inventory transaction for the asset after you synchronize the mobile computer.

An inventory transaction, an asset transaction, or both (depending on the source or destination) is created for the part movement.

Recording Asset Swaps (End User)

You can record the swapping of an asset for another asset. You use the Swap Part Mvmt number (#) field in the Part Tracker view in the Activity List view of the Activities screen to create a one-to-one relationship between a removed asset and an installed asset. For more information, see *Asset Swaps*.

This task is a step in *Process of Managing Service Activities*.

To record an asset swap

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity, and click the Part Tracker view tab.
3. Create a new part movement record for the removed asset, and complete the fields as appropriate.

   Do not enter data in the Swap Part Mvmt number (#) field.
4. Add another part movement record for the installed asset, and complete the fields as appropriate.

   Select the removed asset in the Swap Part Mvmt number (#) field.

Completing Activities (End User)

After all of the work relating to an activity is complete, and after you enter all the expenses, labor, and materials for an activity, you denote a completed status for the activity record. For more information about generating invoices for activities, see *Creating Invoices Manually (End User)* and *Creating Invoices Automatically (End User)*.

This task is a step in *Process of Managing Service Activities*.

To complete an activity

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity, and click the Expense Tracker view tab.
3. In the form for the activity, click Complete.

   The Cost and Price fields are updated for all of the records in the Expense Tracker view, Time Tracker view, and Part Tracker view for the activity. The % Complete field in the More Info view for the activity is populated with a value of 100, and the Status field for the activity changes to a value of Done.

Viewing Activities for Field Service Engineers (End User)

You can view all of the activities for a field service engineer. You might want to view these activities to determine the availability of the field service engineer.

This task is a step in *Process of Managing Service Activities*.

To view the activities for a field service engineer

1. Navigate to the Calendar screen.
2. Click ... (Advanced Calendar Settings).
3. In the Owner field of the Settings dialog box, select the name of the field service engineer, and click OK.

Using the Task UI Application to Perform a Service Activity (End User)

This topic includes an example procedure with steps that you perform to use the Execute Field Task Start to Finish task. For more information, see *About Using the Task UI Application to Perform Service Activities*.

This task is a step in *Process of Managing Service Activities*.

To perform a service activity from Start to Finish

1. Navigate to the Activities screen, then the Activity List view.
2. Click Task.
3. In the Task UI pane, click Execute Field Task Start to Finish.
4. In the Review Address and Details screen, review and adjust any necessary fields, and click Next.
5. In the Check Trunk for Recommended Inventory screen, review the inventory information, and click Next.

   The following options are available:

   - Check Trunk
   - Create Order for Selected Parts
   - Service Order All
6. In the Update Status screen, select an action for the activity, such as Mark as In Progress, and click Next.
7. In the Review and Submit screen, review the information for the activity, and click Submit.
8. In the Review and Record Steps screen, record the steps for the activity.

   You can select from the options such as Automated Diagnostic Test, Customer Approval, Install New Parts, Customer Satisfaction Survey, or query for another step.
9. In the Choose Part Transaction screen, select a part transaction for the activity, or select Continue.
10. In the Parts Transaction Summary screen, click Commit or Commit All to commit the part transactions in inventory.
11. In the Update Time Sheet screen, enter or update the time records for the selected activity.
12. In the Activity Expenses screen, enter or update the expense records for the selected activity.
13. In the Select Invoice Option screen, generate an invoice, generate charges and review, or continue.

14. In the Review and Submit screen, review the activity, and click Submit.

5 Scheduling Using Siebel Scheduler

Scheduling Using Siebel Scheduler

This chapter provides information about setting up and working with schedules using Siebel Scheduler. It includes the following topics:

- *About Using Siebel Scheduler*
- *About Schedules*
- *About Siebel Scheduler*
- *About the Appointment Booking System*
- *Scenario for Using the Appointment Booking System*
- *About the Schedule Optimizer*
- *About Schedule Horizons and Time Zones*
- *About Heuristic Methods for Schedules*
- *About Appointment Booking for Siebel Scheduler*
- *Factors for Setting Up Schedules*
- *About Information in Employee Schedules*
- *About Running Contract Scheduling*
- *Troubleshooting the Appointment Booking System and Optimizer*
- *About Configuring the Book Appointment Dialog Box*
- *About Enhancing the Performance of Siebel Scheduler*
- *About Siebel Scheduler and the Server Request Broker*
- *About Loading and Reloading Data for Service Regions*
- *Process of Administering Schedules Using Siebel Scheduler*
- *Defining Schedule Hours*
- *Defining Breaks*
- *Defining Service Regions*
- *Defining Schedules and Availability for Employees*
- *Creating Time Windows for Schedules*
- *Creating Constraint Sets for Schedules*
- *Creating Parameter Sets for Schedules*
- *Defining Cost Functions for the Optimizer*
- *Setting Up Server Key Mappings*
- *Setting Parameters for Server Component Tasks*
- *Reloading the ABS and Optimizer Caches*
- *Process of Managing Schedules Using Siebel Scheduler*

About Using Siebel Scheduler

Siebel Scheduler is only available to new customers in controlled availability. For more information, contact your Oracle sales representative. An alternative scheduling method is available using Siebel Field Service Integration to Oracle Real-Time Scheduler. For more information, see *Scheduling Using Oracle Real-Time Scheduler Version 2.x*.

> **Note:** The license for Siebel Field Service does not include the functionality for Siebel Scheduler. You must obtain a license for Siebel Scheduler to implement its functionality.

You can specify the scheduling method to use for each service region. For more information about migrating service regions, see *Administering Service Regions*.

> **Note:** Siebel Scheduler is not supported on the 32-bit HP/UX operating system.

About Schedules

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

> **Note:** Depending on the Siebel application and screen, schedule means 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 when you do not offer contractually covered service to a customer.

About Siebel Scheduler

Dispatchers, who review and manually rearrange region schedules, and service center representatives, who answer the customer calls and make appointments for service activities, can assign and schedule personnel to complete service activities. Also, automated process (for example, workflows) can identify activities and perform automatic scheduling.

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

Siebel Field Service includes the following features for assigning and scheduling activities:

- **Manual assignment.** Manual assignment is available in any Activities view, where a dispatcher or customer service representative can enter data in the Employees field. For more information, see *Assigning Activities to Field Service Engineers (End User)*.
- **Dispatch Board.** This screen lets a dispatcher or customer service representative manually assign and schedule individual activities by selecting and then moving the activities to a Gantt chart. For more information, see *Dispatch Board*.

- **Assignment Manager.** Assignment Manager provides a list of personnel who are qualified to complete a service activity or service request. The list, based on a set of rules, is ranked by a score that indicates the suitability of the engineer. The dispatcher or customer service representative selects 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 using a choice of time periods that a customer can select, and book appointments. The ABS assigns specific field service engineers to service activities on specific dates and times. For more information, see *About the Appointment Booking System*.
- **Optimizer.** The main purpose of the Optimizer (or Optimization Engine) is to reorganize and reassign a schedule to reduce the cost of the schedule. The Optimizer uses a flexible set of constraints, availability information, and cost considerations. For more information, see *Defining Cost Functions for the Optimizer*.

  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 Contract Scheduling.

  Contract Scheduling inserts high-priority service activities into a schedule with minimal disruption to the schedule and without a significant increase in the cost of the schedule. Contract Scheduling requires an immediate response. For contractual commitments, the Optimizer can fit the service activity into an available time slot in a schedule or reschedule and reoptimize an entire schedule to accommodate a new activity. For more information, see *About the Schedule Optimizer*.

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

Business Requirements for Schedules

Typically, businesses that schedule personnel have the following needs:

- Match the appropriate employee to an activity. (For example, the employee with the appropriate skills must complete the activity.)
- Minimize the cost of service. (For example, minimize overtime, down time, and travel.)
- Consider contractual commitments. (For example, a contract might indicate that service personnel must arrive onsite within 24 hours.)

Businesses schedule service for the following time spans:

- **Emergencies today.** Make sure that the best person can respond in the promised time frame.
- **Activities that occur over the next 2 weeks.** Make sure that the appropriate employees are efficiently utilized and not spending excess time traveling from site to site.
- **The weeks and months ahead.** Book future activities, such as preventive maintenance and installations, using available resources efficiently.

About the Appointment Booking System

A significant portion of a service business involves activities that occur in the future, such as installations or preventive maintenance. The Appointment Booking System (ABS) automates 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 might prefer a shorter time slot, but the window must be long enough so that the engineer can probably meet the commitment.

Scenario for Using the Appointment Booking System

This topic gives one example of how the Appointment Booking System might be used. You might use the Appointment Booking System differently, depending on your business model.

A cable service company employs customer service representatives who answer calls from customers who want cable service installed. The cable installation requires that customers are present to let the field service engineer into their homes. Customers generally do not want to spend the entire day waiting for the engineer to arrive. They prefer that the service representative provide them a time range when the engineer will arrive.

When a customer calls to schedule the cable installation, the service representative asks the customer for an approximate time when he expects to be at home. The customer service representative then attempts to book an appointment for this approximate time. During this process, the ABS provides a time window when the field service engineer can arrive. The customer service representative can then book the appropriately skilled field service engineer for a time range. Installing the cable takes about an hour, so the service representative might give the customer a time slot from 8:00 A.M. to 12:00 P.M. Booking field service engineers for a time range and not a specific time allows some leeway if problems occur (for example, traffic jams or activities that take more time than anticipated).

About the Schedule Optimizer

The Optimizer uses complex algorithms to meet the following objectives:

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

The Optimizer can also respond to immediate scheduling demands to provide repair activities that meet the requirements of service entitlements (for example, a response within 4 hours), emergencies (for example, breakdowns of service vehicles), and changes in service personnel.

Optimization of Schedules

Because most service costs include labor, efficient use of labor is a primary goal of a service organization. Efficiency encompasses numerous objectives. Some objectives can conflict with each other. Examples of objectives follow:

- Assign field service engineers who have the appropriate skills and parts to tasks so that they can resolve service requests the first time.
- Because skilled engineers can finish a task faster, assign these engineers to more challenging work so that their time is not wasted on trivial tasks.
- Minimize travel between activities by grouping activities in an area.

- Schedule engineers so that they appear on site within contractually committed times.

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

Business Priorities

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

Repairs and Schedules

Most service businesses start the day with a schedule of activities to perform, such as maintenance, installations, and other scheduled repairs. During the day, customers can call for repairs that require modification of schedules.

Customers with service agreements often have specific entitlements with a required response time. This response time might be tiered according to the agreement. Standard agreements might specify that engineers are onsite within 24 hours of the service call, and premium agreements might specify response times as short as 2 hours.

You must insert repair activities into the schedule that the Optimizer carefully optimized during the previous night. Optimizing the schedule again is usually not practical because optimization routines can run for hours to determine good solutions. Customers want a service commitment immediately, often while they are on the phone. You must achieve a balance between trading optimized schedules for quick responses and customer satisfaction while still enforcing business requirements.

When responding to service requests, the ideal solution for the customer service representatives is to click a button and receive a time for a service call that considers contractual agreements and other constraints. The Optimizer addresses this need.

About Schedule Horizons and Time Zones

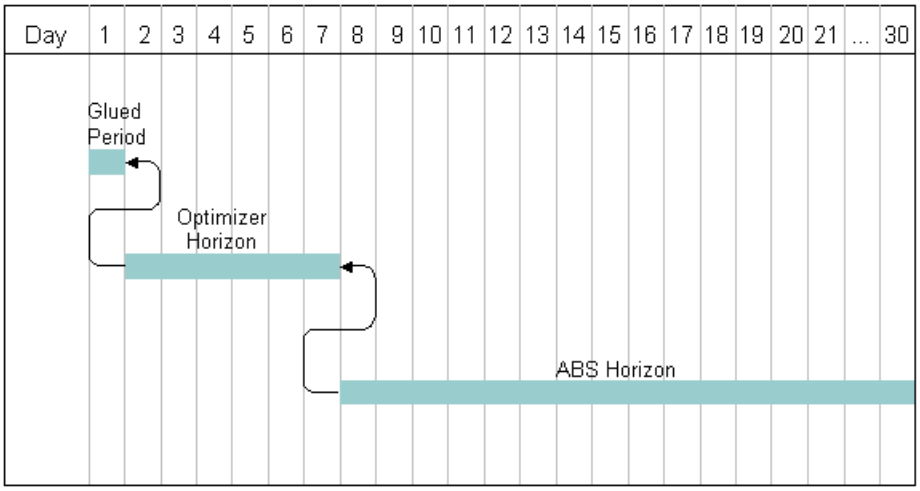
The ABS and Optimizer use the following time periods for scheduling activities:

- **Glued period.** A time period, starting from today, when you cannot schedule activities. This period prevents changes to schedules and assignments that are already sent to field service engineers. A Glued period is not required. You can set the value 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 7 (from the end of the Glued period to a week from today).
- **Optimizer horizon.** A period of time that includes the Contract Scheduling period. The Optimizer operates in this time period.
- **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. The ABS horizon is the length of time that is available to book

appointments for a service region. Typically, this horizon is from day 8 to day 56 (a week from today to 8 weeks from today).

Both the ABS and the Optimizer horizons are represented by a single time line because both horizons are measured from a current time (the time for loading data). For more information, see *About Loading and Reloading Data for Service Regions*.

The following figure shows an example of how you typically define these schedule horizons.



The Glued period is day 1. The Contract Scheduling period is days 2 to 7. The Optimizer horizon spans the Contract Scheduling period and is also days 2 to 7. The ABS horizon is days 8 to 21, and appointment booking occurs for that period of time.

The schedule horizon is relative to the current day (today). Therefore, as time passes, activities move (from day 1 to 30) along this time line. For example, a service activity might fit the following situation:

- An appointment to perform an activity is scheduled 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 time passes, the scheduled activity moves closer to today. On day 8, the activity moves from the ABS horizon to the Optimizer horizon. In the Optimizer horizon, the Optimizer evaluates the schedule, and determines the best time for the service activity and person to complete the service activity. During this processing, the Optimizer tries to minimize the costs of a schedule.
- The activity remains in the Optimizer horizon for 6 days. The Optimizer might adjust the schedule at regular intervals but at least once each day. This schedule adjustment might be necessary because of changes in personnel, emergency service calls, or service activities that contractual commitments regulate (for example, a warranty repair that is required within 12 hours).
- On day 1, the Glued period begins and the schedule for the activities in a service region is locked.

ABS Horizons and Long-Range Appointments

You do not have to use the ABS to schedule activities that are far into the future, such as 6 months ahead. Some companies schedule preventive maintenance activities months ahead of time. The activities are automatically scheduled when they are loaded into the ABS if an ABS horizon exists.

For example, today is March 1st, and the ABS horizon is 14 days. You can set a preventive maintenance activity for May 1st. (Earliest Start is May 1st 9:00 A.M. Latest Start is May 1st 12:00 P.M.) This activity remains unscheduled until April

17th. When the ABS is reloaded that evening, the ABS queries and finds the activity. Because the activity is unscheduled, the ABS attempts to automatically schedule it by using the Earliest Start and Latest Start values.

You might want to use the ABS to schedule long-range appointments when you think that maximum capacity is near, and you are concerned about overbooking.

Note: Longer horizons require more memory. Also, note the 10,000 query limit on activities for each service region.

Time Zones for Schedules

Siebel Field Service stores all times using the UTC (Universal Time Coordinate). To display the local time in the user interface, the UTC is converted to the appropriate local time zone. Service calendars use Universal Time Coordinate conversions. For more information about ongoing application administration tasks, see *Siebel Applications Administration Guide* . For more information about UTC, see *Siebel Global Deployment Guide* .

Note: UTC is not the same as GMT (Greenwich Mean Time). UTC does not observe daylight savings time, but GMT observes daylight savings time.

Scheduling uses the following time zones:

- **The customer time zone.** Appointments are scheduled in the time zone for the customer. The time zone for the customer is the same as the time zone for the service region.
- **The service center time zone.** Siebel Scheduler ignores the time zone for the service center and uses time zone for the service region.
- **The service region time zone.** Activities that appear on the Gantt chart of the Dispatch Board are in the time zone for the service region.
- **The employee (field service engineer) time zone.** Siebel Scheduler ignores the time zone for the employee and uses time zone for the service region.

  Note: You must specify activity times (for example, the earliest start time and latest start time) and exception hours for employees in the service region time zone. If the dispatcher or service administrator is in a different time zone, then that person must manually convert the activity times and the exception hours for employees to the service region time zone. If that person is in the same time zone, then no manual conversion is necessary.

About Heuristic Methods for Schedules

The ABS and the Optimizer use heuristic methods to schedule appointments. These heuristic methods are included in the parameter set configuration. For more information, see *Creating Parameter Sets for Schedules*.

Heuristic Methods for the Appointment Booking System

To schedule appointments, the ABS can use the following heuristic methods:

- **Earliest First.** The earliest available time slots are selected for the set. The ABS examines each person in the schedule to find the first open slots after the date in Earliest Start field. This method can provide the fastest response for an activity. Companies that book activities for the same day prefer this method because it maximizes the amount of work service engineers perform.
- **Resource Loading.** Time slots are selected so that the schedules for employees are completed 1 employee at a time, to the extent possible. If multiple qualified employees are available, then the time slots for the employee with the most complete (filled-up) schedule are selected for the set. Companies primarily use this heuristic method for scheduling partners or on-call resources when they want to use as few resources as possible to meet the service needs.

  > **Tip:** You can configure the number of time slots returned in response to the request by using the ABS - Default Number of Slots parameter.

- **Resource Leveling.** Time slots are selected so that the schedules for qualified employees are evenly loaded, to the extent possible. Companies use this heuristic method when they employ salaried field service engineers who must work when scheduled.

  > **Note:** Selecting this heuristic method does not mean that the time slots for all employees in the schedule appear. Multiple slots from the same employee might appear if that employee is more lightly loaded.

Heuristic Methods for the Optimizer

The Optimizer provides a choice of methods to obtain solutions for a service region schedule. Each of these methods involves a different strategy to improve the schedule. All methods use operations to move appointments and activities in a schedule and then verify improvements in the overall cost of the schedule. For example, the Optimizer might try to swap a pair of activities between two field service engineers. This swap can change the cost of the schedule by changing the cost of travel, the amount and cost of overtime, and the rate that the field engineer bills. Any reduction in cost is an improvement in the schedule. For more information, see *Defining Cost Functions for the Optimizer*.

The Optimizer can use 2 basic optimization methods alone. The Optimizer can use 3 additional methods in combination with the basic methods. The following basic methods consistently search for and accept only improvements (lower costs) in the schedule:

- **Greedy search.** This method starts with an existing schedule, 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 are no more opportunities for improvement or until a time limit is reached. This method is relatively fast, but the resulting 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 are no more opportunities for improvement or until a time limit is reached. This method takes longer, but generally produces lower-cost schedules.

Additional methods, combined with the Greedy search or the Steepest search, allow moves that temporarily increase the cost of a schedule 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 searches for improvements:

- **Tabu search.** This method accepts the next best solution even if it is not an improvement over the previous schedule. This method keeps a *tabu* list of finite length that contains the results of previous moves. The Optimizer cannot repeat a move until the move is no longer on 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 so that the Optimizer can try a wider range of changes.
- **Fast Guided Tabu search.** This method combines the Tabu search and the Fast Guided Local search. This method often finds good solutions faster than the Tabu or Fast Guided Local search.

About Appointment Booking for Siebel Scheduler

This topic describes the business and technical process flows that apply when a customer service representative tries to book an appointment. For more information, see *Booking Appointments for Activities Using Siebel Scheduler (End User)*.

Business Process Flow for Appointment Booking

A typical business process for a customer service center follows:

1. A customer initiates a request for service.
2. The customer service representative creates a service request, and selects an activity plan to generate activities for the request.
3. The agent clicks the Book Appt button in the Service screen or the Activities screen to see a list of appointment choices for the selected activity.
4. The customer service representative, who sees these choices in a dialog box, selects a time slot and clicks Confirm.

If the customer does not want any of the time slots, then the customer service representative clicks Cancel.

Technical Process Flow for Appointment Booking

When the business process for appointment booking occurs, the following ABS processing occurs:

1. When the customer service representative clicks the Book Appt button, the ABS searches for available time slots by using the Earliest Start field and Latest Start field for the activity to limit the search.
2. If the activity does not include a value for the earliest and latest start, then the ABS selects from all of the time slots in the ABS horizon.

   The ABS returns time slots and reserves them with a timed lock.

   > **Note:** The ABS returns possible time slots for only the earliest start time.

3. If the customer service representative confirms a time slot, then the ABS marks the selected slot as permanently used. The ABS then releases the other reserved time slots, writes the details of the selected slot to the activity record, and returns control to the client.

   If the customer service representative cancels the time slot, then the ABS releases all of the reserved time slots for the activity and returns control to the client.

> **Note:** If the service representative does not cancel the time slots, then the time-out releases the slots.

Factors for Setting Up Schedules

Consider the following factors when setting up schedules:

- **Business model.** Review your business model to determine the part that scheduling plays in the model. Determine the Siebel CRM modules that you want to use.
- **Service regions.** Plan service regions so that movement of service personnel between regions is the exception. Geographic areas that define service regions can overlap. In addition, service regions can have parent regions that effectively widen the primary service region when manually assigning activities by using the Dispatch Board. Thus, you can share resources across areas by setting up regional hierarchies. For more information, see *Defining Service Regions*.
- **Server mapping.** Set up servers and processors to distribute the scheduling tasks efficiently. For more information, see *Setting Up Server Key Mappings* and *Setting Parameters for Server Component Tasks*.
- **Employees.** Assign employees to service regions.

  > **Note:** You can assign an employee to only 1 service region. For more information, see *Loading Employee Data for Service Regions*.

- **ZIP or postal codes.** Load ZIP Code and geocode data. For more information, see *Defining Geographic Areas for the Optimizer*.
- **Constraints.** Set up hard constraints for the ABS and both hard and soft constraints for the Optimizer. The ABS uses only hard constraints. The Optimizer can use either hard or soft constraints. For more information, see *Creating Constraint Sets for Schedules*.
- **Cost functions.** Set up cost functions for the Optimizer. The Optimizer calculates a cost function for each proposed schedule. This function is the sum of variables that drive the optimization of a schedule (for example, the cost of overtime, travel distance, and penalties for violating soft constraints). For more information, see *Defining Cost Functions for the Optimizer*.

Rules for the Appointment Booking System

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

- The offered time slots must equal the availability of the personnel for a service region.
- The offered time slots must match the personnel with the required skills. You can enforce this rule with the Use Assignment Manager scheduling parameter.

  > **Note:** Assignment Manager scores do not affect the order or ranking of the returned time slots. The scores determine only whether an employee is eligible to own an activity.

- Time slots must meet other constraints. For example, an engineer must never perform more than 4 installations in a day. Other constraints for service activities might meet business or union requirements.
- Activities can extend over multiple days.
- The Optimizer and ABS treat activities that cross between the end of the Optimizer horizon and the beginning of the ABS period as locked.

Schedule Integration for Mobile Updates

Schedules constantly change in a service region because a field service engineer calls in sick, a customer cancels an appointment, or a repair takes longer than scheduled. Service businesses must continuously change to accommodate unexpected occurrences.

Mobile communications allow service resources to respond flexibly to change. For example, an engineer calls in sick. Using an ABS or Optimizer solution, Siebel Field Service can send pages or Short Message Service (SMS) messages to cell phones (mobile phones) to reschedule appointments. SMS messages can be up to 160 characters in length and can request confirmation of message delivery.

In another example, when time is available unexpectedly, you can slot repair activities into the available time. You must reach the engineer through a mobile device and obtain acceptance. The mobile 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 an activity runs over the scheduled time, then an engineer can use a mobile device to send a message to a dispatcher or customer service representative. The customer service representative can then proactively inform the customer of the additional time.

Schedule Integration for Inventory Applications

Repair calls frequently require a part. Because most repair calls occur during the day, field service engineers might not have the parts in their trunk inventories or the time to pick up replacement parts from a local depot. You must schedule a field service engineer who has the parts. When selecting appropriate personnel, you can use this option as a constraint.

If the response can wait until the next day, then you can reschedule the service call and drop-ship the parts to the customer overnight. Tight integration with an inventory application that tracks to trunks is critical to any scheduling application. You use parameters to set up part utilization. For more information, see *Creating Parameter Sets for Schedules*.

Preventive Maintenance Integration with the Appointment Booking System

The optional Preventive Maintenance module lets users to set triggers for assets that automatically create service requests and activities for the assets. Triggers can be time-based and threshold-based.

Threshold-based preventive maintenance depends on asset readings (such as the number of copies made on a copier) and is reactive (taking a reading results in creating a service request). The service requests that the Preventive Maintenance Engine creates usually require immediate, not future action. Immediate actions use the Contract Scheduling module. The ABS is involved only if you can delay the service more than a specified number of days. For more information, see *About Running Contract Scheduling*.

Time-based preventive maintenance triggers, require periodic, proactive checks of equipment for legal or contractual reasons. The Preventive Maintenance Engine generates service requests and future activities. One of the activities

might be a 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 the time for service.

Optimization of Schedules

The Optimizer is appropriate for field service businesses that have a large number of engineers in a concentrated area. Generally, if over 30% of a service force is located in the 10 most popular areas, then optimization is appropriate. However, businesses with other needs can consider optimization.

Centralized Dispatch Model

In a centralized dispatch model, a team of dispatchers handles most dispatching for the full service business. Follow-the-sun support often drives this model. Customers can call 24 hours a day and are routed to an open service center somewhere in the world.

Customer support representatives must 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, optimization is consistent with local priorities. Most activities can be automatically scheduled at a central location. A local service manager can manually handle any exceptions, eliminating the need for dedicated dispatch personnel.

Enforcement of Contractual or Legal Constraints

Many companies must comply with strict limits on work hours and hazardous work. Union agreements might stipulate special conditions, such as fairness in work assignments. Automatically tracking these constraints can significantly decrease the burden on service businesses.

Travel Time Decreases

Service engineers can waste time traveling to and from customer sites. Many service businesses find that employees are either spending too much time in the office or are traveling needlessly back and forth between appointments.

By handling 2 calls in 1 area, travel time is decreased significantly and performance is increased. As service businesses move to a revenue base, an increase in revenue can yield a higher increase in profits.

Levels of Optimization

A schedule can be too optimized. A schedule with high utilization (little available time) is usually preferable. However, past a certain point, further optimization can bring diminished cost savings. Furthermore, highly optimized schedules are easily corrupted. Minor changes can cause problems that affect the whole schedule.

For example, consider a schedule for an engineer who is scheduled from 9:00 A.M. to 5:00 P.M. with no available time. If a single appointment runs over, then the engineer cannot complete all activities, leaving at least 1 activity to overtime or the next day. Plus, unexpected events such as a vehicle breakdown can completely disrupt this full schedule.

The goal is to create a schedule that is optimized but still flexible enough to accommodate change. To accomplish this goal, you can use one of the following methods:

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

The first method is preferable because it allows managers to set up a dependable level of work. With the second method, managers are not sure of the actual 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) have the following business requirements:

- High repair volume
- Critical responses (for example, a downed power line)
- Highly variable times for service delivery
- Many short activities (especially in a high-traffic areas)
- Tight contractual requirements

Service businesses that need higher utilization usually have the following business requirements:

- Longer activities (and therefore less travel)
- Preventive maintenance as the main type of service
- Low repair volume
- Longer contractual response times

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

About Information in Employee Schedules

Consider the following factors when defining employee schedules:

- *Shifts*
- *Skills*
- *Role Priorities*
- *Breaks*
- *Travel*

You can set up constraints to limit employee working hours, the types of activities that employees can perform, and so on. For more information, see *Creating Constraint Sets for Schedules*.

Shifts

An employee can have only 1 shift for each day. This shift can include rate types of regular time (RT), overtime (OT), and extended overtime (EOT). A shift must use rate types in the following order:

1. EOT
2. OT
3. RT
4. OT
5. EOT

A shift includes the work time of multiple employees. The first EOT and OT rate types apply to the employees in the prior shift who work overtime that extends into the current shift, and the last OT and EOT rate types apply to the employees in the current shift who work overtime.

You can omit any of these rate types from the definition of a shift, but the remaining types must be in this order. For example, if you omit EOT rate type, then the order for the remaining type is OT, RT, and then OT.

You configure the rates for overtime and extended overtime in the Standard OT % field and the Extended OT % field in the Cost List Line Items view in the Cost List view of the Administration - Pricing screen as a percentage increase over regular time. These fields are part of the cost list for a service region. The Optimizer uses this cost list to calculate overtime costs. You define cost lists in the Cost List view of the Administration - Pricing screen. For more information, see *Siebel Pricing Administration Guide* .

You set regular time in the Service Details view in the Employees view of the Administration - User screen.

Skills

Siebel Scheduler can perform skill-based routing to assign only employees with a skill set to an activity. For more information about how to set up skills and evaluation rules, see *Siebel Assignment Manager Administration Guide* .

The engines use Assignment Manager to evaluate skills and return a list of appropriate employees as follows:

1. Each activity is submitted to Assignment Manager.
2. Using assignment rules, Assignment Manager returns the appropriate employee records.
3. The Optimizer uses only these employee records to schedule the activity.

Role Priorities

To assign field service engineers to activities, administrators can add a role priority to each field service engineer who is a member of the asset service team. Assignment Manager reviews the role priority of the associated engineers when scheduling field service engineers. For example, Assignment Manager tries to assign the primary engineer. If the primary engineer is not available, then Assignment Manager tries to assign the secondary engineer, and so on. A field service engineer can have a role priority of primary, secondary, or tertiary.

> **Note:** You can associate employees with an account to form an account service team. You can also assign role priorities to these team members. For more information, see *Configuring Account Service Teams*.

Breaks

Schedules can include any number of breaks. Breaks include the following types:

- **Employee.** You define employee breaks in the employee schedule or as exceptions to this schedule.
- **Activity.** You define activity breaks in the Time Tracker view of the Activities screen as time periods with a Type field of Break. For more information, see *Recording Labor for Activities (End User)*.

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

- Breaks can have a start time equal to the Start Time field plus 1 second. A break from 12:00 noon to 1:00 P.M. is the same as a break from 12:00:01 to 1:00:01.
- Break times during overtime or extended overtime are paid.

  > **Note:** Because breaks during overtime are paid time, it is recommended that you do not define breaks during overtime. Calculating these breaks can slow the Optimizer calculations.

- You can allow breaks during activities or exclude breaks from specific activities.

  You set breaks for a selected activity by selecting the Allow Breaks check box in the Schedule view in the Activity List view of the Activities screen.

Note: The ABS is not designed to handle activities longer than a day. However, it supports activities that contain breaks.

When you select the Breakable check box in the Service Details view in the Activity Templates view of the Administration - Data screen, an activity can stop and resume. For example, a schedule is 9:00 A.M. to 1:00 P.M. and 2:00 P.M. to 6:00 P.M., and appointments are 6 hours long to accommodate the length of the activities. In this example, appointments are not scheduled if you do not select the Breakable check box because no contiguous 6-hour time slots are available.

Selection of the Breakable check box is optional because there are some circumstances when the activity can break (for example, when you turn the water or the power off during a weekend). Because activities can break, the activity duration is not the same as the activity work time.

Note: When the ABS returns time slots for an activity for which the Breakable check box is selected, the ABS first displays slots without breaks that are between the dates in the Earliest Start field and Latest Start field. If there are enough slots without breaks to equal the value for the ABS – Default Number of Slots parameter, then the ABS displays only those slots. If there are not enough slots without breaks to equal the value for this parameter, then the ABS displays slots with or without breaks. For more information about the ABS – Default Number of Slots parameter, see *Parameters for Schedules*.

Travel

The Optimizer uses employee travel conditions and travel time to obtain the lowest-cost solution for a schedule. You set these values in the Service Details view in the Employees view of the Administration - User screen. The Start Shift From field and End Shift At field define the starting and ending conditions for travel to and from service calls. These fields can include the following values:

- **Home (Travel incl.).** The employee travels from home directly to the first activity. The Optimizer includes the cost of this travel to calculate schedules.
- **Home (Travel Not incl.).** The employee travels from home directly to the first activity. The Optimizer does not include the cost of this travel to calculate schedules.
- **Depot.** The employee starts each day by going to a service depot or office. The Optimizer tracks travel costs starting from the depot.

About Running Contract Scheduling

Contract Scheduling is a feature of the Optimizer for rapid scheduling of service appointments while maintaining the critical Optimizer requirements: enforcement of contractual deadlines and use of constraints when searching for solutions.

When Contract Scheduling is called, the Optimizer does not unschedule any other activities. However, the Optimizer attempts to create available time before inserting an activity. For example, if there are 2 half-hour spaces in an employee

schedule, and a user wants to schedule a 45-minute appointment, then the Optimizer attempts to move the other appointments to create a contiguous 45-minute space for the appointment.

The Optimizer is multithreaded and can handle multiple requests at the same time. For example, 2 users can call Contract Scheduling at the same time. However, because the Optimizer can process only 1 request at a time, simultaneous requests are queued so that multiple users can submit requests to the Optimizer. While the Optimizer performs optimization, users can still submit requests. The Optimizer queues the requests and processes them at the level for the Optimizer – Save Interval parameter or when optimization completes.

Companies with the following business requirements can use Contract Scheduling:

- Same-day calls for repair activities are a higher percentage of service calls.
- Service agreements specify penalties for failing to meet response times (for example, free labor or free parts).
- A large number of constraints exist.

Users can run Contract Scheduling by clicking the following buttons in Siebel Field Service:

- **Insert Activity button.** To use this button, navigate to one of the following views:

  – Dispatch Board screen, then the Unscheduled Activities view.

  – Activities screen, then the Schedule view.

  Clicking this button 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. For more information, see *Insert Activity Button*.
- **Load button.** To use this button, navigate to the Administration - Scheduling screen, Service Regions view, then the Activities view. This button is similar to the Insert Activity button in the Dispatch Board screen. For more information, see *Load Button*.

Insert Activity Button

The Insert Activity button either obtains a confirmed appointment from the ABS or runs the Optimizer to schedule the selected activity.

Before clicking this button, make sure the following conditions apply:

- The service region is set in the Dispatch Board Gantt chart.
- The activity is not repeating.
- The Status field of the activity has a value of Unscheduled.
- If the Lock Schedule check box is selected, then the values in the Planned Start field and Planned End field are not null.
- If the Lock Assignment check box is selected, then the activity assignee is not null.

The choice of sending the Insert Activity request to the ABS or Optimizer depends on the values in the Earliest Start field and the Latest Start field. These values determine whether the activity is in the ABS or the Optimizer horizon, as follows:

- If the Latest Start field is null, then sends the request to the ABS.
- If the Latest Start field is in the Glued period, then does not insert the activity and returns an error message.
- If the Latest Start field is less than the ABS start, then sends the request to the Optimizer.

Load Button

The Load button for activities synchronizes data in the cache if there are manual changes to an activity. For more information, see *Loading Activity Data for Service Regions*.

The choice of sending the activity to the ABS or the Optimizer cache depends on the following conditions:

- If the Planned Start field and Planned End field have values, 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 the Planned Start field and Planned End field do not have values, then the values for Earliest Start field and Earliest End field are used. If these values are in the Optimizer horizon, then the activity goes to the Optimizer cache.
- If neither of these conditions succeeds, then an error message appears.

Troubleshooting the Appointment Booking System and Optimizer

Typically, the following main types of problems can occur when using the ABS:

- Schedules and the associated activities do not load into the ABS on startup.
- When you try to book appointments, an error appears stating that no appointments are found.

You can analyze problems that you encounter. For more information, see *Troubleshooting the Appointment Booking System*.

Also, review the recommendations about how to extract the best solutions in the least amount of time when you use the Optimizer. For more information, see *Troubleshooting the Optimizer*.

> **Tip:** It is recommended that you set up distinct administrator users for running the ABS and Optimizer processes. You can trace and understand Siebel Scheduler operations if the ABS and the Optimizer are associated with different users (for example, ABSAdmin and OptAdmin). If the user remains as SADMIN, then you might have difficulty determining whether other workflows affect the activity. Knowing whether a user, a workflow, or Siebel Scheduler is responsible for an action can help you to diagnose problems.

Troubleshooting the Appointment Booking System

This topic includes some recommended values for the setup configurations and information that you can review if problems occur when using the ABS.

All of the following settings are required for running the ABS:

- Service region for each activity
- Values for the Earliest Start field and Latest Start field for each activity
- Server key mappings
- Time windows

- Parameter set
- Parameters, which include:
  - Month Start Date
  - Week Start Day
  - ABS - Days to Start
  - ABS - Days to End
  - Optimizer - Default Priority

Service Region Configuration

Service regions include the following information:

- A defined schedule.
- A defined time window.
- A defined parameter set.
- Employees who are assigned to a service region and who have a defined schedule.
- ZIP codes (or postal codes for international users) that are associated with the service region. ZIP codes automatically associate service regions with activities.

Activity Configuration

Activities to schedule include the following information:

- A defined service region.
- A specified duration and work time. For testing purposes, set the duration and work time to 30 minutes.

  Note: Work time can be less than or equal to the duration of the activity.

- A cleared Lock Schedule check box in the Schedule view in the Activity List view of the Activities screen. If you use Assignment Manager, then clear the Lock Assignment check box.
- A selected Allow Breaks check box if the activities are long. Long activities span more than a day, or the schedules include breaks.

Appointment Booking System Parameter Configuration

The following table describes the recommended settings for parameter values in the ABS.

Parameter	Recommended Value
Month Start Date	Set this parameter to 1. This parameter is primarily relevant if you use constraints for monthly capacity.

Parameter	Recommended Value
Week Start Date	Set this parameter to 1. This parameter is primarily relevant if you use constraints for weekly capacity.
ABS - Days to Start	Set this parameter value to at least 0. To allow booking on the same day, set this parameter value to 0.
ABS - Days to End	Set this parameter to a value greater than the ABS - Days to Start value, but less than 60. Setting this value higher results in longer loading times and the possibility of exceeding the 10,000 record limit.
ABS - Logging Level	Set this parameter to 3, but when you encounter problems, set it to 4.This parameter is the logging level for the ABS. This logging level is not the same as the general logging level.
ABS - Default Number of Slots	Set this parameter to between 5 and 10.
ABS - Timeout	Set this parameter to 5.
Use Assignment Manager	For debugging purposes, set this parameter to 0 so that all employees in the service region who are on duty are considered. If you use Assignment Manager, then set this parameter to 1.

Schedule Configuration

For testing purposes, create a simple 9:00 A.M. to 5:00 P.M. schedule for both employees and the service region.

Note: The service region schedule overrides the employee schedule. If the service region schedule indicates that employees do not work on weekends, then employees are not scheduled on weekends, even if their schedules indicate that they work on weekends.

Employee Configuration

All employees in the service region must have a defined schedule. For employees who do not have a defined schedule, create a schedule with no defined times. You might name this schedule Empty Schedule.

Note: If you use Assignment Manager, then the employees must have the appropriate skills.

Time Window Configuration

Set up time windows contiguously. Make sure time windows are long enough to cover the maximum activity duration to schedule.

Server Key Mapping Configuration

To configure server key mapping, perform the following tasks:

- Verify that the Appointment Booking Engine server component (ApptBook) for the service region is mapped to the correct Siebel Server.
- Verify the total number of unique servers. You use this information to set server components. For more information, see *Setting Parameters for Server Component Tasks*.

Assignment Rule Configuration

If you use Assignment Manager, then perform the following tasks to configure assignment rules:

- Check all assignment rules. In each rule, the Check Employee Calendar check box must be cleared. The ABS does not use this field.
- Use Assignment Manager in interactive assignment mode to try to assign the activity. Select an activity record (in the List view of the Activities screen), click the menu button on the Activity form, and select the Assign command. If the Assignment Manager rules are set up correctly, then a list of candidates is returned for the activity.
- For debugging purposes, it is recommended that you disable Assignment Manager by setting the Use Assignment Manager parameter to 0. For more information, see *Appointment Booking System Parameter Configuration*.

Appointment Booking System Constraint Set Configuration

Constraint sets can cause loading or booking problems if the constraints contradict each other. For testing purposes, set the constraint set in the service region to blank, and then check to see whether the problems no longer apply.

Disablement of Scripting on the Activity Business Object

If you check all the appropriate configuration values, and the problem still exists, then try disabling the scripting on the Activity business objects.

> **CAUTION:** The Action business component has numerous data integrity checks. Overriding or removing these checks can introduce subtle errors to the scheduling process.

Note the following recommendations when changing the Activity business objects, especially the Action business component:

- Do not change the code around work time and duration.
- Do not disable calculated field logic.

Troubleshooting the Optimizer

This topic includes some recommended values for the setup configurations and information that you can review if problems occur when using the Optimizer.

All of the following settings are required to run the Optimizer:

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

Note: You can set the values for these parameters. For more information, see *Creating Parameter Sets for Schedules*.

The Optimizer has the following additional requirements:

- An activity cannot span more than 1 day. Multiday activities are not scheduled. The Optimizer can schedule other activities during the time intended for multiday activities. However, the penalties for not scheduling these activities still contribute to evaluating the potential success of an optimized schedule. For more information, see *Defining Cost Functions for the Optimizer*.
- The Optimizer and ABS treat activities that cross between the end of the Optimizer horizon and the beginning of the ABS period as locked.

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 with Lock Assignment and Lock Schedule check boxes that are selected to make sure that these activities are considered in the optimized schedule. For more information, see *Locking Assignments and Schedules for Activities (End User)*.

While the schedule for a service region is optimized, only Insert Activity and Stop Optimization requests are accepted. These requests are queued, and the queue is processed when the optimization finds the next solution. Any other

request is returned. For more information, see *About Running Contract Scheduling* and *Stopping Optimization of Schedules for Service Regions*.

Guidelines for Obtaining Good Results for Optimization

This topic provides guidelines for obtaining good results for optimization.

The following recommendations can help you to obtain good optimization results at the best speed:

- Make sure that the Optimizer is on its own process in the server key mappings. This guideline is the most important way to return good results from the Optimizer.

Run the Optimizer when the server has a light load, preferably overnight. For more information, see *Setting Up Server Key Mappings*.

- Examine the Optimizer heuristic settings for the scheduling parameters.

  In general, a higher number produces a better result quality, but the time to find a solution is longer. Most companies find that setting the Optimizer heuristic parameters to 5 or 6 and running the Optimizer for 3 to 4 hours is sufficient. The Optimizer - Timeout parameter determines how long the Optimizer is run. For more information, see *Creating Parameter Sets for Schedules* and *About Heuristic Methods for Schedules*.

- Check the service region setup because more constraints lead to a faster solution.

  The Optimizer frames the scheduling problem as a solution space to explore and find the best answer. More constraints mean that the solution space decreases, and the Optimizer must explore fewer permutations to arrive at the best solution. For more information, see *Defining Service Regions*.

- Subdivide your field service engineers into types to help speed up optimization.

  For example, a cable company has several different activity types (cable install, cable problems, cable modem install, and cable modem problems). Specific field service engineers handle each type. Even in a large service region of over 50 engineers, the company can receive optimum solutions quickly because the engineers are subdivided in this way. The Optimizer solves several small problems instead of 1 large problem.

Optimizer Parameter Set Configuration

The following table describes the recommended parameter value settings for the Optimizer.

Parameter	Recommended Value
Optimizer - Save Interval	Set this parameter to 15.
Optimizer - Logging Level	Set this parameter to 3, unless you want to diagnose a problem.
Optimizer - Optimize Heuristic	Set this parameter to 5. Set this parameter higher for more accurate results and lower for faster results.
Optimizer - Timeout	Set this parameter to 180. Three hours is generally enough time to find a good solution.
ABS - Days to Start	Set this parameter to 1. This parameter controls how many days out the schedule is optimized. Setting this parameter to higher than 5 greatly increases memory usage and is not recommended.
Month Start Date	Set this parameter to 1. This parameter is primarily relevant if you use constraints for monthly capacity.

Parameter	Recommended Value
Week Start Day	Set this parameter to 1. This parameter is primarily relevant if you use constraints for weekly capacity.
Optimizer - Glued	Set this parameter to 120. This parameter is primarily relevant if you use Contract Scheduling during the day instead of batch scheduling overnight.
Optimizer - Default Priority	Set this parameter to 3.
Optimizer - Consider Parts	Set this parameter to 0.
Optimizer - Task Excl Cost	Set this parameter to 500 so that tasks are not deleted from the schedule unless absolutely necessary.
Optimizer - Hard Latest Start	Set this parameter to 0.
Use Assignment Manager	Set the parameter to 1 if you use skills to restrict candidates.

About Configuring the Book Appointment Dialog Box

To suit your company requirements, you can change the information that appears in the Book Appointment dialog box and the format for this information.

Some suggestions about changing the information that appears follow:

- By default, the employee name does not appear with the available time slots. Many service companies, especially companies that schedule partners or people working on commission, do not want to allow employees to see the names of the field service engineers to schedule so that the company can avoid favoritism. If you want to display the employee names with the available time slots, then you must display employees in the Abs Result Pick Applet.
- By default, the Book Appointment dialog box displays the start and end times of the time window. The time windows are generally longer than the actual duration of the activity. Set the time window to equal the length of the activity if you want to allow customer service representatives to view the exact times for the activities instead of the time window ranges.

  > **Tip:** The Planned Start field and Planned End field are available in the list columns of the Abs Result Pick Applet. However, to display these fields in the user interface, the corresponding applet Web template items (Planned End, Planned End - SR Time Zone, Planned Start, and Planned Start - SR Time Zone) must be active. These Web template items are inactive by default.

  > **Note:** You can change the time window values in the Time Windows List view of the Administration - Scheduling screen. For more information, see *Creating Time Windows for Schedules*.

- To return of only 1 time slot for each employee, set the Earliest Start field and Latest Start field for the activity to less than the time window. For example, if the time window is 40 minutes, then set the Earliest Start field to 11:00 A.M. and the Latest Start field to 11:30 A.M. to make sure that only 1 slot is returned for each employee

with the available time and appropriate skills. For more information, see *Adding Schedule Information to Activities (End User)*.

Held Time Slots

Occasionally, users might not see time slots when they know some are available. This situation can occur because the time slots are held. Time slots are held for customer service representative viewing until the representative clicks Cancel or the ABS timeout limit is reached. When only a few time slots remain, a single user can hold all of the time slots. For more information about the ABS - Timeout parameter, see the Parameters for Schedules table.

To mitigate this situation in high-volume service centers, you can set the ABS - Timeout parameter to a low value (for example, 1 minute). Alternatively, you can reduce the value of the ABS – Default Number of Slots parameter so that fewer slots are offered to each user.

About Enhancing the Performance of Siebel Scheduler

Each Siebel Server can run 1 or more service regions. Large service regions can run on a dedicated server.

Each service region can run on only 1 application server so that the information for 1 service region is cached in memory instead of continually read from the Siebel database, reducing the load on the Siebel database during schedule optimization.

CAUTION: It is recommended that you include no more than 400 service regions on 1 physical server because of the limitations on the Server Request Broker scalability. If your service regions exceed that amount for the ABS or Optimizer, then you must test performance and scalability carefully. For more information, see *About Siebel Scheduler and the Server Request Broker*.

The ABS and Optimizer interact with the Siebel database only for the following functionality:

- **Data loading.** The ABS and Optimizer read large amounts of information from the Siebel database on start up, or when the service region is reloaded. Therefore, avoid reloading during a busy time. For more information, see *About Loading and Reloading Data for Service Regions*.
- **Saving schedules.** The Optimizer can save its result sets to the Siebel database at specified time intervals. Unless the data set is very large, the Optimizer does not noticeably affect Siebel database performance. For more information, see the Optimizer – Save Interval parameter in *Parameters for Schedules*.

CAUTION: Although acceptable for testing, it is recommended that you keep the Siebel Application Object Manager and the Siebel Scheduler components on separate computers in the production environment to prevent surges in user activity from hindering the Siebel Scheduler operations.

Balance of the CPU Load for Service Regions

In general, the number of processes must be less than or equal to the number of CPUs on the server because the operating system (OS) farms out the work on each process to a separate CPU. When a small number of service regions exist, include each service region on a separate process number in a server. When the number of service regions exceeds the number of CPUs, and when each service region is approximately the same size, divide the regions equally across the processes. If the service regions are not the same size, then balance the regions according to size. For

example, put a 50-person service region on Process 1 and two 25-person service regions on Process 2. Another way to load balance is to note the amount of time to load and aim for an equivalent amount of load time on each process.

Note: You cannot specify the CPU for a process. The OS indicates this specification. It generally has its own algorithms to maximize performance in a multi-CPU environment.

About Siebel Scheduler and the Server Request Broker

When a request is made to Siebel Scheduler (through the user interface or the application programming interface), the Server Request Broker (SRB) routes the call to the correct server in the following manner:

1. When the ABS server is started, it loads all the activities into the cache. It registers all the unique service region keys in the shared memory file of the Siebel Server. The SRB uses the information stored in shared memory to determine the components that are running. No SRB threads are established at that time.
2. At the first attempt to connect to a service region (for example, a Book Appt request from a client), the Siebel Application Object Manager contacts the SRB on the Siebel Application Object Manager computer. That SRB sends the BookAppt request to the SRB on the ABS server. After the first request is submitted to the region, the SRB on that server establishes a connection to the local ABS.
3. The response is sent from Siebel Scheduler to the SRB on the service region computer. The SRB then sends the response to the SRB on the Siebel Application Object Manager computer. Then, the SRB on the Siebel Application Object Manager computer relays that response to the Siebel Application Object Manager.
4. Each local SRB connecting to the SRB on the service region computer makes subsequent connections from any Siebel Application Object Manager. Responses are similarly passed back through the 2 SRBs. The Siebel Application Object Manager connects only to the Server Request Broker. If there is a connection between the SRB and the ABS on the local computer, then it does not open another connection to the ABS.
5. The ABS contacts Assignment Manager, if used, by using the SRB mechanism. Having multiple rule sets does not affect the routing. Assignment Manager has a default rule set that applies when no rule set is defined.

The only persistent SRB threads are on the computer containing the SRB and the service regions on that computer.

For example, 3 servers exist in an enterprise. The Siebel Application Object Manager and an SRB run on Computer 1. Computers 2 and 3 have SRBs and 4 processes of ABS that run with 16 separate service regions (two for each ABS process). The user connects and books an appointment on each of the service regions. At this point, the environment looks as follows:

- The caches for all SRBs on all computers include the server key maps for all 16 service regions.
- The Computer 2 SRB has 8 open threads to the 4 ABS processes (two each). Each ABS service region listens on a unique port for calls from the Computer 2 SRB. Because there is a unique port for each service region in the ABS process, there is 1 connection (thread) from the Computer 2 SRB to that port on the ABS.
- Computer 3 appears the same as Computer 2.
- Computer 1 has connections only to the SRBs on Computers 2 and 3. The SRB on Computer 1 does not connect directly to the ABS on other computers because that defeats the broker purpose.

When Siebel Scheduler shuts down, the keys are deregistered in shared memory and the connection between the SRB and Siebel Scheduler is lost. If there are any Sync requests for Siebel Scheduler, then it fails and the user sees an error. If the request is an Async request stored in the Siebel database, then it remains in queued state until Siebel Scheduler is brought back up and the Service Request Processor (SRP) or the SRB then routes the request accordingly.

About Loading and Reloading Data for Service Regions

Because the service region information is cached, it must be loaded into the caches from the Siebel 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 automatically copied to the caches each time the server is restarted, and manually copied by clicking the Load buttons. Repeating component jobs can also automatically load service region data by using the Appointment Booking Service business service. For more information, see *Creating Workflows to Reload Data for Service Regions to the Appointment Booking System Cache* and *Troubleshooting the Appointment Booking System and Optimizer*.

Every night, information must move from the ABS (future) cache into the Optimizer (present) cache. For example, if today is July 1st, then the Optimizer horizon holds all activities from July 1st to July 7th. The ABS horizon is defined as 14 days, so the ABS cache holds all activities from July 8th to July 15th. 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.

On July 2nd, the old July 1st data is no longer necessary. It is in the past and discarded. At the same time, the Optimizer horizon is still 7 days out, so the Optimizer must load the July 9th data into the Optimizer cache. However, before the data can be loaded into the Optimizer cache, the data must be unloaded from the ABS cache. If the data is in both caches at the same time, then the data can change in both engines simultaneously. Therefore, the activities and data for July 9th are released from the ABS cache, and then loaded into the Optimizer cache.

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

When the data from a service region is first loaded, the Optimizer assumes that the data coming from the Siebel database was previously optimized. So while generating an initial solution, the Optimizer tries to retain the assignee and the sequence of activities for each field service engineer. It also retains the time stamp of this load in the cache.

Reload of Service Region to the Appointment Booking System

When a service region is reloaded, the ABS performs the following steps:

1. Queries for employees currently in the service region.
2. Gets the schedule for both the service region and each employee.
3. Queries for any exceptions for employees.
4. Constructs a master schedule.

   First, the ABS applies the service region schedule for all employees. It then applies a schedule for each employee.

   > **Note:** The service region schedule overrules both employee schedules and employee exceptions. For example, if the service region schedule indicates the company does not operate on Sundays, then activities are not scheduled for that day. The advantage of setting a liberal service region (24 hours) is that you can set exceptions, such as employees working on Sundays.

5. Reads in any constraints.
6. Queries for any activities in the next 15 days. The horizon is usually set from the start time of the day (00:00:00 A.M.).

   The ABS does not load historical activities unless you define a weekly or monthly constraint for the service region. If you define only weekly constraints, then the ABS loads another week of data. If you define monthly

constraints, then the ABS loads another month of data. However, when you define no weekly or monthly constraints, the ABS loads only activities in the ABS horizon.

The query appears as follows:

```
Planned Start > ABS Load Range End and Planned End < ABS Load Rang Start
```

The ABS attempts to insert the activities in the schedule in the following order:

- Activities with the Locked Schedule and Lock Assignment check boxes selected
- Activities with the Locked Schedule check box selected
- Activities with the Locked Assignment check box selected
- Activities with the Locked Schedule and Lock Assignment check boxes not selected

  If 2 activities that are both locked for schedule and assignment overlap, then only the first attempted activity is scheduled. The second is set as unscheduled.

  When loading, the ABS generally attempts to insert the activities exactly as they are stored in the Siebel database. If nothing changes (same employees, same schedules, no manual changes), then the activities in the cache are exactly the same. However, if changes occur, then the ABS attempts to reschedule activities. After the initial load completes, the ABS uses the following rules to reschedule any remaining appointments:
- The Earliest Start and Latest Start fields are considered.
- The Locked Schedule and Locked Assignment check boxes are considered.

  If the ABS can find an open spot for an activity, then the Owner field, Planned Start field, and Planned End field are updated in the cache and written to the Siebel database. If the ABS cannot insert an activity, then the status of the activity is set to Unscheduled but the Owner field, Planned Start field, and Planned End field remain unchanged so that a service manager can see the original committed time for the customer. The new status is written to the Siebel database and recorded in the log if the logging level is set to level 3 or higher. The activity is not kept in the ABS cache.

  Unless an activity changes during the load, the ABS does not modify the activity in the Siebel database. If the ABS fails, then the version in the Siebel database is consistent with the version in the cache. Any manual changes you make in the Siebel database are exceptions to this rule.

Reload of Migrated Data for Activities

If you want to migrate activity data to a new application, then use Siebel Enterprise Integration Manager (EIM). For more information, see *Siebel Enterprise Integration Manager Administration Guide* .

The following fields are critical for migrating the activity data:

- Earliest Start
- Lock Schedule
- Service Region
- Duration
- Owner
- Status

- Latest Start
- Planned End
- Travel Time
- Lock Assignment
- Planned Start
- Work Time

When you load the ABS after migration, activities are scheduled according to the employee and service region schedule. If an activity can be scheduled for its original owner, planned start, and planned end, then no change is made to the activity data and the employee is scheduled for the activity. If the activity cannot be scheduled in this way, then the activity is rescheduled by using its Earliest Start and Latest Start fields. The Planned Start field, Planned End field, Owner field (if such a change is required), and Status field are updated for the activity.

To make sure that the migrated activities can be loaded into ABS and scheduled for the original owner, planned start, and planned end, the following conditions must apply:

- The Planned End field less the Planned Start field must equal the Duration field.
- The Work Time field plus the Travel Time field must equal the Duration field.
  Travel time is the average travel time for the service region, not the activity.
- No doublebooking of the original activities occurs.
  If doublebooking occurs, then an overbooked activity is rescheduled, unless both the Lock Assignment and Lock Schedule check boxes are selected for the activity.
- Original activities do not violate any of the constraints for the service region.
- Original activities can fit into the service region schedule and employee working hours.

Process of Administering Schedules Using Siebel Scheduler

The following list shows the tasks that administrators typically perform to administer schedules. Your company might follow a different process according to its business requirements. For more information about the checks to complete after setting up schedules, see *Troubleshooting the Appointment Booking System and Optimizer*.

To administer schedules, administrators perform the following tasks:

- *Defining Schedule Hours*
- *Defining Breaks*
- *Defining Service Regions*
- *Defining Schedules and Availability for Employees*
- *Creating Time Windows for Schedules*
- *Creating Constraint Sets for Schedules*
- *Creating Parameter Sets for Schedules*
- *Defining Cost Functions for the Optimizer*
- *Setting Up Server Key Mappings*

- *Setting Parameters for Server Component Tasks*
- *Reloading the ABS and Optimizer Caches*

Defining Schedule Hours

For each schedule, you set schedule hours that define the hours of availability. The schedule can also include a set of exceptions (in the Exception Name field) that you define in the All Exceptions view and the Exception Hours view. For more information about how Siebel Scheduler uses schedule periods and time zones, see *About Schedule Horizons and Time Zones*.

To enter the hours for a schedule, perform the following procedures:

- Define the hours in which users can schedule employees for activities. For more information, see *Setting Hours of Availability*.
- Define the hours in which users cannot schedule employees for activities. For more information, see *Setting Exception Hours*.

This task is a step in *Process of Administering Schedules Using Siebel Scheduler*.

Setting Hours of Availability

For each schedule, you set schedule hours that define the hours of availability (days of week, hours for each 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 a Monday through Friday schedule) or for not working (for example, a midweek holiday in a Monday through Friday schedule).

The Schedule Hours view includes the days and time periods in each day that are included in a schedule. For example, an 8x5 schedule defines time periods within 8 hours on 5 days (for example, 9:00 A.M. to 5:00 P.M. Monday through Friday). However, each day might have multiple records, each with a separate time period (for example, 9:00 to 12:00 A.M. on Monday and 2:00 to 5:00 P.M. on Monday).

To set the hours of availability

1. Navigate to the Administration - Service screen, then the Schedules view.
2. Create a new schedule record, and complete the fields as appropriate.
3. Click the Schedule Hours view tab.
4. Create a new schedule hours record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Start Day	Select a day of the week for the schedule hours.
Start Time	Type the starting time of a period on the selected day.
End Time	Type the ending time of a period on the selected day.

Field	Comments
Type	Select the type of work for the schedule hours. Values include Normal, Overtime, and Extended Overtime. The Appointment Booking System and Optimizer use this value. **Note:** An Overtime period must come before an Extended Overtime period.
Shift Start Flag	Select this check box to indicate a time period that begins a work shift. Anything before the next flagged time period is in the same shift. This field helps the Optimizer handle swing shifts that start on one day and finish on another day. You must select this field for each shift in the schedule. Usually, each day has 1 shift start flag, except for the last day of a swing shift. For more information about setting shift starts, see *Defining Schedules and Availability for Employees*.

5. Repeat Step 2 through Step 4 for each day of the week that you want to set up 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.

Setting Exception Hours

Exceptions represent special nonworking days or working days. Different exception records can define exceptions for different sites (for example, U.S. holidays for a site and Canadian holidays for another site). You can define a day or continuous blocks of days as an exception to a schedule. In some cases, exception hours can define nonworking periods (for example, no work on Sunday from 6:00 A.M. to 12:00 A.M. in a 7x12 schedule). In other cases, exception hours can define work periods on days that are not normal work days (for example, Saturday morning in a 5x8 schedule).

To associate an exception with a schedule, define the exception and include this exception in the definition of a schedule.

You can also use exception hours to block the scheduled time slot for the owner of an activity to allow for another employee assignment to the activity in the same time slot. If the defined exception hours block a time slot when an activity is scheduled for the owner of the activity, then the activity is rescheduled when you reload the service region. For more information, see *Defining Hours for Employees*.

The All Exceptions view includes a set of exceptions to the hours that you define in the Schedule Hours view. The Exception Hours view includes the definition of these exceptions.

To set the exception hours

1. Navigate to the Administration - Service screen, then the Schedules view.
2. Drill down on the Name field for a selected schedule, and click the All Exceptions view tab.
3. Create a new exception record, and complete the fields as appropriate.
4. Click the Exception Hours view tab.
5. Create a new exception hour record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Name	Type a name of that describes the exception hours.
Start Date Time	Select the date and time for the start of the exception hours.
End Date Time	Select the date and time for the end of the exception hours.
Working	Select this check box to indicate the exception hours apply to a work period.
Type	Select the type of work for the exception hours. Values include Normal, Overtime, and Extended Overtime. Overtime and Extended Overtime apply to exception hours for which you select the Working check box. The Appointment Booking System and the Optimizer use this value. For more information, see *About the Appointment Booking System* and *About the Schedule Optimizer*. **Note:** Overtime hours must precede Extended Overtime hours.

Defining Breaks

Schedules can include any number of breaks. To define breaks, you first define a break type. For more information, see *Breaks*.

This task is a step in *Process of Administering Schedules Using Siebel Scheduler*.

To define a break type

1. Navigate to the Administration - Data screen, then the Work Types view.
2. Create a new work type record, and complete the fields as appropriate.

After you define the break type, you set the name of the break type.

To set the name of a break type

1. Navigate to the Administration - Application screen, then the System Preferences view.
2. Select the Sch:Break Time Id system preference.
3. In the System Preference Value field, enter the row ID for the break.

Defining Service Regions

A service region is a grouping of field service engineers in a geographical area for a purpose, such as supporting a certain set of products. Service managers try to manage the load in a service region by balancing proactive calls (installations and preventive or scheduled maintenance) with reactive calls. Service regions ease the administrative burden by allowing service managers to set consistent schedules, constraints, and costs for a large number of employees. For information about defining service regions using Siebel Field Service Integration to Oracle Real-Time Scheduler, see *Administering Service Regions*.

Also, a service region is a grouping of field service engineers and the activities that they perform. Thus, Siebel Scheduler creates a bounded solution set with a finite solution space and a finite number of activities to schedule. An assumption for a service region is that 2 employees with the same skill set are both capable of performing an activity. For an application that deals with only employees, employees are not grouped together well, and the interchangeability rules are too vague to effectively determine.

Every employee and service region has a predefined schedule that includes the days and hours that work can occur (normal work hours) and exceptions that deviate from normal work hours.

To define a service region, perform the following procedures:

1. Create a service region record. For more information, see *Creating Service Regions*.
2. Associate a schedule with the service region. For more information, see *Associating Schedules with Service Regions*.
3. Specify any regions that function as parent service regions. For more information, see *Specifying Parent Service Regions*.
4. Define the geographic area of the service region. For more information, see *Defining Geographic Areas for the Optimizer*.

This task is a step in *Process of Administering Schedules Using Siebel Scheduler*.

Caches for Service Regions

The information relating to each service region (for example, the employees assigned to the service region) is cached in memory. Instead of allowing the ABS and the Optimizer to operate directly on the Siebel database, the server copies data from the Siebel database into memory caches for the ABS and for the Optimizer. The ABS cache holds the time slots in the future, and the Optimizer cache holds the activities occurring in the next few days. This approach allows for quick and efficient scheduling and reduces traffic and the CPU load for the Siebel database.

Each service region has its own cache so that Siebel Scheduler processes occur independently. You can run Siebel Scheduler on separate CPUs in 1 server or separate servers as required. The ABS and the Optimizer are also multithreaded, and each service region can accept multiple requests at the same time. For more information, see *Reloading the ABS and Optimizer Caches* and *About Loading and Reloading Data for Service Regions*.

Creating Service Regions

A service region is a geographic area with ZIP Codes and a service team. The ABS and the Optimizer use service regions and associated data when scheduling activities.

You can define the employees who are assigned to a service region, geographic coordinates (geocodes and ZIP Codes or postal codes) for a service region, and the operation of the ABS and Optimizer for a service region.

To create a service region

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Create a new service region record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Parent Region	Select an existing service region as the parent region for the service region. For more information, see *Specifying Parent Service Regions*.
Time Zone	Select the name of the time zone that the ABS and Optimizer use. Administrators define time zones in the Time Zone Administration view of the Administration - Data screen. For more information, see *Siebel Applications Administration Guide* .
Schedule	Select the name of the schedule that the ABS uses. For more information, see *Defining Schedule Hours*.
Cost List	Select a cost list for labor. The Optimizer uses this field to calculate overtime costs. Administrators define costs lists in the Cost List view of the Administration - Pricing screen. For more information, see *Siebel Pricing Administration Guide* .
Travel Cost	Type the cost for each unit of travel. The Optimizer uses this field to calculate the cost function for a schedule.
Cost Function	Select the cost function. The Optimizer uses this field to optimize the schedule for the service region. For more information, see *Defining Cost Functions for the Optimizer*.
Parameter Set	Select the set of parameters. The ABS and Optimizer use this field. For more information, see *Creating Parameter Sets for Schedules*.
Constraint Set	Select the constraint set. The ABS and Optimizer use this field to optimize the schedule for the service region. Administrators define constraint sets in the Constraint Sets view of the Administration - Scheduling screen and in the Constraints view of the Administration - Scheduling screen.
Time Window	Select the name of a set of time windows. The ABS uses this field. For more information, see *Creating Time Windows for Schedules*.

Field	Comments
Minimum Travel Time	Type the minimum travel time. If the calculated travel time between 2 activities is less than this time, then the Optimizer uses this field.
Average Travel Time	Type the average travel time (in minutes). The ABS adds this time to the work time for an activity to calculate the duration of the activity.
Average Travel Speed	Type the average speed for each hour of travel for field service engineers in the service region. The Optimizer uses this field to calculate costs. For more information, see *Defining Cost Functions for the Optimizer*.
Unit of Measure	Select the unit of measurement for travel. The Optimizer uses this field to calculate the cost function for a schedule. Values include Miles and Km.

Associating Schedules with Service Regions

A service region can have only 1 schedule. You assign each service region a schedule that the ABS and Optimizer use. This schedule might be different than the schedule associated with each employee. You define schedules in the Schedules view of the Administration - Service screen. For more information, see *Defining Schedule Hours*.

The ABS uses the service region schedule as a base, and then refines time slot choices by using the employee schedules. The Optimizer uses the schedules for the field service engineers, not the service region schedule, when calculating the best deployment of personnel. For more information, see *Defining Schedules and Availability for Employees*.

To associate a schedule with a service region

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Select a service region, and select a schedule in the Schedule field.

Specifying Parent Service Regions

You can set a parent region for any service region. Parent regions affect the list of available employees in the Dispatch Board screen, but do not affect processing for scheduling.

Note: Selecting a parent region does not affect scheduling for the ABS or the Optimizer.

To specify a parent service region

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.

2. Select a service region, and select a service region in the Parent Service Region field.

Defining Geographic Areas for the Optimizer

ZIP Codes and geocodes define the geographic area of a service region. The Optimizer uses geocode data and ZIP Codes (or postal codes for international users) to identify addresses.

The ABS does not directly use ZIP Codes. The service region for an activity, and not the ZIP Code that is associated with the activity, determines ABS processing. However, ZIP Codes are critical to the Optimizer because the Optimizer uses ZIP Codes and country codes to find the underlying geocodes (latitude and longitude). The Optimizer uses these geocodes to calculate the distance from activity to activity. If an activity is missing a ZIP Code or country code, then the activity is not loaded into the cache because the Optimizer cannot evaluate the activity. The Optimizer does not verify whether a Zip Code is a correct Zip Code for a service region.

The Optimizer uses the following rules for ZIP Codes:

- A service region can include multiple ZIP Codes.

  CAUTION: It is recommended that you use that no more than 150 ZIP Codes for each service region, especially if you use optimization. Optimization routines store the solutions in memory for speed. Past iterations are stored to prevent reexamination of the same solutions. If your service regions include more than 150 ZIP Codes, then test performance and scalability carefully. Very large service regions can cause the process memory to grow extremely large, sometimes reaching the limit inherent in Microsoft Windows. In such cases, consider using UNIX.

- More than 1 service region can include the same ZIP Code. Service regions can geographically overlap.

  Note: A workflow uses the ZIP Code to perform automatic assignment to a service region.

Geocode data contains longitude and latitude coordinates (in minutes and seconds) for physical locations (for example, a customer site). The Optimizer can use data at any level of detail (for example, ZIP Codes or ZIP + 4 codes).

Because a ZIP Code can apply to several square miles, use a ZIP + 4 code. This code generally brings the accuracy to buildings for businesses or to within a few blocks for residential addresses.

The Optimizer requires, at minimum, a ZIP Code or postal code, country, longitude, and latitude. Five-digit ZIP Codes for the United States are included in the seed data for Siebel Field Service. ZIP Code information is included in the S_ZIPCODE data model table. The following table describes the columns in this table.

Column	Description
ZIP Code	The postal or ZIP Code in alphanumeric text.
City	The name of the city.
State	The name of the state or province.
Country	The name of the country.

Column	Description
Longitude	The longitude number (0 to + or – 180 degrees, + for the eastern hemisphere and – for the western hemisphere) up to 6 decimal places.
Latitude	The latitude number (0 to + or – 90 degrees, + for the northern hemisphere and – for the southern hemisphere) up to 6 decimal places.

Note: When longitude and latitude values are the same for 2 locations, the Optimizer uses the Minimum Travel Time field. For more information about this field, see *Creating Service Regions*.

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

For the Optimizer to schedule an activity, the address of the activity must have a valid ZIP Code and a country. The ZIP Code must have a corresponding geocode. The ZIP Code value can be a ZIP Code or a ZIP + 4 code.

To add a ZIP Code to a service region

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Drill down on the Name field for a selected service region, and click the Zip Codes view tab.
3. Create a new ZIP code record, and complete the fields as appropriate.

There are several vendors of geocode data. You can use either of the following methods to load data into the S_ZIPCODE table:

- Use the Siebel Enterprise Integration Manager (EIM). For more information, see *Siebel Enterprise Integration Manager Administration Guide* .
- Import data from the ZIP Code Administration view of the Administration - Data screen.

To import geocode data

1. Navigate to the Administration - Data screen, then the ZIP Code Administration view.
2. Click the menu button, and select Import.

   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

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 6 decimal places.
- **Longitude format.** East of the prime meridian (at Greenwich, UK) is positive. West of the prime meridian is negative. The data is interpreted to 6 decimal places.

The Siebel application stores the latitude and longitude in the decimal degree format because this format is the most widely used and is easy to use for distance calculations. Most data sets are in decimal degree format. You can use the following formula to convert a data set to decimal degrees from the degrees, minutes, and seconds:

Decimal degrees = Degrees + (Minutes/60) + (Seconds/3600)

For example:

37 Degrees, 25 Minutes, 40.5 Seconds

= 37. + (25/60) + (40.5/3600)

= 37. +.416666 +.01125

= 37.427916 degrees

Data Cleansing for Zip Codes

Address and ZIP Code accuracy are critical for a schedule optimization. It is highly recommended that you use a data cleansing application, such as the Siebel Data Quality module, to correct data for addresses and ZIP Codes. For more information, see *Siebel Data Quality Administration Guide* .

ZIP Code Usage in Multiple Service Regions

The Activity business object code uses the ZIP Code of the address of the contact or account for an activity to assign the activity to a service region. You might have to override this behavior by inserting your own processing logic if ZIP Codes apply to multiple service regions.

In general, it is recommended that you set up 1 service region for each ZIP Code, and use skills for the employees to differentiate between products. The service manager can then redistribute employees by changing their skills and reloading the skills into Assignment Manager. If you use separate regions, then you must unload employees from a service region and into another service region.

Note: More service regions mean a higher load time.

Siebel Scheduler does not validate a service region against the ZIP Code after the service region is set for the activity so that users can move activities to other service regions as required (for example, to cover additional activities for a marketing campaign in that service region). Validate the ZIP Code up-front, preferably when a user creates the record.

Siebel Field Service uses the ZIP Code of the address for the contact or account that is associated with an activity to automatically assign the activity to a service region. (An activity is automatically assigned to a service region only if the Service Region field has no value.) If the contact address has a ZIP Code, then that ZIP Code is used to identify the service region. Otherwise, the ZIP Code of the account address is used to identify the service region. If only 1 service region is identified, then that service region is automatically assigned to the service request. If multiple service regions are identified, then a customer service agent must select the appropriate service region for the service activity.

Defining Schedules and Availability for Employees

The Schedule field in the Service Details view in the Employees view of the Administration - User screen and the exception records in the Employee Exception Hours view in the Employees view of the Administration - User screen determine employee schedules (available and unavailable hours). In the Schedules view of the Administration - Service screen, you set the definition of the schedules that appear in the Schedule field.

The ABS uses the service region schedule as a base, and then refines time slot choices by using the employee schedules. For more information, see *Defining Schedule Hours*.

The Optimizer uses only the employee schedules.

To define schedules and availability for employees, perform the following procedures:

- *Defining Hours for Employees*
- *Specifying Employees as Unavailable*

This task is a step in *Process of Administering Schedules Using Siebel Scheduler*.

Rules for Defining Employee Schedules

When setting schedules for field service engineers, note with the following rules:

- A schedule must have only 1 shift start for each day.

  To set up multiple shift start times, use multiple schedules, each for a separate shift.
- You must select the Shift Start Flag field for the first time period in a day (except when a shift spans 2 days).

  If a shift spans more than 1 day (for example, Monday 9:00 P.M. to 11:59 P.M. and Tuesday 12:00 A.M. to 4:00 A.M.), then the first day must include the start of the shift.
- The ABS, but not the Optimizer, can have activities that span more than 1 day.
- It is recommended that you assign no more than 150 employees to each service region, especially if you use optimization.
- You can schedule 1 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 these breaks as working time. Consequently, inaccuracies appear in cost calculations.

Defining Hours for Employees

The hours for an employee determine when the employee is available to work. To define the hours for an employee, you define a schedule for the employee.

To define a schedule for an employee

1. Navigate to the Administration - User screen, then the Employees view.
2. Drill down on the Last Name field for a selected employee, and click the More Info view tab.
3. In the Schedule field, select a schedule.

   You also define the exception hours for the employee.

To define exception hours for an employee

1. Navigate to the Administration - User screen, then the Employees view.
2. Drill down on the Last Name field for a selected employee, and click the Employee Exception Hours view tab.
3. Create a new exception hour record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Start	Select the date and time that the employee is unavailable for scheduling.
End	Select the date and time that the employee is again available for scheduling.
Working	Select this check box to indicate the exception hours apply to a working period. For example, you specify a Saturday morning exception for an employee who normally works only from Monday to Friday. You select the Working check box to indicate the employee works these additional hours and can be scheduled for activities during these hours. However, if you specify exception hours for a midweek holiday for the same employee and do not select the Working check box, then Siebel Scheduler assumes that the employee does not work that day and cannot be scheduled for activities on that day.
Reason	Select the reason for the exception hours for the employee. Values include Vacation and Sick Time.
Type	Select the type of work for the exception hours. Values include Normal, Overtime, and Extended Overtime. For more information, see *Shifts*.

Specifying Employees as Unavailable

Use the Unavailable button to instruct the Optimizer that the selected employee is unavailable for a period. Clicking this button sends an asynchronous request to the Optimizer to load the data for the selected employee, including exception hours, and reassign or reschedule activities.

Tip: Before using the Unavailable button, you might have to create a new record (in the Employee Exception Hours view in the Employees view of the Administration - User screen) describing the time when the selected engineer is unavailable. If you do not define at least 1 exception hour for the engineer, then the Optimizer displays an error message. For more information, see *Defining Hours for Employees*.

To specify an employee as unavailable

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Drill down on the Name field for a selected service region, and click the Employees view tab.
3. Select an employee record, and click Unavailable.

Creating Time Windows for Schedules

You use time windows to define the interval of time for starting an activity. Time windows are associated with a service region in the Service Region List view of the Administration - Scheduling screen. For more information, see *Defining Service Regions*.

The Details view in the Time Window List view of the Administration - Scheduling screen includes specific mappings that make up each time window record. To accommodate activities that vary in duration, you map each range of durations to a time window. For example, a work time of 1 to 60 minutes might require a time window of 120 minutes to provide the Optimizer with the flexibility to change the schedule for optimization.

The ABS uses time windows and the work time or duration for an activity to find the available time slots for the activity. The customer service representative then selects one of these time slots to book an appointment for the activity. To see how the ABS finds the available time slots, consider the following example. In the Time Window List view, you set the Default Time Window field to 240 minutes (or 4 hours), the Duration From field to 0 minutes, the Duration To field to 30 minutes, and the Time Window field to 60 minutes.

If the work time for an activity is 30 minutes, then the ABS divides employee schedules into 60 minute time slots because the time window for 30 minute activities is 60 minutes. The ABS considers start shift times and the type of work hours in employee schedules when dividing these schedules into time slots. If the customer service representative selects an ABS-provided time slot of 8:00 A.M. to 9:00 A.M., then the planned start time for the activity can be between 8:00 A.M. and 9:00 A.M., and the planned end time for the activity is 30 minutes later.

If the duration of another activity is 500 minutes (8 hours and 20 minutes), if breaks are allowed during the activity, and if the work hours are from 9:00 A.M. to 5:00 P.M., then the ABS does not provide 500 minute time slots (for example, 9:00 A.M. on Monday to 9:20 A.M. on Tuesday) because there is no time window for 500 minutes. Instead, the ABS provides 240 minute (or 4 hour) time slots (for example, 9:00 A.M to 1:00 P.M.) because the default time window is 240 minutes.

This task is a step in *Process of Administering Schedules Using Siebel Scheduler*.

To create a time window for schedules

1. Navigate to the Administration - Scheduling screen, then the Time Window List view.

2. Create a new time window record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Name	Type the name of the set of time window mappings.
Default Time Window	Type the time window (in minutes) that is applied to an activity when the Details view for the time window does not include a mapping for the specific duration of the activity.

3. Scroll down to the Details view, and create a new record for each activity duration range.
4. To view the service regions that are associated with the time window, click the Service Regions view tab.

Creating Constraint Sets for Schedules

Service businesses must operate under numerous union, legal, or business constraints. For more information, see *Examples of Constraints*.

These constraints include the following types:

- **Hard constraints.** The ABS and Optimizer cannot violate hard constraints. Activities that do not fit these constraints are not scheduled. Consequently, the engines quickly find solutions, but fewer solutions are obtained. The solutions result in higher costs for service.
- **Soft constraints.** The Optimizer can weigh the cost of using or violating a soft constraint when calculating solutions for a schedule. Compared to hard constraints, soft constraints result in longer optimization times (lower performance of the Optimizer), more solutions, and lower costs for service. Violating soft constraints can result in a more costly schedule.

Schedules that violate hard constraints are discarded even though they might be better than other solutions. The Optimizer can use solutions that violate soft constraints, but it assigns a penalty to these violations that can make a solution less favorable than another solution. The calculated cost function for each solution includes the penalties for violating soft constraints. For more information, see *Defining Cost Functions for the Optimizer*.

To create constraint sets, perform the following procedures:

- *Defining Constraints*
- *Defining Constraint Sets*

This task is a step in *Process of Administering Schedules Using Siebel Scheduler*.

Examples of Constraints

The following constraints limit work hours:

- Union agreements stipulate that no person work more than 10 hours of overtime in a week.
- Laws regulating worker safety restrict employees from working more than 12 hours a day.

- To keep costs down, management specifies that no service manager can authorize more than forty hours of overtime for each week for all of their employees.
- An engineer cannot work more than 45 hours for each week.
- An engineer cannot engage in an activity type (for example, working with hazardous materials) more than 4 hours in each day.
- Total workload must be less than 95%.
- Total workload must be greater than 60%.
- An engineer cannot travel more than 4 hours a day.

The following constraint limits timing of an activity: All waste disposal activities must start before 8:00 P.M.

Predefined Constraints

The following table describes the predefined constraints for the ABS and Optimizer.

Constraint	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 that any employee or a specific employee spends on activities. Or, limits the number of activities or time spent on activities for a specified service role (for example, Installation or Preventive Maintenance).
Appointment Booking Schedule Activity Type	Limits the number of activities of any type or the 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 constraint is a hard constraint.
Optimizer Activity Time Soft	Limits when an activity of a specified type or priority can begin or end. Also, specifies the penalty for violating this soft constraint.
Optimizer FSE Limit Hard	Limits the following values for any employee or a specific employee during a specified period: • Workload percentage • umber of activities of any type or of a specified type • Total hours of travel time • Total work hours This constraint is a hard constraint.
Optimizer FSE Limit Soft	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: • Workload percentage • umber of activities of any type or of a specified type

Constraint	Description
	• Total hours of overtime • Total hours of travel time • Total work hour Also, specifies the penalty for violating this soft constraint.
Optimizer Fairness	Promotes an 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): • Number of activities of any type or of a specified type • otal hours of overtime • Total hours of travel time • Total work hours Also, specifies the penalty for violating this soft constraint. **Note:** Optimizer Fairness is a leeway constraint because it is based on a percentage and not an absolute value. Because this number is approximate, the Optimizer can achieve acceptable schedule assignments within acceptable times.
Optimizer Schedule Activity Type Hard	Limits the following values for a whole schedule in a specified period: • Hours of work time for activities of a certain type • umber of activities of a certain type • Percentage count of activities of a certain type • Percentage hours for activities of a certain typ This constraint is a hard constraint.
Optimizer Schedule Activity Type Soft	Limits the following values for a whole schedule: • Hours of work time for activities of a certain type • umber of activities of a certain type • Percentage count of activities of a certain type • Percentage hours for activities of a certain typ Also, specifies the penalty for violating this soft constraint.
Optimizer Schedule Overtime Soft	Limits the hours of overtime in a specified period for a whole schedule. Also, specifies the penalty for violating this soft constraint.
Optimizer Travel Time	Limits the travel time between activities for all employees, specific employees, or a specified service role (for example, Installation or Preventive Maintenance). This constraint can be a hard or soft constraint.

Defining Constraints

You create constraints using the Constraint Wizard. This wizard guides you step-by-step through the process. You select a constraint template and then either select or enter the appropriate values.

Do not define contradictory constraints. For example, the following constraints conflict with each other if both constraints are hard constraints and if the duration of the activities is less than 2 hours:

- A field service engineer must work a minimum of 4 hours in each day.
- A field service engineer can work on no more than 2 activities in each day.

In this example, the Optimizer cannot find a solution and fails to schedule the activities.

Test new constraints before releasing the constraints into a production environment. Leaving the constraints as soft constraints might help to avoid problems. However, too many soft constraints and not enough hard constraints can hamper performance.

After you define constraints, you can define constraint sets that are associated with service regions. For more information, see *Defining Constraint Sets*.

To define a constraint

1. Navigate to the Administration - Scheduling screen, then the Constraints view.
2. Create a new constraint record, and follow the Constraint Wizard steps.

   For more information about the predefined constraints that you can select, see *Creating Constraint Sets for Schedules*.
3. When you complete the constraint, click Save.

   The Save a Constraint dialog box appears.
4. Enter a name for the constraint, and click Save.

   The Constraints list reappears.

Defining Constraint Sets

Constraint sets provide the basic definition for a predefined set of constraints that a service region uses for running the Optimizer. You associate a constraint with a service region in the Service Region List view of the Administration - Scheduling screen. For more information, see *Creating Service Regions*.

To define a constraint set

1. Navigate to the Administration - Scheduling screen, then the Constraint Sets view.
2. Create a new constraint set record, and complete the field as appropriate.
3. Scroll down to the Constraints list.
4. Create a new constraint record, and select a predefined constraint from the Add Constraint dialog box that appears.
5. Enter a start and end date for the constraint, if applicable.
6. To view the service regions that are associated with the constraint set, click the Service Regions tab.

Creating Parameter Sets for Schedules

Parameter sets contain key information that determines how the ABS and Optimizer operate. Parameter sets are associated with service regions in the Service Region List view of the Administration - Scheduling screen. Each service region uses a parameter set. For more information, see *Defining Service Regions*.

If the scheduling server starts without Optimizer or ABS parameters, then the service region is not loaded for the Optimizer or the ABS. The log files (Optimizer_xxx.log and ApptBook_xxx.log) in the log directory on the Siebel Server specify the missing parameters.

Note: If a service region fails to load, then you must restart the ABS or Optimizer. You do not have to reboot the computer.

The Parameter Sets view includes the basic definition of the parameters that the ABS and the Optimizer use. The Parameters view includes each parameter in a parameter set.

This task is a step in *Process of Administering Schedules Using Siebel Scheduler*.

To create the parameter set for a schedule

1. Navigate to the Administration - Scheduling screen, then the Parameter Sets view.
2. Create a new parameter set record, and complete the fields as appropriate.
   Enter a meaningful name for the parameter set (for example, East Coast Parameters).
3. Scroll down to the Parameters list, create a new parameter record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Variable Code	Select the appropriate parameter. For more information about the parameters that you can select, see *Parameters for Schedules*.
Variable Value	Type a value for the parameter.

4. To view the service regions that are associated with the parameter set, click the Service Regions view tab.

Parameters for Schedules

The following table lists the various parameters that you can use to specify a parameter set.

Parameter	Required?	Value	Description
Month Start Date	No	Number, 1–28	Determines the day that the month starts. Use this parameter for constraints that are defined in months. Most users set this parameter to 1. The default value is 1.

Parameter	Required?	Value	Description
Use Assignment Manager	No	0 or 1	Indicates whether the activity is submitted to Assignment Manager to receive a list of engineers capable of performing this work. Set this parameter to 1 to use the AM, unless all employees in a service region have the same skills, or all employees are eligible to perform all the activities. The default value is 1.
Week Start Day	No	Number, 1–7	Determines the day that the week starts. Use this parameter for constraints that are defined in weeks. Most users set this parameter to 1 (Sunday) or 2 (Monday). The default value is 1.
ABS – Activity Category	No	Order number for the Activity Category LOV.	Indicates only activities with the specified category are loaded into the ABS. The default value is all categories. The value can be comma-separated for multiple categories. The order number for an activity category LOV appears in the List of Values view of the Administration - Data screen. For example, this view shows the order number for a Repair Activity category (FS_ACTIVITY_CLASS type).
ABS – Activity Status	No	Order number for the Activity Status LOV.	Indicates activities with the specified status are not loaded into the ABS. The recommended default value is the order number for the Cancelled status. The value can be comma separated for multiple statuses. The order number for an activity status LOV appears in the List of Values view of the Administration - Data screen. For example, this view shows the order number for a Cancelled status (EVENT_STATUS type).
ABS – Days to End	Yes	Number	Specifies a number of days (not an absolute date) after the current date. The ABS does not schedule activities for the days that are after the date that this parameter indicates. Consequently, the ABS does not load activities that are scheduled after the date that this parameter indicates.
ABS – Days to Start	Yes	Number	Specifies a number of days (not an absolute date) after the current date. The ABS schedules activities for the days that are on or after the date that this parameter indicates and that are on or before the date that the ABS - Days to End parameter indicates. Then, the ABS loads activities that are scheduled on or after the first day of the month that contains the date that this parameter indicates and that are scheduled on or before the date that the ABS - Days to End parameter indicates. (Because you can define ABS constraints in months, the ABS must load activities that are scheduled on or after the first day of the month.) This parameter activates at 12:00 A.M. If this parameter is set to 1, then the ABS starts scheduling activities later than midnight after the region is loaded (subject to the schedule used). A value of 0 is not supported for this parameter. **Note:** Activities that start in the past but that end after the date that this parameter indicates are still loaded to the ABS.

Parameter	Required?	Value	Description
ABS – Default Number of Slots	No	Number	Specifies how many choices (maximum number of appointment slots) are returned to the user. A higher number of slots gives more flexibility, but can slow the ABS because searching for more slots takes longer. The default value is 5.
ABS – Logging Level	No	Number, 1–5	Controls the amount of information that is written to the ABS log (ApptBook_xxx.log) stored on the server. The lowest level, 1, writes only basic information about the server activities, and the highest level, 5, writes detailed logs that show all actions that occurred. **Note:** You must set the Appointment Booking and Optimization Execution event for the ApptBook component to 5 to generate log files when the ABS is loaded.
ABS – Range of Heuristic	No	Number	Determines the time range (in days) that the selection heuristic uses. Values include: • **1.** A day. • **7.** A week
ABS – Selection Heuristic	No	Number	Determines the method for finding time slots. For more information about the methods, see *About Heuristic Methods for Schedules*. Values include: • **1.** Earliest First method. • **2.** Resource Loading method. • **3.** Resource Leveling method.
ABS – Timeout	No	Number (Minutes)	Sets how long time slots are locked (in minutes) after the user requests but does not select the slots. After this time, the slots are released and made available for booking by other users. If the user closes the browser or loses a connection, then the slots are again available. Do not set this parameter to zero.
Optimizer – Activity Category	Yes	Sequence number for the Activity Category LOV.	Indicates only activities with the specified category are loaded into the Optimizer. The default value is all categories.
Optimizer – Activity Status	No	Sequence number for the Activity Status LOV.	Indicates activities with the specified status are not loaded into the Optimizer. The recommended default value is Cancelled.
Optimizer – Default Priority	Yes	Sequence number for the Activity Priority LOV.	Indicates the priority for an activity that has no priority.
Optimizer – Glued	Yes	Number (Hours)	Indicates the period when the Optimizer does not change the assigned employees (and schedules) for activities. This period extends from the time when the optimization task begins

Parameter	Required?	Value	Description
			until the time that this value designates. The optimization task begins when you click the Optimize button in the Service Region List view of the Administration - Scheduling screen. For example, if you click the Optimize button at 10:00 A.M. and if you set this value to 4 (4 hours), then the Optimizer does not reassign employees for activities (and does not reschedule activities) that are scheduled to occur between 10:00 A.M and 2:00 P.M.
Optimizer – Hard Latest Start	No	0 or 1	Indicates whether the Latest Start field value is a hard or soft constraint. Values include: • **0.** Soft constraint • **1.** Hard constrain The default is 0.
Optimizer – Logging Level	No	Number, 1–5	Controls the amount of information that 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, and the highest level, 5, writes detailed logs that show all actions that occurred.
Optimizer – Optimize Heuristic	No	Number, 1–8	Indicates the heuristic used to improve the optimization solution. For more information about the methods, see *About Heuristic Methods for Schedules*. Values include: • **1.** Greedy search • **2.** Steepest search • **3.** Greedy search followed by a Tabu search • **4.** Steepest search followed by a Tabu search • **5.** Greedy search followed by Fast GLS • **6.** Steepest search followed by Fast GL • **7.** Greedy search followed by GTS • **8.** Steepest search followed by GTS where: GLS is Guided Local Search. GTS is Guided Tabu Search.
Optimizer – Consider Parts	No	0 or 1	Indicates whether the Optimizer considers the parts in the trunk inventory of an engineer when evaluating the engineer for assignment to an activity. Values include: • **0.** No • **1.** Yes
Optimizer – Parts Period	No	Integer (Hours)	Indicates how far in advance the Optimizer considers the parts in the trunk inventory of an engineer.

Parameter	Required?	Value	Description
Optimizer – Save Interval	Yes	Integer (Minutes)	Indicates the frequency with which the Optimizer saves results during optimization. Because of this parameter, if an application failure occurs during optimization, then some optimized results are not lost. For example, if the optimization time is 3 hours, and the save interval is 1 hour, then the Optimizer saves results every hour during the 3 hour run. If an application failure occurs 2.5 hours after the Optimizer starts, then the first 2 hours of the optimization results are saved. When you restart optimization, the Optimizer uses the 2 hours of results from the previous run. The time the Optimizer uses to save the results at the save interval is part of the optimization time. Saving the optimized results at the save interval uses extra resources and time. Consider both the importance of saving partially optimized results and the efficiency of optimization time usage. If losing partially optimized results because of an application failure is not an important consideration, then set the save interval parameter to a time that is the same as or longer than the optimization time. Consequently, the Optimizer saves results only when optimization is complete. If losing partially optimized data because of an application failure is an important consideration, then do not set the save interval parameter to less than 1 hour. Consequently, the Optimizer saves results infrequently and uses optimization time efficiently.
Optimizer – Tardiness Cost	Yes	Number (Float)	Indicates the cash value, in dollars, for each hour of violating a soft constraint in the Optimizer – Hard Latest Start parameter.
Optimizer – Task Excl Cost	Yes	Number	Indicates the penalty used to calculate the cost function if an activity is unscheduled.
Optimizer – Timeout	Yes	Integer (Minutes)	Indicates the maximum time in minutes for each optimization.

Defining Cost Functions for the Optimizer

The cost function is the sum of variables that drive the optimization of a schedule. For each activity in the schedule, the Optimizer minimizes the value of the cost function while optimizing the schedule. The cost function indirectly calculates the monetary cost of completing the activities in a schedule.

Each service region has only 1 cost function. However, many service regions can use the same cost function. You associate cost functions with service regions in the Service Region List view of the Administration - Scheduling screen. For more information, see *Defining Service Regions*.

The Cost Functions view includes the function that the Optimizer uses for assessing the success of each iteration of a schedule. The Cost Function Details view includes each variable in a cost function.

This task is a step in *Process of Administering Schedules Using Siebel Scheduler*.

To define a cost function for the Optimizer

1. Navigate to the Administration - Scheduling screen, then the Cost Functions view.
2. Create a new cost function record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Function Type	Select a function type. Values include Normal and Emergency. For Siebel Field Service scheduling purposes, select Normal.
Function Area	Select a function area. Values include Field Service, Workforce Management, and Professional Services. For Siebel Field Service scheduling purposes, select Field Service.

3. Scroll down to the Details list.
4. Create a new detail record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Active	Select this check box to indicate the variable is active.
Variable	Select the variable to use for the cost function. For more information, see *Variables for Cost Functions*.
Weight	Type the weighting value to allocate to the cost function variable. For all weights in the cost function, start with a value of 1. (This value approximates the real cost of scheduling an activity.) Then change the values as needed.

5. To view the service regions that are associated with the cost function, click the Service Regions view tab.

Variables for Cost Functions

The following table describes the variables for the cost function.

Variable	Calculation of the Variable
Constraint Violation	Σ RuleViolationCost * Weight This calculation includes the sum of Rule Violation Costs for each violated soft constraint. A violation is proportional to the degree of the violation. The units for the amount of the violation are the same as the defined units for the constraint. Time units are in hours. All other cases use the activity.

Variable	Calculation of the Variable
FSE Overtime	FSEOTCost * (EndtimeoflastactivityinOT - Endofnormalshift) * Weight where: FSEOTCost is (StdCost * StdOTpercent) + (StdCost * ExtOTpercent).
Tardiness	TardinessCost * Amountofdelay * Weight
Task Exclusion Penalty	TaskExclusionPenalty * (1/TaskPriority) * Weight Task priority allows high priority tasks to take precedence over low priority tasks. Task priority is important when there are not enough resources to schedule all activities. The task priority term uses the numeric value from the Order field in the List of Values view of the Administration - Data screen. This value also appears in the Priority field in the More Info view of the Activities screen. For more information, see *Siebel Applications Administration Guide* . Task Exclusion Penalty and Weight cannot be zero. If they are zero, then no activities are scheduled.
Travel Distance	TravelDistance * TravelCost * Weight

Setting Up Server Key Mappings

Service regions are self-contained so that they can run on separate CPUs and even separate servers. You use server key mappings to specify the location and routing of requests to these service regions. Server key mappings also assign the service regions to different processes and determine whether the servers process them in parallel or serially. There are server key mappings for the ABS and for the Optimizer.

When a user clicks the Book Appointment button, the request is sent to the enterprise server. The enterprise server then reviews the mapping of the service regions and routes the request to the appropriate Siebel Server that stores that service region.

In the Server Key Mappings view, you assign servers to processes and associated service regions.

This task is a step in *Process of Administering Schedules Using Siebel Scheduler*.

To set up a server key mapping

1. Navigate to the Administration - Scheduling screen, then the Server Key Mappings view.
2. Create a new server key mapping record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Server	Type the name of a Siebel Server.

Field	Comments
Process #	Type the number of a process that runs on the server. This number groups service regions into the same process. **CAUTION:** If you specify multiple processes on a server, then you must set the Maximum MT Servers server component parameter to the same number of processes so that multiple processes are spawned. If you do not, then only the first process is created and not all regions are loaded. It is recommended that you set the Minimum MT Servers server component parameter to the number of needed processes and the Maximum MT Servers parameter to a value greater than or equal to the Minimum MT Servers parameter. For more information about these parameters, see *Siebel Performance Tuning Guide* and *Setting Parameters for Server Component Tasks*.
Leaf Service Region	Select the name of a service region from the Pick Service Region dialog box.
Component	Select the name of a component, either ABS or Optimizer, from the Pick Component dialog box. **Note:** If the Server Key Mappings - Optimizer Component is not available for selection in the Component field, then the server installation is incomplete. To correct this problem, use the Synchronize button in the Synchronize view in the Enterprises view of the Administration - Server Configuration screen. For more information about the complete procedure, see *Siebel System Administration Guide* .

3. Restart the relevant server component (for example, the Appointment Booking Engine or Optimizer) for the changes to take effect.

   You must also restart the relevant server if you add or remove a key value.

Multiple Processor Support

If the underlying operating system can support multiple processors on 1 computer, then Siebel Scheduler can take advantage of the processors by running different service regions for the ABS and Optimizer on different processors. You must set different process numbers in a server key mapping. A server with a single processor can run multiple processes, but this setup can adversely affect performance. Service regions in different processes are run in parallel, while service regions in the same process are run serially.

Note: The number of processes running on a server computer is not related to the number of processors in that computer.

Because the ABS and Optimizer are different modules, they are already running as separate processes, even though the process number is the same. A module for 1 service region can run in only 1 process at a time.

For example, consider a 4-processor computer with only 2 processors in use. The following table shows an example of the key mapping when 1 service region runs with both the ABS and Optimizer. Process refers to the number of processes for that component, not the processor number on the server.

Server	Service Region	Process	Module
AppServer1	West Coast Region	1	ABS
AppServer1	West Coast Region	1	Optimizer

Note: You cannot run 1 module for a service region as 2 processes.

The following table shows an example of the key mapping when 2 service regions run on a 4-processor computer. In this example, you can use all 4 processors. Process refers to the number of processes for that component, not the processor number on the server.

Server	Service Region	Process	Module
AppServer1	West Coast Region	1	ABS
AppServer1	East Coast Region	2	ABS
AppServer1	West Coast Region	1	Optimizer
AppServer1	East Coast Region	2	Optimizer

If there are more than 2 service regions on a 4-processor computer, then you can run the modules as different processes. The following table shows an example of the key mapping for the best use of the processors on a server when the West Coast Region is very large and the Central Region and East Coast Region are smaller. Process refers to the number of processes for that component, not the processor number on the server.

Server	Service Region	Process	Module
AppServer1	West Coast Region	1	ABS
AppServer1	East Coast Region	2	ABS
AppServer1	Central Region	2	ABS
AppServer1	West Coast Region	1	Optimizer
AppServer1	East Coast Region	2	Optimizer

Server	Service Region	Process	Module
AppServer1	Central Region	2	Optimizer

The West Coast Region requires more computation and uses 2 processors. The East Coast Region and Central Region run in the same processes and on the same 2 processors.

Each server component is multithreaded and can load schedules for multiple service regions. Multiple threads can share these schedules. Each request to the Optimizer runs on a new thread.

A request identifies the required schedule for 1 service region and locks the schedule. Requests for schedules for other service regions can continue while requests for the same schedule are queued. Because the response time for the ABS is fast, high latency for the returned booking times does not result because the processing time between ABS transactions is usually several minutes.

Setting Parameters for Server Component Tasks

Set up the parameters that configure shell (process) startup for the Server Request Broker and the Appointment Booking Engine server components in accordance with the number of service regions and the number of users. For more information about changing these parameters for server components, see *Siebel System Administration Guide* .

This task is a step in *Process of Administering Schedules Using Siebel Scheduler*.

Number of Tasks for Server Request Broker

Each service region used keeps a Server Request Broker (alias SRBroker) task permanently running. You might have to increase the default MaxTasks parameter setting of 100 for the SBBroker server component when using more than approximately 70 service regions. This precaution prevents errors such as the following from appearing in the SRBroker log: The Multithreaded Server has reached the maximum number of concurrent tasks (100).

Number of Tasks for Appointment Booking System

The following table lists the recommended parameter settings for the Appointment Booking Engine (alias ApptBook) server component.

Parameter	Alias	Recommended Value
Maximum Tasks	MaxTasks	10-20% of the total number of users who access the ABS.
Minimum MT Servers	MinMTServers	The same as the number of entered servers in the Server Key Mapping view of the Administration - Scheduling screen.
Maximum MT Servers	MaxMTServers	The same as the value for the Minimum MT Servers parameter.

Parameter	Alias	Recommended Value

The ApptBook server component uses key-based routing. If you see an error message indicating that the maximum number of keys is reached, then you can use the Maximum Routing Keys parameter for this server component to increase the keys. For example, if you have 1,200 service regions, then you can increase the value of this parameter to 1,500.

Reloading the ABS and Optimizer Caches

Dispatchers and field service engineers can change the following specifications for service activities:

- Planned start date for an activity
- Planned end date for an activity
- Engineer assigned to an activity (in the Employees field)

Note: Planned End field, Planned Completion field, and End field designate the same date. All these fields appear in the user interface.

All changes require updating the in-memory cache of the activities. If a user changes an activity in the Siebel database, then the activity is not the same as the activity in the in-memory cache. You can manually reload activity data into memory by clicking the Load button in the Activities view in the Service Region List view of the Administration - Scheduling screen. For more information, see *Loading Activity Data for Service Regions*.

Users can also lock the scheduled time or assignment for an activity. For more information, see *Locking Assignments and Schedules for Activities (End User)*.

CAUTION: Keep manual changes to a minimum because the Optimizer works on the principles of constraint propagation and domain reduction. These principles are critical to solving complex schedules quickly. No activity that violates a hard constraint, including implicit constraints such as using the employee work schedules or excluding double-booking, can load into the memory cache. Therefore, the Optimizer might reject a manual change when it loads the activity. Even if the activity loads successfully, the Optimizer might later change the schedule for the activity.

Reloading the ABS cache daily accomplishes the following tasks:

- Old activities are released from the cache.
- Manual activity changes are loaded to the cache.
- Days in the future are available for booking. Any existing appointments are loaded into these days.

To load employee and activity data for the service regions and reload the ABS and Optimizer caches, perform the following procedures:

- *Loading Employee Data for Service Regions*
- *Loading Activity Data for Service Regions*
- *Moving Activities Between Service Regions*
- *Reloading Data for Service Regions to the Appointment Booking System Cache*
- *Overriding the Data Row Limit*

- *Coalescing the Appointment Booking System*
- *Reloading Data for Service Regions to the Optimizer Cache*
- *Creating Workflows to Reload Data for Service Regions to the Appointment Booking System Cache*

This task is a step in *Process of Administering Schedules Using Siebel Scheduler*.

Guidelines for Reloading Data for Service Regions

This topic provides guidelines for reloading service region data. For more information, see *About Loading and Reloading Data for Service Regions*.

Use the following guidelines when reloading service region data:

- Reload the caches daily, preferably after hours.

  The ABS - Days to End parameter controls the length of time in the ABS horizon. If this parameter is 14, and you do not reload the caches for 3 days, then you can book appointments for only 11 of the 14 days.
- Reload the ABS before the Optimizer, so that there are no conflicts in scheduling between the ABS and the Optimizer.
- Complete both reloads in the same day.

Loading Employee Data for Service Regions

A field service engineer can belong to only 1 service region. This rule applies because employee information is cached in memory for performance reasons. Also, if each Siebel Scheduler process has its own cache, then employee information cannot exist in more than 1 cache at a time. Otherwise, each instance of Siebel Scheduler produces conflicting schedules for the employee. Attempting to keep 2 service regions synchronized around common employees consumes heavy amounts of resources and is difficult to manage.

Employee data is loaded with service region data into the ABS or Optimizer cache. You can manually load data, or the Workflow Manager can automatically load data. When activities are loaded, 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 might not be eligible to complete 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.

You specify service regions for employees by using the Service Region field in the Service Details view in the Employees view of the Administration - User screen. All the employees for a service region are then listed on the Employees view in the Service Region List view of the Administration - Scheduling screen.

To manually load employee data for a service region

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Drill down on the Name field for a selected service region, and click the Employees view tab.
3. Select the employees to load for the service region.

4. Click Load ABS.

   An asynchronous request is sent to the Optimizer to refresh the data for 1 or more selected employees in the ABS cache. You must manually initiate this command, or the Workflow Manager can automatically initiate this command. Do not use a repeating component job.

You can remove data for an employee from the Appointment Booking System cache.

To remove employee data from the ABS cache

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Drill down on the Name field for a selected service region, and click the Employees view tab.
3. Select an employee record.
4. Click Unload ABS.

   An asynchronous request is sent to the Optimizer to remove the data. You must manually initiate this command. Do not use a repeating component job.

Loading Activity Data for Service Regions

Activity data for each service region must be loaded into the ABS or Optimizer cache. You can manually load data, or the Workflow Manager can automatically load data.

You specify the service region for an activity in the Service Region field in the Schedule view in the Activity List view of the Activities screen. All the activities for a service region are then listed in the Activities view in the Service Region List view of the Administration - Scheduling screen.

Use the Load button on the Activities view in the Service Region List view of the Administration - Scheduling screen to manually load activities for a selected service region. You can also use this button for Contract Scheduling. For more information, see *About Running Contract Scheduling*.

Clicking the Load button sends an asynchronous request to the Siebel Server to load the selected activities into the ABS or Optimizer cache. The data goes to either the ABS or Optimizer cache. The values of the Planned Start field and Planned End field for an activity and the start and end times for the ABS and Optimizer horizons determine the cache.

Note: Normally, use the Workflow Manager instead of the Load button to load activities.

Before clicking the Load button, make sure that the following conditions apply:

- The activity is not repeating.
- If the Lock Schedule check box is selected, then the Planned Start and Planned End fields have values. For more information about the Lock Schedule check box, see *Locking Assignments and Schedules for Activities (End User)*.
- If the Lock Assignment check box is selected, then an employee is assigned to the activity. For more information about the Lock Assignment check box, see *Locking Assignments and Schedules for Activities (End User)*.

Administrators must also load employee data to the ABS or Optimizer cache. For more information, see *Loading Employee Data for Service Regions*.

To manually load activity data for a service region

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Drill down on the Name field for a selected service region, and click the Activities view tab to view the activities.
3. Select the activities that you want to load for the service region.
4. Click Load.

Moving Activities Between Service Regions

An employee can belong to only 1 service region. However, an employee can perform activities in other service regions. For example, an engineer is based in the San Francisco service region. Today is a light day for the engineer, but the San Jose service region is completely scheduled. You can handle this situation by manually scheduling activities for the engineer using the Dispatch Board. However, the Optimizer can schedule the engineer in the San Jose service region, but you must move the activity between service regions.

You can create a button or workflow that completes the following procedure. Alternatively, the Workflow Manager can initiate this process when an activity from Service Region 1 is rejected.

To move an activity between service regions

1. Cancel the activity from Service Region 1 (for example, San Francisco).
2. Set the activity to Service Region 2 (for example, San Jose).
3. Load the activity into Service Region 2.

Reloading Data for Service Regions to the Appointment Booking System Cache

Perform the following procedure to reload the ABS cache with all the data for a selected service region. If a data row limit is imposed, then all the data might not load into the ABS cache. For more information, see *Overriding the Data Row Limit*.

To reload data for a service region to the ABS cache

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Select a service region.
3. Click Load ABS.

   All data is erased for a service region in the ABS cache and reloaded from the Siebel database. For each service region, this process uses an asynchronous request to the Siebel Server.

Overriding the Data Row Limit

When you restart the ApptBook component, or click the Load ABS button, all the data in the service region must load into the ABS cache. If a limit of 10,000 rows is imposed, and the service region has more than 10,000 activity records, then all the required activity data does not load. To resolve this issue, override the data row limit.

To override the data row limit

1. Create a new Named Subsystem for the ABS.
2. Set the DSMaxFetchArraySize parameter to -1.

   You set the parameter to this value to impose no limits on the number of allowed records.

Coalescing the Appointment Booking System

You can improve appointment schedules by coalescing the ABS to remove time gaps from between scheduled appointments. You complete this asynchronous request for 1 service region at a time.

To coalesce the ABS

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Select a service region.
3. Click Coalesce ABS.

Reloading Data for Service Regions to the Optimizer Cache

You can reload the Optimizer cache with all data for a selected service region. For more information about running the Optimizer on a service region schedule, see *Optimizing Schedules (End User)*.

To reload data for a service region to the Optimizer cache

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Select a service region.
3. Click Load Optimizer.

   All data is erased for a service region in the Optimizer cache and reloaded from the Siebel database. For each service region, this process uses an asynchronous request.

   When an optimization is in progress, this request is not sent to the server. The user receives an error message.

Creating Workflows to Reload Data for Service Regions to the Appointment Booking System Cache

You can automatically reload service regions by using the predefined Server Requests business service to call the Appointment Booking Engine server component (alias ApptBook). You can set up a workflow process to submit the server job to ApptBook. For more information about setting up workflows, see *Siebel Business Process Framework: Workflow Guide* . For more information about creating repeating component jobs, see *Siebel System Administration Guide* . For more information about the various input arguments that the ABS methods use and about the values that the ABS methods return, see *Methods for the ABS* and *About Calling the ABS and Optimizer Methods*.

You can also set up workflows to specifically handle the following situations:

- **Unscheduled activities.** If the capacity in a service region changes (due to personnel changes or manual changes), then some activities can be unscheduled during a reload. To handle these unscheduled activities, you can create a workflow that sends an email to the service region manager about the unscheduled activities or that creates an activity to perform rescheduling with a customer.

  > **Note:** You can also set up a predefined query to find those activities with a value of Unscheduled in the Status field.

- **Manual changes.** If the users make manual changes to activities, and these changes must appear in the cache immediately (without waiting for the next reload), then you can create a workflow that calls the LoadActivities method when the Owner, Planned Start, or Planned End field values change.

> **CAUTION:** When loading the ABS, use either Siebel eScript or a workflow process. Do not use the Appointment Booking Service business service for this purpose.

To create a workflow to automatically reload data for service regions

1. Create a workflow process with the following steps:
   - Start
   - Business Service
   - End
2. To define the Business Service step, specify the Server Requests business service and SubmitRequests method.

   > **CAUTION:** You can use the Server Requests, Asynchronous Server Requests, or Synchronous Server Requests business services to submit a request to the Appointment Booking Engine. However when using any of these business services in Siebel eScript or in a workflow, you must provide an appropriate value for the Request Key input argument in the SubmitRequests method. The value of this input argument is the Service Region ID value of the activity. You can map each service region to a different process number. The business service must use the Request Key value to identify the correct ABS process to which to send each request. Without the Request Key input argument, the request might be sent to the wrong ABS process, causing the Appointment Booking Engine to return an error message. For more information, see *Setting Up Server Key Mappings*.

3. Define the input arguments in the following table.

Input Argument	Type	Value
Appt.SvcRegnId	Literal	The required ROW_ID for the service region.
Request Key	Literal	The required ROW_ID for the service region.
Component	Literal	ApptBook.
Method	Literal	ReloadServiceRegion.
Mode	Literal	Sync or Async: o Use Sync if you want the workflow process to wait for the ABS to finish. o se Async if you want the workflow process to submit requests to the ABS and then end the workflow without determining whether the ABS successfully reloaded the service region.

4. Deploy and activate the workflow process.
5. Create a new repeating component job, and select Workflow Process Manager as the Component/Job field value.
6. Create a new job parameter, and specify Workflow Process Name in the Name field and the name of the workflow process (ReloadServiceRegion) in the Value field.
7. Start the job.
   A new instance of the job is created with a Queued status. When the start date arrives, the queued instance is executed.

Process of Managing Schedules Using Siebel Scheduler

The following list shows the tasks that end users typically perform to manage schedules. Your company might follow a different process according to its business requirements.

To manage schedules, end users perform the following tasks:

- Add required schedule information to the activity record. For more information, see *Adding Schedule Information to Activities (End User)*.

  > **Note:** You must add the schedule information before booking appointments because the ABS and the Optimizer use this information.

- Select the appropriate appointments for the activities. For more information, see *Booking Appointments for Activities Using Siebel Scheduler (End User)*.
- Cancel appointments. For more information, see *Canceling Appointments for Activities (End User)*.
- Lock any assignments or schedules that do not change. For more information, see *Locking Assignments and Schedules for Activities (End User)*.

- Make sure that schedules are optimized as required. For more information, see *Optimizing Schedules (End User)*.

Adding Schedule Information to Activities (End User)

You can add to activities the schedule information that the Optimizer and ABS require. For more information about setting up and recording activities, see *Service Activities*.

This task is a step of *Process of Managing Schedules Using Siebel Scheduler*.

To add schedule information to an activity

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity.
3. Click the Schedule view tab.
4. Complete the form fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Service Region	Select the service region for the activity.
Work Time	Type the time needed to complete the activity, not including breaks and travel time. To see the difference between the work time and duration, consider an example. A company schedule is from 9:00 A.M. to 1:00 P.M. and from 2:00 P.M. to 6:00 P.M. The scheduled activities last for 6 hours and can contain breaks. If a dispatcher starts an appointment at 4:00 P.M., then the activity finishes at 1:00 P.M. the next day. The work time is 6 hours, but the duration is 21 hours.
Duration	Select the time required to complete the activity, including breaks and travel time. The ABS or Optimizer sets the value in this field to the Planned End field less the Planned Start field.
Earliest Start	Select the earliest time and date the activity can begin. This field usually indicates contractual commitments or deadlines. In some configuration settings, this field is described as NST (No Sooner Than). When you use the ABS to schedule the activity, this field is populated with the slot start time for the record that you select from the time slots that the ABS provides.
Latest Start	Select the latest time and date the activity can begin. This field usually indicates contractual commitments or deadlines. In some configuration settings, this field is described as NLT (No Later Than).

Field	Comments
	When you use the ABS to schedule the activity, this field is populated with the slot end time for the record that you select from the time slots that the ABS provides. For reactive calls, Earliest Start field and Latest Start field represent the contractually committed date and time for service. For proactive calls, these fields represent when a customer is available for service.
Planned Start	Select the planned time for starting the activity. The service organization and the field service engineer usually know this time. Depending on the service business model, employees might communicate this time to the customer. If you specify values for the Earliest Start or Latest Start fields, then the Planned Start field must be later than the Earliest Start field and earlier than the Latest Start field. When you use the ABS to schedule the activity, this field is populated with the planned start time for the record that you select from the time slots that the ABS provides.
Planned End	Select the planned time for completing the activity. This field also appears as Planned Completion in the user interface. When you use the ABS to schedule the activity, this field is populated with the value in the Planned Start field plus the duration of the activity.
Lock Assignment	Select this check box to indicate the Optimizer cannot reassign the activity. **Note:** If you do not select this check box, then specify the employee for an activity. For more information, see *Locking Assignments and Schedules for Activities (End User)*.
Allow Breaks	Select this check box to allow scheduling of the activity around breaks. For more information, see *Breaks*.
Lock Schedule	Select this check box to prevent the ABS and the Optimizer from changing the values in the Planned Start and Planned End fields. **Note:** If you select this check box, then 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. For more information, see *Locking Assignments and Schedules for Activities (End User)*.

5. (Optional) If you want to navigate to the MapQuest Web site, then click Account Address Map.

   Siebel does not guarantee the availability or accuracy of any content or service that MapQuest provides.

Booking Appointments for Activities Using Siebel Scheduler (End User)

Customer service representatives can click a button to obtain a list of appointment choices for a selected activity. Clicking this button runs the ABS.

Before booking an appointment, make sure that the activity is associated with a work time and service region and that the activity is not repeating.

> **Note:** Do not use the ABS to schedule appointments that are far in the future (for example, preventive maintenance activities that are 6 months in the future). For more information about ABS horizons and long-range appointments, see *About Schedule Horizons and Time Zones*.

Booking appointments and optimizing the schedule for activities requires the following data:

The following list displays data that is required for booking appointments and optimizing the schedule for activities.

- Service regions
- Existing activities and appointments
- Service region parameters
- Service activities
- Employees
- System parameters
- Parts that are available to employees
- Constraints
- Schedules for service regions and employees
- Time windows
- Scheduling parameters
- A cost function

This topic contains the following information:

- *Booking Appointments from the Activities Screen*
- *Booking Appointments from the Service Screen*

This task is a step of *Process of Managing Schedules Using Siebel Scheduler*.

Booking Appointments from the Activities Screen

The Schedule view in the Activity List view of the Activities screen provides the Book Appointment and Cancel Appointment buttons for interactively running the ABS and Optimizer. For more information about canceling a scheduled appointment, see *Canceling Appointments for Activities (End User)*.

To book an appointment from the Activities screen

1. Navigate to the Activities screen, then the Activity List view.

2. Drill down on the Type field for a selected activity.
3. Click the Schedule view tab.
4. Click Book Appointment.

   A synchronous request is sent to the ABS for time slots in which to book the selected activity. The available appointments are returned in a dialog box.

   > **Note:** If you do not specify values in Earliest Start or Latest Start fields for the activity, then the ABS - Days to Start and ABS - Days to End parameter values, and the schedule for the service region, are used for these values. For example, if today is March 16th, the ABS - Days to End parameter is 1, and the start time for the service region is 8:00 A.M., then the earliest start is 8:00 A.M. on March 17th. Unless the service region is extremely full, the value of the ABS - Days to End parameter does not apply. The activity does not have to end before the time for Latest Start field, but it must start before that time.

5. In the dialog box, complete either of the following steps:
   - To confirm an appointment, select an appropriate record, and click Confirm.

     A server request is sent to confirm the selected appointment and release the lock on the remaining appointment slots.
   - If you do not want to select any of the available appointments, then click Cancel.

     A server request is sent to reject all proposed appointment slots and to release the lock on these slots.

     > **Tip:** You do not have to cancel an activity before rebooking it for another time. Instead, you can click the Book Appointment button. When you confirm a time slot, the old time slot is automatically released in the ABS. You click the Cancel Appointment button when you want to cancel an appointment and not rebook it.

Booking Appointments from the Service Screen

The Activities view in the Service Request List view of the Service screen provides the Book Appt and Cancel Appt buttons for running the ABS. The Activities view displays the activities associated with service requests.

To book an appointment from the Service screen

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request.
3. In the Activities list, select an activity record.
4. Click Book Appt.
5. In the dialog box, select and confirm an appointment, or cancel if no appointments are appropriate.

   For more information about using the Book Appointments dialog box, see *Booking Appointments from the Activities Screen* in *Booking Appointments from the Activities Screen*.

Canceling Appointments for Activities (End User)

To cancel an appointment, set the service region, and make sure the activity is not repeating and that the range indicated by the Planned Start and Planned End fields is not in the Glued period. If the Cancel Appt request is successful, then the fields for the activity do not change except for the Status field. This field is set to Cancelled.

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

- If the times for the Planned Start and Planned End fields are earlier than the start time for the ABS horizon, then send a request to the Optimizer.
- If the time for the Planned Start field is earlier than the start time for the ABS horizon, and the time for Planned End field is later than the start time for the ABS horizon, then send a request to the Optimizer and the ABS.
- If the time in the Planned Start field is later than or the same as the start time for the ABS horizon, and the time for the Planned End field is earlier than the end time of the ABS horizon, then send a request to the ABS.

This topic contains the following related information:

- *Canceling Appointments from the Activities screen*
- *Canceling Appointments from the Service Screen*

This task is a step of *Process of Managing Schedules Using Siebel Scheduler*.

Canceling Appointments from the Activities screen

You can cancel an activity appointment from the Activities screen.

To cancel an activity appointment from the Activities screen

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity.
3. Click the Schedule view tab.
4. Click Cancel Appointment.

Canceling Appointments from the Service Screen

You can cancel an activity appointment from the Service screen.

To cancel an activity appointment from the Service screen

1. Navigate to the Service screen, then the Service Request List.
2. Drill down on the SR number (#) field for a selected service request.
3. In the Activities list, select an activity record.
4. Click Cancel Appt.

   A synchronous request is sent to the ABS or the Optimizer to cancel the 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 the activity. If the range indicated by the Planned Start and Planned End fields overlaps the ABS and the Optimizer horizons, then the request goes to both the ABS and Optimizer.

Locking Assignments and Schedules for Activities (End User)

Users can select the following check boxes for an activity to lock its assignment and scheduled time:

- **Lock Assignment check box.** When you select this check box, the Optimizer cannot change the assignment in Employees field on the activity. However, you can manually change this value.
- **Lock Schedule check box.** When you select this check box, the ABS or the Optimizer cannot change the values for Planned Start and Planned End fields on the activity. However, you can manually change these values.

Even if you select these check boxes, an activity can be rejected from the schedule if it violates a hard constraint. Oracle Real-Time Scheduler automatically cancels the activity and sends the cancel status back to Siebel CRM. However, the Optimizer does not attempt to change the Planned Start, Planned End, or Employees fields for the activity so that the activity remains on the user calendar. Reducing the number of hard constraints used in the schedule can minimize the possibility of rejecting an activity.

Note: It is recommended that you select the Lock Assignment and Lock Schedule check boxes for activities with a status of Done.

When an activity violates a hard constraint, the Lock Assignment and Lock Schedule check boxes are both selected, and the activity is not loaded into memory or updated.

The following table describes the general behavior of the ABS and the Optimizer for the Lock Assignment and Lock Schedule check boxes.

Lock Assignment	Lock Schedule	Behavior
No	No	The ABS can change both the time and owner when loading. The Optimizer can change both the time and owner when optimizing.
Yes	No	The ABS can change the time but not the owner when loading. The Optimizer can change the time but not the owner when optimizing.
No	Yes	The ABS can change the owner but not the time when loading. The Optimizer can change the owner but not the time when optimizing.
Yes	Yes	The ABS cannot change the time or owner when loading. The Optimizer cannot change the time or owner when optimizing.

The following table describes the effects of the Lock Assignment and Lock Schedule check boxes on appointment booking.

Lock Assignment	Lock Schedule	Behavior
No	No	The ABS returns multiple time slots for multiple employees.

Lock Assignment	Lock Schedule	Behavior
Yes	No	The ABS checks only the calendar for the activity owner to return a list of available time slots.
No	Yes	Clicking the Book Appointment button does not return a list of time slots. Instead, the Insert Activity method (for Contract Scheduling) is called internally to insert the activity at its originally scheduled planned start and end. If the activity cannot be scheduled at that time, then a No Appointment message is returned to the user.
Yes	Yes	Clicking the Book Appointment button does not return a list of time slots. Instead, the Insert Activity method (for Contract Scheduling) is called internally to insert the activity at its originally scheduled planned start and end. If the activity cannot be scheduled at that time, then a No Appointment message is returned to the user.

The ABS performs validation before scheduling an activity. If the Lock Assignment check box is selected for an activity without an owner, then the ABS generates a validation error, and the activity is not loaded into the cache. The user must correct the error and rebook the appointment. Similarly, if the Lock Schedule check box is selected, then the Planned Start field and Planned End field must have a value before the user clicks the Book Appointment button. Otherwise, the ABS cannot find an appointment.

Note: During loading or when the Insert Activity method is called, if an activity with both check boxes selected cannot be scheduled, then the ABS does not reset the activity status to Unscheduled. The activity status remains unchanged. However, the activity is not present in the ABS cache. It appears as scheduled only in Siebel Field Service. The Insert Activity method is the same as the GetConfirmedAppointment method. For more information, see *GetConfirmedAppointment Method*.

This task is a step of *Process of Managing Schedules Using Siebel Scheduler*.

To lock assignments and schedules for an activity

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity.
3. Click the Schedule view tab.
4. To lock assignments, select the Lock Assignment check box.
5. To lock schedules, select the Lock Schedule check box.

Optimizing Schedules (End User)

You optimize schedules to efficiently use labor in your service organization. For more information about optimizing schedules, see *About the Schedule Optimizer*.

You can optimize the schedule for a service region by using either of the following methods:

- **Using the Workflow Manager to launch the Optimizer.** For more information, see *Using the Workflow Manager to Optimize Schedules*.

- **Manually launching the Optimizer.** For more information, see *Optimizing Schedules for Service Regions*.

  Note: You can manually stop the optimization of a service region. For more information, see *Stopping Optimization of Schedules for Service Regions*.

This task is a step of *Process of Managing Schedules Using Siebel Scheduler*.

Using the Workflow Manager to Optimize Schedules

Scheduling is a business process. To use the Optimizer, you must fully integrate it into the normal process of delivering service. The Workflow Manager is the primary vehicle for this integration. For more information about the input arguments that the Optimizer methods use and about the values that the Optimizer methods return, see *Business Service Methods for Fulfillment* and *About Calling the ABS and Optimizer Methods*.

Most customers using the Optimizer use the Workflow Manager to accomplish the following tasks:

- Manually update a schedule.
- Lock in manual changes.
- Synchronize a schedule with manual changes.
- Update a schedule for contractual commitments.
- Notify a manager by email of rejected activities.
- Move activities to a secondary service region.
- Verify a declined assignment through mobile means and then reassign.

Optimizing Schedules for Service Regions

You can optimize a service region schedule.

To optimize a schedule for a service region

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Select a service region.
3. Click Optimize.

   A request is sent to the Optimizer to run optimization on the selected service region. The Workflow Manager or repeating component jobs can start an optimization.

Stopping Optimization of Schedules for Service Regions

You can stop an ongoing optimization of a selected service region. Stopping an optimization might not happen immediately because the Optimizer completes the solution that is in process and saves the solution in the Siebel database.

Note: You must manually stop an optimization. The Workflow Manager or repeating component jobs cannot send this command.

To stop the optimization of a schedule for a service region

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Select a service region.
3. Click the menu button, and select Stop Optimization.

About Availability of Parts

Part availability 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 - Consider Parts parameter uses the part availability in the trunk inventory for an engineer when considering the engineer for assignment to an activity. The Optimizer - Parts Period parameter determines the number of hours that the loaded part list is valid for an optimization. For more information, see *Defining Cost Functions for the Optimizer* and *Parameters for Schedules*.

If the Optimizer considers part availability, and if the activity includes a part with an order line item number, then you can drop-ship the part for the service call. The Optimizer does not consider the part as a constraint in scheduling.

Note: To use parts in a trunk inventory for a service call, the parts must have a Status field of Good and an Availability field of On Hand.

About Optimization and Activity Statuses

The Optimizer can change the status of activities to obtain the best scheduling.

When you click the Load Optimizer button in the Service Region List view of the Administration - Scheduling screen, the Optimizer loads activities (with associated statuses) from the Siebel database. Likewise, when you click the Load button in the Activities view in the Service Region List view of the Administration - Scheduling screen, the Optimizer loads the activity (with the associated status) from the Siebel database.

If you change the status of an activity, immediately click the Load Optimizer button or the Load button, and click the Optimize button in the Service Region List view of the Administration - Scheduling screen, then the changed activity status is in effect after the Optimizer runs.

However, the Optimizer can change the status of activities. So if you change the status of an activity and do not click the Load Optimizer button or the Load button, then the changed activity status can revert to the status value in the Optimizer cache if the Optimizer runs again.

6 Scheduling Using Oracle Real-Time Scheduler Version 1.0

Scheduling Using Oracle Real-Time Scheduler Version 1.0

This chapter provides information about how to configure, administer, and use Siebel Field Service Integration to Oracle Real-Time Scheduler Version 1.0. It includes the following topics:

- *About Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*
- *About Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*
- *About Documentation for Oracle Real-Time Scheduler 1.0*
- *About User Profiles for Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*
- *About Service Regions*
- *About Employee Administration*
- *About Performing Schedule-Related Tasks in Oracle Real-Time Scheduler 1.0*
- *About Appointment Booking for Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*
- *About Activity Skills*
- *About Dispatch Management*
- *About Mobile Data Management*
- *About Fault Handling*
- *Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*
- *Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*
- *Booking Appointments Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*

About Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0

Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0 is available as an alternative to Siebel Scheduler. Siebel Scheduler is available only to new customers in controlled availability. For more information, contact your Oracle sales representative. For more information about Siebel Scheduler, see *Scheduling Using Siebel Scheduler*.

You can specify the scheduling method to use for each service region. For more information about migrating service regions, see *Administering Service Regions*.

About Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0

Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0 extends or replaces the existing Siebel Scheduler capabilities to provide Siebel Field Service customers with support for real-time scheduling, street-level routing, and other features available through Oracle Real-Time Scheduler 1.0. For more information about the technical aspects of this integration, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* .

Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0 supports languages that both Siebel Business Applications and Oracle Real-Time Scheduler 1.0 support. Supported languages include, for example, French but not Hebrew.

You can implement language deployments for this integration in one language or in multiple languages. A multilingual deployment must use language-specific system regions in Oracle Real-Time Scheduler 1.0. For more information, see *About Service Regions*. For language support for Oracle Real-Time Scheduler 1.0, see the documentation for Oracle-Real-Time Scheduler in *About Documentation for Oracle Real-Time Scheduler 1.0*. For language support for Siebel Business Applications, see *Siebel Global Deployment Guide* and *Siebel System Requirements and Supported Platforms* on Oracle Technology Network.

> **Note:** For Siebel CRM product releases 8.1.1.9 and later and for 8.2.2.2 and later, the system requirements and supported platform certifications, and information about certifications are available from the Certification tab on My Oracle Support.

You can programmatically access some of the functionality for Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0 through Siebel business services. For example, business service methods can be invoked from a workflow process. For more information about these business services and methods, see *Business Service Methods for Siebel Field Service Integration to Oracle Real-Time Scheduler*.

For more information about method arguments, review the business services and associated data in Siebel Tools. For more information, see *Using Siebel Tools* , *Configuring Siebel Business Applications* , and related documentation.

About Documentation for Oracle Real-Time Scheduler 1.0

For more information about tasks that you perform in Oracle Real-Time Scheduler 1.0, see the documentation for Oracle Real-Time Scheduler 1.0. Go to Oracle Software Delivery Cloud, and click the Oracle Utilities Applications product pack.

Related Books

Quick Install Guide

Installation Guide (Windows)

Installation Guide (UNIX)

Resource Manager User Guide

Resource Manager Web Service Interface Manual

Planner User Guide

Planner Host Interface Manual

Planner System Manual

See also the readme files and release notes for Oracle Real-Time Scheduler 1.0 products.

About User Profiles for Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0

User profiles apply to the business functions of the integration that do not include technical functions, such as installation or system administration. For more information about the integration flows for these activities, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* . For more information about field service tasks that you perform using Siebel Business Applications, see other chapters of this guide.

The major user profiles for this integration follow:

- **Business administrator.** Responsible for performing business administration tasks in the Siebel Business Applications (Siebel Service, with Siebel Field Service) and in Oracle Real-Time Scheduler 1.0.

  Tasks for the Siebel application include employee administration, schedule administration, and address administration. Tasks for Oracle Real-Time Scheduler 1.0 include shift template administration, speed time window settings, enhancement of employee data, and so on.

  Most deployments have from one to ten business administrators.
- **Dispatcher.** Responsible for dispatch management, shift management, and user map management. The dispatcher performs tasks in the Planner client of Oracle Real-Time Scheduler 1.0.

  Typically, each service region has one or two dispatchers.
- **Call center agent or customer service representative.** Responsible for handling calls in the call center or other customer communications. Agents determine whether they must deploy a field service engineer to the customer location, and can book a suitable appointment for a field service engineer to visit the customer.

  The number of agents varies widely by deployment and commonly includes from ten to ten thousand agents. A typical number of agents is several hundred.
- **Field service engineer.** Responsible for performing assigned service activities at customer sites or other locations. These people create and manage data on remote devices using Siebel Mobile applications.

  The number of field service engineers varies widely by deployment and commonly includes from a few hundred to a few thousand engineers.

About Service Regions

Service regions in the Siebel Business Applications map to system regions in Oracle Real-Time Scheduler 1.0. For information about defining and mapping service regions, see *Administering Service Regions*.

You use language-specific system regions when you deploy this integration with multiple languages. In a multilingual deployment, each system region applies to only one language. You must create one or more system regions for each language. For more information, see *About Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*.

Oracle Real-Time Scheduler 1.0 error messages appear in only the language you specify when configuring the Resource Manager Web Service instance.

Customers who require error messages to appear in multiple languages can custom-develop such a solution. This solution involves using multiple language-specific system regions. The language in which an Oracle Real-Time Scheduler 1.0 error message appears depends on the system region for a request, and not on the language code in effect for the Siebel application user. (However, the Get Geocode and Address Transfer features do not depend on system regions, and error messages generated when invoking these features are always in the language of the default system region.) For an example of a custom-developed solution, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* .

About Employee Administration

Siebel documentation provides information about creating and administering employees in the Siebel application. However, some fields apply to Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0, and some requirements related to how such data is used in Oracle Real-Time Scheduler 1.0 apply. For more information about creating and administering employees in the Siebel application, see *Siebel Security Guide* and *Siebel Applications Administration Guide* .

Integration Changes for Employee Administration

For this integration, some of the changes and requirements for administering employees follow:

- You must populate Start Home Address and End Home Address data for employees with corresponding latitude and longitude values. For more information about associating geocodes with addresses, see *Administering Addresses*.
- Start Home Address and End Home Address data in the Siebel application correspond to employee logon and logoff addresses in Oracle Real-Time Scheduler 1.0. This Oracle Real-Time Scheduler 1.0 data is mandatory.
- Start Date and End Date fields are included for each employee. (For a terminated employee, set the End Date field to the last date of employment, and update Oracle Real-Time Scheduler 1.0 accordingly.)
- The following fields do not apply to this integration and are not synchronized with Oracle Real-Time Scheduler 1.0:
    - Start Depot Address
    - End Depot Address
    - Service Role

- Cost Per Hour
- Overtime
- Start Shift From
- End Shift At

Sending Employee Data to Oracle Real-Time Scheduler 1.0

Employee data is sent to Oracle Real-Time Scheduler 1.0 in the following cases:

- When the employee is associated with a service region that Oracle Real-Time Scheduler 1.0 configured for scheduling, and
- When the employee has Start Home Address and End Home Address data that is populated with addresses that are associated with geocodes.

> **Note:** When employee data is sent to Oracle Real-Time Scheduler 1.0, the employee's Can Work and Preferred zones are the same as the employee's service region. The employee is associated with an Oracle Real-Time Scheduler 1.0 view that has the same name as the service region.

If you change an employee's name in the Siebel application, then a new employee (driver) record is created in Oracle Real-Time Scheduler 1.0. The unique key for an employee record in Oracle Real-Time Scheduler 1.0 contains the employee name. The unique key has the following format: *SiebelEmpRowID~FirstNameLastName* (the Siebel employee's row ID concatenated with the employee's last name and first name, with the tilde (~) symbol between them). The business administrator must manually end-date the earlier employee record in Oracle Real-Time Scheduler 1.0 to avoid confusion stemming from multiple records for the same employee.

Maintaining Employee Skills

A business administrator maintains employee skills and skill items in the Assignment Skills view in the Employee view of the Administration - User screen. If an employee is associated with a service region configured for scheduling by Oracle Real-Time Scheduler 1.0, then any updates to employee skills must be synchronized with Oracle Real-Time Scheduler 1.0.

A limitation of Oracle Real-Time Scheduler 1.0 is that changes to employee values and attributes such as skills, exception hours, zones, cost profile, and so on, do not affect schedules within the schedule horizon. The Oracle Real-Time Scheduler 1.0 engine uses such changes only for schedules beyond the schedule horizon. To make changes effective within the schedule horizon, a business administrator uses the shift management views in the Planner client of Oracle Real-Time Scheduler 1.0.

Employee-Related Tasks Performed in Oracle Real-Time Scheduler 1.0

Additional employee-related tasks that a business administrator performs in Oracle Real-Time Scheduler 1.0 by using the Resource Manager client include the following tasks:

- Maintaining employee exceptions
- Maintaining employee zones
- Maintaining employee cost profiles

About Performing Schedule-Related Tasks in Oracle Real-Time Scheduler 1.0

Some tasks related to scheduling are specific to Oracle Real-Time Scheduler 1.0. Such tasks include defining and administering periods of unavailability (POUs), slots and slot groups, cost profiles, system regions, zones, and other entities. Observe all applicable dependencies. For more information about the tasks that you perform in Oracle Real-Time Scheduler 1.0, see the documentation for Oracle Real-Time Scheduler 1.0 in *About Documentation for Oracle Real-Time Scheduler 1.0*.

The following tasks are specific to Oracle Real-Time Scheduler 1.0:

- You define POUs in Oracle Real-Time Scheduler 1.0. However, every POU must be associated with start and end addresses. You define start and end addresses in the Siebel application. If a POU address does not exist in Oracle Real-Time Scheduler 1.0, then you must create it in the Siebel application and transfer it to Oracle Real-Time Scheduler 1.0 so that it is available for association with a POU. The Addresses view of the Administration - Data screen includes a button for transferring an address to Oracle Real-Time Scheduler 1.0.
- You define slots and slot groups in Oracle Real-Time Scheduler 1.0. However, the display value of the Slot Group LOV (LOV type SLOT_GROUP_CD) in the Siebel application must be the same as the slot group name in Oracle Real-Time Scheduler 1.0.
- Other entities that you can administer in Oracle Real-Time Scheduler 1.0 include:
    - System regions
    - Archive settings
    - Sequence locking parameter settings
    - Auto direct settings
    - Employee daily limits
    - Cost control and cost profile settings
    - Speed time windows settings
    - View definitions

About Appointment Booking for Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0

In a typical scenario for appointment booking, a customer contacts your company and requests service of some kind. Commonly, the customer contacts your company on the telephone. Alternatively, the customer might send email, use chat, or visit a sales or service counter in a store.

A customer service representative uses the Siebel application to create a service request to capture information about the customer issue. If the representative cannot resolve the issue by consulting a knowledge base or a product specialist, then a customer visit (on-site service call) from a field service engineer might be necessary.

The customer service representative enters additional information in an activity for the service request, then books a specific appointment time or appointment window (slot) for the customer, and confirms the appointment with the customer. For more information, see *Booking Appointments Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*.

You book appointments for the particular service region that matches the zip code or equivalent postal code for the customer. Appointment booking uses the scheduling product associated with the service region. This scheduling product is Oracle Real-Time Scheduler 1.0 or Siebel Scheduler. For more information about appointment booking using Siebel Scheduler, see *About Appointment Booking for Siebel Scheduler*.

Using Oracle Real-Time Scheduler 1.0, a customer service representative can book an appointment for a service region if the service region was successfully migrated to Oracle Real-Time Scheduler 1.0, and if the Engine field on the service region is Oracle Real-Time Scheduler 1.0.

The Engine field value determines whether the slot request is routed to Oracle Real-Time Scheduler 1.0 or Siebel Scheduler as follows:

- If the Engine value is ORS, then the request is routed to Oracle Real-Time Scheduler 1.0.
- If the Engine value is iLog, then the request is routed to Siebel Scheduler.

You book appointments for activities from the Service screen or the Activities screen. For more information about working with service regions, see *Administering Service Regions*.

Manually Updating Booked Activities

You can click Update Activity to synchronize manual updates for a booked activity with Oracle Real-Time Scheduler 1.0. However, updating the activity status automatically triggers an update in Oracle Real-Time Scheduler 1.0. For information about updating the activity status, see *Service Activities*. For information about working with activities in Siebel Mobile applications, see Siebel Mobile Guides on Siebel Bookshelf.

You maintain status mapping between the activity status in the Siebel application and the stop status in Oracle Real-Time Scheduler 1.0 in Oracle Fusion Middleware as a domain value mapping. For more information about this mapping, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* .

Note: You cannot delete an activity after it is scheduled in Oracle Real-Time Scheduler 1.0.

A customer service representative can also update employee skills and related attributes for an activity.

When assignment attributes change for any entity related to the job, such as a service request, activity, order, order line item, and so on, a representative must send the update to Oracle Real-Time Scheduler 1.0 so it can consider the changes for reassignment. For example, a repair job has an incorrect value of Installation for the activity type. The customer service representative updates the activity type to a value of Repair. Also for example, a product is obsolete, and all customers who ordered the product automatically receive a new upgraded product.

To send these updates, the representative can click Update Activity for the activity. Choosing this command triggers an update for the stop in Oracle Real-Time Scheduler 1.0. If no resource is available for the appropriate slot, then Oracle Real-Time Scheduler 1.0 might not schedule the activity.

User Interface Elements for Activity Schedule Detail View

Some fields and other user interface features for this integration are included in the Activity Schedule Detail view, or developers can add these interface elements to this view and other views. Some of these fields are available only in business components. When these fields apply to your company's requirements, developers can display the fields in the application user interface and populate field values.

The user interface elements for this integration include the following items:

- **Zone.** An MVG (multivalue group) with a default value that is the name of the service region. (This field is only available in the business component.)
- **Time Zone.** The time zone of the service region. This time zone must also be the time zone of the specified account address. Values sent to Oracle Real-Time Scheduler 1.0 must represent UTC (Universal Time Coordinated) offsets, such as UTC - 8 for Pacific Standard Time. (This field is only available in the business component.)
- **Slot Group.** The group of slots. For more information about slots, see the documentation for Oracle Real-Time Scheduler 1.0 in *About Documentation for Oracle Real-Time Scheduler 1.0*.
- **Account Address Pick Applet.** A MVG applet that includes the Latitude and Longitude fields. Oracle Real-Time Scheduler 1.0 has geocode requirements. For more information about addresses, see *Administering Addresses*.
- **Late Cost.** The relative cost of arriving late. The default value is 1. (This field is only available in the business component.)
- **Capacity Type.** An LOV (List of Values) that defines the type of capacity a stop consumes. If you specify None, then the capacity type does not match that of any other stop or shift. The default value is Null. (This field is only available in the business component.)
- **Shift Promotion Multiplier.** The multiplier by which the shift-promotion cost for the stop can increase or decrease. The default value is 1. (This field is only available in the business component.)
- **Job Value.** The value of the job. The default value is 1. (This field is only available in the business component.)
- **Error Reason.** The reason for the error. If a job is disabled in Oracle Real-Time Scheduler 1.0, then the error reason is populated in this field. This field maps to the Warn Text field for a stop in Oracle Real-Time Scheduler 1.0.
- **Latitude and Longitude.** The geocode coordinates. Oracle Real-Time Scheduler 1.0 has geocode requirements. For more information about addresses, see *Administering Addresses*.

Appointment Booking Beyond the Schedule Horizon

Every system region in Oracle Real-Time Scheduler 1.0 has a defined schedule horizon. This horizon represents the interval within which you can normally schedule appointments. However, sometimes a customer might request that you schedule appointments beyond that window.

For example, a system region has a schedule horizon of one week. However, customer wants the appointment to occur no sooner than ten days from when the customer contacts the service center. Also, the customer cannot wait to make the appointment later. In this scenario, the slots that Oracle Real-Time Scheduler 1.0 returns do not have planned start and end values. When the activity moves within the horizon, the scheduler populates these values. After consulting with the customer, the customer service representative selects and confirms a slot.

Similarly, when a customer requests a range of start times, and some times are within the horizon and some times are beyond it, Oracle Real-Time Scheduler 1.0 can return slots that straddle the end of the schedule horizon.

Booking Emergency and Contract-Based Appointments

Sometimes you might want to request and fulfill immediate or urgent appointments. For example, you might schedule some appointments because of an emergency or because of contractual obligations involving service-level agreements.

Oracle Real-Time Scheduler 1.0 can evaluate such considerations and book an appointment for the customer. The customer service representative requests the appointment by clicking the Insert Activity button for the activity. (This button is available in the Schedule view in the Activity List view of the Activities screen.)

In this type of scheduling, no slots are returned to the customer service representative. The appointment is booked automatically by using the activity settings that the representative designates. An activity is inserted into the Oracle Real-Time Scheduler 1.0 database. After clicking the Insert Activity button, the representative clicks Refresh Activity to get the latest details about the inserted activity.

For example, a service-level agreement for a customer stipulates that a booked appointment start within an hour after calling. The customer service representative can use the contract scheduling functionality to create an appointment that might not otherwise be easily fulfilled. Contract scheduling might affect other existing appointments, but Oracle Real-Time Scheduler 1.0 attempts to minimize schedule disruption.

Refreshing Activities

The Refresh Activity menu option is available in the lower applet of the Activity Schedule view.

When you book an appointment in the Siebel application, a corresponding stop entity is created in Oracle Real-Time Scheduler 1.0. This stop maps one-to-one to the activity in the Siebel application. The stop is continually optimized, and the planned start, planned end, owner, and status values of the stop keep changing until the stop is dispatched to a field service engineer.

The Refresh Activity menu option allows the customer service representative to get the latest activity details from Oracle Real-Time Scheduler 1.0 because the Siebel activity and the Oracle Real-Time Scheduler 1.0 stop are not synchronized at all times. Oracle Real-Time Scheduler 1.0 stop data is automatically synchronized with the Siebel application only when the stop status is Dispatched or Inactive.

Canceling Appointments for Activities

To comply with customer requests, you can cancel scheduled appointments. The customer service representative can display the relevant activity, then click Refresh Activity to view the latest activity data from Oracle Real-Time Scheduler 1.0. As appropriate, the representative then clicks Cancel Appointment. Oracle Real-Time Scheduler 1.0 frees up the appointment slot, and changes the job status to Cancel.

Note: The Cancel Appointment button is not available for an activity with the status of Completed.

Rescheduling Appointments

To comply with customer requests, you can reschedule scheduled appointments. The customer service representative can display the relevant activity, then click Refresh Activity to view the latest activity data from Oracle Real-Time Scheduler 1.0. As appropriate, the representative then updates the earliest and latest start times, and clicks Book Appointment. Oracle Real-Time Scheduler 1.0 returns new appointment slots that the representative can select.

About Activity Skills

In a typical Siebel Field Service scenario, a field service engineer arrives at a customer location to perform a job such as installation, upgrade, or repair. For Oracle Real-Time Scheduler 1.0 to schedule the correct person to perform a job, it must determine the necessary skills to perform the job, and it must schedule a person with the required skill set to complete the work. To facilitate this outcome, the Siebel application passes the required skills to Oracle Real-Time Scheduler 1.0. For more information, see *Managing Activity Skills for Skills-Based Assignments*.

For example, a customer needs a plumber to fix a leak in a kitchen sink between 10:00 A.M. and 2:00 P.M. on November 15, 2011. Oracle Real-Time Scheduler 1.0 must schedule a field service engineer with a skill value of Plumbing to visit the customer location during this time. As part of appointment booking, the request to Oracle Real-Time Scheduler 1.0 includes the time and date range as well as the skill value of Plumbing. Consequently, a person with the required skill is scheduled at the appropriate time.

Evaluation of Activity Skill Rules

As part of the appointment booking process, activity skill rules are evaluated as follows:

1. The customer service representative navigates to the Activities screen, then the Schedule view.
2. The customer service representative creates an activity record, populates the necessary fields, and then clicks the Book Appointment, Insert Activity, or Update Activity button.
3. All active skill rules are evaluated.
4. For the rules with met criteria, the skills and category are sent to Oracle Real-Time Scheduler 1.0.

   Categories include Must Have, Must Not Have, Pref Have, and Pref Not Have. For more information about these categories, see the documentation for Oracle Real-Time Scheduler 1.0 in *About Documentation for Oracle Real-Time Scheduler 1.0*.
5. The lowest-ranked rules are evaluated before evaluating the next higher-ranked rule. If the criteria for the lower-ranked rule is met, then the higher-ranked rule is not evaluated.
6. Any skills that you manually enter in the Activity Assignment Skills view are appended to the skills obtained from the rules evaluation and sent to Oracle Real-Time Scheduler 1.0.

About Dispatch Management

Dispatch management includes tasks for viewing and managing shifts and associated entities, such as activities and breaks. The dispatcher might also view and manage maps showing locations of activities and field service engineers. You perform dispatch management tasks in the Planner client of Oracle Real-Time Scheduler 1.0. For more information

about tasks that you perform in Oracle Real-Time Scheduler 1.0, see the documentation for Oracle Real-Time Scheduler 1.0 in *About Documentation for Oracle Real-Time Scheduler 1.0*.

Managing Disabled Stops

Stops (or activities in the Siebel application) can convert to a disabled state in Oracle Real-Time Scheduler 1.0 when the scheduler cannot incorporate them into the schedule because of data inconsistencies. This result can occur for one of the following reasons:

- The time window on the stop is in the past.
- There are no field service engineers with the skills required to perform the job.

The dispatcher must monitor disabled stops and try to fix data inconsistencies so that such stops can be scheduled. If the dispatcher cannot fix a disabled stop, then the dispatcher must update the status to Inactive, and update the Warn Text field in Oracle Real-Time Scheduler 1.0 with suitable comments.

Inactive stops are automatically synchronized with the Siebel application. The corresponding Siebel activity is updated to Unscheduled, and the Error Reason field is populated with comments in the Warn Text field.

About Mobile Data Management

Field service engineers receive and send activity updates from mobile devices using Siebel Mobile applications. Siebel administrators manage status data for field service engineers, who access functionality for Siebel Business Applications on mobile devices using a Siebel Mobile application, such as Siebel Mobile Application for Siebel Service. After communicating offline with a field service engineer, a dispatcher might also make updates from Oracle Real-Time Scheduler 1.0. For more information about using and administering Siebel Mobile applications, see Mobile Guides on Siebel Bookshelf.

Status Data Sent to Field Service Engineers

Status data that is sent to field service engineers includes the following data:

- Dispatched activities

  > **Note:** The Siebel Mobile application shows all activities assigned to the field service engineer irrespective of status value. Customers must set appropriate filters to display only activities with the needed status values.

- Dispatched periods of unavailability (POUs)

  Each POU reserves specific amounts of time from a shift for a specific reason. You define POUs in Oracle Real-Time Scheduler 1.0.

  > **Note:** After a POU is dispatched in Oracle Real-Time Scheduler 1.0, any updates to the POU (for example, rescheduling) are not synchronized with the Siebel application. If you must reschedule an appointment after a POU is dispatched, then the Siebel administrator can cancel the POU, and create a new POU in Oracle Real-Time Scheduler 1.0 so that the POU information can flow into the Siebel application.

- Dispatched breaks
- Created or updated shifts

Status Data Sent from Field Service Engineers

Status data that is sent from field service engineers (or that dispatchers who communicate with field service engineers manually update) includes the following data:

- Status for dispatched activities

  For example, the status is updated when the field service engineer accepts or declines a job, starts a job, or completes the job.

  You map activity statuses in the Siebel application to stop statuses in Oracle Real-Time Scheduler 1.0 using domain value mapping in Oracle Fusion Middleware. For more information, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* .
- Additional updates that field service engineers send include:
  - Shift Started (when a field service engineer starts work for the day)
  - Shift Completed (when a field service engineer completes work for the day)
  - Break Started (when a field service engineer starts a break)
  - Break Completed (when a field service engineer finishes a break)
  - POU Started
  - POU Completed

About Fault Handling

The following situations for fault handling apply to Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0:

- Oracle Real-Time Scheduler 1.0 is unavailable, and the Siebel application sends messages to it.

  An issue is passed back to the Siebel application and presented to the user as an error message. An administrator can access a monitoring screen to track errors.

  For synchronous processes, changes in the Siebel application are not recognized until the changes are synchronized with Oracle Real-Time Scheduler 1.0. For example, if Oracle Real-Time Scheduler 1.0 or Oracle Fusion Middleware is unavailable when a user updates the status of an activity, then the Siebel application displays an error message and does not recognize the update.

  For asynchronous processes, a table in the Siebel database contains Sync status flags. If an error occurs, then the table is updated with a value of N for the Sync status flag and an error description for the Sync Failure Description.
- The Siebel application is unavailable, and Oracle Real-Time Scheduler 1.0 sends messages to it through Oracle Fusion Middleware.

  According to the fault policy configured in Oracle Fusion Middleware, Oracle Fusion Middleware attempts multiple times to access the Siebel application and then terminates if the Siebel application is unavailable. You can set the number of attempts to any number, and you can also configure an interval if the Siebel application might be unavailable for a long time.

The error message is stored in Oracle Fusion Middleware, and an administrator for Oracle Service-Oriented Architecture can view the error console in Oracle Fusion Middleware.

- Oracle Real-Time Scheduler 1.0 is unavailable, but its database is available. Oracle Fusion Middleware picks records from the DESPATCHES and INVALID tables of the database for Oracle Real-Time Scheduler 1.0, and Oracle Fusion Middleware returns to Oracle Real-Time Scheduler 1.0 for additional information.

  The fault policy configured in Oracle Fusion Middleware applies to this situation. After Oracle Fusion Middleware picks records from the database for Oracle Real-Time Scheduler 1.0, it attempts multiple times to get information from Oracle Real-Time Scheduler 1.0. It stops these attempts when Oracle Real-Time Scheduler 1.0 is available.

Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0

The following list shows the tasks that Siebel administrators typically perform to configure Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0. Your company might follow a different process according to its business requirements.

To configure Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0, Siebel administrators perform the following tasks:

- *Enabling Oracle Real-Time Scheduler 1.0 in the Siebel Application*
- *Configuring the Endpoint URLs for Web Services*
- *Assigning Responsibilities to Siebel Views*
- *Enabling Component Groups*
- *Setting Up and Configuring Workflow Processes and Policies*

Enabling Oracle Real-Time Scheduler 1.0 in the Siebel Application

Siebel administrators use the procedure in this topic to enable Oracle Real-Time Scheduler 1.0 in the Siebel application. Oracle Real-Time Scheduler 1.0 is an alternative to Siebel Scheduler.

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*.

To enable Oracle Real-Time Scheduler 1.0 in the Siebel application

1. Log in to Siebel Tools or Web Tools as a Siebel administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. In the Object Explorer, navigate to Business Component, query for the Action business component, and then complete the following steps:
   a. Lock the object.
   b. Navigate to Business Component, then Business Component User Prop, and query for the Advanced Scheduler Enabled user property.
   c. Change the Value field to TRUE.
4. In the Object Explorer, navigate to Business Component, query for the Service Region business component, and then complete the following steps:

a. Lock the object.
b. Navigate to Business Component, then Business Component User Prop, and query for the Advanced Scheduler Enabled user property.
c. Change the Value field to TRUE.

5. Deliver the changes to the Integration Branch.

Configuring the Endpoint URLs for Web Services

Siebel administrators configure the endpoint URLs for Web services to allow the Siebel application to communicate with Oracle Real-Time Scheduler 1.0. An *endpoint URL* defines the address for or connection point to a Web service.

Later, they specify these endpoint URLs when configuring Oracle Fusion Middleware components to support this integration. For more information about endpoint URLs, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* and *Integration Platform Technologies: Siebel Enterprise Application Integration* .

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*.

Configuring the Endpoint URL for Outbound Web Services

Siebel administrators use the following procedure to configure the endpoint URL for outbound Web services.

To configure the endpoint URL for outbound Web services

1. Navigate to the Administration - Web Services screen, then the Outbound Web Services view.
2. Query for the following Web services for Oracle Real-Time Scheduler 1.0:
   - ABSWebService
   - ActivityStateRetrievalService
   - adminDataMgmtWebService
   - BatchGeoService
   - RealTimeService
   - serviceregionmigrationorchestrator_client_ep
   - ServiceRegionRollback_ep
   - ServiceRegionSystemRegionMappingWebServiceSoap
   - StatusUpdatesWebServiceSoap
3. For each of these Web services, navigate to the Service Ports applet, and update the Address field with a value such as *hostname*:*portnumber*, where:
   - *hostname* is the name of the computer on which Oracle Fusion Middleware is installed
   - *portnumber* is the SOA port number for this Oracle Fusion Middleware installation
4. Save the record.

Configuring the Endpoint URL for Inbound Web Services

Siebel administrators use the following procedure to configure the endpoint URL for inbound Web services.

To configure the endpoint URL for inbound Web services

1. Navigate to the Administration - Web Services screen, then the Inbound Web Services view.
2. Query for Web Services with a name of *ORS*.
3. For each of these Web services, navigate to the Service Ports applet, and update the Address field with a value such as *hostname*:*portnumber*, where:
    - *hostname* is the name of the computer for the Siebel Application Interface that the Siebel Business Applications use.
    - *portnumber* is the listening port number for this Siebel Application Interface.
4. Save the record.
5. Activate all of the Web services.
6. Click Generate WSDL to confirm that you can use the Web services.

Assigning Responsibilities to Siebel Views

Siebel administrators use the procedure in this topic to assign suitable responsibilities to the Siebel views for Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0. For more information about setting up Siebel responsibilities and associating views with responsibilities, see *Siebel Security Guide* .

The following Siebel views are included in this integration:

- Administration Scheduling Rule Objects View
- Administration Skill Matching Rules - Skills View
- Administration Skill Matching Rules View
- Administration Skill Rule Criteria
- Monitoring Scheduler Admin View
- Service Region Activities Admin View - Monitoring
- Service Region Employees Admin View Monitoring
- Service Region Mapping View

The following views for Siebel Mobile applications are included in this integration.

- **SWLS Service Scheduler Shift Detail View.** In this view, users enter details about shifts, including shift start and end times, for Oracle Real-Time Scheduler 1.0.
- **SWLS Service Scheduler Shift Display View.** In this view, users view and enter shift information for Oracle Real-Time Scheduler 1.0.
- **SWLS Technician Breaks Detail View.** In this view, users enter details about breaks, including break start and end times, for Oracle Real-Time Scheduler 1.0.
- **SWLS Technician Breaks View.** In this view, users view and enter break information for Oracle Real-Time Scheduler 1.0. For more information about transmitting break information from Oracle Real-Time Scheduler 1.0 to the Siebel application, see *Planner User Guide* in the documentation for Oracle Real-Time Scheduler 1.0.
- **SWLS Technician POU Detail View.** In this view, users enter details about periods of unavailability (POUs), including POU start and end times, for Oracle Real-Time Scheduler 1.0.
- **SWLS Technician POU View.** In this view, users view and enter POU information for Oracle Real-Time Scheduler 1.0. For more information about transmitting POU information from Oracle Real-Time Scheduler 1.0 to the Siebel application, see *Planner User Guide* in the documentation for Oracle Real-Time Scheduler 1.0.

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*.

To assign responsibilities to Siebel views

1. Log in to the Siebel application using one of the following clients:
    - Siebel Web Client
    - Siebel Developer Web Client, with the `/editseeddata` command-line option
2. In the Responsibilities applet, query for the Siebel Administrator responsibility you want to assign to the administration views for this integration. (For all other views, query for the appropriate responsibility as required for your deployment.)
3. In the Views applet, click Add, select the first administration view you want to associate with the responsibility, and then click OK.
4. Repeat Step 3 for all other views for this integration.
5. After associating the views with the responsibilities, restart the component definition or the Siebel Server.

Enabling Component Groups

Siebel administrators use the procedure in this topic to enable component groups on the Siebel Server.

The following table describes the component groups that you must enable for Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0. These component groups supplement any other component groups that you need for your applications. For more information about enabling component groups, see *Siebel System Administration Guide* .

Component Group	Purpose
Workflow Management	Provides the workflow processes to run some of the asynchronous workflows.
EAI	Provides inbound Web services into the Siebel Business Applications.
HandheldSync	Enables Siebel Mobile clients.

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*.

To enable a component group

1. Navigate to the Administration - Server Configuration screen, Enterprises, and then the Component Groups view.
2. In the Component Groups view, query for Workflow Management, and then click Enable.
3. Navigate to the Administration - Server Configuration screen, Enterprises, and then the Component Definitions view.
4. In the Component Groups field, query for Workflow Management.
5. Select all of the records, and then click Synchronize.
6. Restart the Siebel Server.

Setting Up and Configuring Workflow Processes and Policies

You must perform the procedures in this topic to be able to use real-time synchronization of address and employee data from the Siebel application to Oracle Real-Time Scheduler 1.0.

This topic contains the following related information:

- *Activating Workflow Processes*
- *Enabling Workflow Policies*
- *Shutting Down Workflow Monitor Agent*
- *Dropping Database Triggers*
- *Generating Database Triggers*
- *Configuring Workflow Monitor Agent*

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*.

Activating Workflow Processes

Siebel administrators use the following procedure to activate workflow processes.

For the ORS and Advanced Scheduler Skill Persistence Process Workflow Processes, activate them using the procedure defined in the *Siebel Business Process Framework: Workflow Guide*

Enabling Workflow Policies

Siebel administrators use the following procedure to enable workflow policies.

To enable workflow policies

1. Navigate to the Administration - Business Processes screen, then the Workflow Policies view.
2. Make sure that Expiration Date is properly set for all the workflow policies that are not in use.
3. Query for *ORS*.
4. Verify that the Expiration Date is not set for these workflow policies.

Shutting Down Workflow Monitor Agent

Siebel administrators use the following procedure to shut down Workflow Monitor Agent.

To shut down Workflow Monitor Agent

1. Navigate to the Administration - Server Management screen, Servers, then Component Groups view.
2. Query for Workflow Management.
3. In the lower Components applet, query for Workflow Monitor Agent.
4. Click Shut Down.

Dropping Database Triggers

Siebel administrators use the following procedure to drop database triggers.

To drop database triggers

1. Navigate to the Administration - Server Management screen, then the Jobs view.

2. Create a job for the Generate Triggers component.
3. In the Job Parameters list, define the job parameter with the values in the following table.

Name	Value
EXEC	True
Privileged User	MS22116
Privileged User Password	(No example)
Remove	True
Trigger File Name	Droptrigger.sql

Note: The values for Privileged User and Privileged User Password must be the database user name and password that have the privileges to drop and generate triggers. The user name value in this table is an example.

4. Start the job.

Generating Database Triggers

Siebel administrators use the following procedure to generate database triggers.

To generate database triggers

1. Navigate to the Administration - Server Management screen, then the Jobs view.
2. Create a job for the Generate Triggers component.
3. In the Job Parameters list, define a job with the values in the following table.

Name	Value
EXEC	True
Privileged User	MS22116
Privileged User Password	(no example)
Trigger File Name	Gentrigger.sql

Name	Value

Note: The values for Privileged User and Privileged User Password must be the database user name and password that have the privileges to drop and generate triggers. The user name value in this table is an example.

4. Start the job.

Configuring Workflow Monitor Agent

Siebel administrators use the following procedure to configure Workflow Monitor Agent.

To configure Workflow Monitor Agent

1. Navigate to the Administration - Server Configuration screen, Enterprises, and then the Component Definitions view.
2. Query for Workflow Monitor Agent, and perform the following steps:
   a. Change the Group Name to ORS Group.
   b. Change the Action Interval to 5.
3. Click Advanced, and perform the following steps:
   a. Change the Sleep Time value to 5.
   b. Change the Default Task value to 1.
4. Click Enable to change the status of the new component to Active.
5. Restart the Siebel Server.

Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0

The following list shows the tasks that business administrators typically perform to administer Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0. Your company might follow a different process according to its business requirements.

Business administration tasks for this integration are divided between the Siebel application and Oracle Real-Time Scheduler 1.0. You manage the minimum data that the Siebel application requires for a successful integration (such as basic employee information, address information, and basic schedule information) from the Siebel application. You manage all business administration processes that are specific to Oracle Real-Time Scheduler 1.0 from Oracle Real-Time Scheduler 1.0 clients.

To administer Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0, business administrators perform the following tasks:

- *Creating Schedules and Related Entities*
- *Administering Service Regions*
- *Administering Addresses*
- *Managing Activity Skills for Skills-Based Assignments*

Creating Schedules and Related Entities

Business administrators can create schedules and related entities in the Siebel application and Oracle Real-Time Scheduler 1.0.

The relationship between schedules, shift template profiles, and shift templates follows:

- A schedule in the Siebel application maps to a shift template profile in Oracle Real-Time Scheduler 1.0. The business administrator creates the schedule record with the same name as the shift template profile in Oracle Real-Time Scheduler 1.0.
- A shift template profile is a collection of shift templates.
- A shift template represents the shift work for a given day. A shift template profile for a seven-day week has seven shift templates.

You create the schedule record in the Siebel application and a shift template profile with the same name in Oracle Real-Time Scheduler 1.0. You then enhance the shift template profile with data specific to Oracle Real-Time Scheduler 1.0, such as shift templates, breaks, limits, and so on.

Schedule exceptions represent nonworking days. Global Holiday is an example of a schedule exception. You create a schedule and maintain schedule exceptions in the Resource Manager client of Oracle Real-Time Scheduler 1.0. Exception synchronization between the Siebel application and Oracle Real-Time Scheduler 1.0 is not supported. For more information, see *About Performing Schedule-Related Tasks in Oracle Real-Time Scheduler 1.0*. For more information about tasks that you perform in Oracle Real-Time Scheduler 1.0, see the documentation for Oracle Real-Time Scheduler 1.0 in *About Documentation for Oracle Real-Time Scheduler 1.0*.

This task is a step in *Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*.

To create a schedule and related entities

1. Create the schedule record in the Siebel application by completing the following steps:
    a. Log in to the Siebel application as a business administrator.
    b. Navigate to the Administration - Service screen, then the Schedules view.
    c. Create a new record, and complete the fields as appropriate.

       Only the schedule name is required for this integration. Do not define schedule hours for the schedule because this information is included in Oracle Real-Time Scheduler 1.0 as part of the shift template profile.
2. Create the shift template profile and related entities in Oracle Real-Time Scheduler 1.0 by completing the following steps:
    a. Log in to the Resource Manager client of Oracle Real-Time Scheduler 1.0.
    b. Create the shift template profile with the same name as the schedule you create in *Creating Schedules and Related Entities*.

       > **Note:** Make sure that the schedule (shift template profile) names match in the Siebel application and in Oracle Real-Time Scheduler 1.0.

    c. Create the shift templates that are associated with the shift template profile.

Administering Service Regions

Business administrators can define and manage service regions and related data for Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0. For more information, see *About Service Regions*.

This topic contains the following related information:

- *Defining Service Regions Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*
- *Mapping Service Regions*
- *Mapping Time Zones*
- *Migrating Service Regions to Oracle Real-Time Scheduler 1.0*
- *Checking for Failed Migration of Employee and Activity Data to Oracle Real-Time Scheduler 1.0*
- *Rolling Back Service Regions from Oracle Real-Time Scheduler 1.0*

This task is a step in *Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*.

Defining Service Regions Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0

Business administrators define service regions in the Siebel application using the Service Regions List view of the Administration - Scheduling screen. They must map service regions to system regions in Oracle Real-Time Scheduler 1.0 using the Service Region Mapping view of the Administration - Scheduling screen. For more information about defining service regions, see *Defining Service Regions*.

The following fields for service region administration apply to scheduling using Siebel Scheduler, but do not apply to the integration to Oracle Real-Time Scheduler 1.0:

- Cost Variables (Cost List, Currency, Travel Cost, and Cost Function)
- Configuration Parameters (Parameter Set, Constraint Set, Time Windows, Min Travel Time, Avg Travel Time, Avg Travel Speed, and Unit Of Measure)

Mapping Service Regions

Business administrators use the following procedure to map service regions to Oracle Real-Time Scheduler 1.0 system regions.

To map a service region

1. Navigate to the Administration - Scheduling screen, then the Service Region Mapping view.

   The existing mappings between service regions and Oracle Real-Time Scheduler 1.0 system regions appear.
2. Click New to map a service region that is not yet mapped to an Oracle Real-Time Scheduler 1.0 system region.
3. In the new record, select the service region.
4. Enter the Oracle Real-Time Scheduler 1.0 system region to which you want to map the service region, and save the record.

Mapping Time Zones

Business administrators use the following procedure to the map the time zones to use as part of the integration.

To map time zones

1. Navigate to the Administration - Data screen, then the Time Zone Administration view.
2. For the service region time zones that are required for the integration, note the Row Id and Standard Abbreviation details.
3. Log in to the Resource Manager client for Oracle Real-Time Scheduler 1.0.
4. Navigate to Options, Setup, and then Time Zones.
5. Create a new time zone.

   For each time zone that you create, enter the label as *SiebelRowID~StandardAbbrev* (the Siebel row ID concatenated with the standard abbreviation, with the tilde (~) symbol between them). Select the time zone for the corresponding time zone in the Siebel application.

   > **Note:** The Oracle Real-Time Scheduler 1.0 Web service server caches time zones, so you must restart the server each time you add a time zone.

6. Open the Web service console window, and press CTRL+C to shut down the server.
7. Navigate to Start, Programs, ORS, and then Resource Manager Web Service to restart the server.

Migrating Service Regions to Oracle Real-Time Scheduler 1.0

When it is appropriate to do so according to business requirements, business administrators migrate existing service regions to Oracle Real-Time Scheduler 1.0. They migrate service regions one at a time.

Before migrating a service region, note the following requirements:

- The service region in the Siebel application was mapped to a system region of Oracle Real-Time Scheduler 1.0.
- Time zones were mapped between Siebel Business Applications and Oracle Real-Time Scheduler 1.0.
- Schedules were created in the Siebel application, and shift templates with the schedule names were created in Oracle Real-Time Scheduler 1.0. For more information, see *Creating Schedules and Related Entities*.
- Associating geocodes with address in bulk was performed in the Addresses view of the Administration - Data screen on all addresses for the service region that you migrate. For more information, see *Administering Addresses*.
- Skills transfer rules were defined in the Skills Transfer - Rules Administration view of the Administration - Scheduling screen. For more information, see *Managing Activity Skills for Skills-Based Assignments*.

As part of the migration, the following events occur:

- A zone and a view are created in Oracle Real-Time Scheduler 1.0.
- Employees, associated addresses, and skills are transferred to Oracle Real-Time Scheduler 1.0.
- Applicable activities that are based on defined criteria are transferred along with the associated skills. The associated skills are obtained when you click the Persist Activity Skills button.

To migrate a service region to Oracle Real-Time Scheduler 1.0

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Select the record for the service region that you want to migrate.
3. Click Persist Activity Skills.

   The applicable activities are associated with skills by using the skills transfer rules in the Skills Transfer Rules - Administration view of the Administration - Scheduling screen.

   Activity filtration for the current service region is based on the following criteria:

- The value of the Status field for the activity must not be Done, Completed or Cancelled.
- The value of the Latest Start field for the activity must be NULL or later than today, or the value of the Planned End field must be NULL or later than today.

4. Click Transfer to ORS.

   When the transfer is complete, the Sync Success Description field for the service region indicates a status of Successfully Migrated to ORS, and the Engine field value changes from iLog (for Siebel Scheduler) to ORS (for Oracle Real-Time Scheduler 1.0). Also, the Transfer Complete field (if it appears) is checked.

   The service region is now ready for scheduling using Oracle Real-Time Scheduler 1.0. All subsequent appointments for this service region are scheduled using Oracle Real-Time Scheduler 1.0.

Checking for Failed Migration of Employee and Activity Data to Oracle Real-Time Scheduler 1.0

After business administrators migrate a service region to Oracle Real-Time Scheduler 1.0, they can check whether all applicable employees and activities migrated successfully.

To check for failed migration of employee or activity data to Oracle Real-Time Scheduler 1.0

1. Navigate to the Administration - Scheduling screen, then the Cutover Monitoring view.
2. Select the record for the service region that you migrated.
3. Click the Employees view tab to see all employees that were not migrated.

   The reason for the failure appears in the Sync Success Description field.
4. Click the Activities view tab to see all activities that were not migrated.

   The reason for the failure appears in the Sync Success Description field.

Rolling Back Service Regions from Oracle Real-Time Scheduler 1.0

When it is necessary for a deployment, business administrators can roll back a migrated service region so that it again uses Siebel Scheduler instead of Oracle Real-Time Scheduler 1.0. They roll back service regions one at a time.

After the rollback is complete, the business administrator must make sure that the requirements for scheduling the service region using Siebel Scheduler are satisfied. For information about scheduling appointments using Siebel Scheduler, see *Scheduling Using Siebel Scheduler*.

Note: The schedule that is generated using Siebel Scheduler is different from the schedule that is generated using the Oracle Real-Time Scheduler 1.0 engine because the optimization algorithms for the two engines are different.

To roll back a service region from Oracle Real-Time Scheduler 1.0

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Select the record for the service region that you want to roll back.

   The value of the Engine field must be ORS (for Oracle Real-Time Scheduler 1.0).
3. Click Menu, and select Rollback Service Region.

   When the rollback is complete, the Sync Success Description field for the service region indicates a status of Rollback Complete, and the Engine field value changes from ORS (for Oracle Real-Time Scheduler 1.0) to iLog (for Siebel Scheduler). Also, the Transfer Complete field (if it appears) is unchecked.

The mapping between the service region and system region is removed. In Oracle Real-Time Scheduler 1.0, the applicable employees are end-dated, and the appointments in Oracle Real-Time Scheduler 1.0 are cancelled. These appointments continue to exist in the Siebel application, and can be loaded into Siebel Scheduler for scheduling.

All subsequent activities for this service region are sent to Siebel Scheduler for scheduling.

Administering Addresses

Business administrators can administer addresses and related data for Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0.

You can populate the Latitude and Longitude fields for addresses that are synchronized with Oracle Real-Time Scheduler 1.0. Oracle Real-Time Scheduler 1.0 must have addresses that are associated with geocodes to successfully schedule and optimize appointments. Although you create and maintain address data in the Siebel application, you associate geocodes with addresses by using Oracle Real-Time Scheduler 1.0.

This topic contains the following related information:

- *Associating Geocodes with Addresses in Bulk*
- *Associating Geocodes with Addresses for Service Regions*
- *Associating Geocodes with New Addresses*
- *Transferring Addresses to Oracle Real-Time Scheduler 1.0*

This task is a step in *Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*.

Associating Geocodes with Addresses in Bulk

Business administrators use the following procedure to associate geocodes with a large number of address records.

To associate geocodes a large number of addresses

1. Navigate to the Administration - Data screen, then the Addresses view.
2. Specify criteria to query for the appropriate addresses.

   For example, you can query for addresses in a particular zip code or equivalent postal code.
3. Select the appropriate records.
4. Click Bulk GeoCode.

   A batch operation is performed to obtain the latitude and longitude data for these addresses. The following message appears: Batch Geocode Request is submitted successfully.

   The value in the Geocoding Fail Description field changes to Geocoding InProgress for selected records in which the Geocode Valid field is set to N.

   Successful responses update the Latitude and Longitude fields for applicable addresses. In these cases, the Geocoding Fail Description field is cleared and the Geocode Valid field is set to Y. When multiple geocodes or no geocodes are returned for an address, the Geocoding Fail Description field is updated with the appropriate error message.
5. If necessary, refresh the view by requerying.

Associating Geocodes with Addresses for Service Regions

Business administrators use the following procedure to associate geocodes with addresses for a service region that they migrate to Oracle Real-Time Scheduler 1.0.

To associate geocodes with addresses for a service region

1. Navigate to the Administration - Scheduling screen, then the Service Regions List view.
2. Select the service region for which you want to associate geocodes.
3. Click the Zip Codes view tab.
4. Click Bulk GeoCode.

   A batch operation is performed to update the Latitude and Longitude fields for all addresses with a zip code or equivalent postal code value that corresponds to a zip code or equivalent postal code value for the service region in the Zip Codes view.

Associating Geocodes with New Addresses

Business administrators use the following procedure to associate geocodes with new address records.

To associate geocodes with a new address

1. Navigate to the Administration - Data screen, then the Addresses view.
2. Create a new address record.
3. When the Latitude and Longitude fields for a new (or existing) address record are not populated with valid data, click Get GeoCode.

   The Get GeoCode button also appears in the following Siebel views that display address data:

   - Service Details view in the Employees view of the Administration - User screen
   - Schedules view in the Activity List view of the Activities screen
4. Select the appropriate latitude and longitude from the GeoCode dialog box.

   - Select Update Geocode to update only the latitude and longitude data.
   - Select Update Geocode and Address to update the latitude and longitude data and the address data.

Note: Any manual updates to the address record update the Geocode Valid field to N, and show that the address was edited. Associate geocodes with this address record again. Both the Bulk Geocode and Real Time Geocode functions process only records in which Geocode Valid field is set to N.

Transferring Addresses to Oracle Real-Time Scheduler 1.0

Business administrators use the procedure in this topic to transfer addresses to Oracle Real-Time Scheduler 1.0. They use this procedure to transfer period-of-unavailability (POU) addresses.

To transfer an address to Oracle Real-Time Scheduler 1.0

1. Navigate to the Administration - Data screen, then the Addresses view.
2. Select an address record containing valid latitude and longitude data.

3. Click Transfer.

   The address record is transferred to Oracle Real-Time Scheduler 1.0. If problems are encountered, and the address cannot be transferred, then an error message appears.

Managing Activity Skills for Skills-Based Assignments

You can use Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0 to manage activity skill rules during appointment booking to support skills-based assignment. For more information, see *About Activity Skills*.

This topic contains the following related information:

- *Defining Activity Skill Rules*
- *Defining Rule Objects*

This task is a step in *Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*.

Defining Activity Skill Rules

Business administrators define the required skills to work on an activity as rules in the Skills Transfer - Rules Administration view.

They can define a skill item as an exact value or as a selectable value, as follows:

- For example, the business administrator can define a skill item to include the exact value of a product or product model. The business administrator defines an activity skill rule and an associated skill item in which the value in the Product field represents a specific product or product model that the field service engineer must be skilled with, such as Model 3567.
- For example, the business administrator can define the skill to require that the field service engineer is skilled with the product model that is associated with the service request. The business administrator sets the Pick From Object field for the skill item to Y, and uses the Rule Object and Object Attribute fields to specify the field from which the user selects the model name.

To define an activity skill rule

1. Navigate to the Administration - Scheduling screen, then the Skills Transfer - Rules Administration view.
2. Create a new record to define a rule.
3. Drill down on the rule name to navigate to the Criteria view.
4. Define the criteria for the rule.
5. Navigate to the Skills view to define the skills and skill items for the rule.

Defining Rule Objects

A rule object defines the link between the Action entity (for activities) and any other entity, such as Service Request, Order, Order Line Item, and so on. Siebel administrators define rule objects. They must define rule objects before a business administrator can specify rule criteria.

If a business administrator must define a rule criteria that is based on an attribute, such as Order Type, then a Siebel administrator must establish a link between the Action business component and the Order Entry business component. When a Siebel administrator creates this link in the form of the necessary rule object, the fields of the Order Entry business component (including the Order Type field) are available in the Criteria view. A Siebel administrator establishes

this link by creating a rule object between these two entities. After the rule object creation, the business administrator can pick the rule object in the Criteria field.

The Activity Rule Object and Activity Service Request rule objects are predefined in the seed data.

To define a rule object

1. Navigate to the Administration - Scheduling screen, then the Rule Objects Administration view.
2. Create a new record to define a rule object.
   Some fields are described in the following table.

Field	Comments
Rule Object	Type the name of the rule object. For example, if you want to establish a link between the Activity and Order Entry business components, then the name might be Activity - Order.
Business Object	Select the business object that you want to link to both the linked business components. For example, if you want to link the Action and Order Entry business components, then the Source Business Object is Order Entry.
Source BC	Select the source business component. In this example, the source is the Action business component.
Target BC	Select the target business component with fields to make available in the Criteria view. In this example, the target is the Order Entry business component.
Source Field	Select the field in the source business component that you want to join to the target field.
Target Field	Select the field in the target business component that you want join to the source field.
Comments	Type comments to describe this rule object.

Booking Appointments Using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0

Customer service representatives can use the procedure in this topic to book appointments. For more information, see *About Appointment Booking for Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0*.

The procedure in this topic assumes that a customer service representative books the appointment from the Service screen. The representative creates the service request, and then must schedule an activity. The representative books the appointment as part of resolving the customer issue.

You can work with activities in many ways. Your process for working with activities depends on your company's deployment and business requirements and on the nature of the customer communication. For more information about working with activities, see *Service Activities*.

The functionality relating to the fields in the Schedule view of the procedure in this topic works as expected only if the appropriate data for these fields was previously defined in the appropriate environment and synchronized as necessary between the Siebel application and Oracle Real-Time Scheduler 1.0.

To book an appointment using Siebel Field Service Integration to Oracle Real-Time Scheduler 1.0

1. Navigate to the Service screen, then the Service Request List view.
2. Create a new service request record for the customer issue, and then drill down on the value in the SR # (number) field.
3. In the Activities view tab, create a new activity record for the service request, and then drill down on the value in the Type field.
4. Click the Schedule view tab.
5. Complete the form fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Service Region	Select the service region for the activity. The default service region is based on the zip code or equivalent postal code of the account address.
Work Time	Type the time needed to complete the activity. Work time data is transmitted to Oracle Real-Time Scheduler 1.0 when you click the Insert Activity button or Update Activity button in this view, or when you click the Confirm button in the dialog box that appears when you click Book Appointment.
Duration	Select the time needed to complete the activity. For activities scheduled using Oracle Real-Time Scheduler 1.0, Duration equals Planned End minus Planned Start, and includes only Work Time. Oracle Real-Time Scheduler 1.0 does not support activity breaks. The Allow Breaks field does not apply to any activities scheduled using Oracle Real-Time Scheduler 1.0.
Earliest Start	Select the earliest time and date the activity can begin. This field usually indicates contractual commitments or deadlines. If you do not populate this field, then the current date and time are used for the appointment request.
Latest Start	Select the latest time and date the activity can begin. This field usually indicates contractual commitments or deadlines. If you do not populate this field, then the current date and time, plus seven days, are used for the appointment request.
Slot Group	Type the slot group for the customer.

Field	Comments
Lock Assignment	Select this check box as appropriate. This field affects how appointments are returned. In general, the functionality for this field is the same as the functionality for this field in Siebel Scheduler. For more information, see *Locking Assignments and Schedules for Activities (End User)*.
Lock Schedule	Select this check box as appropriate. This field affects how appointments are returned. In general, the functionality for this field is the same as the functionality for this field in Siebel Scheduler. *Locking Assignments and Schedules for Activities (End User)*. For Oracle Real-Time Scheduler 1.0, selecting this field locks the activity within a 20-minute window of the planned start. For example, if Planned Start is at 10:00 A.M., then the activity can start any time between 9:50 A.M. and 10:10 A.M., and is not fixed at 10:00 A.M.
Account	Select the appropriate account for the customer.
Account Address	Select the appropriate account address for the customer. If you try to book an appointment when the address does not have latitude and longitude data, then the following error message appears: The Account Address is not Geocoded. Make sure it is geocoded before proceeding. You can obtain the latitude and longitude data by clicking the Get GeoCode button in this view. For more information, see *Administering Addresses*.

6. Click Book Appointment to request available appointment slots from Oracle Real-Time Scheduler 1.0.

   This button is available in the Schedule view in the Activity List view of the Activities screen or in the Activities view in the Service Request List view of the Service screen.

   The scheduling engine is associated with the service region processes the request. If this integration is implemented and a service region was migrated, then the scheduling engine is set to ORS, and the request is sent to Oracle Real-Time Scheduler 1.0. For more information, see *Administering Service Regions*.

   Unlike Siebel Scheduler, Oracle Real-Time Scheduler 1.0 does not lock these slots. Consequently, multiple customer service representatives can see the same slot. The first representative to confirm a slot successfully completes the confirmation, and a list of available appointment slots appears. The slot confirmation fails for other representatives.
7. If none of the appointments are acceptable to the customer, then complete the following steps:

   a. Click Cancel.
   b. Adjust the appointment range as needed.
   c. Click Book Appointment again.

8. Select an appointment the customer agrees to, and click Confirm.

   Oracle Real-Time Scheduler 1.0 verifies that the cost of the appointment did not change and exceed the maximum cost, and then confirms the appointment. For information about how the maximum cost is defined, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* .

   The activity status is updated to Scheduled, and the planned start and end dates are populated. When the activity is dispatched in Oracle Real-Time Scheduler 1.0, the activity status updates again to Dispatched. (This update might occur much closer to the appointment time.)

7 Scheduling Using Oracle Real-Time Scheduler Version 2.x

Scheduling Using Oracle Real-Time Scheduler Version 2.x

This chapter provides information about how to configure, administer, and use Siebel Field Service Integration to Oracle Real-Time Scheduler Version 2.x. It includes the following topics:

Note: The Oracle Real-Time Scheduler Version 2.x is applicable to the current version 2.1 and 2.3.

- *About Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*
- *About Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*
- *About Documentation for Oracle Real-Time Scheduler 2.x*
- *About User Profiles for Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*
- *About Service Regions*
- *About Employee Administration*
- *About Performing Schedule-Related Tasks in Oracle Real-Time Scheduler 2.x*
- *About Appointment Booking for Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*
- *About Activity Skills*
- *About Dispatch Management*
- *About Mobile Data Management*
- *About Fault Handling*
- *Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*
- *Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*
- *Booking Appointments Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*

About Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x

Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x is available as an alternative to Siebel Scheduler. Siebel Scheduler is available only to new customers in controlled availability. For more information, contact your Oracle sales representative. For more information about Siebel Scheduler, see *Scheduling Using Siebel Scheduler*.

You can specify the scheduling method to use for each service region. For more information about migrating service regions, see *Administering Service Regions*.

About Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x

Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x extends or replaces the existing Siebel Scheduler capabilities to provide Siebel Field Service customers with support for real-time scheduling, street-level routing, and other features available through Oracle Real-Time Scheduler 2.x. For more information about the technical aspects of this integration, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* .

Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x supports languages that both Siebel Business Applications and Oracle Real-Time Scheduler 2.x support. Supported languages include, for example, French but not Hebrew.

You can implement language deployments for this integration in one language or in multiple languages. Siebel Field Service sends the logged in user's language to Oracle Real-Time Scheduler 2.x. For more information, see *About Service Regions*. For language support for Oracle Real-Time Scheduler 2.x, see the documentation for Oracle-Real-Time Scheduler in *About Documentation for Oracle Real-Time Scheduler 2.x*. For language support for Siebel Business Applications, see *Siebel Global Deployment Guide* and *Siebel System Requirements and Supported Platforms* on Oracle Technology Network.

> **Note:** For Siebel CRM product releases 8.1.1.9 and later and for 8.2.2.2 and later, the system requirements and supported platform certifications, and information about certifications are available from the Certification tab on My Oracle Support.

Oracle Real-Time Scheduler 2.x error messages appear only in the language of the logged in Siebel Field Service user.

You can programmatically access some of the functionality for Siebel Field Service Integration to Oracle Real-Time Scheduler 2.1 through Siebel business services. For example, business service methods can be invoked from a workflow process. For more information about these business services and methods, see *Business Service Methods for Siebel Field Service Integration to Oracle Real-Time Scheduler*.

For more information about method arguments, review the business services and associated data in Siebel Tools. For more information, see *Using Siebel Tools* , *Configuring Siebel Business Applications* , and related documentation.

About Documentation for Oracle Real-Time Scheduler 2.x

For more information about tasks that you perform in Oracle Real-Time Scheduler 2.3, see the documentation for Oracle Real-Time Scheduler 2.3. Go to Oracle Software Delivery Cloud, and click the Oracle Utilities Applications product pack.

Related Books

- *Oracle Real-Time Scheduler V2.3.0 Release Notes*
- *Oracle Real-Time Scheduler V2.3.0 Quick Install Guide*

- Oracle Real-Time Scheduler V2.3.0 Install Documentation
- Oracle Real-Time Scheduler V2.3.0 User Documentation
- See also the readme files and release notes for Oracle Real-Time Scheduler 2.3 products.

About User Profiles for Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x

User profiles apply to the business functions of the integration that do not include technical functions, such as installation or system administration. For more information about the integration flows for these activities, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* . For more information about field service tasks that you perform using Siebel Business Applications, see other chapters of this guide.

The major user profiles for this integration follow:

- **Business administrator.** Responsible for performing business administration tasks in the Siebel Business Applications (Siebel Service, with Siebel Field Service) and in Oracle Real-Time Scheduler 2.x.

  Tasks for the Siebel application include employee administration, schedule administration, and address administration. Tasks for Oracle Real-Time Scheduler 2.x include shift template administration, speed time window settings, enhancement of employee data, and so on.

  Most deployments have from one to ten business administrators.
- **Dispatcher.** Responsible for dispatch management, shift management, and user map management. The dispatcher performs tasks in Oracle Real-Time Scheduler 2.x application.

  Typically, each service region has one or two dispatchers.
- **Call center agent or customer service representative.** Responsible for handling calls in the call center or other customer communications. Agents determine whether they must deploy a field service engineer to the customer location, and can book a suitable appointment for a field service engineer to visit the customer.

  The number of agents varies widely by deployment and commonly includes from ten to ten thousand agents. A typical number of agents is several hundred.
- **Field service engineer.** Responsible for performing assigned service activities at customer sites or other locations. These people create and manage data on remote devices, using Siebel Mobile or Siebel Mobile Application for Siebel Service.

  The number of field service engineers varies widely by deployment and commonly includes from a few hundred to a few thousand engineers.

About Service Regions

Service regions in the Siebel Business Applications map to service areas in Oracle Real-Time Scheduler 2.x. For information about defining and mapping service regions, see *Administering Service Regions*.

About Employee Administration

Siebel documentation provides information about creating and administering employees in the Siebel application. However, some fields apply to Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x, and some requirements related to how such data is used in Oracle Real-Time Scheduler 2.x apply. For more information about creating and administering employees in the Siebel application, see *Siebel Security Guide* and *Siebel Applications Administration Guide* .

Integration Changes for Employee Administration

For this integration, some of the changes and requirements for administering employees are as follows:

- Select appropriate values in the Start Shift From and End Shift At fields to reflect the employee logon and logoff points of the shift for the employee. LOVs- Home (Travel Incl.) and Home (Travel Not Incl.) both point to Home address with no difference for this integration.
- Populate Start Home Address or Start Depot Address and End Home Address or End Depot Address data for employees with corresponding latitude and longitude values. Use GeoCode Start Address and GeoCode End Address buttons to geocode start and end address. For more information about associating geocodes with addresses, see *Administering Addresses*.
- Start Home Address or Start Depot Address and End Home Address or End Depot Address data in the Siebel application correspond to employee logon and logoff addresses in Oracle Real-Time Scheduler 2.x. This Oracle Real-Time Scheduler 2.x data is mandatory.
- Start Date and End Date fields are included for each employee. (For a terminated employee, set the End Date field to the last date of employment, and Siebel Field Service updates Oracle Real-Time Scheduler 2.x accordingly.)
- Select Service Region and Schedule for the employee.
- The following fields do not apply to this integration and are not synchronized with Oracle Real-Time Scheduler 2.x:
    - Service Role
    - Cost Per Hour
    - Overtime

Sending Employee Data to Oracle Real-Time Scheduler 2.x

Employee data is sent to Oracle Real-Time Scheduler 2.x when the employee is associated with a service region configured for scheduling by Oracle Real-Time Scheduler 2.x.

Maintaining Employee Skills

A business administrator maintains employee skills and skill items in the Assignment Skills view in the Employee view of the Administration - User screen. If an employee is associated with a service region configured for scheduling by Oracle

Real-Time Scheduler 2.x, then any updates to employee skills are automatically synchronized with Oracle Real-Time Scheduler 2.x. These changes are picked up for scheduling through the shift generation process. For more information, see *About Documentation for Oracle Real-Time Scheduler 2.x*.

Maintaining Employee Schedules and Exceptions

A business administrator associates a schedule (available and unavailable hours) with an employee in the Service Details view in the Employees view of the Administration - User screen.

A business administrator also maintains employee exception hours for the employee in the Employee Exception Hours view in the Employees view of the Administration - User screen. Employee Exception Hours with a Working flag unchecked and associated with an address are considered a Period Of Unavailability (PoUs) in Oracle Real-Time Scheduler 2.x. Employee Exception Hours with a Working flag unchecked and without an associated address are considered Leaves in Oracle Real-Time Scheduler 2.x. Employee Exception Hours with a Working flag checked are mapped as a new shift in Oracle Real-Time Scheduler 2.x.

> **Note:** For more information, refer to How the Connector Updates Employee Data in Real Time in the *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide*.

In the Schedules view of the Administration - Service screen, you can define the schedules that appear in the Schedule field.

Any updates to schedules that are associated with an employee or to employee exceptions are updated in Oracle Real-Time Scheduler 2.x.

About Performing Schedule-Related Tasks in Oracle Real-Time Scheduler 2.x

Some tasks related to scheduling are specific to Oracle Real-Time Scheduler 2.x. Such tasks include defining and administering slots and slot groups, cost profiles, and other entities. Observe all applicable dependencies. For more information about the tasks that you perform in Oracle Real-Time Scheduler 2.x, see the documentation for Oracle Real-Time Scheduler 2.x in *About Documentation for Oracle Real-Time Scheduler 2.x*.

The following task is specific to Oracle Real-Time Scheduler 2.x:

- You define slots and slot groups in Oracle Real-Time Scheduler 2.x. However, the display value of the Slot Group LOV (LOV type SLOT_GROUP_CD) in the Siebel application must be the same as the slot group name in Oracle Real-Time Scheduler 2.x.

For details on configuring Oracle Real-Time Scheduler 2.x for integration with Siebel Field Service, see the Siebel Integration Starter Pack documentation included in the Integration Patch.

About Appointment Booking for Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x

Schedules are maintained in Siebel Field Service and are synched to Oracle Real-Time Scheduler 2.x along with employees associated to Service Regions that are scheduled in Oracle Real-Time Scheduler 2.x. For more information about schedule administration in Siebel, see *Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*.

In a typical scenario for appointment booking, a customer contacts your company and requests service of some kind. Commonly, the customer contacts your company on the telephone. Alternatively, the customer might send email, use chat, or visit a sales or service counter in a store.

A customer service representative uses the Siebel application to create a service request to capture information about the customer issue. If the representative cannot resolve the issue by consulting a knowledge base or a product specialist, then a customer visit (on-site service call) from a field service engineer might be necessary.

The customer service representative enters additional information in an activity for the service request, then books a specific appointment time or appointment window (slot) for the customer, and confirms the appointment with the customer. For more information, see *Booking Appointments Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*.

You book appointments for the particular service region that matches the zip code or equivalent postal code for the customer. Appointment booking uses the scheduling product associated with the service region. This scheduling product is Oracle Real-Time Scheduler 2.x or Siebel Scheduler. For more information about appointment booking using Siebel Scheduler, see *About Appointment Booking for Siebel Scheduler*.

Using Oracle Real-Time Scheduler 2.x, a customer service representative can book an appointment for a service region if the service region was successfully migrated to Oracle Real-Time Scheduler 2.x, and if the Engine field on the service region is ORS.

The Engine field value determines whether the slot request is routed to Oracle Real-Time Scheduler 2.x or Siebel Scheduler as follows:

- If the Engine value is ORS, then the request is routed to Oracle Real-Time Scheduler 2.x.
- If the Engine value is iLog, then the request is routed to Siebel Scheduler.

You book appointments for activities from the Service screen or the Activities screen. For more information about working with service regions, see *Administering Service Regions*.

Manually Updating Booked Activities

You can click Update Activity to synchronize manual updates for a booked activity with Oracle Real-Time Scheduler 2.x. However, updating the activity status automatically triggers an update in Oracle Real-Time Scheduler 2.x. For information about updating the activity status, see *Service Activities*. For information about working with activities in Siebel Mobile applications, see Siebel Mobile Guides on Siebel Bookshelf.

You maintain status mapping between the activity status in the Siebel application and the activity status in Oracle Real-Time Scheduler 2.x in Oracle Fusion Middleware as a domain value mapping. For more information about this mapping, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* .

Note: You cannot delete an activity after it is scheduled in Oracle Real-Time Scheduler 2.x.

A customer service representative can also update assignment skills and related attributes for an activity.

When assignment attributes change for any entity related to the job, such as a service request, activity, order, order line item, and so on, a representative must send the update to Oracle Real-Time Scheduler 2.x so it can consider the changes for reassignment. For example, a repair job has an incorrect value of Installation for the activity type. The customer service representative updates the activity type to a value of Repair. Also for example, a product is obsolete, and all customers who ordered the product automatically receive a new upgraded product.

To send these updates, the representative can click Update Activity for the activity. Choosing this command triggers an update for the stop in Oracle Real-Time Scheduler 2.x. If no resource is available for the appropriate slot, then Oracle Real-Time Scheduler 2.x might not schedule the activity.

User Interface Elements for Activity Schedule Detail View

Some fields and other user interface features for this integration are included in the Activity Schedule Detail view, or developers can add these interface elements to this view and other views. Some of these fields are available only in business components. When these fields apply to your company's requirements, developers can display the fields in the application user interface and populate field values.

The user interface elements for this integration include the following items:

- **Time Zone.** The time zone of the service region. This time zone must also be the time zone of the specified account address. Values sent to Oracle Real-Time Scheduler 2.x must represent UTC (Universal Time Coordinated) offsets, adjusted accordingly to the daylight saving time, such as UTC - 8 for Pacific Standard Time and UTC - 7 during Daylight Saving Time). (This field is only available in the business component.)
- **Slot Group.** The group of slots. For more information about slots, see the documentation for Oracle Real-Time Scheduler 2.x in *About Documentation for Oracle Real-Time Scheduler 2.x*.
- **Account Address Pick Applet.** A MVG applet that includes the Latitude and Longitude fields. Oracle Real-Time Scheduler 2.x has geocode requirements. For more information about addresses, see *Administering Addresses*.
- **Error Reason.** The reason for the error. If a job is disabled in Oracle Real-Time Scheduler 2.x, then the error reason is populated in this field. This field maps to the Warn Text field for a stop in Oracle Real-Time Scheduler 2.x.
- **Latitude and Longitude.** The geocode coordinates. Oracle Real-Time Scheduler 2.x has geocode requirements. For more information about addresses, see *Administering Addresses*.
- **Min Offset.** The minimum offset in minutes required from start of the parent activity to start the child activity for bound jobs. For more information about bound jobs, see *Scheduling Appointments with Bound Jobs*.
- **Max Offset.** The maximum offset in minutes required from start of the parent activity to start the child activity for bound jobs. For more information about bound jobs, see *Scheduling Appointments with Bound Jobs*.
- **Parent Activity Id.** The row ID of the Parent activity for bound jobs. For more information about bound jobs, see *Scheduling Appointments with Bound Jobs*.

Booking Emergency and Contract-Based Appointments

Sometimes you might want to request and fulfill immediate or urgent appointments. For example, you might schedule some appointments because of an emergency or because of contractual obligations involving service-level agreements.

Oracle Real-Time Scheduler 2.x can evaluate such considerations and book an appointment for the customer. The customer service representative requests the appointment by clicking the Insert Activity button for the activity. (This button is available in the Schedule view in the Activity List view of the Activities screen.)

In this type of scheduling, no slots are returned to the customer service representative. The appointment is booked automatically by using the activity settings that the representative designates. An activity is inserted into the Oracle Real-Time Scheduler 2.x database. After clicking the Insert Activity button, the representative clicks Refresh Activity to get the latest details about the inserted activity.

For example, a service-level agreement for a customer stipulates that a booked appointment start within an hour after calling. The customer service representative can use the contract scheduling functionality to create an appointment that might not otherwise be easily fulfilled. Contract scheduling might affect other existing appointments, but Oracle Real-Time Scheduler 2.x attempts to minimize schedule disruption.

Refreshing Activities

The Refresh Activity menu option is available in the lower applet of the Activity Schedule view.

When you book an appointment in the Siebel application, a corresponding activity is created in Oracle Real-Time Scheduler 2.x. This activity maps one-to-one to the activity in the Siebel application. The activity is continually optimized, and the planned start, planned end, owner, and status values of the activity keep changing until the stop is dispatched to a field service engineer.

The Refresh Activity menu option allows the customer service representative to get the latest activity details from Oracle Real-Time Scheduler 2.x because the Siebel activity and the Oracle Real-Time Scheduler 2.x activity are not synchronized at all times. Oracle Real-Time Scheduler 2.x activity data is automatically synchronized with Siebel CRM only when the activity status in Oracle Real-Time Scheduler 2.x is Dispatched or Cancelled.

Canceling Appointments for Activities

To comply with customer requests, you can cancel scheduled appointments. The customer service representative can display the relevant activity, then click Refresh Activity to view the latest activity data from Oracle Real-Time Scheduler 2.x. As appropriate, the representative then clicks Cancel Appointment. Oracle Real-Time Scheduler 2.x frees up the appointment slot, and changes the job status to Cancel.

Note: The Cancel Appointment button is not available for an activity with the status of Completed.

Rescheduling Appointments

To comply with customer requests, you can reschedule scheduled appointments. The customer service representative can display the relevant activity, then click Refresh Activity to view the latest activity data from Oracle Real-Time Scheduler 2.x. As appropriate, the representative then updates the earliest and latest start times, and clicks Book Appointment. Oracle Real-Time Scheduler 2.x returns new appointment slots that the representative can select.

Scheduling Appointments with Bound Jobs

To comply with customer requests, you can book multiple appointments that have interdependent activities in Oracle Real-Time Scheduler 2.x.

The customer service representative must first create a parent activity and click Book Appointment. Oracle Real-Time Scheduler 2.x returns appointment slots that the representative can select. Oracle recommends selecting one of the earliest appointments to ensure that all child activities are scheduled. Next, the customer service representative creates child activities and assigns the parent activity id to the child activities. The customer service representative must also define the minimum and maximum offset times in the activity. These fields define the minimum and maximum time between the start of the predecessor and start of this activity. Oracle Real-Time Scheduler 2.x optimally schedules the child activities by using parent-child relationship and minimum and maximum offset time.

Finally, the customer service representative clicks Book Appointment. No time slots are returned for child activities. To get the latest status of appointments from Oracle Real-Time Scheduler 2.x, the customer service representative can Refresh the activity.

Note: To reschedule, update, or cancel appointments with bound jobs, all activities must be rescheduled, updated, or canceled.

About Activity Skills

In a typical Siebel Field Service scenario, a field service engineer arrives at a customer location to perform a job such as installation, upgrade, or repair. For Oracle Real-Time Scheduler 2.x to schedule the correct person to perform a job, it must determine the necessary skills to perform the job, and it must schedule a person with the required skill set to complete the work. To facilitate this outcome, the Siebel application passes the required skills to Oracle Real-Time Scheduler 2.x. For more information, see *Managing Activity Skills for Skills-Based Assignments*.

For example, a customer needs a plumber to fix a leak in a kitchen sink between 10:00 A.M. and 2:00 P.M. on November 15, 2011. Oracle Real-Time Scheduler 2.x must schedule a field service engineer with a skill value of Plumbing to visit the customer location during this time. As part of appointment booking, the request to Oracle Real-Time Scheduler 2.x includes the time and date range as well as the skill value of Plumbing. Consequently, a person with the required skill is scheduled at the appropriate time.

Evaluation of Activity Skill Rules

As part of the appointment booking process, activity skill rules are evaluated as follows:

1. The customer service representative navigates to the Activities screen, then the Schedule view.
2. The customer service representative creates an activity record, populates the necessary fields, and then clicks the Book Appointment, Insert Activity, or Update Activity button.
3. All active skill rules are evaluated.
4. For the rules with met criteria, the skills and category are sent to Oracle Real-Time Scheduler 2.x.

   Categories include Must Have, Must Not Have, Pref Have, and Pref Not Have. For more information about these categories, see the documentation for Oracle Real-Time Scheduler 2.x in *About Documentation for Oracle Real-Time Scheduler 2.x*.
5. The lowest-ranked rules are evaluated before evaluating the next higher-ranked rule. If the criteria for the lower-ranked rule is met, then the higher-ranked rule is not evaluated.
6. Any skills that you manually enter in the Activity Assignment Skills view are appended to the skills obtained from the rules evaluation and sent to Oracle Real-Time Scheduler 2.x.

About Dispatch Management

Dispatch management includes tasks for viewing and managing shifts and associated entities, such as activities and breaks. The dispatcher might also view and manage maps showing locations of activities and field service engineers. You perform dispatch management tasks in Oracle Real-Time Scheduler 2.x. For more information about tasks that you perform in Oracle Real-Time Scheduler 2.x, see the documentation for Oracle Real-Time Scheduler 2.x in *About Documentation for Oracle Real-Time Scheduler 2.x*.

About Mobile Data Management

Field service engineers receive and send activity updates from mobile devices. Siebel administrators manage status data for field service engineers, who access functionality for Siebel Business Applications on mobile devices. After communicating offline with a field service engineer, a dispatcher might also make updates from Oracle Real-Time Scheduler 2.x. For more information about using and administering Sielbel Mobile applications, see Siebel Mobile Guides on Siebel Bookshelf.

Status Data Sent to Field Service Engineers

Status data that is sent to field service engineers includes the following data:

- Dispatched activities

> **Note:** The Siebel Mobile application and Siebel Mobile connected application show all activities assigned to the field service engineer irrespective of the status value. Customers must set the appropriate filters to display only activities with the required status values.

In addition to the dispatched data, Queued For Dispatch status activities in Oracle Real-Time Scheduler 2.x are also sent to Siebel Mobile applications and Siebel Mobile connected applications with status as Queued. Queued For Dispatch status in Oracle Real-Time Scheduler 2.x is mapped to Queued status in Siebel Field Service.

Status Data Sent from Field Service Engineers

Status data that is sent from field service engineers (or that dispatchers who communicate with field service engineers manually update) includes the following data:

- Status for dispatched activities

  For example, the status is updated when the field service engineer accepts or declines a job, starts a job, or completes the job.

  You map activity statuses in the Siebel application to activity statuses in Oracle Real-Time Scheduler using domain value mapping in Oracle Fusion Middleware. For more information, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* .

About Fault Handling

The following situations for fault handling apply to Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x:

- Oracle Real-Time Scheduler 2.x is unavailable, and the Siebel application sends messages to it.

  An issue is passed back to the Siebel application and presented to the user as an error message. An administrator can access a monitoring screen to track errors.

  For synchronous processes, changes in the Siebel application are not recognized until the changes are synchronized with Oracle Real-Time Scheduler 2.x. For example, if Oracle Real-Time Scheduler 2.x or Oracle Fusion Middleware is unavailable when a user updates the status of an activity, then the Siebel application displays an error message and does not recognize the update.

  For asynchronous processes, a table in the Siebel database contains Sync status flags. If an error occurs, then the table is updated with a value of N for the Sync status flag and an error description for the Sync Failure Description.
- The Siebel application is unavailable, and Oracle Real-Time Scheduler 2.x sends messages to it through Oracle Fusion Middleware.

  Oracle Real-Time Scheduler 2.x attempts multiple times to access the Siebel application through Oracle Fusion Middleware to make sure that the information is delivered when the Siebel application is available.

Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x

The following list shows the tasks that Siebel administrators typically perform to configure Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x. Your company might follow a different process according to its business requirements.

To configure Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x, Siebel administrators perform the following tasks:

- *Enabling Oracle Real-Time Scheduler 2.x in the Siebel Application*
- *Configuring the Endpoint URLs for Web Services*
- *Assigning Responsibilities to Siebel Views*
- *Enabling Component Groups*
- *Setting Up and Configuring Workflow Processes and Policies*

Enabling Oracle Real-Time Scheduler 2.x in the Siebel Application

Siebel administrators use the procedure in this topic to enable Oracle Real-Time Scheduler 2.x in the Siebel application. Oracle Real-Time Scheduler 2.x is an alternative to Siebel Scheduler.

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*.

To enable Oracle Real-Time Scheduler 2.x in the Siebel application

1. Log in to Siebel Tools or Web Tools as Administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. In the Object Explorer, navigate to Business Component, query for the Action business component, and then complete the following steps:
    a. Lock the object.
    b. Navigate to Business Component, then Business Component User Prop, and query for the Advanced Scheduler Enabled user property.
    c. Change the Value field to TRUE.
4. In the Object Explorer, navigate to Business Component, query for the Service Region business component, and then complete the following steps:
    a. Lock the object.
    b. Navigate to Business Component, then Business Component User Prop, and query for the Advanced Scheduler Enabled user property.
    c. Change the Value field to TRUE.
5. Deliver the changes to the Integration Branch.

Configuring the Endpoint URLs for Web Services

Siebel administrators configure the endpoint URLs for Web services to allow the Siebel application to communicate with Oracle Real-Time Scheduler 2.x. An *endpoint URL* defines the address for or connection point to a Web service.

Later, they specify these endpoint URLs when configuring Oracle Fusion Middleware components to support this integration. For more information about endpoint URLs, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* and *Integration Platform Technologies: Siebel Enterprise Application Integration* .

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*.

Configuring the Endpoint URL for Outbound Web Services

Siebel administrators use the following procedure to configure the endpoint URL for outbound Web services.

To configure the endpoint URL for outbound Web services

1. Navigate to the Administration - Web Services screen, then the Outbound Web Services view.
2. Query for the following Web services for Oracle Real-Time Scheduler 2.x:
    - ABSWebService
    - ActivityStateRetrievalService
    - adminDataMgmtWebService
    - BatchGeoService
    - RealTimeService
    - serviceregionmigrationorchestrator_client_ep
    - ServiceRegionRollback_ep
    - ServiceRegionSystemRegionMappingWebServiceSoap
    - StatusUpdatesWebServiceSoap
    - transferschedulessblors_client_ep
    - transferexceptionssblors_client_ep
3. For each of these Web services, navigate to the Service Ports applet, and update the Address field with a value such as *hostname*:*portnumber*, where:
    - *hostname* is the name of the computer on which Oracle Fusion Middleware is installed
    - *portnumber* is the SOA port number for this Oracle Fusion Middleware installation
4. Save the record.

Configuring the Endpoint URL for Inbound Web Services

Siebel administrators use the following procedure to configure the endpoint URL for inbound Web services.

To configure the endpoint URL for inbound Web services

1. Navigate to the Administration - Web Services screen, then the Inbound Web Services view.
2. Query for Web Services with a name of *ORS*.

3. For each of these Web services, navigate to the Service Ports applet, and update the Address field with a value such as *hostname*:*portnumber*, where:
    - *hostname* is the name of the computer for the Siebel Application Interface that the Siebel Business Applications use.
    - *portnumber* is the listening port number for this Siebel Application Interface.
4. Save the record.
5. Activate all of the Web services.
6. Click Generate WSDL to confirm that you can use the Web services.

Assigning Responsibilities to Siebel Views

Siebel administrators use the procedure in this topic to assign suitable responsibilities to the Siebel views for Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x. For more information about setting up Siebel responsibilities and associating views with responsibilities, see *Siebel Security Guide* .

The following Siebel views are included in this integration:

- Administration Scheduling Rule Objects View
- Administration Skill Matching Rules - Skills View
- Administration Skill Matching Rules View
- Administration Skill Rule Criteria
- Monitoring Scheduler Admin View
- Service Region Activities Admin View - Monitoring
- Service Region Employees Admin View Monitoring
- Service Region Mapping View

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*.

To assign responsibilities to Siebel views

1. Log in to the Siebel application using one of the following clients:
    - Siebel Web Client
    - Siebel Developer Web Client, with the `/editseeddata` command-line option
2. In the Responsibilities applet, query for the Siebel Administrator responsibility you want to assign to the administration views for this integration. (For all other views, query for the appropriate responsibility as required for your deployment.)
3. In the Views applet, click Add, select the first administration view you want to associate with the responsibility, and then click OK.
4. Repeat Step 3 for all other views for this integration.
5. After associating the views with the responsibilities, restart the component definition or the Siebel Server.

Enabling Component Groups

Siebel administrators use the procedure in this topic to enable component groups on the Siebel Server.

The following table describes the component groups that you must enable for Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x. These component groups supplement any other component groups that you need for your applications. For more information about enabling component groups, see *Siebel System Administration Guide* .

Component Group	Purpose
Workflow Management	Provides the workflow processes to run some of the asynchronous workflows.
EAI	Provides inbound Web services into the Siebel Business Applications.

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*.

To enable a component group

1. Navigate to the Administration - Server Configuration screen, Enterprises, and then the Component Groups view.
2. In the Component Groups view, query for Workflow Management, and then click Enable.
3. Navigate to the Administration - Server Configuration screen, Enterprises, and then the Component Definitions view.
4. In the Component Groups field, query for Workflow Management.
5. Select all of the records, and then click Synchronize.
6. Restart the Siebel Server.

Setting Up and Configuring Workflow Processes and Policies

You must perform the procedures in this topic to be able to use real-time synchronization of address and employee data from the Siebel application to Oracle Real-Time Scheduler 2.x.

This topic contains the following related information:

- *Activating Workflow Processes*
- *Enabling Workflow Policies*
- *Shutting Down Workflow Monitor Agent*
- *Dropping Database Triggers*
- *Generating Database Triggers*
- *Configuring Workflow Monitor Agent*

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*.

Activating Workflow Processes

Siebel administrators use the following procedure to activate workflow processes.

To activate workflow processes

1. Navigate to the Administration - Business Processes screen, then the Workflow Deployment view.
2. Query for *ORS*.
3. Click Activate.

4. Query for the Advanced Scheduler Skill Persistence Process, and click Activate for this workflow process.

Enabling Workflow Policies

Siebel administrators use the following procedure to enable workflow policies.

To enable workflow policies

1. Navigate to the Administration - Business Processes screen, then the Workflow Policies view.
2. Make sure that Expiration Date is properly set for all the workflow policies that are not in use.
3. Query for *ORS*.
4. Verify that the Expiration Date is not set for these workflow policies.

Shutting Down Workflow Monitor Agent

Siebel administrators use the following procedure to shut down Workflow Monitor Agent.

To shut down Workflow Monitor Agent

1. Navigate to the Administration - Server Management screen, Servers, then Component Groups view.
2. Query for Workflow Management.
3. In the lower Components applet, query for Workflow Monitor Agent.
4. Click Shut Down.

Dropping Database Triggers

Siebel administrators use the following procedure to drop database triggers.

To drop database triggers

1. Navigate to the Administration - Server Management screen, then the Jobs view.
2. Create a job for the Generate Triggers component.
3. In the Job Parameters list, define the job parameter with the values in the following table.

Name	Value
EXEC	True
Privileged User	MS22116
Privileged User Password	(No example)
Remove	True
Trigger File Name	Droptrigger.sql

Name	Value

Note: The values for Privileged User and Privileged User Password must be the database user name and password that have the privileges to drop and generate triggers. The user name value in this table is an example.

4. Start the job.

Generating Database Triggers

Siebel administrators use the following procedure to generate database triggers.

To generate database triggers

1. Navigate to the Administration - Server Management screen, then the Jobs view.
2. Create a job for the Generate Triggers component.
3. In the Job Parameters list, define a job with the values in the following table.

Name	Value
EXEC	True
Privileged User	MS22116
Privileged User Password	(no example)
Trigger File Name	Gentrigger.sql

Note: The values for Privileged User and Privileged User Password must be the database user name and password that have the privileges to drop and generate triggers. The user name value in this table is an example.

4. Start the job.

Configuring Workflow Monitor Agent

Siebel administrators use the following procedure to configure Workflow Monitor Agent.

To configure Workflow Monitor Agent

1. Navigate to the Administration - Server Configuration screen, Enterprises, and then the Component Definitions view.
2. Query for Workflow Monitor Agent, and perform the following steps:
   a. Change the Group Name to ORS Group.
   b. Change the Action Interval to 5.
3. Click Advanced, and perform the following steps:

a. Change the Sleep Time value to 5.
b. Change the Default Task value to 1.

4. Click Enable to change the status of the new component to Active.
5. Restart the Siebel Server.

Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x

The following list shows the tasks that business administrators typically perform to administer Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x. Your company might follow a different process according to its business requirements.

Business administration tasks for this integration are divided between the Siebel application and Oracle Real-Time Scheduler 2.x. You manage all business administration processes that are specific to Oracle Real-Time Scheduler 2.x from Oracle Real-Time Scheduler 2.x application. Other information like employee, address, schedule, exceptions, etc. are entered and managed in the Siebel application.

To administer Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x, business administrators perform the following tasks:

- *Creating Schedules and Related Entities*
- *Administering Service Regions*
- *Administering Addresses*
- *Managing Activity Skills for Skills-Based Assignments*

Creating Schedules and Related Entities

Business administrators can create schedules and related entities in Siebel Field Service. A schedule is sent to Oracle Real-Time Scheduler 2.x only if it is associated with an employee in a service region which is scheduled by Oracle Real-Time Scheduler 2.x. If an employee does not have an associated schedule, then the Service Region schedule is synched to the Oracle Real-Time Scheduler 2.x for that employee.

You can create the schedule record with schedule hours in Siebel Field Service. The schedule is mapped to the Crew Shift template in Oracle Real-Time Scheduler 2.x.

In Siebel Field Service there can be multiple Schedule Hours records for each day. However, in Oracle Real-Time Scheduler 2.x there is only one record for Working Hours for each day. The gaps between End Time of one record and Start Time of next record for the same day are captured as Breaks in Oracle Real-Time Scheduler 2.x.

> **Note:** Start Day for each must be a day of the week instead of a range, which is not supported by the integration. The integration also does not differentiate between different values in the Type field.

You can also add Exceptions to Schedules. Exceptions map to the Holiday List in Oracle Real-Time Scheduler 2.x.

> **Note:** Working exceptions are not supported. The integration does not differentiate between different values in the Type field.

Updates to Schedules and Exceptions in Siebel that are synched to Oracle Real-Time Scheduler 2.x are updated in Oracle Real-Time Scheduler 2.x. For more information, see *About Performing Schedule-Related Tasks in Oracle Real-Time Scheduler 2.x*. For more information about tasks that you perform in Oracle Real-Time Scheduler 2.x, see the documentation for Oracle Real-Time Scheduler 2.x in *About Documentation for Oracle Real-Time Scheduler 2.x*.

This task is a step in *Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*.

To create a schedule and related entities

1. Create the schedule record in the Siebel application by completing the following steps:
    a. Log in to the Siebel application as a business administrator.
    b. Navigate to the Administration - Service screen, then the Schedules view.
    c. Create a new record, and complete the fields as appropriate.
    d. Add Schedule Hours.
    e. Create an Exception in the All Exceptions view.
    f. Add Exception Hours.
    g. Associate the Exception to the Schedule.

Administering Service Regions

Business administrators can define and manage service regions and related data for Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x. For more information, see *About Service Regions*.

This topic contains the following related information:

- *Defining Service Regions Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*
- *Migrating Service Regions to Oracle Real-Time Scheduler 2.x*
- *Checking for Failed Migration of Employee and Activity Data to Oracle Real-Time Scheduler 2.x*
- *Rolling Back Service Regions from Oracle Real-Time Scheduler 2.x*

This task is a step in *Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*.

Defining Service Regions Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x

Business administrators define service regions in the Siebel application using the Service Regions List view of the Administration - Scheduling screen. For more information about defining service regions, see *Defining Service Regions*.

The following fields for service region administration apply to scheduling using Siebel Scheduler, but do not apply to the integration to Oracle Real-Time Scheduler 2.x:

- Cost Variables (Cost List, Currency, Travel Cost, and Cost Function)
- Configuration Parameters (Parameter Set, Constraint Set, Time Windows, Min Travel Time, Avg Travel Time, Avg Travel Speed, and Unit Of Measure)

Migrating Service Regions to Oracle Real-Time Scheduler 2.x

When it is appropriate to do so according to business requirements, business administrators migrate existing service regions to Oracle Real-Time Scheduler 2.x. They migrate service regions one at a time.

Before migrating a service region, note the following requirements:

- Associating geocodes with address in bulk was performed in the Addresses view of the Administration - Data screen on all addresses for the service region that you migrate. For more information, see *Administering Addresses*.
- Skills transfer rules were defined in the Skills Transfer - Rules Administration view of the Administration - Scheduling screen. For more information, see *Managing Activity Skills for Skills-Based Assignments*.

As part of the migration, the following events occur:

- Employees, associated Schedules, Exception Hours, addresses, and skills are transferred to Oracle Real-Time Scheduler 2.x.
- Applicable activities that are based on defined criteria are transferred along with the associated skills. The associated skills are obtained when you click the Persist Activity Skills button.

To migrate a service region to Oracle Real-Time Scheduler 2.x

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Select the record for the service region that you want to migrate.
3. Click Persist Activity Skills if activities have to be populated with assignment skills by using skill transfer rules.

   If Persist Activity Skills are not populated, then the activities being transferred to Oracle Real-Time Scheduler do not have skills associated with them.

   The applicable activities are associated with skills by using the skills transfer rules in the Skills Transfer Rules - Administration view of the Administration - Scheduling screen.

   Activity filtration for the current service region is based on the following criteria:
   - The value of the Status field for the activity must not be Done, Completed or Cancelled.
   - The value of the Latest Start field for the activity must be NULL or later than today, or the value of the Planned End field must be NULL or later than today.
4. Click Transfer to ORS.

   When the transfer is complete, the Sync Success Description field for the service region indicates a status of Successfully Migrated to ORS, and the Engine field value changes from iLog (for Siebel Scheduler) to ORS (for Oracle Real-Time Scheduler 2.x). Also, the Transfer Complete field (if it appears) is checked.

   The service region is now ready for scheduling using Oracle Real-Time Scheduler 2.x. All subsequent appointments for this service region are scheduled using Oracle Real-Time Scheduler 2.x.

Checking for Failed Migration of Employee and Activity Data to Oracle Real-Time Scheduler 2.x

After business administrators migrate a service region to Oracle Real-Time Scheduler 2.x, they can check whether all applicable employees and activities migrated successfully.

To check for failed migration of employee or activity data to Oracle Real-Time Scheduler 2.x

1. Navigate to the Administration - Scheduling screen, then the Cutover Monitoring view.

2. Select the record for the service region that you migrated.
3. Click the Employees view tab to see all employees that were not migrated.

   The reason for the failure appears in the Sync Success Description field.
4. Click the Activities view tab to see all activities that were not migrated.

   The reason for the failure appears in the Sync Success Description field.

Associating Service Area in Oracle Real-Time Scheduler 2.x with Scheduler Area

Before booking appointments using Oracle Real-Time Scheduler 2.x, the Service Area created in Oracle Real-Time Scheduler 2.x for the Service Region in Siebel Field Service needs to be linked to a Scheduler Area. For more information about associating service areas in Oracle Real-Time Scheduler 2.x, see *About Documentation for Oracle Real-Time Scheduler 2.x*.

Rolling Back Service Regions from Oracle Real-Time Scheduler 2.x

When it is necessary for a deployment, business administrators can roll back a migrated service region so that it again uses Siebel Scheduler instead of Oracle Real-Time Scheduler 2.x. They roll back service regions one at a time.

After the rollback is complete, the business administrator must make sure that the requirements for scheduling the service region using Siebel Scheduler are satisfied. For information about scheduling appointments using Siebel Scheduler, see *Scheduling Using Siebel Scheduler*.

Note: The schedule that is generated using Siebel Scheduler is different from the schedule that is generated using the Oracle Real-Time Scheduler 2.x engine because the optimization algorithms for the two engines are different.

To roll back a service region from Oracle Real-Time Scheduler 2.x

1. Navigate to the Administration - Scheduling screen, then the Service Region List view.
2. Select the record for the service region that you want to roll back.

   The value of the Engine field must be ORS (for Oracle Real-Time Scheduler 2.x).
3. Click Menu, and select Rollback Service Region.

   When the rollback is complete, the Sync Success Description field for the service region indicates a status of Rollback Complete, and the Engine field value changes from ORS (for Oracle Real-Time Scheduler 2.x) to iLog (for Siebel Scheduler). Also, the Transfer Complete field (if it appears) is unchecked.

   The mapping between the service region and system region is removed. In Oracle Real-Time Scheduler 2.x, the applicable employees are inactivated, and the appointments in Oracle Real-Time Scheduler 2.x are cancelled. These appointments continue to exist in the Siebel application, and can be loaded into Siebel Scheduler for scheduling.

   All subsequent activities for this service region are sent to Siebel Scheduler for scheduling.

Administering Addresses

Business administrators can administer addresses and related data for Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x.

You can populate the Latitude and Longitude fields for addresses that are synchronized with Oracle Real-Time Scheduler 2.x. Oracle Real-Time Scheduler 2.x must have addresses that are associated with geocodes to successfully schedule and optimize appointments. Although you create and maintain address data in the Siebel application, you associate geocodes with addresses by using Oracle Real-Time Scheduler 2.x.

This topic contains the following related information:

- *Associating Geocodes with Addresses in Bulk*
- *Associating Geocodes with Addresses for Service Regions*
- *Associating Geocodes with New Addresses*
- *Managing Activity Skills for Skills-Based Assignments*

This task is a step in *Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*.

Associating Geocodes with Addresses in Bulk

Business administrators use the following procedure to associate geocodes with a large number of address records.

To associate geocodes with a large number of addresses

1. Navigate to the Administration - Data screen, then the Addresses view.
2. Specify criteria to query for the appropriate addresses.

   For example, you can query for addresses in a particular zip code or equivalent postal code.

   > **Note:** All addresses resulting from the query are sent for bulk geocodes.

3. Click Bulk GeoCode.

   A message window appears specifying the number of addresses that are sent for geocodes.
4. Click OK.

   A batch operation is performed to obtain the latitude and longitude data for these addresses. The following message appears: Batch Geocode Request is submitted successfully.

   The value in the Geocoding Fail Description field changes to Geocoding InProgress for selected records in which the Geocode Valid field is set to N.

   Successful responses update the Latitude and Longitude fields for applicable addresses. In these cases, the Geocoding Fail Description field is cleared and the Geocode Valid field is set to Y. When multiple geocodes or no geocodes are returned for an address, the Geocoding Fail Description field is updated with the appropriate error message.

Associating Geocodes with Addresses for Service Regions

Business administrators use the following procedure to associate geocodes with addresses for a service region that they migrate to Oracle Real-Time Scheduler 2.x.

To associate geocodes with addresses for a service region

1. Navigate to the Administration - Scheduling screen, then the Service Regions List view.
2. Select the service region for which you want to associate geocodes.
3. Click the Zip Codes view tab.
4. Click Bulk GeoCode.

A batch operation is performed to update the Latitude and Longitude fields for all addresses with a zip code or equivalent postal code value that corresponds to a zip code or equivalent postal code value for the service region in the Zip Codes view.

Associating Geocodes with New Addresses

Business administrators use the following procedure to associate geocodes with new address records.

To associate geocodes with a new address

1. Navigate to the Administration - Data screen, then the Addresses view.
2. Create a new address record.
3. When the Latitude and Longitude fields for a new (or existing) address record are not populated with valid data, click Get GeoCode.

   The Get GeoCode button also appears in the following Siebel views that display address data:

   - Service Details view in the Employees view of the Administration - User screen
   - Schedules view in the Activity List view of the Activities screen
4. Select the appropriate latitude and longitude from the GeoCode dialog box.

   - Select Update Geocode to update only the latitude and longitude data
   - Select Update Geocode and Address to update the latitude and longitude data and the address data

Note: Any manual updates to the address record update the Geocode Valid field to N, and show that the address was edited. Associate geocodes with this address record again. Both the Bulk Geocode and Real Time Geocode functions process only records in which Geocode Valid field is set to N.

Managing Activity Skills for Skills-Based Assignments

You can use Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x to manage activity skill rules during appointment booking to support skills-based assignment. For more information, see *About Activity Skills*.

This topic contains the following related information:

- *Defining Activity Skill Rules*
- *Defining Rule Objects*

This task is a step in *Process of Administering Schedules Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*.

Defining Activity Skill Rules

Business administrators define the required skills to work on an activity as rules in the Skills Transfer - Rules Administration view.

They can define a skill item as an exact value or as a selectable value, as follows:

- For example, the business administrator can define a skill item to include the exact value of a product or product model. The business administrator defines an activity skill rule and an associated skill item in which the

value in the Product field represents a specific product or product model that the field service engineer must be skilled with, such as Model 3567.

- For example, the business administrator can define the skill to require that the field service engineer is skilled with the product model that is associated with the service request. The business administrator sets the Pick From Object field for the skill item to Y, and uses the Rule Object and Object Attribute fields to specify the field from which the user selects the model name.

To define an activity skill rule

1. Navigate to the Administration - Scheduling screen, then the Skills Transfer - Rules Administration view.
2. Create a new record to define a rule.
3. Drill down on the rule name to navigate to the Criteria view.
4. Define the criteria for the rule.
5. Navigate to the Skills view to define the skills and skill items for the rule.

Defining Rule Objects

A rule object defines the link between the Action entity (for activities) and any other entity, such as Service Request, Order, Order Line Item, and so on. Siebel administrators define rule objects. They must define rule objects before a business administrator can specify rule criteria.

If a business administrator must define a rule criteria that is based on an attribute, such as Order Type, then a Siebel administrator must establish a link between the Action business component and the Order Entry business component. When a Siebel administrator creates this link in the form of the necessary rule object, the fields of the Order Entry business component (including the Order Type field) are available in the Criteria view. A Siebel administrator establishes this link by creating a rule object between these two entities. After the rule object creation, the business administrator can pick the rule object in the Criteria field.

The Activity Rule Object and Activity Service Request rule objects are predefined in the seed data.

To define a rule object

1. Navigate to the Administration - Scheduling screen, then the Rule Objects Administration view.
2. Create a new record to define a rule object.
   Some fields are described in the following table.

Field	Comments
Rule Object	Type the name of the rule object. For example, if you want to establish a link between the Activity and Order Entry business components, then the name might be Activity - Order.
Business Object	Select the business object that you want to link to both the linked business components. For example, if you want to link the Action and Order Entry business components, then the Source Business Object is Order Entry.
Source BC	Select the source business component. In this example, the source is the Action business component.
Target BC	Select the target business component with fields to make available in the Criteria view. In this example, the target is the Order Entry business component.

Field	Comments
Source Field	Select the field in the source business component that you want to join to the target field.
Target Field	Select the field in the target business component that you want join to the source field.
Comments	Type comments to describe this rule object.

Booking Appointments Using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x

Customer service representatives can use the procedure in this topic to book appointments. For more information, see *About Appointment Booking for Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x*.

The procedure in this topic assumes that a customer service representative books the appointment from the Service screen. The representative creates the service request, and then must schedule an activity. The representative books the appointment as part of resolving the customer issue.

You can work with activities in many ways. Your process for working with activities depends on your company's deployment and business requirements and on the nature of the customer communication. For more information about working with activities, see *Service Activities*.

The functionality relating to the fields in the Schedule view of the procedure in this topic works as expected only if the appropriate data for these fields was previously defined in the appropriate environment and synchronized as necessary between the Siebel application and Oracle Real-Time Scheduler 2.x.

To book an appointment using Siebel Field Service Integration to Oracle Real-Time Scheduler 2.x

1. Navigate to the Service screen, then the Service Request List view.
2. Create a new service request record for the customer issue, and then drill down on the value in the SR # (number) field.
3. In the Activities view tab, create a new activity record for the service request, and then drill down on the value in the Type field.
4. Click the Schedule view tab.

5. Complete the form fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Service Region	Select the service region for the activity. The default service region is based on the zip code or equivalent postal code of the account address.
Work Time	Type the time needed to complete the activity. Work time data is transmitted to Oracle Real-Time Scheduler 2.x when you click the Insert Activity button or Update Activity button in this view, or when you click the Confirm button in the dialog box that appears when you click Book Appointment.
Duration	Select the time needed to complete the activity. For activities scheduled using Oracle Real-Time Scheduler 2.x, Duration equals Planned End minus Planned Start, and includes only Work Time. Oracle Real-Time Scheduler 2.x does not support activity breaks. The Allow Breaks field does not apply to any activities scheduled using Oracle Real-Time Scheduler 2.x.
Earliest Start	Select the earliest time and date the activity can begin. This field usually indicates contractual commitments or deadlines. If you do not populate this field, then the current date and time are used for the appointment request.
Latest Start	Select the latest time and date the activity can begin. This field usually indicates contractual commitments or deadlines. If you do not populate this field, then the current date and time, plus seven days, are used for the appointment request.
Slot Group	Type the slot group for the customer.
Lock Assignment	Select this check box as appropriate. This field affects how appointments are returned. In general, the functionality for this field is the same as the functionality for this field in Siebel Scheduler. For more information, see *Locking Assignments and Schedules for Activities (End User)*.
Lock Schedule	Select this check box as appropriate. This field affects how appointments are returned. In general, the functionality for this field is the same as the functionality for this field in Siebel Scheduler. *Locking Assignments and Schedules for Activities (End User)*. For Oracle Real-Time Scheduler 2.x, selecting this field locks the activity within a 20-minute window of the planned start. For example, if Planned Start is at 10:00 A.M., then the activity can start any time between 9:50 A.M. and 10:10 A.M., and is not fixed at 10:00 A.M.
Account	Select the appropriate account for the customer.

Field	Comments
Account Address	Select the appropriate account address for the customer. If you try to book an appointment when the address does not have latitude and longitude data, then the following error message appears: The Account Address is not Geocoded. Make sure it is geocoded before proceeding. You can obtain the latitude and longitude data by clicking the Get GeoCode button in this view. For more information, see *Administering Addresses*.
Min Offset	Select for child activities the minimum time between start of predecessor (parent) activity and start of this activity if you book related activities. This field applies only to Bound Jobs.
Max Offset	Select for child activities the maximum time between start of predecessor (parent) activity and start of this activity if you book related activities. This field applies only to Bound Jobs.
Parent Activity Id	Select the Id of the parent activity for child activities if you book related activities. This field applies only to Bound Jobs.

6. Click Book Appointment to request available appointment slots from Oracle Real-Time Scheduler 2.x.

   This button is available in the Schedule view in the Activity List view of the Activities screen or in the Activities view in the Service Request List view of the Service screen.

   The scheduling engine associated with the service region processes the request. If this integration is implemented and a service region was migrated, then the scheduling engine is set to ORS, and the request is sent to Oracle Real-Time Scheduler 2.x. For more information, see *Administering Service Regions*.

   Unlike Siebel Scheduler, Oracle Real-Time Scheduler 2.x does not lock these slots. Consequently, multiple customer service representatives can see the same slot. The first representative to confirm a slot successfully completes the confirmation, and a list of available appointment slots appears. The slot confirmation fails for other representatives. Slots are confirmed on a first come, first serve basis because the Oracle Real-Time Scheduler does not block the slots that are displayed in Siebel CRM. Oracle Real-Time Scheduler 2.x might reject the selected slots if another agent booked them.
7. If none of the appointments are acceptable to the customer, then complete the following steps:
   a. Click Cancel.
   b. Adjust the appointment range as needed.
   c. Click Book Appointment again.
8. Select an appointment the customer agrees to, and click Confirm.

   Oracle Real-Time Scheduler 2.x verifies that the cost of the appointment did not change and exceed the maximum cost, and then confirms the appointment. For information about how the maximum cost is defined, see *Siebel Field Service Integration to Oracle Real-Time Scheduler Implementation Guide* .

   The activity status is updated to Scheduled, and the planned start and end dates are populated.

8 Scheduling Using Oracle Field Service

Scheduling Using Oracle Field Service

This chapter provides information on how to configure, administer and use Siebel Field Service Integration with Oracle Field Service for Scheduling. It includes the following topics:

- *About Using Siebel Field Service Integration to Oracle Field Service*
- *About Siebel Field Service Integration to Oracle Field Service*
- *About Documentation for Oracle Field Service*
- *About User Profiles for Siebel Field Service Integration to Oracle Field Service*
- *About Languages supported*
- *About Service Regions*
- *About Employee Administration*
- *About Appointment Booking for Siebel Field Service Integration to Oracle Field Service*
- *About Activity Skills*
- *About Dispatch Management*
- *About Mobile Data Management*
- *About Fault Handling*
- *Siebel Field Service Integration to Oracle Field Service Overview*
- *Process of Configuring Siebel Field Service Integration to Oracle Field Service*
- *Process of Administering Entities Using Siebel Field Service Integration to Oracle Field Service*
- *Booking Appointments Using Siebel Field Service Integration to Oracle Field Service*

About Using Siebel Field Service Integration to Oracle Field Service

Siebel Field Service Integration to Oracle Field Service is available for use to customers who purchases Oracle Field Service and use Oracle Integration Cloud. Once the customer has the required products, they can use this functionality. For more information, see *Scheduling Using Oracle Field Service*

You can specify the scheduling method to use for each service region. For more information about migrating service regions, see *Siebel Field Service Integration to Oracle Field Service Overview* .

About Siebel Field Service Integration to Oracle Field Service

Oracle Field Service offers intuitive, AI-powered tools for routing, scheduling, and managing field service technicians. The objective for this feature is to integrate Siebel CRM with Oracle Field Service, by developing an accelerator in Oracle Integration Cloud and leverage the scheduling capabilities of Oracle Field Service.

Siebel Field Service integration to Oracle Field Service supports use cases like Appointment Booking, Skill based assignment, Technician updates and Real-time data synchronization. This integration has an accelerator within Oracle Integration Cloud to integrate Oracle Siebel CRM with Oracle Field Service. For more information about the technical aspects of this integration, see *Siebel Field Service Integration to Oracle Field Service Overview*

Siebel CRM remains the primary service application for scheduling information such as booking timeslots and assignee matching the required skills. These informations then gets invoked from Oracle Field Service and activities gets scheduled in Siebel CRM which are then visible on Oracle Field Service. For more information, see *About Service Regions*

Siebel Field Service Integration to Oracle Field Service supports languages that both Siebel Business Applications and Oracle Field Service support. For more information, see *About Languages supported*

About Documentation for Oracle Field Service

For more information about tasks that you perform in Oracle Field Service, see the documentation for Oracle Field Service.

https://docs.oracle.com/en/cloud/saas/field-service/22d/index.html

For more information about tasks that you perform in Oracle Integration Cloud, see the related documentation for Oracle Integration Cloud.

https://docs.oracle.com/en/cloud/paas/application-integration/index.html

About User Profiles for Siebel Field Service Integration to Oracle Field Service

User profiles apply to the business functions of the integration that do not include technical functions, such as installation or system administration. For more information about field service tasks that you perform using Siebel Business Applications, see other chapters of this guide.

The major user profiles for this integration are as follows:

- **Business administrator.**Responsible for performing business administration tasks in the Siebel Business Applications (Siebel Service, with Siebel Field Service) and in Oracle Field Service. Tasks for the Siebel application include employee administration, schedule administration, and address administration.

  Tasks for Oracle Field Service include shift template administration, Resource Management, Shift Management and so on.

  Most deployments have from one to ten business administrators.
- **Dispatcher.**Responsible for dispatch management, shift management, and resource management,the dispatcher will typically perform these tasks in the Oracle Field Service. For example, If an activity could not be scheduled due to non-availability of resources, such activities will be mapped at the bucket level and the dispatcher will have to manually schedule the activity depending on priority and other details.

  Typically, each service region has one or two dispatchers.
- **Call center agent or customer service representative.** Responsible for handling calls in the call center or other customer communications. Agents determine whether they must deploy a field service engineer to the customer location, and can book a suitable appointment for a field service engineer to visit the customer.

  The number of agents varies widely by deployment and commonly includes from ten to ten thousand agents. A typical number of agents is several hundred.
- **Field service engineer.**Responsible for performing assigned service activities at customer sites or other locations. These people create and manage data on remote devices using Mobile applications.

  The number of field service engineers varies widely by deployment and commonly includes from a few hundred to a few thousand engineers.

About Languages supported

Siebel Field Service Integration to Oracle Field Service supports languages that both Siebel Business Applications and Oracle Field Service support.

Siebel and Oracle Field Service both are recommended to be configured in same language, otherwise default language in Oracle Field Service is English (US). Languages supported in Oracle Field Service can be referred at Administering Oracle Field Service documentation, see *Set Your Language (oracle.com)*

Any Messages in Oracle Integration Cloud Business Accelerator should also be translated by customers as per the language configured. Oracle will not be providing translation for OIC messages.

About Service Regions

A service region is a grouping of field service technicians in a geographical area for a purpose, such as supporting a certain set of activities related to a product. Service regions ease the administrative burden by allowing service managers to set Zip Codes, consistent schedules, exceptions for a large number of employees.

A service region in Siebel CRM maps to an Oracle Field Service bucket, see *Administering Service Regions* .

Migrating Service Region to Oracle Field Service

To migrate the Service Region from Siebel to Oracle Field Service, Administrator first needs to setup the Service Region as well as Schedule, Exception, Employees and Zip code under it and create Schedule in Oracle Field Service with the same Siebel Schedule name. Once ready, Service Region can be migrated to Oracle Field Service through click of *Transfer to OFS* Button on Service Region List view. Engine field on Service Region will be updated to *OFS*. On successful migration, along with Engine we also update Transfer Complete flag to "Y" and sync Success Description field to "Success". In case of any Error, Engine is set as "OFS" but Error is updated to "Sync Success Description" field and the Transfer complete is set to "N".

ZIP codes are mapped to Service Regions in Siebel CRM. Any new ZIP code associated with a Service Region, which has Engine as OFS will get synced against the Service Region (Bucket) in Oracle Field Service. Any deletion of ZIP Codes associated with a Service Region, which has Engine as OFS will get deleted from the corresponding service region (Bucket) in Oracle Field Service.

For more information about service region migration, see *Process of Administering Entities Using Siebel Field Service Integration to Oracle Field Service* .

About Employee Administration

Siebel documentation provides information about creating and administering employees in the Siebel application. However, some fields apply to Siebel Field Service Integration to Oracle Field Service, and some requirements related to how such data is used in Oracle Field Service apply. For more information about creating and administering employees in the Siebel application, see *Siebel Security Guide* and *Siebel Applications Administration Guide* .

Integration Changes for Employee Administration

For this integration, some of the changes and requirements for administering employees are as follows:

- Select appropriate values in the Start Shift From and End Shift At fields to reflect the employee logon and logoff points of the shift for the employee. LOVs- Home (Travel Incl.) and Home (Travel Not Incl.) both point to Home address with no difference for this integration.
- Populate Start Home Address or Start Depot Address and End Home Address or End Depot Address data for employees. This data is mandatory.
- Start Date and End Date fields are included for each employee. However, the end date is not updated in Oracle Field Service.

  To inactivate an employee on the end date, the administrator needs to manually update in Oracle Field Service. (For a terminated employee, set the End Date field to the last date of employment in Siebel and manually update the employee as inactive in Oracle Field Service.)
- Select Service Region and Schedule for the employee. Ensure that the same schedule name has been created in Oracle Field Service.

  > **Note:** This needs to be done manually.

- The following fields do not apply to this integration and are not synchronized with Oracle Field Service:
  - Service Role

- Cost Per Hour
- Overtime
- End Date

Sending Employee Data to Oracle Field Service

Employee data is sent to Oracle Field Service when the employee is associated with a service region configured for scheduling by Oracle Field Service. This data will be sent to OFS during the initial Transfer to Oracle Field Service process and for any incremental change such as addition or updation of an employee to a service region associated with Oracle Field Service engine.

Maintaining Employee Skills

A business administrator maintains employee skills and skill items in the Assignment Skills view in the Employee view of the Administration - User screen. If an employee is associated with a service region configured for scheduling by Oracle Field Service, then any updates to employee skills are automatically synchronized with Oracle Field Service. These changes are picked up for scheduling through the initial Transfer to Oracle Field Service cutover process or through incremental change capture process. Please note that the Category field is not used in this integration.

Maintaining Employee Schedules and Exceptions

A business administrator associates a schedule (available and unavailable hours) with an employee in the Service Details view in the Employees view of the Administration - User screen. In the Schedules view of the Administration - Service screen, you can define the schedules that appear in the Schedule field. Any updates to schedules are updated in Oracle Field Service.

As a prerequisite of this integration, an OFS admin user will have to create a work-schedule as an OFS calendar configuration with the same name as the Siebel schedule name. As part of the employee data transfer workflow, Siebel will share the schedule name associated with the employee and it will be updated as a schedule in the OFS resource's calendar. In cases where there is no matching schedule in OFS that corresponds to the Siebel schedule, a resource will be created in OFS without a schedule and an error message will be updated in Siebel.

A business administrator also maintains employee exception hours for the employee in the Employee Exception Hours view in the Employees view of the Administration - User screen.

Exceptions represent special non-working days or working days. Different exception records can define exceptions for different sites, for example, U.S. holidays for a site and Canadian holidays for another site. You can define a day or continuous blocks of days as an exception to a schedule. In some cases, exception hours can define non-working periods, for example, no work on Sundays from 6:00 A.M. to 12:00 A.M. in a 7x12 schedule. In other cases, exception hours can define work periods on days that are not normal work days, for example, Saturday mornings in a 5x8 schedule.

To associate an exception with a schedule, define the exception and include this exception in the definition of a schedule. Employee Exception Hours with a Working flag set to false is considered as a period of unavailability in Oracle Field Service. In Oracle Field Service, each such exception will have a name, start and end date and a working flag which is defaulted to false.

If the employee in Siebel contains any working exception hours (e.g. meetings, trainings), an internal activity will be created during this period so that the field technician's availability can be updated accordingly.

About Appointment Booking for Siebel Field Service Integration to Oracle Field Service

Service Regions are maintained in Siebel Field Service and are synched to Field Service Scheduler along with employees and Zip codes associated to Service Regions that are scheduled in Field Service. For more information about schedule administration in Siebel, see *Process of Administering Entities Using Siebel Field Service Integration to Oracle Field Service* .

In a typical scenario for appointment booking, a customer contacts your company and requests service of some kind. Commonly, the customer contacts your company on the telephone. Alternatively, the customer might send email, use chat, or visit a sales or service counter in a store.

A customer service representative uses the Siebel application to create a service request to capture information about the customer issue. If the representative cannot resolve the issue by consulting a knowledge base or a product specialist, then a customer visit (on-site service call) from a field service engineer might be necessary.

The customer service representative enters additional information in an activity for the service request, then books a specific appointment time or appointment window (slot) for the customer, and confirms the appointment with the customer. For more information, see *Booking Appointments Using Siebel Field Service Integration to Oracle Field Service*.

You book appointments for the particular service region that matches the zip code or equivalent postal code for the customer, duration, the Earliest Start, Latest Start date, Planned Start and Planned End (In case of Lock Schedule). Appointment booking uses the scheduling product associated with the service region. This scheduling product is either Oracle Field Service or Siebel Scheduler. For more information about appointment booking using Siebel Scheduler, see “About Appointment Booking for Siebel Scheduler” .

Using Oracle Field Service, a customer service representative can book an appointment for a service region if the service region was successfully migrated (refer Status field) to Oracle Field Service, and if the Engine field on the service region is OFS.

The Engine field value determines whether the slot request is routed to Oracle Field Service Scheduler or Oracle Real-Time Scheduler 2.x or Siebel Scheduler as follows:

- If the Engine value is OFS, then the request is routed to Oracle Field Service.
- If the Engine value is ORS, then the request is routed to Oracle Real-Time Scheduler 2.x.
- If the Engine value is iLog, then the request is routed to Siebel Scheduler.

You book appointments for activities from the Service screen or the Activities screen. For more information about working with service regions, see “Administering Service Regions” .

Manually Updating Booked Activities

You can click Update Activity to synchronize manual updates for a booked activity with Oracle Field Service. For information about updating the activity status, see *Service Activities*. For information about working with activities in *Siebel Mobile applications*, see *Siebel Mobile Guides on Siebel Bookshelf*.

For more information about booking appointments using the Oracle Field Service, see *Booking Appointments Using Siebel Field Service Integration to Oracle Field Service*.

You maintain status mapping between the activity status in the Siebel application and the activity status in Oracle Field Service via the Oracle Integration Cloud. Refer The OIC Lookup "ORCL-BRT-SBL_OFS_ACTIVITY_STATUS" for the mapping provided as per the process mentioned under *Process of Configuring Siebel Field Service Integration to Oracle Field Service* ->*OIC Configurations*

A customer service representative can also update assignment skills and related attributes for an activity.

When assignment attributes change for any entity related to the job, such as the skills required for the job, a representative must send the update to Oracle Field Service so it can consider the changes for reassignment. For example, a repair job has an incorrect value of Installation for the activity type. The customer service representative updates the activity type to a value of Repair. Also for example, a product is obsolete, and all customers who ordered the product automatically receive a new upgraded product which may require the skill associated with the activity to be updated.

To send these updates, the representative can click Update Activity for the activity. Choosing this command triggers an update in Oracle Field Service. If no resource is available for the appropriate slot, then Oracle Field Service might not schedule the activity and will be assigned at the bucket level for the dispatcher to manually schedule the activity.

User Interface Elements for Activity Schedule Detail View

Some fields and other user interface features for this integration are included in the Activity Schedule Detail view, or developers can add these interface elements to this view and other views. Some of these fields are available only in business components. When these fields apply to your company's requirements, developers can display the fields in the application user interface and populate field values.

When we drilldown to an Activity and go to Schedule View, we end up at view "FS Activity View" and Form Applet "FS Activity Form Applet".

Please note that the following UI Items in the view are not used for this Integration: -

1. Get GeoCode Button
2. Slot Group form field
3. Latitude form Field
4. Longitude form field
5. Account Map and Contact Map

Booking Emergency and Contract-Based Appointments

Sometimes you might want to request and fulfill immediate or urgent appointments. For example, you might schedule some appointments because of an emergency or because of contractual obligations involving service-level agreements.

Oracle Field Service can evaluate such considerations and book an appointment for the customer. The customer service representative requests the appointment by clicking the Insert Activity button for the activity. (This button is available in the Schedule view in the Activity List view of the Activities screen.)

In this type of scheduling, no slots are returned to the customer service representative. The appointment is booked automatically by using the activity settings that the representative designates. An activity is inserted into the Oracle

Field Service. The customer service representative can select the Lock Schedule or Lock Assignment or both depending on the specific customer requirement.

In a scenario where the Oracle Field Service is not able to find an available slot, the activity gets assigned at the bucket level and is not scheduled. The dispatcher will have to manually schedule this using the Oracle Field Service Dispatch board by rescheduling other lower priority appointments.

For example, a service-level agreement for a customer stipulates that a booked appointment start within an hour after calling. The customer service representative can use the contract scheduling functionality to create an appointment that might not otherwise be easily fulfilled.

Canceling Appointments for Activities

To comply with customer requests, you can cancel scheduled appointments. As appropriate, the representative then clicks Cancel Appointment. Oracle Field Service frees up the appointment slot, and changes the job status to Cancel. Any activity can be cancelled except an activity whose status is "Scheduled".

Note: A Field Engineer can also cancel an activity from OFS and the status will get updated in Siebel accordingly.

Rescheduling Appointments

To comply with customer requests, you can reschedule scheduled appointments. As appropriate, the representative then updates the earliest and latest start times, and clicks Book Appointment. Oracle Field Service returns new appointment slots that the representative can select.

About Activity Skills

In a typical Siebel Field Service scenario, a field service engineer arrives at a customer location to perform a job such as installation, upgrade, or repair. For Oracle Field Service to schedule the correct person to perform a job, it must determine the necessary skills to perform the job, and it must schedule a person with the required skill set to complete the work. To facilitate this outcome, the Siebel application passes the required skills to Oracle Field Service.

For example, a customer needs a plumber to fix a leak in a kitchen sink between 10:00 A.M. and 2:00 P.M. on January 15, 2023. Oracle Field Service must schedule a field service engineer with a skill value of Plumbing to visit the customer location during this time. As part of appointment booking, the request to Oracle Field Service Scheduler includes the time and date range as well as the skill value of Plumbing. Consequently, a person with the required skill is scheduled at the appropriate time.

We can add skills required for the activity to be performed by performing the following steps:

- Drill down to activity Type from List applet. Goto Assignment Skills View
- On Skills Applet, add a record for required skill
- On child applet, add Service Activity Skill Item for the skill. Category field is not used in this integration.

About Dispatch Management

Dispatch management includes tasks for viewing and managing shifts and associated entities, such as activities and breaks. The dispatcher might also view and manage maps showing locations of activities and field service engineers. You perform dispatch management tasks in Oracle Field Service. For more information about tasks that you perform in Oracle Field Service, see the documentation for Oracle Field Service in *About Documentation for Oracle Field Service*

About Mobile Data Management

Field service engineers receive and send activity updates from mobile devices. OFS or custom mobile app can be used by Field Technicians to view the assigned activities and can update the activity status while progressing with the assigned job.

You can use Oracle Field Service Android or iOS mobile apps for performing field service functionalities in your mobile devices. If you have a custom mobile application you can make use of the Oracle Field Service APIs to perform Field Service functionalities. After communicating offline with a field service engineer, a dispatcher might also make updates in Oracle Field Service.

About Fault Handling

Service Region Migration

In case service region is not migrated successfully check following fields at Service Region List Applet at Administration Scheduling Screen > Service Region List View.

1. Sync Success Description : will have some error message other than Success string. List of some messages are covered in below table.
2. Transfer Complete flag: unchecked.
3. Engine : OFS => this value will be changed to OFS once migration is initiated. In case migration is not triggered in case of connection issues Engine value will not change.

This error message need to be corrected and need to rerun the Transfer to OFS process again.

Troubleshooting

Below table lists some of the potential Error messages and the possible Troubleshooting that can be done.

Sync Success Description	Fault Handling/Troubleshooting
OFS: Error Mapping Zipcode to multiple ServiceRegion or updating Workzone	Check if same Zip code is associated already with other Service Region/Workzone in Siebel/OFS System
Siebel: No Zipcode for the Service Region	Add Zipcode to the Service Region.

Sync Success Description	Fault Handling/Troubleshooting
Siebel: Error - No Shifts Associated to ServiceRegion	Associate schedule to service region
Siebel: Error - No Exception Hours associated orError getting the Exception Hours	Check if the Exceptions are associated correctly to the schedule of the service region
OFS: Work Schedule not defined, Misspelled orError setting Work Schedule	This happens when Schedule name is not matching with the Work Schedule created in OFS. Create a Work Schedule in OFS with the Siebel schedulename
"Error: Some SRs and Employees were failed in the integration. Please refer the OIC Instance for more details. Instance Id - " + Instance ID	Check related issues in OIC instance and resolve the same.

Synchronisation Success Description	Fault Handling/Troubleshooting
OFS: Error in creating Service Region Bucket	Check if the OFS Resource API is down or update the missing info on the service region
OFS: Error in creating Employee	Check if the OFS Resource API is down or update the missing info on the employee
OFS: Error setting Exception to Employee	Check if the OFS Resource Work Schedule API is down or correct the exception data in Siebel
OFS: Error creating Work Skill	Check if the OFS Create Skill API is down or correct the skills data in Siebel

Appointment Booking: Here are some messages which will be shown in UI when appointment related activity has some problems

Message in UI	Troubleshooting
"OFS: Appointment not found or not satisfied the cancel criteria -> Instance Id - " + Instance ID	Only Activities in a status of 'Scheduled' can be cancelled.
"OFS: No employees are available in the given slot."	No Slots/Employees are available

One can refer to OIC instances to see detailed issue on these and take corrective actions.

- **Employee Sync:**

In case Employee sync has some error at time of Service region migration: Service Region will also have error at Sync Success description field and transfer complete flag will be unchecked. Drill down on Service Region from Administration - Scheduling > Service Region List and go to Employees View and notice "Synchronisation Success Flag" , "Synchronisation Success Description" and "Synchronisation Success TimeStamp" fields. Error will be available at "Synchronisation Success Description" field and "Synchronisation Success Flag" will be unchecked. Take the corrective action based on error message for each employee and rerun Transfer to OFS flow.

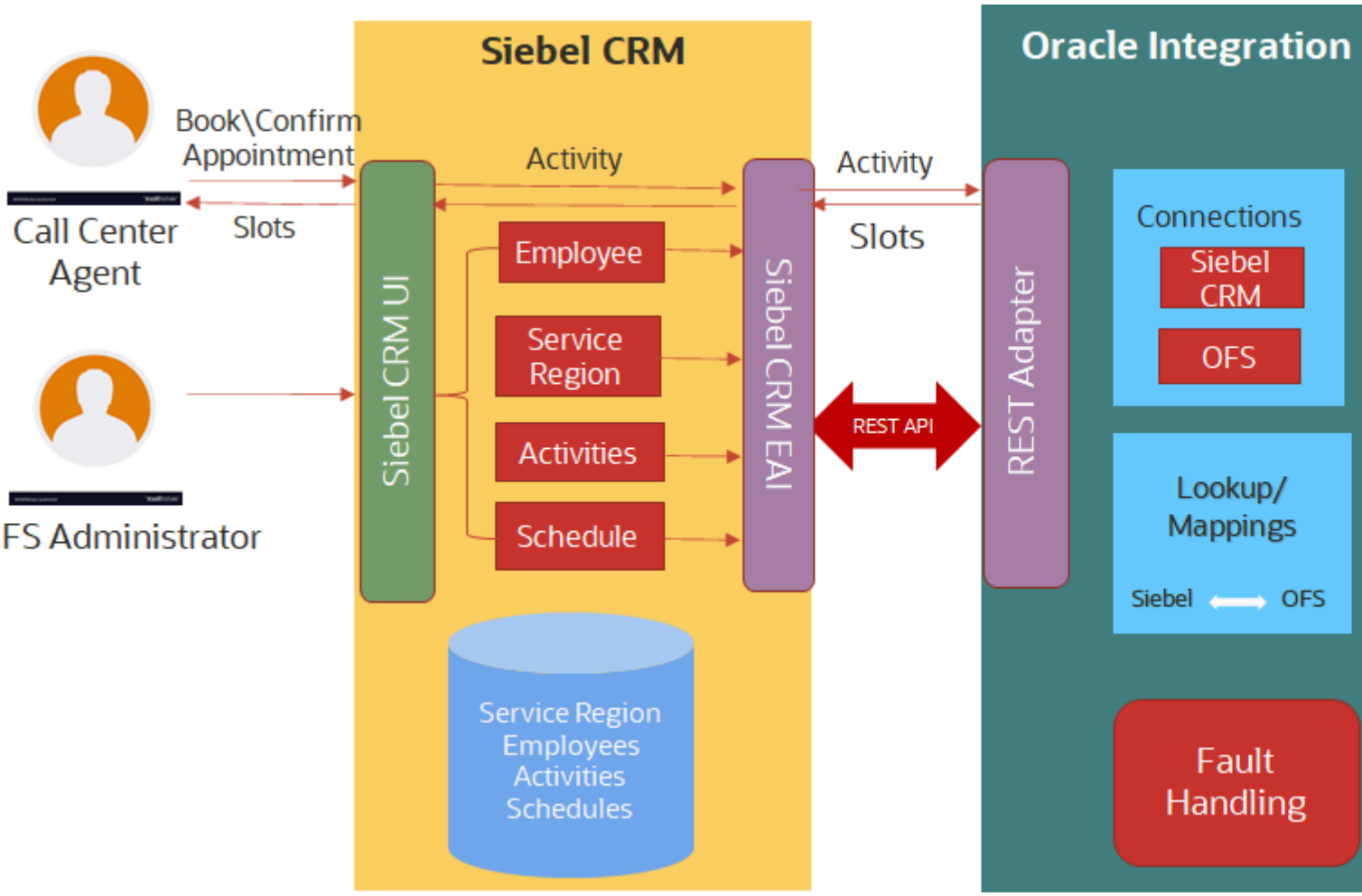
Incremental Employee post Service Region Migration Successful: In this case also Drill down on Service Region from Administration - Scheduling > Service Region List and go to Employees View and notice "Synchronisation Success Flag" , "Synchronisation Success Description" and "Synchronisation Success TimeStamp" fields. Error will be available at "Synchronisation Success Description" field and "Synchronisation Success Flag" will be unchecked. One need to update employee to initiate incremental employee sync flow after taking corrective action. In this case Service region

field "Synchronisation Success Description" will still be Success and "Transfer Complete flag" still be checked as before when service region transfer was successful. Only employee Fields will be updated.

Siebel Field Service Integration to Oracle Field Service Overview

Technical Architecture

Below is the Integration overview of this feature comprising of Siebel CRM and OFS with the OIC Business Accelerator.



Siebel CRM: Siebel CRM is the primary, which has all the master data of Service Regions, Employees, Employee Skills, Activities and Schedules. Siebel will be using Siebel EAI Rest framework to integrate with OFS via OIC. For Inbound services, Base Integration Objects have been created and will be part of the repository.

Oracle Integration Cloud: This is where our Business Accelerator is implemented. It works as channel between Siebel and Oracle Field Service. It has Lookups, Mappings and connections for Siebel and Oracle Field Service.

Oracle Field Service: This functionality is responsible for providing the available time slots of technicians by considering the skill ,availability and service region areas. It also updates activities and dispatches.

Process of Configuring Siebel Field Service Integration to Oracle Field Service

The following list shows the tasks that Siebel administrators typically perform to configure Siebel Field Service Integration to Oracle Field Service.

Note: Your company might follow a different process according to its business requirements.

To configure Siebel Field Service Integration to Oracle Field Service, Siebel administrators perform the following tasks:

- *Enabling Oracle Field Service in the Siebel Application*
- *Configuring the Endpoint URLs for Web Services*
- *Enabling Component Groups*
- *Setting Up and Configuring Workflow Processes and Policies*
- *OIC Configurations*

Enabling Oracle Field Service in the Siebel Application

Siebel administrators use the procedure in this topic to enable Oracle Field Service Scheduler in the Siebel application.

This task is a step in . *Process of Configuring Siebel Field Service Integration to Oracle Field Service*

To enable Oracle Field Service in the Siebel application

Business Service Configuration:

We need to provide OIC credentials to the following business services. To do that need to create workspace in Webtools and go to Business Service Object. Query for below listed business service.

Provide values of user id, password and security type to Business service User Prop. Deliver workspace post changes.

Business Service	User Property Values
ORACLSIEBEOFSSERVIREGIOSYNC	OICAuthenticationType = basic OICUserName = <OIC System User Id> OICPassword = <OIC System Password>
ORCLROFSSBLBOOKAPPOINTMENT	AuthenticationType = basic username = <OIC System User Id> password = <OIC System Password>

Business Service	User Property Values
ORCLROFSSBLCNFRMAPPOINTMENT	AuthenticationType = basic username = <OIC System User Id> password = <OIC System Password>
ORACLSIEBEOFSCANCEAPPOISYNC	AuthenticationType = basic username = <OIC System User Id> password = <OIC System Password>
ORCLROFSSBLINSRTACTIVITY	AuthenticationType = basic username = <OIC System User Id> password = <OIC System Password>
ORCLROFSSBLUPDATAPPOINTMENT	AuthenticationType = basic username = <OIC System User Id> password = <OIC System Password>

Configuring the Endpoint URLs for Web Services

Siebel administrators configure the endpoint URLs for Web services to allow the Siebel application to communicate with Oracle Field Service via the Oracle Integration Cloud (OIC). An *endpoint URL* defines the address for or connection point to a Web service. Later, they specify these endpoint URLs when configuring Oracle Integration Cloud components to support this integration.

For Inbound rest services, Base Integration Objects have been created and will be part of the repository. Here is list of Base Integration Objects created for this integration:

- Base EmployeeOFS
- Base OFS Region
- Base Shift
- Base Shift Exception
- Base Action See Other

This task is a step in . *Process of Configuring Siebel Field Service Integration to Oracle Field Service*

Configuring the Endpoint URL for Outbound Web Services

Siebel administrators use the following procedure to configure the endpoint URL for outbound Web services.

To configure the endpoint URL for outbound Web services

1. Navigate to the Administration - Web Services screen, then the Outbound Rest Services view.

2. Query for the following Web services:
    a. ORACLSIEBEOFSSERVIREGIOSYNC
    b. ORCLROFSSBLEMPLOYEESYNC
    c. ORACSIEBOFSSRZIPCINCRSYNC
    d. ORCLROFSSBLBOOKAPPOINTMENT
    e. ORCLROFSSBLCNFRMAPPOINTMENT
    f. ORACLSIEBEOFSCANCEAPPOISYNC
    g. ORACSIEBOFSINCRSREXCESYNC
    h. ORCLROFSSBLINSRTACTIVITY
    i. ORCLROFSSBLUPDATAPPOINTMENT
3. For each of these Web services, navigate to the Service Ports applet, and update the Address field with a value by Getting URL from Oracle Integration Cloud (OIC) Integration flows. Process of getting URL is explained at step 5 and 6.
4. For each Business Service there is a corresponding Unique Identifier in Oracle Integration Cloud.

    Below is the table for the same.

Siebel Business Service	OIC Integration Identifier
ORACLSIEBEOFSSERVIREGIOSYNC	ORCL-BA-SBL_OFS_SERVICE_REGION
ORCLROFSSBLEMPLOYEESYNC	ORCL-BA-SBL_OFS_EMPLOYEE_SYNC
ORACSIEBOFSSRZIPCINCRSYNC	ORCL-BA-SBL_OFS_SR_ZIPCODE_INCR
ORCLROFSSBLBOOKAPPOINTMENT	ORCL-BA-SBL_OFS_BOOK_APPOINTMENT
ORCLROFSSBLCNFRMAPPOINTMENT	ORCL-BA-SBL_OFS_CNFRM_APPNTMENT
ORACLSIEBEOFSCANCEAPPOISYNC	ORCL-BA-SBL_OFS_CANCEL_APPOINT
ORACSIEBOFSINCRSREXCESYNC	ORCL-BA-SBL_OFS_HOLID_EXCEP_INCR
ORCLROFSSBLINSRTACTIVITY	ORCL-BA-SBL_OFS_INSERT_ACTIVITY
ORCLROFSSBLUPDATAPPOINTMENT	ORCL-BA-SBL_OFS_UPDATE_APPNTMENT

5. Login to OIC instance and goto Integrations list and search for OIC Integration Identifier mentioned above for the service. In case there are multiple integration take the Active one.
6. Click on Run Button and then click on metadata URL

7. Copy EndpointURL and put this URL into Address field mentioned in step 3 and Save Record.

   Here are sample URLs at below table. There can be change in version so please make sure point to right version of the URL. In Sample URL its 1.0 version.

Siebel Business Service	Sample Endpoint URL
ORACLSIEBEOFSSERVIREGIOSYNC	https://<OICURL>:<Port>/ic/api/integration/v1/flows/rest/ORCL-BA-SBL_OFS_SERVICE_REGION/1.0/sendServiceRegionDetails
ORACSIEBOFSSRZIPCINCRSYNC	https://<OICURL>:<Port>/ic/api/integration/v1/flows/rest/ORCL-BA-SBL_OFS_SR_ZIPCODE_INCR/1.0/updateIncrementalZipcodes
ORCLROFSSBLEMPLOYEESYNC	https://<OICURL>:<Port>/ic/api/integration/v1/flows/rest/ORCL-BA-SBL_OFS_EMPLOYEE_SYNC/1.0/sendEmployeeData
ORACSIEBOFSINCRSREXCESYNC	https://<OICURL>:<Port>/ic/api/integration/v1/flows/rest/ORCL-BA-SBL_OFS_HOLID_EXCEP_INCR/1.0/getIncrementalSRExceptionDetails
ORACLSIEBEOFSCANCEAPPOISYNC	https://<OICURL>:<Port>/ic/api/integration/v1/flows/rest/ORCL-BA-SBL_OFS_CANCEL_APPOINT/1.0/cancelAppointment
ORCLROFSSBLINSRTACTIVITY	https://<OICURL>:<Port>/ic/api/integration/v1/flows/rest/ORCL-BA-SBL_OFS_INSERT_ACTIVITY/1.0/getInsertActivityDetails
ORCLROFSSBLBOOKAPPOINTMENT	https://<OICURL>:<Port>/ic/api/integration/v1/flows/rest/ORCL-BA-SBL_OFS_BOOK_APPOINTMENT/1.0/getBookAppointmentDetails
ORCLROFSSBLCNFRMAPPOINTMENT	https://<OICURL>:<Port>/ic/api/integration/v1/flows/rest/ORCL-BA-SBL_OFS_CNFRM_APPNTMENT/1.0/getConfirmAppointmentDetails
ORCLROFSSBLUPDATAPPOINTMENT	https://<OICURL>:<Port>/ic/api/integration/v1/flows/rest/ORCL-BA-SBL_OFS_UPDATE_APPNTMENT/1.0/getUpdatedAppointmentDetails

8. Click Clear Cache
9. Repeat this for all Business Service mentioned in above table.

Enabling Component Groups

Siebel administrators use the procedure in this topic to enable component groups on the Siebel Server.

Below table describes the component groups that you must enable for Siebel Field Service Integration to Oracle Field Service. These component groups supplement any other component groups that you need for your applications. For more information about enabling component groups, see *Siebel System Administration Guide*.

Component Group	Purpose
Workflow Management	Provides the workflow processes to run some of the asynchronous workflows.
EAI	Provides REST API Services for Siebel Business Applications.

To enable a component group

1. Navigate to the Administration - Server Configuration screen, Enterprises, and then the Component Groups view.
2. In the Component Groups view, query for Workflow Management or EAI, and then click Enable.
3. Navigate to the Administration - Server Configuration screen, Enterprises, and then the Component Definitions view.
4. In the Component Groups field, query for Workflow Management and EAI.
5. Select all of the records, and then click Synchronize.
6. Restart the Siebel Server.

Setting Up and Configuring Workflow Processes and Policies

You must perform the procedures in this topic to be able to use real-time synchronization of Service Region, employee, zip code and related data from the Siebel application to Oracle Field Service.

This topic contains the following related information:

- *Enabling Workflow Policies*
- *Shutting down Workflow Monitor Agent:*
- *Dropping Database Triggers*
- *Generating Database Triggers*
- *Configuring Workflow Monitor Agent*
- *Importing OIC Certificate in Siebel*
- *Workflows used in the Integration*
- *Updating Workflow Credentials*

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Field Service*

Enabling Workflow Policies

Siebel administrators use the following procedure to enable workflow policies.

To enable workflow policies

1. Go to Sitemap > Administration - Business Process Screen > Workflow Policies View
2. Make sure that Expiration Date is properly set for all the workflow policies that are not in use.

3. Make sure to expire ORS-related Workflow Policies by querying policy group named "ORS Group" and set expiry date prior to today's date as they are using same tables as Oracle Field Service Group policies.
4. Query for “OFS Group” in Policy Group Name field. This is a new group that has been created for the Workflow policies required for this integration
5. Verify that the Expiration Date is empty for these Workflow policies

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Field Service* .

Shutting down Workflow Monitor Agent:

Siebel administrators use the following procedure to shut down Workflow Monitor Agent

To shut down Workflow Monitor Agent

1. Navigate to the Administration - Server Management screen, Servers, then Component Groups view.
2. Query for Workflow Management.
3. In the lower Components applet, query for Workflow Monitor Agent.
4. Click Shut Down.

Dropping Database Triggers

Siebel administrators use the following procedure to drop database triggers.

To drop database triggers

1. Navigate to the Administration - Server Management screen, then the Jobs view.
2. Create a job for the Generate Triggers component.
3. In the Job Parameters list, define the job parameter with the values in the following table

Name	Value
EXEC	True
Privileged User	<Table Owner ID>
Privileged User Password	<Table Owner Password>
Remove	True
Trigger File Name	Droptrigger.sql

> **Note:** The values for Privileged User and Privileged User Password must be the database user name and password that have the privileges to drop and generate triggers.

4. Submit the Job and wait for it to be successful.

Generating Database Triggers

Siebel administrators use the following procedure to generate database triggers.

To generate database triggers

1. Navigate to the Administration - Server Management screen, then the Jobs view.
2. Create a job for the Generate Triggers component.
3. In the Job Parameters list, define a job with the values in the following table.

Name	Value
EXEC	True
Privileged User	<Table Owner ID>
Privileged User Password	<Table Owner Password>
Trigger File Name	Gentrigger.sql

> **Note:** The values for Privileged User and Privileged User Password must be the database user name and password that have the privileges to drop and generate triggers.

4. Submit the Job and wait for it to be successful.

Configuring Workflow Monitor Agent

Siebel administrators use the following procedure to configure Workflow Monitor Agent.

To configure Workflow Monitor Agent

1. Navigate to the Administration - Server Configuration screen, Enterprises, and then the Component Definitions view.
2. Query for Workflow Monitor Agent, and change values at Component Parameter Applet:
    a. Change the Group Name to OFS Group.
    b. Change the Action Interval to 5.
    c. Change Username to DB User ID such as SADMIN.
    d. Change Password to DB Password.
3. Click Advanced button, and perform the following steps:
    a. Change the Sleep Time value to 5.
    b. Change the Default Task value to 1.
4. Restart the Siebel Server.

> **Note:** In case of multiple Workmon required for different workflow Policy group one need to create copy of WorkMon component and change parameters accordingly.

Importing OIC Certificate in Siebel

To Import OIC Certificate in Siebel

To enable REST Outbound calls, which are required by this feature, you must import the OIC certificate as follows:

1. Download the OIC certificate.
2. Stop the internal Tomcat Web server.
3. Import the OIC certificate in to the Siebel trust store at the following location: <Siebel Installation Location>\ses\applicationcontainer_internal\siebelcerts\siebeltruststore.jks.
4. Start the internal Web server.

This task is a step in *Process of Configuring Siebel Field Service Integration to Oracle Field Service* .

Workflows used in the Integration

Following table lists the workflows being used in this integration

Workflow Name	Purpose
OFS Employee Workflow	Syncing Employee data from Siebel to OFS
OFS Service Region ZIP code Sync Workflow	Syncing Service Region Zip Code data from Siebel to OFS
OFS Shift Exception Sync Workflow	Invoked for any update in Shift Exceptions/Exception Hours aka Holiday List. We are sending only Exception as incremental update of Shift (Schedule)/Shift Hours is not supported in this release

Updating Workflow Credentials

This will make sure we are calling OIC Service with correct credentials. To do this create a workspace in Webtools and under workflow Object update steps as mentioned below and deliver the workspace.

1. **OFS Employee Workflow :** Update workflow step "Call Employee Sync Outbound" input params as follows:
    a. type:security = basic
    b. username:security = <OIC System User Id>
    c. password:security = <OIC System Password>
2. **OFS Shift Exception Sync Workflow:** Update workflow step "Outbound" input params as follows:
    a. type:security = basic
    b. username:security = <OIC System User Id>
    c. password:security = <OIC System Password>
3. **OFS Service Region ZIP code Sync Workflow:** Update workflow step "Call Zipcode Sync Outbound" input params as follows:
    a. type:security = basic
    b. username:security = <OIC System User Id>
    c. password:security = <OIC System Password>

OIC Configurations

Below are the OIC configurations required for various entities:

- *Lookups*
- *Connection Configuration*
- *Siebel Certificate Import in OIC*
- *Field Level Mapping of Siebel and Oracle Field Service Business Objects*

Lookups

Look up configuration helps a customer to maps similar entities of Oracle Field Service and Siebel having different values, for example the "Service Region Id" can be treated as a "Resource Id" in Oracle Field Service.

Based on the nature of customer business, the values can be different, customer can configure these look up tables according to your business requirements and execute the same integration in OIC.

To Configure Lookup

1. Navigate to Home→ Integrations → Lookups in OIC.
2. Click the name of the Lookup you want to configure.
3. Click on the "+" icon to add more values.

Below table provides sample values configured in the business accelerator.

OIC lookup	Siebel Sample Value	OFS value example	Description
ORCL-BRT-SBL_OFS_ACTIVITY_STATUS	Not Started	Pending	Map the Oracle Field Service activity status with Siebel appointment status
ORCL-BRT-SBL_OFS_TIMEZONE	(GMT-08:00) Baja California Norte; Tijuana	Eastern	Map the Siebel time value with Oracle Field Service time zone value.
ORCL-BRT-SBL_OFS_LANGUAGE_CODE	ENU	en	Map the Siebel language code value with Oracle Field Service language code value.
ORCL-BRT-SBL_OFS_WEEKDAY	Sunday	Sun	Map the Siebel week day value with Oracle Field Service week day value.
ORCL-BRT-SBL_OFS_GLOBAL_CONFIG	Service Region Employee Oragnization	BK PR SUNRISE	Map the Siebel global config value with Oracle Field Service global config value.

OIC lookup	Siebel Sample Value	OFS value example	Description
ORCL-BRT-SBL_OFS_NONWORKING_REASON	Sick Time	ILLNESS	Map the Siebel global config value with Oracle Field Service global config value.
ORCL-BRT-SBL_OFS_ACTIVITY_TYPE	Appointment	siebelActivityType	Map the Siebel activity type value with Oracle Field Service activity type value.
ORCL-BRT-SBL_OFS_FMR_LIMIT	Ofs_FMR_Limit	25	Default value for limit field for Find Matching Resource.
ORCL-BRT-SBL_OFS_SKILL	Expert	100	Map the Siebel skill value with Oracle Field Service skill value.
ORCL-BRT-SBL_OFS_EMPLOYEE_TYPE	Employee	technician	Map the Siebel employee type value with Oracle Field Service user type value.
ORCL-BRT-SBL_COUNTRY_CODE	USA	US	Map the Siebel country code with Oracle Field Service country code value.

Connection Configuration

To Configure Connection

1. In OIC, go to the *Connections* page.
2. Navigate to *Integrations→Packages* from the home page through the navigation sidebar.
3. Search package with name, *orcl.ba.sbl_ofs_sync* in the list of installed packages and scroll down to the *Connections* section.
4. Configure all the listed connections with the Siebel and Oracle Field Service instance details.

Siebel Certificate Import in OIC

Upload certificate in Oracle Integration Generation 2:-

https://docs.oracle.com/en/cloud/paas/integration-cloud/oracle-integration-oci/upload-ssl-certificate.html

Upload certificate in Oracle Integration 3:-

https://docs.oracle.com/en/cloud/paas/application-integration/snowflake-adapter/upload-ssl-certificate.html

Field Level Mapping of Siebel and Oracle Field Service Business Objects

Below are the field level mapping between Siebel and Oracle Field Service Business Objects.

Siebel CRM	OFS
Service Region	Resource (Type Bucket/Field resource)

Siebel CRM	OFS
Service Region Id	Resource Id
Name	Resource Name
Language Code	Language
Service Region Time Zone Name	Time zone (Look up in OIC)
Service Region ZIP Codes	WorkZone
Service Region Name	WorkZone Name
Service Region Name	WorkZone Label
ZIP Codes	Keys (array)
ZIP Codes	Shapes (array)
Service Region Id	Resource Id
Service Region Shifts	Work Schedule
Service Region Id	Resource Id
Shift Name	scheduleLabel
Service Region Exception Hours	Work Schedule
Service Region Id	Resource Id
Exception Hour Name	comments
Exception Hour Start Date	Start Date
Exception Hour End Date	End Date
Employee	Resource
Employee row Id	Resource Id
Party Name	Resource Name

Siebel CRM	OFS
Language Code	Language
Service Region Time Zone Name/Time Zone Name	Time zone (Look up in OIC)
Service Region Id	Parent Resource Id
Work Phone Number	phone
Employee Locations	Resource Locations
Employee row Id	Resource Id
Start Depot Address	address
Start Depot Country	Country
Start Depot City	City
Start Depot State	State
Start Depot ZIP Code	postalCode
Primary Start Home Address	address
Primary Start Home Country	Country
Primary Start Home City	City
Primary Start Home State	State
Primary Start Home ZIP Code	postalCode
End Depot Address	address
End Depot Country	Country
End Depot City	City
End Depot State	State
End Depot ZIP Code	postalCode

Siebel CRM	OFS
Primary End Home Address	address
Primary End Home Country	Country
Primary End Home City	City
Primary End Home State	State
Primary End Home ZIP Code	postalCode
Primary Start Home ZIP Code	postalCode
End Depot Address	address
End Depot Country	Country
End Depot City	City
End Depot State	State
End Depot ZIP Code	postalCode
Primary End Home Address	address
Primary End Home Country	Country
Primary End Home City	City
Primary End Home State	State
Primary End Home ZIP Code	postalCode
Employee Exception Hours (Continued)	Work Schedule (Continued)
Exception Hour End Date	End Date
Employee Skills	Work Skills
Employee row Id	Resource Id
Employee Skill Item	Work skill Name

Siebel CRM	OFS
Proficiency	Ratio
Employee Exception Hours (Continued)	Work Schedule (Continued)
Exception Hour End Date	End Date
Employee Skills	Work Skills
Employee row Id	Resource Id
Employee Skill Item	Work Skill Name
Proficiency	Ratio

Below are the field level mapping of Oracle Field Service entities and their corresponding default values.

OFS entity	Default values
Resource Type	BK or PR
Parent Resource Id	SUNRISE
Status	active
Travel Area	sunrise_enterprise
Start Date	current date
Is Working	true
nonWorkingReason	HOLIDAY
recurEvery	1
recurrenceType	daily
recordType	non-working
shiftType	regular

OFS entity	Default values
Address labels	Work Location or Home Address

Process of Administering Entities Using Siebel Field Service Integration to Oracle Field Service

This section details the tasks that business administrators typically perform to administer Siebel Field Service Integration to Oracle Field Service. Your company might follow a different process according to its business requirements.

Business administration tasks for this integration are divided between the Siebel application and Oracle Field Service. You manage the data that the Siebel application requires for a successful integration (such as basic employee information, address information, and basic schedule information) from the Siebel application.

You can also manage all business administration processes that are specific to Oracle Field Service from Oracle Field Service console.

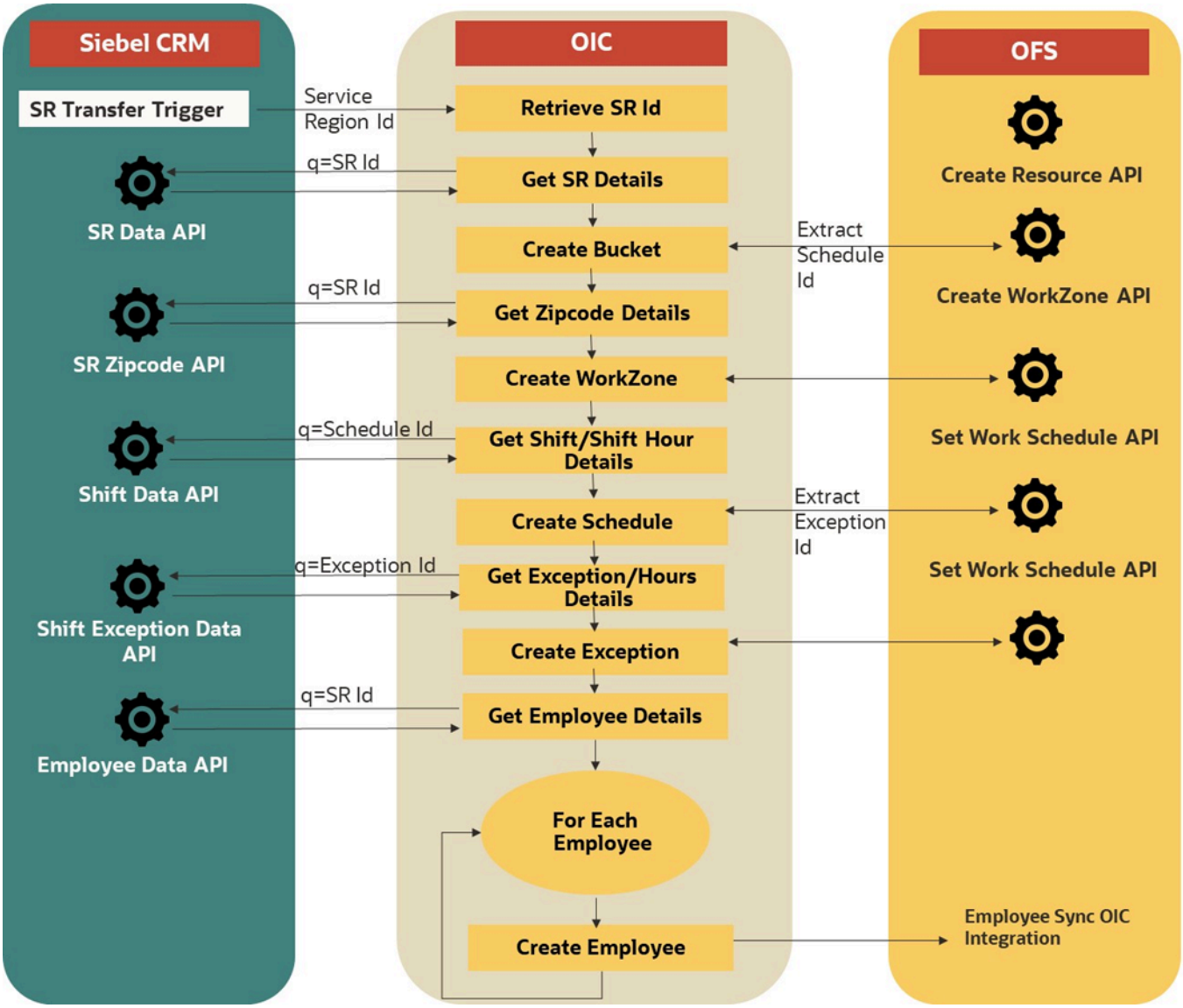
To administer Siebel Field Service Integration to Oracle Field Service, business administrators perform the following tasks:

- *Administering Service Regions*
- *Creating Schedules and Related Entities*
- *Administering Zip Codes*
- *Administering Employees and Related Entities*
- *Checking for Failed Migration of Service Region, Zip Code, Employee and Related Data to Oracle Field Service*

Administering Service Regions

The transfer of service region information from Siebel CRM to Oracle Field Service is initiated by the service region administrators in Siebel. This will trigger the initial migration of service regions and related data such as employee, zip codes to Oracle Field Service. Below is the flow for the Initial migration of Service Region and related data. This is an async flow and hence user need not wait. Administrators need to come back later to check fields Engine, Sync Success Description and Transfer Complete Flag.

- While creating the Service Region, select the engine as "iLog" which is the engine of Siebel Scheduler.
- Administrator needs to first setup the Service Region as well as Schedule, Exception, Employees and Zip code under it and create Schedule in Oracle Field Service with the same Siebel Schedule name.
- Once ready, Service Region can be migrated to OFS through click of “Transfer to OFS” Button on Service Region List view. "Engine" field on Service Region will be set to “OFS” and "Transfer Complete flag" will be updated to 'Y'.
- "Sync Success Description" field will be set to Success if Service region data is successfully transferred to OFS.
- In case any issue happen in this flow Error will be set in "Sync Success Description" field and Transfer complete flag will remain 'N'



Along with the service region transfer, the following events will occur

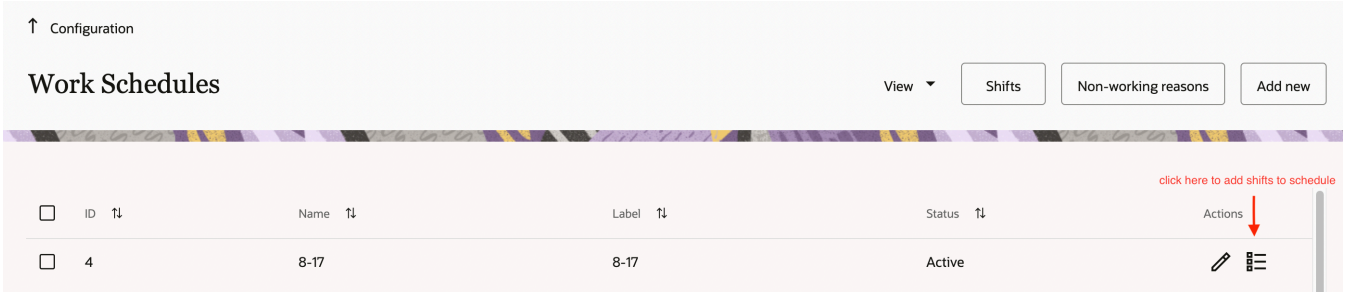
- Transfer of employee information mapped to this service region to Oracle Field Service as Technicians.
- Transfer of employee work skill, work schedule, exceptions on the work schedule and location information to Oracle Field Service.

Creating Schedules and Related Entities

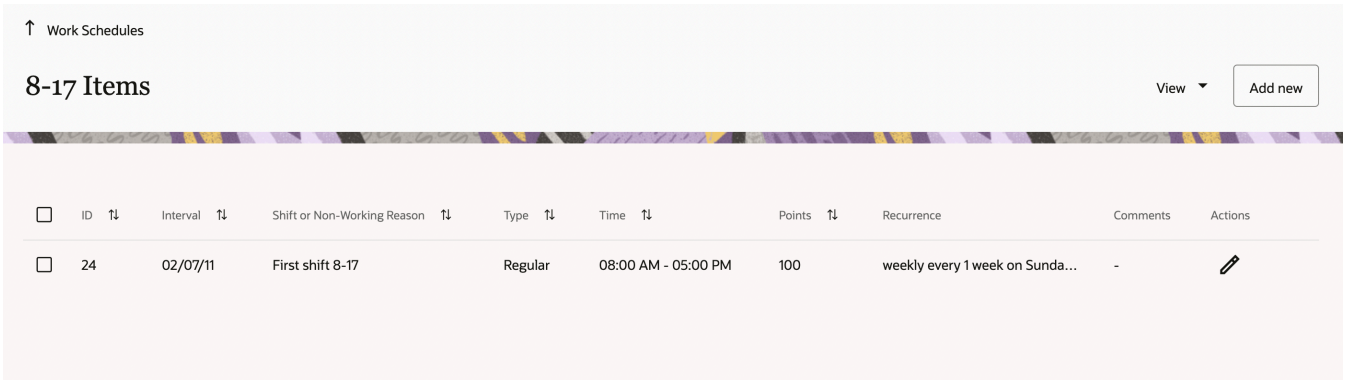
Administrator must create Work Schedule in OFSC → Configuration → Calendars (Work Schedules) with the exact Name and Label as Siebel Schedule name.

To Create Scheduled and Related Entities in Oracle Field Service

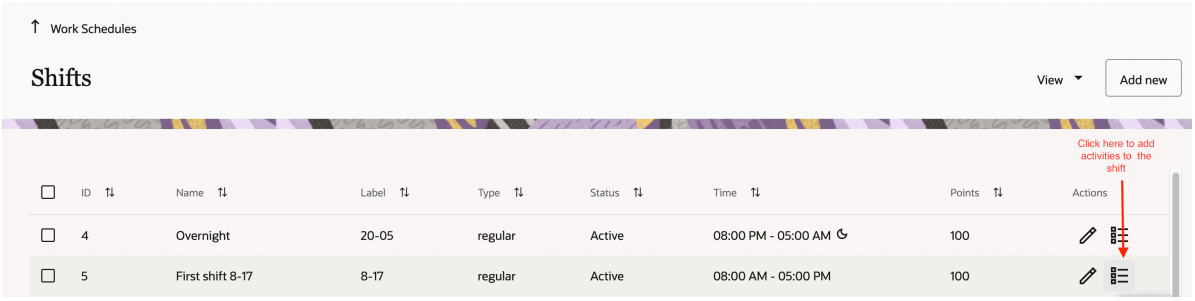
1. For each schedule shifts should be mapped by clicking on the Activities icon (under Actions) as highlighted.



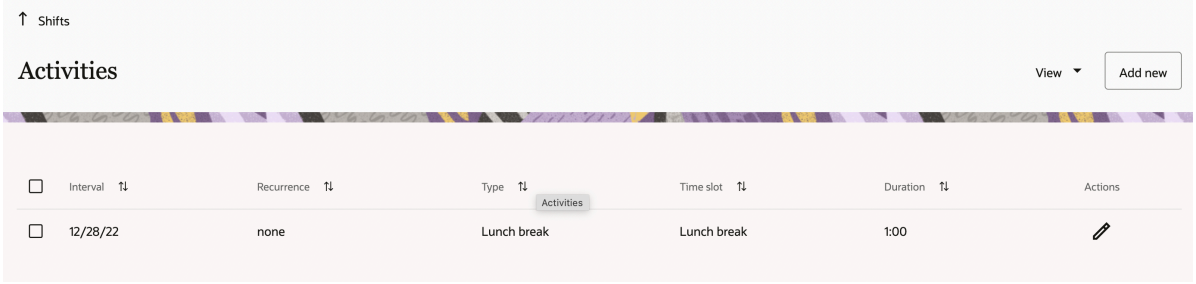
2. Below shift is added to the Work Schedule by clicking on Add new button.



3. To configure breaks such as lunch breaks or any non-working hours in a schedule, these can be added as activities to a particular shift or work schedule following the below steps.
    a. Create an activity type such as Lunch break, for which add new activity type in Configuration → Activity types → Add New
    b. Create a Time Slot for the activity, for which Goto Configuration → Time Slots → Add New
    c. Associate the activity type created to the shift associated with the work schedules following the below steps.
        - Click on Shifts Button in the Work Schedules Screen and click on the Activities icon (under Actions) corresponding to the Shift
        - Click "Add New" to add an activity to the shift.



- Add the activity as below by entering the Activity Type, Duration and selecting the Time Slot (Created in Step 2).



Administering Zip Codes

ZIP codes are mapped to Service Regions in Siebel CRM. Siebel Service Region can have multiple zip codes.

To add a zip code

1. Go to Administration - Service Region
2. Query for service region name
3. Drill down on service region and go to Zip code Tab.
4. Add/delete zip codes here.

> **Note:** Any addition of deletion will call async flow to update zip codes to Oracle Field Service.

Once basic information is updated in the bucket, the integration will migrate the zip code from the Siebel service region to Oracle Field Service. While migrating a new service region, the integration will check if there is already a work zone available with the same name in Oracle Field Service.

If there is a work zone available, then that work zone will be updated for the bucket. If this is a new work zone, then the integration will create a new work zone in Oracle Field Service. The zip codes will be mapped as the work zone key in Oracle Field Service.

Note: There is no sync status or flag currently supported for this. Administrators need to check in Oracle Field Service for the synced zip code values for service region.

Administering Employees and Related Entities

Employees under a Service Region with Engine = OFS will be synchronized to Oracle Field Service automatically through Workflow Policies by invoking OIC integration outbound REST. Along with Employee record, their Address (Home or Depot), Skills, Exception hours (Leave, meetings, and so on) will also be synchronized to Oracle Field Service.

Ensure that the schedule mapped to the employee has been created in Oracle Field Service. Once an employee has been added, a corresponding Resource and User will be created in Oracle Field Service by the corresponding OIC integration workflow policy.

Transfer of Siebel employee address to Oracle Field Service Resource Location

The work start and work end location of an Oracle Field Service resource will get updated based on the start and end home addresses or depot address. The integration will update the resource start location as the start depot address if the employees shift start is configured as a depot or if it's blank. In all other conditions, the start location will be the location associated with start home address. Similarly, the end location will be the end depot address if the employees end of shift is configured as depot or if it's blank. In all other conditions, the end location will be the location associated with the end home address.

Transfer of Siebel employee skill to Oracle Field Service Resource Skill

The employee skill will be updated as a resource skill in Oracle Field Service as part of the employee skill integration.

Transfer of Siebel employee work schedule to Oracle Field Service Resource Schedule

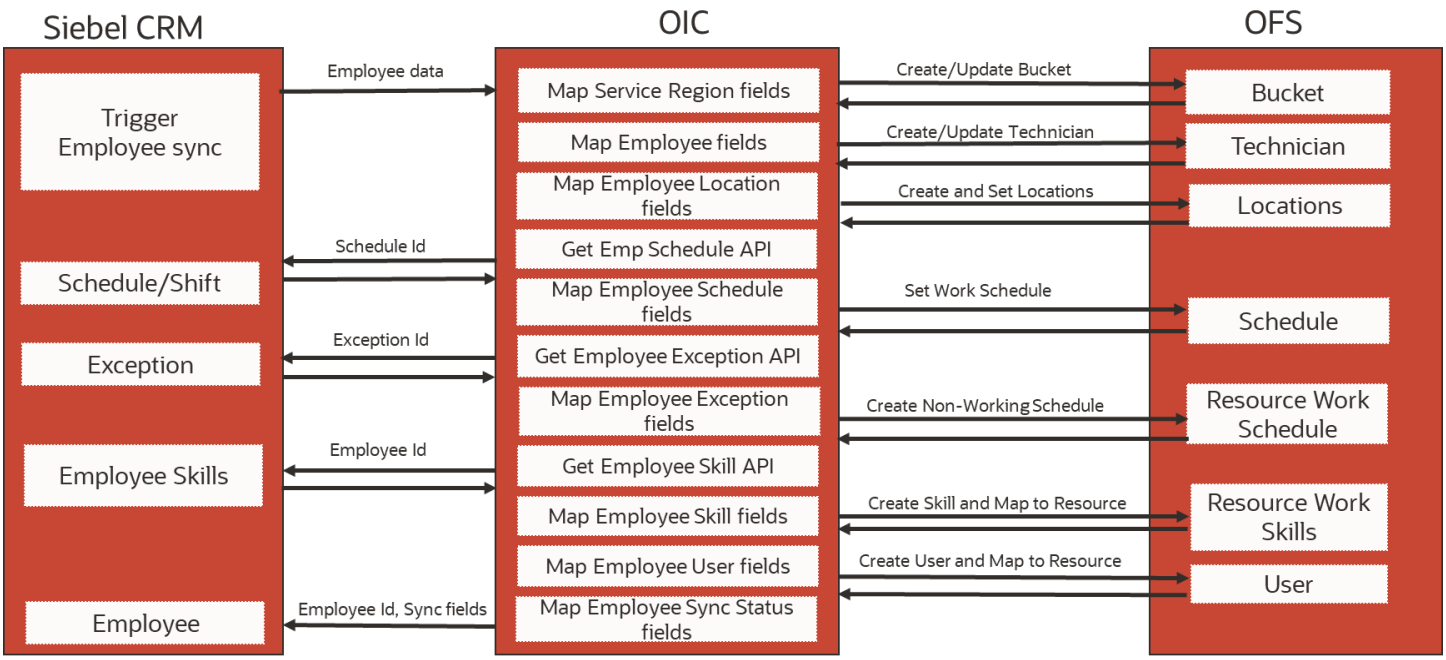
As a prerequisite of this integration, an OFS admin user will have to create a schedule as an OFS calendar configuration with the same name as the Siebel schedule name. As part of the employee data transfer workflow, Siebel will share the schedule name associated with the employee and it will be updated as a schedule in the OFS resource's calendar. In cases where there is no matching schedule in OFS that corresponds to the Siebel schedule, a resource will be created in OFS without a schedule and an error message will be updated in Siebel.

Transfer of Siebel employee exception hours

This integration treats holidays, working exceptions (for example, meetings, trainings), in some scenarios Field technicians may have to work on a non-working day for example, no work on Sunday from 6:00 A.M. to 12:00 A.M. in a 7x12 schedule, in Siebel this can be configured as exception to normal work schedule. Exception hours (holidays) - If the schedule in Siebel contains any holiday exception, the integration will apply this holiday to the OFS resource calendar as a non-working day. Working exception hours - If the employee in Siebel contains any working exception hours (such as meetings, trainings), an internal activity will be created during this period so that the field technician's availability can be updated accordingly.

Overtime on a non-working day - If the employee in Siebel contains any overtime exception, the integration will apply it as a schedule in the Oracle Field Service resource's calendar for that non-working day.

Below is the transfer process flow for Employee Data Synchronization between Siebel, Oracle Integration Cloud (OIC) and Oracle Field Service.



Incremental Update of Service Regions and Associated Data

Apart from the initial migration of the service region, when a business administrator updates the zip code or holiday exception associated with the service region, that data also will get updated in Oracle Field Service. Similarly, when a business administrator updates the following information associated with an employee, that then will get updated in Oracle Field Service in an incremental manner.

- Employee basic information
- Employee location
- Service region associated with that employee
- Work skill associated with that employee
- Working exception and Non-working exception hours associated with that employee

Checking for Failed Migration of Service Region, Zip Code, Employee and Related Data to Oracle Field Service

After business administrators migrate a service region to Oracle Field Service Scheduler., they can check whether all applicable employees and activities migrated successfully.

To check for failed migration of Service Region, Zip Code, Employee and Related Data to Oracle Field Service

1. Navigate to the Administration - Scheduling screen.
2. Select the record for the service region that you migrated.
3. In case of failure, the reason for the failure appears in the Sync Success Description field else the status will be displayed as “Success”.

Debugging and Troubleshooting

The below table lists the potential error messages that could come during migrating Service Region, Zip Code, Employee and Related data from Siebel to Oracle Field Service Scheduler. There is no roll back feature that is supported as part of this integration and any roll back of transferred data to Oracle Field Service needs to be handled manually.

Note: The cut over monitoring view is not used as part of this integration.

Symptom	Reason	Solution
Book Appointment returns blank slots	No slots are returned for scheduling the activity. Possibility could be no resources available during the specified time frame	• Ensure that the Account Address details are provided • Change the Earlier start date and Latest start date to some other date time range
OIC flow throws 401 error	When user is not authorized, OIC flow throws this error	Check the Username and Password credentials provided in Business service user property of ‘ORCLROFSSBLBOOKAPPOINTMENT business service are correct
Cancel Appointment returns error "OFS: Appointment not found or not satisfied the cancel criteria”	Activity selected for cancelling the appointment is not scheduled	Only Activities in status ‘Scheduled’ can be cancelled

OIC Error Message Shown in Siebel

Follwing is a list of OIC error messages shown in Siebel.

- "Siebel: No Zipcode for the Service Region. OFS: Error updating Workzone"
- "OFS: No employees are available in the given slot."
- "OFS: Error setting Workzone to Service Region"

- "OFS: Error Mapping Zipcode to multiple Service Region or updating Workzone"
- "OFS: Appointment not found or satisfied the cancel criteria -> Instance Id - "
- "OFS: Appointment not found or not satisfied the cancel criteria -> Instance Id - "
- "Error: Some SRs and Employees were failed in the integration. Please refer the OIC Instance for more details. Instance Id - "
- "Error: Failed SRs - " + failed SRs + " Failed Emps - " + failedEmployees
- " --- Siebel: Error getting Shift details -> Instance Id - " + Instance ID
- " --- Siebel: Error getting Employees -> Instance Id - " + Instance ID

Booking Appointments Using Siebel Field Service Integration to Oracle Field Service

Customer service representatives can use the procedure in this topic to book appointments. For more information, see *About Appointment Booking for Siebel Field Service Integration to Oracle Field Service*.

The procedure in this topic assumes that a customer service representative books the appointment from the Service screen. The representative creates the service request, and then must schedule an activity. The representative books the appointment as part of resolving the customer issue.

You can work with activities in many ways. Your process for working with activities depends on your company's deployment and business requirements and on the nature of the customer communication. For more information about working with activities, see *Service Activities*.

The functionality relating to the fields in the Schedule view of the procedure in this topic works as expected only if the appropriate data for these fields was previously defined in the appropriate environment and synchronized as necessary between the Siebel application and Oracle Field Service.

To book an appointment using Siebel Field Service Integration to Oracle Field Service

1. Navigate to the Service screen, then the Service Request List view.
2. Create a new service request record for the customer issue, and then drill down on the value in the SR # (number) field.
3. In the Activities view tab, create a new activity record for the service request, and then drill down on the value in the Type field.
4. Click the Schedule view tab.
5. Complete the form fields as appropriate.

   Some fields are described in the following table.

Field	Description
Service Region	Select the service region for the activity. The default service region is based on the zip code or equivalent postal code of the account address.

Field	Description
Work Time	Type the time needed to complete the activity. Work time data is transmitted to Oracle Field Service, when you click the Insert Activity button or Update Activity button in this view, or when you click the Confirm button in the dialog box that appears when you click Book Appointment.
Duration	Select the time needed to complete the activity. This Integration does not support activity breaks. The Allow Breaks field does not apply to any activities scheduled using Oracle Field Scheduler.
Earliest Start	Select the earliest time and date the activity can begin. This field usually indicates contractual commitments or deadlines. If you do not populate this field, then the current date and time are used for the appointment request.
Latest Start	Select the latest time and date the activity can begin. This field usually indicates contractual commitments or deadlines. If you do not populate this field, then the current date and time, plus seven days, are used for the appointment request.
Slot Group	The Slot group is not used in this integration with Oracle Field Scheduler.
Lock Assignment	Select this check box as appropriate. This field affects how appointments are returned. In general, the functionality for this field is the same as the functionality for this field in Siebel Scheduler. For more information, see *Locking Assignments and Schedules for Activities (End User)*.
Lock Schedule	Select this check box as appropriate. This field affects how appointments are returned. In general, the functionality for this field is the same as the functionality for this field in Siebel Scheduler. For more information, see *Locking Assignments and Schedules for Activities (End User)*.
Account	Select the appropriate account for the customer.
Account Address	Select the appropriate account address for the customer who Zip code is mapped to the Service region synchronized with Oracle Field Service.
Min Offset	Min Offset is not used in this integration with Oracle Field Scheduler
Max Offset	Max Offset is not used in this integration with Oracle Field Scheduler

Field	Description
Parent Activity Id	This field applies only to Bound Jobs and is not supported in this integration with Oracle Field Service Scheduler
Skills	The skill required for the activity will be passed from Siebel to Oracle Field Service for locating the right resource

6. Click Book Appointment to request available appointment slots from Oracle Field Scheduler

   This button is available in the Schedule view in the Activity List view of the Activities screen or in the Activities view in the Service Request List view of the Service screen.

   The scheduling engine associated with the service region processes the request. If this integration is implemented and a service region was migrated, then the scheduling engine is set to OFS, and the request is sent to Oracle Field Scheduler. For more information, see *Administering Service Regions* .

   Unlike Siebel Scheduler, Oracle Field Service does not lock these slots. Consequently, multiple customer service representatives can see the same slot. The first representative to confirm a slot successfully completes the confirmation, and a list of available appointment slots appears. The slot confirmation fails for other representatives. Slots are confirmed on a first come, first serve basis because the Oracle Field Service does not block the slots that are displayed in Siebel CRM.
7. If none of the appointments are acceptable to the customer, then complete the following steps:

   a. Click Cancel.
   b. Adjust the appointment range as needed.
   c. Click Book Appointment again.
8. Select an appointment the customer agrees to and click Confirm. An Activity will be then created in Oracle Field Service based on the time slot selected through Oracle Integration Cloud integration and the activity status is updated to “Scheduled” in Siebel, and the planned start and end date fields are populated with the confirmed timeslots.
9. Once an activity has been scheduled in Siebel, there are certain activities that will trigger an update to Siebel from Oracle Field Service. Below are the activities that will trigger an update from Oracle Field Service to Siebel CRM.

   - An activity completed by Field Engineer
   - An activity updated as not done
   - An activity that is moved
   - An activity that has been updated as cancelled

9 Agreements and Entitlements

Agreements and Entitlements

This chapter describes how to create and manage agreements and specific levels of service (entitlements) for agreements. It includes the following topics:

- *About Agreements*
- *Agreement Charts*
- *About Entitlements*
- *Roadmap for Administering Agreements*
- *Process of Administering Entitlements*
- *Process of Managing Agreements*
- *Process of Managing Entitlements*
- *Workflows for Agreement Renewal and Approval*
- *Workflows for Entitlement Creation and Verification*

About Agreements

An *agreement* describes products or services provided to a customer and the financial relationship between your organization and the customer. This chapter usually uses the term *agreements*, and not the term *contracts*.

You can manually create many types of agreements in the Agreements screen. You can also automatically create an agreement from a quote in the Quotes screen. Agreements can have a hierarchical relationship. A master agreement can include multiple child agreements.

Automatic Entitlements for Agreements

You can automatically apply entitlements to agreement line items by using entitlement templates that are associated with specific products. Each agreement line item can include multiple entitlements that apply to specific costs, contacts, accounts, metrics, service hours, responsiveness, and preventive maintenance plans.

Management of Agreements

Siebel Agreements provides functionality for agreements relating to renting, leasing, financing, and usage. You set up renting, leasing, and financing using nonrecurring charges, recurring charges, and schedules for agreement invoicing. You set up usage using use plans, asset measurements, and readings.

Nonrecurring charges (NRCs, for example, the one-time fee for a service agreement) and recurring charges (RCs, for example, a monthly service fee) apply to agreements. Usage-based agreements can include service components.

Charges and Invoicing for Agreements

The Charge Engine creates charges and the Charge Consolidation business service creates invoices. You can configure the associated workflows as needed. For more information about agreement charges and invoicing, see *Charges and Invoices*.

Co-Terms for Agreements

Co-terms refer to the consolidation of the terms for multiple line items in an agreement. Typically, an agreement includes multiple line items for different service products. These service products can have different start and end dates, resulting in different payment schedules. Customers can ask for the consolidation of these terms into a single start and end date. If a new product is added to an existing service agreement, and the term is already partially complete, then a customer might ask to prorate the charges by using the remaining term of the agreement.

The Financials view in the List view of the Agreements screen can help you to better understand the co-term and prorate choices that are required for an agreement according to its term and remaining months.

Agreement Copying

When a user clicks the Revise button for an agreement, the following actions occur:

- The agreement is revised, deep copied, and its version number is increased.
- Fields in the original agreement are read-only.

The following table shows how the Read Only Upon Revise user property determines the read-only behavior of the fields in the original agreement record. You can edit the Read Only Upon Revise user property to configure this read-only behavior after a user clicks the Revise button for an agreement. For more information about editing user properties, see *Configuring Siebel Business Applications* .

Value for Read Only Upon Revise User Property	Read-Only Behavior of Fields in Original Agreement Record
All	All fields are read-only.
Partial	All fields except End Date, Valid, and Status are read-only.
None	No fields are read-only.

The Revise button uses signals and data maps. For more information about signals and data maps, see *Siebel Order Management Infrastructure Guide* .

In the preconfigured Siebel Field Service application, the Revise button is available in views that use the Service Agreement business object (for example, in the Agreements List view of the Agreements screen). The functionality associated with the Revise button uses an integration object. For the Service Agreement business component, the

Instance Uniform Name EAI Object:Service Agreement user property sets this integration object. In the name of this user property, Service Agreement denotes the business object that the Service Agreement business component is in at run time. For the Service Agreement business component, the value of this user property is ISS Agreement. This value denotes the integration object.

If you want to set up the Revise button in a view that uses another business object, then you must add a new Instance Uniform Name EAI Object:*BusObj* user property (where *BusObj* is the name of the business object) to the business component associated with the business object. For the value of this user property, enter ISS Agreement.

Agreement Charts

The following table lists the charts in the Charts view for agreements.

Chart	Description
Trend Analysis by Effective Date	The number of agreements beginning as a function of effective date.
Trend Analysis by Expiration Date	The number of agreements ending as a function of expiration date.

About Entitlements

Entitlements contain information about the level of service for a customer. An entitlement that is associated with a service call can result in adjustments to charges. For example, an important machine part is defective, and a field service engineer must fix the part. This repair requires 3 hours of the engineer's time. If you bill the engineer at a rate of $50 an hour, then the final charge for the customer is $150. However, if the customer has a service-level agreement with entitlements that apply to all time and material for that part, then the charge includes an additional charge adjustment to subtract the $150 leaving an outstanding balance of $0. Siebel Field Service can inform the customer of the charge adjustment and the reason for the adjustment.

An agreement can have many associated entitlements. One agreement typically encompasses several products or assets. Multiple service packages can apply to these products and assets. Each service package can then include different entitlements. Complex pieces of machinery can have many associated components. The service package associated with each product can then have different entitlements for the various components and labor.

Roadmap for Administering Agreements

The following list shows the tasks and processes that administrators typically perform to administer agreements. Your company might follow a different roadmap according to its business requirements.

To administer agreements, administrators perform the following tasks and processes:

- *Defining Pricing for Agreements*

- *Setting Up Renewal for Agreements*
- *Process of Setting Up Agreement Validation*
- *Setting Up Approval for Agreements*
- *Creating Agreements from Orders and Quotes*
- *Configuring Data Maps to Copy Specified Data*
- *Allowing Automatic Creation of Renewal Quotes and Opportunities*
- *Adding Multiple Assets to Agreement Line Items*
- *Creating Revenue Plan Templates*
- *Creating Term Templates*
- *Running Charge Plans for Agreement Line Items Using Workflows*

Defining Pricing for Agreements

You can define the following types of pricing for agreements:

- **Asset-based pricing.** For more information, see *Defining Asset-Based Pricing*.
- **Service-based pricing.** For more information, see *Defining Service-Based Pricing*.
- **Order or quote entitlement-based pricing.** For more information, see *Generating Entitlement-Based Pricing for Orders or Quotes*.

Note: When a user adds a product to an agreement line item or adds another asset, the Product Selection and Pricing (PSP) Engine determines the price of the product. For more information, see *Business Service Methods for Agreements*.

This task is a step in *Roadmap for Administering Agreements*.

Defining Asset-Based Pricing

For an agreement line item, the combination of a product (typically a service product, in the Product field in the Line Items view of an agreement) and an asset (in the Asset number (#) field in the Line Items view of an agreement) determines a unique price. This capability is *asset-based pricing*.

You use asset-based pricing for pricing products related to assets that a customer purchased. The Reprice and Reprice All menu commands activate the Pricing Engine. The Pricing Engine uses the appropriate price list and pricing procedure to calculate the price. If you select the Reprice menu command, then the price of the selected line item is calculated. If you select the Reprice All command, then the price of the all line items is calculated. The Pricing Engine calculates the price of the product and asset combination and retrieves the price from the price list, or the price list entry, and the supply information about volume discounts.

Note: You need the Siebel Pricer module if you want to perform special pricing on products by using assets.

To enable asset-based pricing, you enable the Dynamic Pricing Procedure workflow instead of the Pricing Procedure - Default workflow or the Basic Pricing Procedure workflow. Unlike the Basic Pricing Procedure workflow, the Dynamic Pricing Procedure workflow includes covered asset details. For more information about pricing procedures and the Product Selection and Pricing (PSP) Engine, see *Siebel Pricing Administration Guide* .

To enable asset-based pricing

1. Navigate to the Administration - Business Process screen, then the Workflow Deployment view.

2. Enable the Dynamic Pricing Procedure workflow.

   The Service Pricing view allows you to specify multiple products that together define a unique price. The combination of the service product in the Service Pricing view and an asset in the Service Price Details list defines a unique price.

   The Service Pricing Details list includes products that represent the targeted installed base of assets that a service product covers. In an agreement line item, specifying a service product (for example, Platinum Coverage) and selecting an asset that asset-based pricing covers (for example, component G with serial number XYZ) returns a line item price by using the combination of service product and asset.

To set up asset-based pricing

1. Navigate to the Administration - Pricing screen, then the Price Lists view.
2. Select a price list, and click the Service Pricing view tab.
3. Create a new service pricing record, and complete the fields as appropriate.

Defining Service-Based Pricing

Customers often require an after-sales service package for the products that they purchase. This requirement is included in the quote or order. Administrators can define a service package to apply to a set of products. The combination of the service package and the covered product allows for price calculation. This practice is *service-based pricing*.

You manage service pricing on covered assets by using the Pricing Procedure - Calculate Net Price workflow. For more information about pricing procedures and setting up service pricing, see *Siebel Pricing Administration Guide* .

To create a service package for service-based pricing

1. Navigate to the Administration - Product screen, then the Products view.
2. Create a product record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Product	Type an appropriate name for the service package, such as Platinum Service Package or Gold Service Package.
Service Product	Select this check box to indicate the product is a service product.

   After you create a service package for service-based pricing, you can set up this pricing.

To set up service-based pricing

1. Navigate to the Administration - Pricing screen, then the Price Lists view.
2. Select a price list, and click the Service Pricing view tab.

3. Create a new service pricing record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Product	Select the product that the service package covers. Create a record for each product.
List Price	Enter a fixed price in this field or enter a percentage of the covered product in the Service Price % field.
Service Price %	Enter the percentage of the covered product in this field or a fixed price in the List Price field.

Generating Entitlement-Based Pricing for Orders or Quotes

Orders and quotes can include associated entitlements that provide special pricing for all line items in the order or quote. This capability is *entitlement-based pricing*.

Note: By default, entitlement-based pricing is not enabled in Siebel Field Service. You need the Siebel Pricer module if you want to perform special pricing on products by using product entitlements.

Order and quote entitlement-based pricing is managed through the Pricing Procedure - Calculate Net Price workflow. For more information about pricing procedures and the Product Selection and Pricing (PSP) Engine, see *Siebel Pricing Administration Guide* .

To generate entitlement-based pricing for an order

1. Navigate to the Service Orders screen, then the List view.
2. Drill down on the Order number (#) field for a selected order, and click the Line Items view tab.
3. Make sure that an entitlement is selected in the Entitlement field of the appropriate line items.
4. Select an order line item with an entitlement, click the menu button, and select one of the following commands:
   - **Reprice.** The Pricing Engine calculates the price for the entitlement in the selected order line item.

     To calculate this price, the Pricing Engine uses the associated price list and pricing procedure.
   - **Reprice All.** The Pricing Engine calculates the price for the entitlements in the appropriate line items.

     To calculate these prices, the Pricing Engine uses the associated price list and pricing procedure.
5. In the Totals view, click the menu button, and select Save.

   You can also generate entitlement-based pricing for a quote.

To generate entitlement-based pricing for a quote

1. Navigate to the Quotes screen, then the List view.
2. Select a quote record, and then scroll down to the Quotes form.
3. Click the show more button to display additional fields.
4. In the Entitlement field, select an entitlement.
5. Drill down on the Name field for the quote, and click the Line Items view tab.

6. Select quote line item, click the menu button, and select one of the following commands:
    - **Reprice.** The Pricing Engine calculates the price for the entitlement in the selected quote line item.

      To calculate this price, the Pricing Engine uses the associated price list and pricing procedure.
    - **Reprice All.** The Pricing Engine calculates the price for the entitlements in the appropriate line items.

      To calculate these prices, the Pricing Engine uses the associated price list and pricing procedure.

Setting Up Renewal for Agreements

Users can manually renew agreement line items by entering a current or previous day in the Start Date field and then clicking the Renewal button. For more information, see *Renewing Line Items for Agreements (End User)*.

> **Note:** You renew agreement line items only in the Renewal Escalator view in the Line Items view of the Agreements screen. The fields in the Financials view do not affect renewal of agreement line items.

You can use workflows to automatically renew agreement line items. You can use the FS - Agreement Renewal Item workflow and the FS - Agreement Renewal All workflow to set up a repeating component job to automatically renew agreement line items for predefined time periods. For example, a workflow process can run daily to find any start dates equal to the current date, and then automatically renew the line items. For more information, see *FS - Agreement Renewal Item Workflow* and *FS - Agreement Renewal All Workflow*.

Renewal terms for an agreement line item follow:

- Start date (required)
- End date (required)
- Price adjustments
- Charge adjustments
- Use plan

> **Tip:** It is recommended that you set up the schedule to first query for all agreements that are about to expire in 15, 30, or 60 days. Then, run the renewal workflow for the agreement line items for the current day. It is also recommended that you create an activity for the sales or service team to follow up with the account for renewal.

This task is a step in *Roadmap for Administering Agreements*.

To set up renewal for agreements

1. Navigate to the Administration - Server Management screen, then the Jobs view.
2. In the Jobs list, create a new Job record.
3. In the Component/Job field, select Workflow Process Manager.
4. Enter the appropriate Repeat Interval and Repeat Unit in the Job Detail view.

   For example, a Repeat Unit of Weeks and a Repeat Interval of 1 runs the renewal process on a weekly basis.
5. Scroll down to the Job Parameters list, and create a new parameter record.
6. In the Name field, select Workflow Process Name, and in the Value field, enter FS - Agreement Renewal Item or FS - Agreement Renewal All.
7. Click Start in the Jobs list.

Process of Setting Up Agreement Validation

Users can verify an agreement to validate that it includes the correct data. Agreement validation helps to make sure that agreement details are in accordance with company policies regarding agreement creation, updating, and renewal. For more information about setting up data validation, see *Siebel Order Management Guide* .

To set up validation for agreements, administrators perform the following tasks:

1. *Creating Rule Sets for Agreement Validation*
2. *Creating Messages for Agreement Validation*
3. *Creating Rules for Agreement Validation*

This process is a step in *Roadmap for Administering Agreements*.

Creating Rule Sets for Agreement Validation

Typically, the Agreement Validation validation rule set is provided in the preconfigured Siebel Field Service application. However, if no such rule set exists in your installation, then perform the steps in the following procedure.

This task is a step in *Process of Setting Up Agreement Validation*.

To create a validation rule set for an agreement

1. Navigate to the Administration - Data Validation screen, then the Rule Sets view.
2. Create a new rule set record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Name	Type a name for the validation rule (for example, Agreement Validation).
Business Component	Select the appropriate business component (typically, Service Agreement).
Business Object	Select the appropriate business object (also typically, Service Agreement).

3. Click Activate to release the rule set.

> **Note:** To revise the validation rule set, click Revise, and update the rule set. Click Activate again to release the rule set.

Creating Messages for Agreement Validation

Before defining rules for the rule set, create the error messages that are used for data validation. The rule creation process references these error messages and codes.

This task is a step in *Process of Setting Up Agreement Validation*.

To create an agreement validation message

1. Navigate to the Administration - Data Validation screen, then the Validation Messages view.
2. Create a new validation message record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Message Code	Type an appropriate message code.
Message Level	Type the appropriate level (for example, Agreement) for the message.
Message Source	Type the appropriate source (for example, Agreement Validation) of the message.
Message Text	Type the text (for example, Account is Null) to describe the error.

3. (Optional) In the Translations list, create translation records for the message text in other supported languages.

Creating Rules for Agreement Validation

After you create the agreement rule set and data validation error messages, create the rules that the rule set governs. For the following procedure, you have not yet released the rule set.

This task is a step in *Process of Setting Up Agreement Validation*.

To create an agreement validation rule

1. Navigate to the Administration - Data Validation screen, then the Rule Sets view.
2. Select a rule set, and click the Rules view tab.
3. Create a new rule record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Sequence #	Type the sequence number for the rule. This number indicates the order in which the rule is evaluated relative to the other rules in the rule set.
Name	Type a name for the rule (for example, Price list is Null).
Expression	Use the Expression Designer to create a sophisticated validation expression for verification. For example, the [Price List] IS NOT NULL expression verifies that the agreement is associated with a price list. The field of the business component to validate is in the brackets.
Business Component	Select the business component for the rule.

Field	Comments
Apply To	Select a value to indicate the records that apply to the rule. Values include Current Record and All Records.
Return Code	Select the code of the validation message for the rule. For more information, see *Creating Messages for Agreement Validation*.

Setting Up Approval for Agreements

You can set up agreement approval to make sure that when an agreement is worth more than a specified sum, users must obtain approval from the appropriate employee.

By default, users must submit an agreement for approval if the agreement total exceeds $50,000. You can change this validation rule or add additional rules for further validation before users submit agreements for approval. For more information, see *Creating Rules for Agreement Validation* and *Submitting Agreements for Approval (End User)*.

This topic contains the following related information:

- *Viewing Data for Agreement Approval*
- *Defining the List of Agreement Approvers*

This task is a step in *Roadmap for Administering Agreements*.

Viewing Data for Agreement Approval

Before you set up approval for agreements, view the data for agreement approval.

To view the workflows that the agreement approval signal calls

1. Navigate to the Administration - Order Management screen, then the Signals view.
2. In the Signals list, select the ApproveItem record.
3. In the Versions list, drill down on the latest workspace.

   The Actions view appears.
4. Note the following information in the Actions list:
   - The Sequence field shows the order of the calls to the business services.
   - The Service Name field shows the names of the workflows that the signal calls.

   The signal updates the process for the order, quote, or agreement before the agreement is submitted for approval. For more information about agreement approval, see *ISS Approval (Agreement) Workflow*.
5. If you want the approver to receive an email in addition to placing the agreement in the Inbox of the approver, then change the SendMail parameter to TRUE in the ApproveItem signal.

   You can also view the rule for agreement approval.

To view the rule for agreement approval

1. Navigate to the Administration - Data Validation screen, then the Rule Sets view.
2. Select the Agreement Approval record, and click the Rules view tab.

   The Rules view shows the expression, business component, and return code for the rule.
3. (Optional) Change the default amount of 50,000, or make any other changes to the rule.

Defining the List of Agreement Approvers

You must define a list of approvers so that the agreement is forwarded to the appropriate approver Inbox for approval or rejection.

To view a list of the agreements for approval, approvers can navigate to the Inbox Items view of the Inbox screen. For more information about using the Inbox, see *Siebel Applications Administration Guide* .

To define the list of agreement approvers

1. Navigate to the Administration - Application screen, then the Approval Admin view.
2. In the Approval Item list, select the Agreement Approval record.
3. In the Approval Flow Type field, select the correct option as follows:
   - Select Sequential to distribute the agreement approval to approvers in the sequence specified in the Sequence number (#) field.

     The agreement approval is routed to the next approver only if the current approver approves the request. If any approver in the approval chain declines the approval request, then the approval is rejected and no further routing is conducted.
   - Select Parallel to distribute the agreement approval to all approvers simultaneously for approval.

     The agreement approval is rejected if at least 1 approver declines the approval request.
4. In the Approval Stage list, create a new record for each user who must approve the agreement, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Sequence #	Displays a number for the sequence of the approval stage in the current agreement approval. Approval stages are executed in numerical order by using this number.
Approval Type	Select a value for the approval type. Values include Position, Employee, and Either.
Owner Login Name	Select the login name for the approval stage. This field is relevant only if the Approval Type field is Employee.
Owner Position	Select the position for the approval stage. This field is relevant only if the Approval Type field is Position.

Creating Agreements from Orders and Quotes

When a user clicks the Auto Contract button from either a quote or an order, the created agreement contains a large amount of information from the original record. This data is copied from the quote or order to the new agreement.

The process for copying information from orders and quotes to agreements uses signals and data maps. For more information about signals and data maps, see *Siebel Order Management Infrastructure Guide* .

This task is a step in *Roadmap for Administering Agreements*.

Process Flow for Data Copying

Data mapping and signals work together to call the ISS Copy Service business service to the copy the appropriate data. For more information about this business service, see *ISS Copy Service Business Service*.

A description of this copy process follows:

1. An administrator makes sure that the signals are set up appropriately.
2. An administrator defines a data map. This definition is stored in the Siebel database.
3. A user makes a request (for example, by clicking the Revise button). The request initiates a signal (for example, ReviseCopyAgreement) that launches the ISS Copy Service business service.
4. The ISS Copy Service business service retrieves the variable map definition, either from the Siebel database or from the cache.
5. The ISS Copy Service business service issues the required queries and business service calls to construct a property set.
6. The controller workflow calls the Copy method for ISS Copy Service business service and passes the ReviseAgreement data map as a parameter.
7. The ISS Copy Service business service writes the updated field values back to the Siebel database.

Viewing Signals that Control Data Copying

Every interaction between order management and agreement components occurs through an application programming interface (API) invocation. These API invocations are signals. A *signal* is a request to perform a business function.

You can configure or redirect signals. A *signal action property* specifies the business service or workflow to call when the signal is raised. *Signal action parameters* are the input arguments that signal action workflows or business service methods. You can configure these input arguments. You can define the business service methods and workflows using the Signals view of the Administration - Order Management screen.

To view the signals that control the data copying

1. Navigate to the Administration - Order Management screen, then the Signals view.
2. In the Signals list, select the following signal names:
   - **AutoAgreeFromOrder.** This signal is called when a user clicks Auto Contract in the Agreements view in the List view of the Service Orders screen. The current order is copied to an agreement using the ISS Copy Service business service.
   - **AutoAgreement.** This signal is called when a user clicks Auto Contract in the Quotes screen. The current quote is copied to an agreement using the ISS Copy Service business service.
   - **ReviseCopyAgreement.** This signal is called when a user clicks Revise in the form in the Line Items view of the Agreements screen. The agreement record and the fields in the agreement are copied, and then the original agreement object is locked.
3. In the Versions list, drill down on the latest workspace for each of these signals.

The Actions view appears.

4. Note the following information in the Actions list:
    - The Sequence field shows the order of the calls to the business services.
    - The Service Name field shows the names of the workflows that the signal calls.
5. (Optional) If you want to change the sequence of calls by adding additional signal actions, then complete the required changes in the Actions list.

Viewing Data Maps for Copying Data

Data maps align the fields from the source object to the destination object. The MapName process maps the fields copied between objects.

AutoAgreeFromOrder and AutoAgreement data maps map the quote and order data to the agreement when the ISS Copy Service business service is called. These data maps are passed into the business service as a parameter. You can extend these data maps if you must pass more data from the quote or order to the agreement.

Alternatively, if users want to create an order or quote from an agreement, then administrators can create a new signal to call the ISS Copy Service business service, and map between the agreement and the quote or order. For example, complete this process to create a quote for a renewal. Then call the signal from the Renewal button to automatically create the quote or order.

To view the data maps for copying data

1. Navigate to the Administration - Application screen, then the Data Map Administration view.
2. In the Data Map Object list, select the following data maps:
    - **AutoAgreeFromOrder.** This data map maps order data to the agreement.
    - **AutoAgreement.** This data map maps quote data to the agreement.
3. Note the following information in the Data Map Component list:
    - The Source Business Component field shows the source business components for the order or quote.
    - The Destination Business Component field shows the destination business component for the agreement.

      For example, in the AutoAgreeFromOrder data map, the Order Entry - Line Items source business component maps to the FS Agreement Item destination business component.
4. (Optional) If you want to change the mapping, then select the new source and destination business components in the Data Map Component list.

Configuring Data Maps to Copy Specified Data

You can use conditional data mapping capabilities to specify that only certain information is copied to the agreement. To accomplish this copying, you can add a source search specification to the data map. The ISS Copy Service business service then copies a source expression to a destination field.

This task is a step in *Roadmap for Administering Agreements*.

To configure a data map to copy specified data

1. Navigate to the Administration - Application screen, then the Data Map Administration view.
2. In the Data Map Object list, select the appropriate data map record.
3. Scroll down to the Data Map Component list, and select the appropriate component record.
4. In the Advanced Options field, add a source search specification as follows:

    a. Click the Select button in the Advanced Options field.
    b. Create a new search specification.
    c. In the Name field, select Source Search Specification.
    d. In the Value field, add a source expression in the CSSQuery language used for calculated fields using the format in the following example:

    ```
    IIf ([Flag] = 'Y', [Field], "")
    ```

    This expression copies the field if the flag is set. Otherwise, it copies the null string.

Example: Copying Only Service Products from Orders to Agreements

The following example uses a search specification to specify that only service products are copied from an order to an agreement.

To copy only service products from orders to agreements

1. Navigate to the Administration - Application screen, then the Data Map Administration view.
2. In the Data Map Object list, select the AutoAgreeFromOrder data map record.

    > **Tip:** You can make similar changes to the AutoAgreement data map (for mapping data from the quote to the agreement) if you want to quote only service products.

3. Scroll down to the Data Map Component list, and select the Line Items record.
4. In the Advanced Options field, add a source search specification using the following expression:

    ```
    IIF ([Sales Service Flag] = 'Y', ([Sales Service Flag], "").
    ```

    The data map now copies only service products from the order.

Asset-Based Ordering

Users can create assets from orders using asset-based ordering. When asset-based ordering is enabled in Siebel Order Management, users can use the Installed Assets view of the Accounts screen to create orders by using the existing assets for the customer. Installed assets can include both products and services. When you use the appropriate views with the automated asset-based order workflows, the time to create quotes, orders, and agreements for asset records is reduced because many tasks are automated.

The user covers the assets with the service product on the order, and clicks Auto Contract in the Agreements view in the List view of the Service Orders screen. The agreement is created with only the service product for the agreement line item and the added assets as covered assets. Line items that are not related to service are not included in the agreement.

Allowing Automatic Creation of Renewal Quotes and Opportunities

Frequently, 90, 60, or 30 days prior to an agreement expiration date, a company wants to contact the customer about an agreement renewal. This customer contact is an opportunity for the appropriate salesperson to get reacquainted with the customer and to deliver a quote for renewing the maintenance agreement. Such customer contact can help avoid costly expiration of maintenance agreements and the associated revenue loss.

You can automate this renewal process for agreements and entitlements in the following ways:

- Renew the agreement line item and all the assets related to it.
- Create an opportunity for the account.
- Create a quote for the agreement renewal and associate the opportunity and the agreement with the quote.

In the preconfigured Siebel Field Service application, the automated renewal process creates only another agreement line item for the agreement. Typically, administrators want to create a new opportunity and corresponding quote for the renewal.

Administrators automate the creation of an opportunity and quote to make sure that renewal terms and the renewal schedule are always current. This automation can produce renewal quotes well in advance of the renewal date so that customers are prepared to adjust purchase orders and accounts payable to accommodate the new invoice. Consequently, you do not overlook renewal dates, and you avoid lapses in service coverage.

This task is a step in *Roadmap for Administering Agreements*.

To allow automatic creation of renewal quotes and opportunities

1. Add steps to the following workflows to set up the source object (Agreement Item) and the destination object (Quote or Opportunity):
    - FS - Agreement Renewal Item
    - FS - Agreement Renewal All

    For more information, see *FS - Agreement Renewal Item Workflow* and *FS - Agreement Renewal All Workflow*.
2. Create a data map setup to copy the correct fields to the destination objects.

    When the renewal process runs, it creates the corresponding agreement line item records, quote, and opportunity. For more information, see *Configuring Data Maps to Copy Specified Data*.

Asset Process Flow from Quotes and Orders to Agreements

When a customer wants a quote, the following steps occur:

1. The user creates a quote for numerous products. This quote contains an after-sale service component to cover the quoted products.
2. When the customer agrees with the quote, the users creates the order for the products and the product service coverage.
3. In the Assets view in the Catalog view in the List view of the Sales Order screen, the user selects the Auto-Asset command in the menu. An instance of the asset is created from the quoted products, and the instance is associated with the quote.

4. In the Agreements view in the List view of the Quotes screen, the user clicks the Auto Contract button to create an agreement with the header information corresponding to the order. The agreement line item is now the service product, and the assets created from the quote are associated with the agreement line item. The user can add assets to or remove assets from this list as required.

   Note: The pricing of the service agreement is a combination of the pricing of the service product and the asset that the service product covers.

Adding Multiple Assets to Agreement Line Items

Any additional assets that you add to an agreement line item do not affect on the overall price for the agreement line item. Only the primary asset affects the price. To allow the pricing to change by using all assets in an agreement line item, you must perform some additional configuration. For more information, see *Defining Asset-Based Pricing*.

The intersection table between Line Items and Asset allows the same line item to include multiple assets. The original Foreign Key to Asset, Covered Asset Id, defines the primary asset.

This task is a step in *Roadmap for Administering Agreements*.

To add multiple assets to an agreement line item

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Pricing view tab.
3. On the link bar, click Assets.
4. In the Line Items list, select the record to which you want to add the assets.
5. Scroll down to the Assets list, create a new record for each asset, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Primary	Select this check box to indicate the asset is the primary asset for the line item.
Asset #	Select the number of the asset. When you select the appropriate asset from the dialog box that appears, the rest of the fields in this view are populated with the related asset information.

Creating Revenue Plan Templates

You must set up revenue plan templates before users can add the templates to agreement line items. In the template, you can assign the units to use (for example, days, weeks, or months). You must also specify the product associated with the revenue template. For more information about adding the plans to agreement line items, see *Managing Line Item Revenue for Agreements (End User)*. For more information about creating revenue plan templates, see *Siebel Forecasting Guide* .

This task is a step in *Roadmap for Administering Agreements*.

To create a revenue plan template

1. Navigate to the Administration - Forecast screen, then the Revenue Templates view.
2. Create a new revenue template record, and complete the fields as appropriate.

Creating Term Templates

You use term templates to create standard terms that users can add to agreements. Force Majeure is a special term that protects against events beyond the control of the service company. For more information about adding defined terms to agreements, see *Adding Terms to Agreements (End User)*.

The following paragraph is an example of a description of the Force Majeure term:

Each party is excused from performance for any period when it is prevented from performing any obligation, in whole or in part, as a result of socioeconomic, global or natural causes beyond its control, and without its fault or negligence including acts of God, strikes, lockouts, riots, acts of war, epidemics, terrorism, and power failures.

This task is a step in *Roadmap for Administering Agreements*.

To create a term template

1. Navigate to the Administration - Contracts screen, then the Term Templates view.
2. Create a new term template record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Term #	Displays an automatically assigned term number that you can change to an identifiable name for the term.
Term Name	Type a representative description for the term (for example, Term Length).
Type	Select the legal type of the term (for example, Standard, Non-Standard, or Special).
Description	Type a description of the actual term for the agreement.

Running Charge Plans for Agreement Line Items Using Workflows

You can use workflows to automatically run charge plans and create charges for agreement line items. For more information, see *Defining Charge Plans for Agreement Line Items (End User)*.

You can use the FS - Generate Agreement Charge workflow and the FS - Generate All Agreement Charges workflow to set up a repeating component job to run charges. For more information, see *FS - Generate Agreement Charge Workflow* and *FS - Generate All Agreement Charges Workflow*.

> **Note:** It is recommended that you run the charge process on the same repeating schedule as the contract schedule for the charge plans.

This task is a step in *Roadmap for Administering Agreements*.

To run charge plans for agreement line items using a workflow

1. Navigate to the Administration - Server Management screen, then the Jobs view.
2. In the Jobs list, create a new Job record.
3. In the Component/Job field, select Workflow Process Manager.
4. Enter the appropriate Repeat Interval and Repeat Unit in the Job Detail view.

   For example, a Repeat Unit of Weeks and a Repeat Interval of 1 runs the charge generation process on a weekly basis.
5. Scroll down to the Job Parameters list, and create a new parameter record.
6. In the Name field, select Workflow Process Name, and in the Value field, enter FS - Generate Agreement Charge or FS - Generate All Agreement Charges.
7. Click Start in the Jobs list.

Process of Administering Entitlements

The following list shows the tasks that administrators typically perform to administer entitlements. Your company might follow a different process according to its business requirements.

To administer entitlements, administrators perform the following tasks:

- *Changing System Preferences for Entitlements*
- *Viewing User Properties for Entitlements*
- *Creating Entitlement Templates*
- *Defining Metrics for Entitlement Templates*
- *Defining Products for Entitlement Templates*
- *Associating Entitlement Templates with Products*
- *Defining Service Details for Entitlement Templates*
- *Defining Pricing Details for Entitlement Templates*
- *Defining Preventive Maintenance Plans for Entitlement Templates*
- *Defining Exceptions for Service Activities*
- *Adding Schedule Information to Entitlements*
- *Configuring Auto-Entitlement for Quotes and Orders*

Changing System Preferences for Entitlements

The system preferences for entitlements determine the functionality of the Verify button. For more information about this button, see *Entitlement Selection*.

This task is a step in *Process of Administering Entitlements*.

To change the system preferences for entitlements

1. Navigate to the Administration - Application screen, then the System Preferences view.
2. Select a system preference for entitlements.

   For more information about the system preferences for entitlements, see *Changing System Preferences for Entitlements*.
3. In the System Preference Value field, enter TRUE or FALSE.
4. To implement changes to system preferences, restart the Field Service server.

The following table describes the system preferences for entitlements.

System Preference Name	Description
Entitlement: Verify Consumer	Sets the conditions for checking the authorization of the contact requesting service. If the value is TRUE, then the displayed entitlements must meet *one* of the following criteria: • The contact for the entitlement matches the service request contact. • he 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. If no contact is selected, then the entitlement is verified using the other entitlement system preferences.
Entitlement: Verify Dates	Checks that the service request is in the time span of the entitlement. If the value is TRUE, then only entitlements that provide coverage on the opened date of the service request, a date between the start and end dates for the entitlement, appear. If the entitlement has no start or end date, then it does not appear.
Entitlement: Verify Product	Checks that the asset or product is entitled to service. If the value is TRUE, then the displayed agreements must meet *one* of the following criteria: • The entitlement asset matches the asset in the service request. • he entitlement product matches a product in the service request. (No asset or serial number is specified.) • The entitlement is set to All Products, and the product or asset for the entitlement matches the product or asset for the service request. If no product is selected, then the entitlement is verified using the other entitlement system preferences.

Viewing User Properties for Entitlements

You set the Post Default Created Date to Date Saved user property in the Service Request business component to control the behavior of the Opened field in new service request records. This setting can affect how entitlements are handled. For more information about the values for this user property, see *Setting Default Date and Time for Opened Field*.

This task is a step in *Process of Administering Entitlements*.

To view the user properties for entitlements

1. Log in to Siebel Tools as an administrator.
2. In the Object Explorer, navigate to Business Component.
3. Query for the Service Request business component.
4. Navigate to Business Component, then Business Component User Prop.
5. Query for the Post Default Created Date To Date Saved user property.

Creating Entitlement Templates

Entitlement templates allow you to predefine entitlements that specify the type of service provided. An entitlement template includes information about the default coverage for the accounts, contacts, preventive maintenance, billing, products, and pricing.

> **Note:** Entitlement templates are not limited to service products. You can use them for sales products to allow entitlement-based pricing in quotes and orders. For more information, see *Configuring Auto-Entitlement for Quotes and Orders*.

For example, your organization sells a range of products and associated service products for after-sales service. You can create a service product, such as Bronze Service, as an entitlement template and associate this service product with a service product that includes a price for the after-sales service package. The package can denote the availability of technical support, a preventive maintenance schedule, and whether parts and labor are additional costs.

When you use automated entitlement (by clicking the Auto Entitlement button in the Line Items view of the Agreements screen), the correct entitlements are automatically located from the entitlement templates that correspond to the service products in an agreement.

This task is a step in *Process of Administering Entitlements*.

To create an entitlement template

1. Navigate to the Administration - Contracts screen, then the Entitlement Templates view.

2. Create a new entitlement template record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Name	Displays an automatically assigned template number that you can change to an identifiable name for the template.
Units	Select the unit of measurement for the initial covered quantity. Values include Calls and Service Requests.
Initial Quantity	Type the number of covered units in the entitlement.
Service Hours	Select the hours of service that the entitlement covers. For example, a service package might cover only 5 days a week between the hours of 9:00 A.M. and 5:00 P.M. The service hours influence the committed date and time for responding to the service request. You add service hours schedules in the Schedules view of the Administration - Service screen.

3. In the More Info view, complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Billable	Select this check box to indicate services that this entitlement provides are billable to the customer.
Activity Override	Select this check box to indicate the rate and price lists for the entitlement override the rate and price lists for a service request. For entitlement-based invoicing, select this check box.
Include Account	Select this check box to indicate the entitlement automatically covers the account on the agreement header.
Account All Contacts	Select this check box to indicate the entitlement covers all contacts associated with the account. The effect is to select the All Contacts check box in the Accounts view in the Entitlements view in the List view of the Agreements screen.
Account All Products	Select this check box to indicate all products associated with the account under this entitlement are covered. The effect is to select the All Products check box in the Accounts view in the Entitlements view in the List view of the Agreements screen.

Field	Comments
Include Contact	Select this check box to indicate the entitlement automatically covers the contact from the agreement header.
Contact All Products	Select this check box to indicate the entitlement automatically covers all products for the contact. The effect is to check the All Products check box in the Contacts view in the Entitlements view in the List view of the Agreements screen.

Defining Metrics for Entitlement Templates

In the Metrics view, you can add performance requirements for an entitlement template. These metrics are usually associated with a service-level agreement within an agreement. The agreement often indicates the target metrics for response time and resolution time. The response and resolution times are frequently associated with the priority of the service request.

For example, the response time value sets the Date Committed field in the service request. This metric indicates that the service organization is committed to responding to issues by a certain date and time. You can use resolution time interchangeably with response time. However, the 2 metrics indicate different values to track. The service organization is committed to resolve the issue before the resolution time.

Another example of a metric that you can set is the escalation time. This metric sets the Agent Escalation Time field (in the Service Requests List of the Service screen). This metric indicates that if no action occurs for the service request by the escalation time, then an email is sent to a manager warning that the service department might not meet a key metric in a service-level agreement. Such violations of service agreements can have both financial and legal repercussions for a service department.

You can add more metrics for monitoring in the Service Metrics view of the Administration - Service screen.

Note: Each requirement must be in a separate record.

This task is a step in *Process of Administering Entitlements*.

To define a metric for an entitlement template

1. Navigate to the Administration - Contracts screen, then the Entitlement Templates view.
2. Select an entitlement template record, and click the Metrics view tab.
3. Create a new metric record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Value	Select the value of the metric.
Units	Select the unit of measurement for the Value field. Values include Days, Hours, and Seconds.

Field	Comments
	The Hours value does not support decimal places in the Value field. For example, you cannot select Hours in this field, and enter 0.25 in the Value field to specify 15 minutes. Instead, select Seconds in this field, and enter 900 in the Value field to specify 15 minutes. You can also add Minutes to the List of Values (LOV) for this field. For more information about adding a value to an LOV for a field, see *Siebel Applications Administration Guide* .

Defining Products for Entitlement Templates

You define specific products or assets in an entitlement template in the Products view. You can also define products or assets in an entitlement template in the Service Products view.

This task is a step in *Process of Administering Entitlements*.

To define a product for an entitlement template

1. Navigate to the Administration - Contracts screen, then the Entitlement Templates view.
2. Select an entitlement template record, and click the Products view tab.
3. Create a new product record, and complete the fields as appropriate.

Associating Entitlement Templates with Products

You associate entitlement templates with products in the Service Information view.

This task is a step in *Process of Administering Entitlements*.

To associate an entitlement template with a product

1. Navigate to the Administration - Product screen, then the Products view.
2. Select a product record, and click the Service Information view tab.
3. On the link bar, click Entitlements.
4. Create a new entitlement record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Name	Select an entitlement template.
Agree Line Item Products	Select this check box to indicate the product from the agreement line item is copied to an automatically generated entitlement that users create by clicking the Auto Entitlement button.

Field	Comments
Entitlement Template Products	Select this check box to indicate all products associated with the entitlement template are copied to an automatically generated entitlement that users create by clicking the Auto Entitlement button.
All Contract Line Prod Flag	Select this check box to indicate the products from all agreement line items are copied to an automatically generated entitlement that users create by clicking the Auto Entitlement button.

Defining Service Details for Entitlement Templates

In the Service Details view, you can define each type of service that an entitlement covers and the billing terms for each service. Terms can include a fixed service charge and specific billable time, expenses, and parts.

Note the following effects of a service detail record:

- Service Details apply to the selected activity type and not to a specific entitlement template.
- No additional charges or discounts are applied to a service request activity if no corresponding service detail record is associated with the entitlement template for the service request.
- No additional charges or discounts are applied to a billable item for an activity in a service request if no corresponding exception record is associated with the service detail record in the entitlement template for the service request.

This task is a step in *Process of Administering Entitlements*.

To define service details for an entitlement template

1. Navigate to the Administration - Contracts screen, then the Entitlement Templates view.
2. Select an entitlement template record, and click the Service Details view tab.
3. Create a new service detail record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Type	Select the type of activity for the service detail record. This required value determines the values in other fields that appear in the Service Details view.
Expenses Billable	Select this check box to indicate the service expenses for the entitlement are billable to the customer.
Parts Billable	Select this check box to indicate the parts for the entitlement are billable to the customer.

Field	Comments
Service Charge	Type the amount of a fixed charge to include in the invoice. If service is based on a flat rate, then this charge might be the only charge on the invoice.

Defining Pricing Details for Entitlement Templates

In the Pricing Details view, you can define entitlement-based pricing for quotes and orders. You can discount products purchased under the agreement. When creating a sales or service order, the user can select an entitlement that applies special pricing. For example, when a product is faulty and needs replacement under the agreement, the full list price is not paid.

This task is a step in *Process of Administering Entitlements*.

To define pricing details for an entitlement template

1. Navigate to the Administration - Contracts screen, then the Entitlement Templates view.
2. Select an entitlement template record, and click the Pricing Details view tab.
3. Create a new pricing detail record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Type of Calculation	Select the type of price adjustment. Values include Discount Amount and Markup Amount.
Adjustment Value	Type the amount of the price adjustment for the value in the Type of Calculation field.

Defining Preventive Maintenance Plans for Entitlement Templates

In the Preventive Maintenance view, you can add a record for each preventive maintenance plan to include in the entitlement template. When selecting a plan from the Add Preventive Maintenance Plans dialog box, select the check box in the Active field to select a plan. Selecting a record without selecting this check box fails to select the plan.

This task is a step in *Process of Administering Entitlements*.

To define a preventive maintenance plan for an entitlement template

1. Navigate to the Administration - Contracts screen, then the Entitlement Templates view.
2. Select an entitlement template record, and click the Preventive Maintenance view tab.
3. Create a new preventive maintenance plan record, and complete the fields as appropriate.

Defining Exceptions for Service Activities

In the Service Details view, you can define exceptions for time, expenses, and products. For example, if labor (time) is generally not billable, then only the exceptions are billed. Conversely, if time is generally billable, then the exceptions are not billed.

Exceptions for time, expenses, and products define the pricing of time, expenses, and products that are associated with an activity type that does not have standard pricing. Time and expense exceptions include a fixed service charge, discounts, and a limit on the billable amount. Product exceptions include discounts, markups, and overrides.

> **Note:** Exception records for time are associated with activity types and specific projects (in the Type field in the Time Exceptions list). For more information about projects, see *Siebel Project and Resource Management Administration Guide* .

This task is a step in *Process of Administering Entitlements*.

To define an exception for a service activity

1. Navigate to the Administration - Contracts screen, then the Entitlement Templates view.
2. Select an entitlement template record, and click the Service Details view tab.
3. Select a service detail record, scroll down to the Time Exceptions list, and complete the following steps:
    a. Create a new time exception record, and complete the fields as appropriate.
    b. From the drop-down list at the start of the Time Exceptions list, select Expense Exceptions, create a new expense exception record, and complete the fields as appropriate.
    c. From the drop-down list at the start of the Expense Exceptions list, select Product Exceptions, create a new product exception record, and complete the fields as appropriate.

Adding Schedule Information to Entitlements

You must define the service schedule for an entitlement. You can also specify exceptions so that the entitlement does not apply to holidays and other nonwork days. For more information about how to define hours of availability and exception hours for a schedule, see *Defining Schedule Hours*.

This task is a step in *Process of Administering Entitlements*.

Configuring Auto-Entitlement for Quotes and Orders

Entitlements are part of an agreement and provide a set of pre-negotiated prices that you can use in transactions (quotes and orders). In the quote or order, a user can select an entitlement to apply the order header. The user can also use the auto-entitlement functionality to determine the best entitlement for an order line item. You can configure Siebel Field Service to determine a suitable entitlement for the quote or order header. For more information about generating charges and invoices from agreements, see *Charges and Invoices*

To allow entitlement-based pricing, you can add an Auto Entitlement button to the Quote Detail View and Order Entry - Line Items Detail View (Sales). Users can then click this button to automatically associate an entitlement with a quote

or order. This button allows entitlement-based pricing for quotes and orders. The prices of the products on the order or quote line item are adjusted by using the entitlement. For more information about how to add buttons to Siebel Business Applications, see *Configuring Siebel Business Applications* .

Note: For price execution, line item entitlements (if any) override the quote or order entitlement.

This task is a step in *Process of Administering Entitlements*.

To configure auto-entitlement for quotes and orders

1. Add a button to the following quote and order applets:
   - **Quote Item List Applet.** The FS - Verify Entitlement Quote Best Price workflow uses this applet.
   - **Order Entry - Line Item List Applet (Sales).** The FS - Verify Entitlement Order Best Price workflow uses this applet.
2. For each button, call the VerifyEntitlement method.
3. Change the event object for the FS - Verify Entitlement Order Best Price workflow to point to the Order Entry - Line Item List Applet (Sales).
   Typically, this event object points to the Order Entry - Line Item List Applet. For more information, see *FS Create Entitlement Business Service*.

Process of Managing Agreements

The following list shows the tasks that end users typically perform to manage agreements. Your company might follow a different process according to its business requirements.

To manage agreements, end users perform the following tasks:

- *Creating Agreements (End User)*
- *Verifying Agreements (End User)*
- *Associating Other Records with Agreements (End User)*
- *Submitting Agreements for Approval (End User)*
- *Viewing Entitlements and Products for Agreements (End User)*
- *Viewing Agreements for Contacts (End User)*
- *Renewing Line Items for Agreements (End User)*
- *Defining Charge Plans for Agreement Line Items (End User)*
- *Defining Conditional Charge Plans for Agreement Line Items (End User)*
- *Managing Line Item Revenue for Agreements (End User)*
- *Generating Documents for Agreements (End User)*

Creating Agreements (End User)

You can create agreements to describe the products and services that you organization provides to a customer and the financial relationship between your organization and the customer. After you create an agreement, you can copy it. For more information about copying agreements, see *About Agreements*.

This task is a step in *Process of Managing Agreements*.

To create an agreement

1. Navigate to the Agreements screen, then the List view.
2. Create a new agreement record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Valid	Select this check box to indicate the agreement is valid. You must select this check box to enable entitlement evaluation when verifying coverage with the Verify button. For more information, see *Entitlement Selection*. Also, preventive maintenance actions for assets are generated only if you select this check box, and the selected entitlement is active according to its start and end dates.
Start	Select the date and time the agreement is planned to start.
End	Select the date and time the agreement ends.
Currency	Select a code for the type of currency (for example, USD for U.S. dollars) for the agreement. For agreement-based invoicing, this value is used as the target, or overriding, currency. Before performing invoice calculations, all the entered currency values, such as the values in the NPR plan and the usage plan, are converted to the target currency. Calculations are then performed in the target currency. After the calculations are complete, these values are written back to invoices, invoice line items, and invoice line item details, in the target currency.
Effective	Select the actual date and time the agreement is effective. This field value can be later than, earlier than, or the same as the Start field value.

3. If you want to copy the agreement, then complete the following steps:
   a. Drill down on the Name field for the agreement.
   b. In the Agreements form, click Revise.

      The agreement is copied, and the revision number is increased. The revision number is suffixed to the original agreement name. For example, a copied agreement for Customer Agreement might be Customer Agreement (002).

Verifying Agreements (End User)

When your verify an agreement, the agreement details are validated against a set of rules.

This task is a step in *Process of Managing Agreements*.

To verify an agreement

1. Navigate to the Agreements screen, then the List view.
2. Select an agreement.
3. In the agreement form, click the menu button, and select Verify.

   The results of the validation process then appear in a dialog box.

Associating Other Records with Agreements (End User)

Complete the procedures in this topic to associate other records with agreements.

This topic contains the following information:

- *Associating Primary Contacts with Agreements*
- *Associating Activity Plans with Agreements*
- *Associating Activities with Agreements*
- *Associating Financial Details with Agreements*
- *Associating Terms and Shipping Information with Agreements*
- *Associating Products with Agreements*
- *Associating Files with Agreements*

This task is a step in *Process of Managing Agreements*.

Associating Primary Contacts with Agreements

You can associate a primary contact with an agreement.

To associate a primary contact with an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Primary Contacts view tab.

   On the Primary Contacts form, the fields for the Legal Contact, Billing Contact, and Shipping Contact are populated with the primary contact for the account.
3. If you want to change a primary contact, then drill down on the Account field for a selected agreement.
4. In the Last Name field, select another contact.

   The list of available contacts is limited to the contacts that are associated with the account.

Associating Activity Plans with Agreements

When you associate an activity plan with an agreement, the activities in that activity plan are automatically associated with the agreement.

To associate an activity plan with an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Activity Plans view tab.

3. Create a new activity plan record, and complete the fields as appropriate.
4. In the More Info view, select Lock to prevent Assignment Manager from assigning activities that are already in this activity plan.

Associating Activities with Agreements

Instead of using activity plans to automatically associate activities with an agreement, you can manually associate activities with the agreement.

To associate an activity with an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Activities view tab.
3. Create a new activity record, and complete the fields as appropriate.

Associating Financial Details with Agreements

The Financials view of the Agreements screen includes the following sections:

- **Origin and Renewal Details.** This section contains order and quote information for the agreement. In the Agreements view in the List view of the Quotes screen and the Agreements view in the List view of the Service Orders screen, users can click the Auto Contract button to automatically create an agreement by using the quote and order content. Data mapping determines the fields that are copied into the agreement. For more information, see *Configuring Data Maps to Copy Specified Data*.

  This section also includes renewal information for the agreement line items.
- **Total Amounts.** This section contains the revenue totals for the agreement and includes net discounts, adjustments, taxes, and shipping. You can synchronize this section with an accounts receivable application to provide suitable visibility for agreement revenue.
- **Estimated and Actual Revenue.** This section contains revenue and cost information. Base revenue on price lists and cost lists in the Administration - Pricing screen. This estimated and actual information is useful for agreement renewals. For example, an agreement can have estimated revenue that is calculated using all the products with a service agreement up for renewal. However, when the negotiation of the agreement renewal occurs, support for some of the products no longer applies because the products are no longer used, the products are obsolete, or the products are bundled differently.
- **Revenue Recognition and Invoice Details.** This section contains information about the invoiced amount, the date of the invoice, and the invoice schedule. The Charge and Invoice module can populate this information.

This view is also useful for co-term information. For more information, see *Co-Terms for Agreements*.

To associate financial details with an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Financials view tab.
3. In the Financials form, complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Term Months	Displays the number of months in the term of the agreement header. This field is calculated as follows: (Agreement End Date - Agreement Start Date)/30.

Field	Comments
Renewal Term	Type the time interval for the next term, if the customer decides to renew the agreement.
Renewal %	Type the percentage likelihood of the customer renewing.
Months Left	Displays the number of months remaining in the term. This field is calculated as follows: (Agreement End Date - Current Date)/30.
Est Margin	Displays the difference between the estimated cost and estimated revenue.
Actual Margin	Displays the difference between the actual cost and the actual revenue.
Rev Recognition	Select a value for revenue recognition. Revenue recognition is based on the months remaining in the term. Values include Annually, As Received, Daily Monthly, and Quarterly.

Associating Terms and Shipping Information with Agreements

You can associate terms and shipping information with an agreement.

To associate terms and shipping information with an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Terms and Totals view tab.
3. Complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Products	Displays the sum of the agreement line items for which the Service field (in the Line Detail view for the line item) is not selected, less discounts.
Services	Displays the sum of the agreement line items for which the Service field (in the Line Detail view for the line item) is selected, less discounts.
Adjustment	Type an adjustment amount for the term. After you enter an amount in this field, that amount is subtracted from the value in the Total field.
Shipping	Displays the shipping cost. The value is this field is the same as the value in the Shipping Charges field.

Associating Products with Agreements

The Line Items view includes a description of each product sold or provided under a selected service agreement.

To associate a product with an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement.
3. In the Line Items view, create a new line item record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Line #	Displays a number for the agreement line.
Product	Select the product for the line item. The product can be a service product. If you select a product that includes child products (components), then the parent product appears on the agreement line, and the child products appear on additional child lines for the parent line.

4. On the link bar, click Line Detail.

   Note: Some fields in the Line Detail view are automatically populated. The product that you select in the Line Items view determines the fields that are populated.

5. Create a new line detail record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Sequence	Displays a number for the sequence of the line item. This field indicates the hierarchical relationship between line items.
Asset #	Select the number of an asset associated with the product for the line item or the number of an asset for a different product. This field is used for asset-based pricing. For more information, see *Defining Pricing for Agreements*. Specify an asset of the product described for the line item, for example, when you specify a trade-in. This situation can include a discount available only for trade-ins.
Usage Asset #	Select the number of the asset to use for billing of usage. For more information, see *Creating Charge Consolidation Plans*.
Manual Discount Amount	Type the discount amount applied directly to the selected line item.

Field	Comments
Manual Discount %	Type the discount percentage applied directly to the selected line item.
Line Discount %	Displays the discount percentage for the selected line item. This field is calculated as follows: Discount Amount/Start Price.

Associating Files with Agreements

You can add files that were created in another program (for example, spreadsheet files) to agreements. These files are stored in compressed form.

To associate a file with an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Attachments view tab.
3. Create a new attachment record, and complete the fields as appropriate.

Submitting Agreements for Approval (End User)

After you create an agreement and associate other records with it, you can submit the agreement to the appropriate employees for approval.

This task is a step in *Process of Managing Agreements*.

To submit an agreement for approval

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement.
3. In the Agreements form, click the menu button, and select Generate Approvals.
   The list of approvers is updated with the approvers for the approval group. When the approver changes the status of the approval to Approved or Rejected, the list is updated.

Viewing Entitlements and Products for Agreements (End User)

Occasionally, you might want to view the entitlements and products for an agreement.

This task is a step in *Process of Managing Agreements*.

To view the entitlements and products for an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Entitlements view tab.
   The start and end dates indicate whether the entitlement is active.

3. Select an entitlement record, and click the Product view tab.

Viewing Agreements for Contacts (End User)

Occasionally, you might want to view all of the agreements for a contact.

This task is a step in *Process of Managing Agreements*.

To view the agreements for a contact

1. Navigate to the Contacts screen, then the Contacts List view.
2. Drill down on the Last Name field for a selected contact, and click the Agreements view tab.

Renewing Line Items for Agreements (End User)

You can create and modify renewal terms of agreement line items. You can then manually renew the line items.

This task is a step in *Process of Managing Agreements*.

To renew a line item of an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement.
3. In the Line Items view, select a line item record.
4. On the link bar, click Renewal Escalator.
5. To define the renewal terms of the line item, create a new record for renewal escalation in the Renewal Escalator list, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Line Price Adjustment Type	Select the type of adjustment for the line price. Values include: - **Discount Amount.** Decreases the price of the renewed line item by the amount in the Line Price Adjustment Amount field. - **% Discount.** Decreases the price of the renewed line item by the percentage amount in the Line Price Adjustment Amount field. - **Markup Amount.** Increases the price of the renewed line item by the amount in Line Price Adjustment Amount field. - **% Markup.** Increases the price of the renewed line item by the percentage amount in Line Price Adjustment Amount field. - **Price Override.** Preserves the price of the renewed line item regardless of the amount in Line Price Adjustment Amount field.
Line Price Adjustment Amount	Type an amount or a percentage for the value in the Line Price Adjustment Type field.
NRC Adjustment Type	Select the type of adjustment for the nonrecurring charge. Values include:

Field	Comments
	○ **Discount Amount.** Decreases the nonrecurring charge of the renewed line item by the amount in the NRC Adjustment Amount field. ○ **% Discount.** Decreases the nonrecurring charge of the renewed line item by the percentage amount in the NRC Adjustment Amount field. ○ **Markup Amount.** Increases the nonrecurring charge of the renewed line item by the amount in NRC Adjustment Amount field. ○ **% Markup.** Increases the nonrecurring charge of the renewed line item by the percentage amount in NRC Adjustment Amount field. ○ **Price Override.** Preserves the nonrecurring charge of the renewed line item regardless of the amount in NRC Adjustment Amount field.
NRC Adjustment Amount	Type an amount or a percentage for the value in the NRC Adjustment Type field.

6. In the Line Items view, click Renewal.

   For the selected line item in the Line Items view, a new line item is created according to the renewal terms that you designate.

Defining Charge Plans for Agreement Line Items (End User)

You must set up charges for agreement payments. Most agreements include the following types of charges:

- An initial payment to establish the agreement. This payment is referred to as a nonrecurring charge (NRC)
- A recurring charge (RC). This charge is usually a monthly charge for the service package

> **Note:** A third kind of charge applies to usage charges.

For example, a company has a service package with a price of $15,000. There is an initial charge of $3,000 to activate the service package, followed by 12 monthly charges of $1,000 on the first day of each month. To manage this service package, you can set up a contract schedule, an NRC, and RCs for the charge plan. If you pay the NRC in installments, then you might also set up a charge plan for the NRC.

This task is a step in *Process of Managing Agreements*.

Defining Charge Plans

Before you can define and run a charge plan, administrators must define contract schedules and set up the plans. For more information about these tasks, see *Process of Administering Charges*.

You add NRC, RC, and any charges, adjustments, and use plan details to the agreement line items. This information includes the following data:

- A schedule plan for the first charge to create
- The start time for the first charge

> **Note:** If you add a use plan to the agreement line item, then make sure that you select the appropriate product and asset to associate with the line item. You must select an asset that has measurements to allow usage recording.

To define a charge plan for an agreement line item

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field of a selected agreement.
3. In the Line Items view, select a line item.
4. On the link bar of the Line Items view, click Charge Plan.
5. In the Charge Plan form, complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
NRC Schedule	Select a value for how frequently and when the nonrecurring charges are generated. The NRC schedule can be different than the invoice schedule.
NRC Start	Select the starting date for nonrecurring charges.
Non-Recurring	Type the total amount of the nonrecurring charge. Payments occur according to the NRC schedule. A nonrecurring charge can include a service charge or a discount.
NRC Plan	Select the NRC billing plan. If this field is blank, then the NRC amount is divided by the number payment installments in the NRC Qty field to determine the charge for each period.
NRC Qty	Type the number of payment installments for the nonrecurring charge.
RC Schedule	Select a value for how frequently and when the recurring charges are generated. **Note:** If a product measurement record is associated with the product in the line item, then the RC Schedule field value must match the Frequency field value in the Measurements view in the Service Information view in the Products view of the Administration - Product screen.
RC Start	Select the starting date for the recurring charges.
Recurring	Type the amount of the recurring charge.
RC Adjust	Type the amount to charge for partial periods in the RC schedule. This field defines the dollars for each unit of time that the Charge Engine uses to calculate the recurring charge for the line item.
RC Adjust U/M	Select the length of time applicable to the adjustment amount.

Field	Comments
Adjust Charge	Type a positive or negative adjustment amount for the amount of a charge. The Charge Engine clears this field after generating a charge.
Commit	Select this check box to activate the Charge button.
Charge End	Select the last possible date to generate a charge.
Charge Basis	Select the method of charging. Values include: o **Advance.** Generates advance charges 1 period in advance. o **Schedule.** Generates charges according to the contract schedule.
Use Start	Select the starting date for the usage charge.
Use Plan	Select the use plan. Only the plans that apply to the product in the selected line item are available for selection.

6. (Optional) If you add a use plan to the agreement line item, then complete the following steps so that the appropriate product and asset are added to the agreement line item, and users can record the measurements for usage:
   a. On the link bar, click Line Detail.
   b. In the Service Asset number (#) field, select the assets that track usage.

      You can add multiple assets to an agreement line item in the Assets view in the Pricing view in the Line Items view in the List view of the Agreements screen.

Running Charge Plans Using the Charge Button

After you define a charge plan, you can run the plan to create the charges for an agreement line item. All the charges for the RC and NRC schedules are created with the amounts and adjustments that the charge plan indicates.

You can generate multiple charges for an agreement line item by configuring the FS - Generate Agreement Charge workflow to run on a periodic basis. For more information, see *Running Charge Plans for Agreement Line Items Using Workflows*.

To run a charge plan using the Charge button

1. Navigate to the Agreements screen, and then the List view.
2. Drill down on the Name field for a selected agreement.
3. In the Line Items view, select a line item.
4. On the link bar of the Line Items view, click Charge Plan.
5. In the Advance To field at the start of the Charge Plan view, select the date up to which to create charges.

   You can create charges no later than the date in this field, or no later than the date in the Charge End field in the form for the charge plan, whichever date is earlier.

6. Click Charge.

Defining Conditional Charge Plans for Agreement Line Items (End User)

After administrators set up conditional charge plans in the Conditional Charge Plan view of the Administration - Contracts screen, users can select the appropriate conditional charge plans for agreement line items. For more information, see *Setting Up Conditional Charge Plans*.

For example, the administrator creates a conditional charge plan named Termination Plan. This plan specifies that if a customer cancels an agreement early, then the customer must pay 8.33% of a penalty charge for each remaining month in the agreement period. A user sets up a photocopier maintenance agreement for a customer and associates the Termination Plan with the photocopier agreement line item. The user specifies that a total penalty of $150 applies to this line item if the customer cancels the agreement before the 12-month term of the agreement expires.

The customer cancels the agreement after just 6 months. According to the Termination Plan, the customer must pay 8.33% of the total cancellation fee for each of the remaining 6 months. The customer must pay $74.97 (8.33% * $150 * 6 months).

Note: The day that a customer terminates an agreement is the day that the conditional charge is created. Also, if no conditional charge plan is associated with the agreement line item, then a penalty is charged.

This task is a step in *Process of Managing Agreements*.

To define a conditional charge plan for an agreement line item

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement.
3. On the link bar of the Line Items view, click Conditional Charges.
4. In the Conditional Charges list, create a new conditional charge record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Type	Select the type of conditional charge. Value include Penalty and Refund.
Start Date	Select the date the conditional charge starts unless you specify an effective date.
End Date	Select the date the conditional charge ends. For example, cancellation fees apply only if the customer cancels the agreement before a 12-month period elapses. After this period, the company cannot charge for customer cancellation.
Effective Date	Select the date the conditional charge is effective.
Plan	Select the conditional charge plan that controls the conditional charge.

Field	Comments
Amount	Type the total amount that the customer must pay for the conditional charge.
Reason	Type a description of the reason for creating the charge.

5. In the Advance To field at the start of the Conditional Charges view, select a date that is after the specified effective date and before the specified end date.

   The date in this field represents the time remaining for the agreement.
6. Click Charge.

   The total charges to apply to the customer (in accordance with the conditional charge values) are calculated. For example, if the customer cancels a 12-month agreement after just 6 months, then the customer must pay 50% of the cancellation fee over the next 6 months.
7. (Optional) On the link bar, click Charges to view the calculated charges for the line item.

Managing Line Item Revenue for Agreements (End User)

Line item revenue for agreements includes the amounts that you invoice to a customer according to the terms in the agreement. Customers can make payments periodically or up-front, and they can disburse payments by account. These payments can include additional service charges such as Time and Material (T&M).

For opportunity management, you can track agreements after obtaining an opportunity by forecasting the expected revenue for each year of the agreement term and tracking the revenue for each year on a monthly basis. You can perform revenue forecasting by using revenue plans in conjunction with the Siebel Forecasting module.

Forecasting is an important aspect of tracking. Organizations must track not only the sale of products, but also the revenue generated by the sale of after-sale services. Using revenue plans, an organization can track the revenue associated with the agreement line items. For more information about forecasting, see *Siebel Forecasting Guide* .

This topic contains the following information:

- *Adding Line Item Revenue to Agreement Line Items*
- *Adding Revenue Plans to Agreement Line Items*

This task is a step in *Process of Managing Agreements*.

Adding Line Item Revenue to Agreement Line Items

The Line Item Revenue view in the List view of the Agreements screen displays all revenue records associated with an agreement line item.

To add line item revenue to an agreement line item

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Line Item Revenue view tab.
3. Scroll down to the Revenue list.

The list shows all the revenue for the selected agreement line item. For example, if the service agreement is for $15,000 with a nonrecurring charge of $3,000 and 12 additional charges of $1,000 for each month, then 13 revenue line items appear for the 13 payments.

You use the 2 drop-down lists at the start of the Revenue list to query of existing revenue records in this list. One field allows you to select records for specific products, the other field allows you to select records for specific users.

4. Create a new revenue record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Revenue Date	Select the date of expected revenue.
Amount	Type the amount of revenue expected on the date in the Revenue Date field.

   Alternatively, you can click Revenue Wizard. A script wizard (Revenue Schedule Script) appears to help you enter multiple revenue records over time. The wizard asks you questions about the number of payments, account, opportunity information, and so on. You can customize the Revenue Schedule Script, if required.

5. (Optional) To view the information in different formats, click the Chart or the Spreadsheet view tab.
   - The Spreadsheet view shows the service product associated with the agreement line item and the revenue associated with the line item. The revenue appears in its own column for each line item, and a total appears in the last column.
   - The Chart view shows the revenue in a chart.

Adding Revenue Plans to Agreement Line Items

After the administrator creates the revenue plan templates, you can then add the templates to agreement line items. For more information, see *Creating Revenue Plan Templates*.

When you select a revenue plan and enter an amount, the revenue items are created. For example, a revenue template applies to 12 months. You select this template and enter an amount of $100. When you save the record, 12 revenue items are automatically created for $100 each.

To add a revenue plan to an agreement line item

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Line Item Revenue view tab.
3. Scroll down, and click the Revenue Plans view tab.
4. Create a new revenue plan record, and complete the fields as appropriate.

Generating Documents for Agreements (End User)

You can automatically generate documents required to implement a service agreement (for example, subcontractor agreements and work orders). For more information about how to create document templates using proposals, see *Siebel Correspondence, Proposals, and Presentations Guide* .

You can automatically generate a document for an order in the Documents view in the List view of the Service Orders or Sales Order screen. You can automatically generate a document for a quote in the Documents view in the list view of the Quotes screen. For information about terms for agreements, see *Adding Terms to Agreements (End User)*.

This task is a step in *Process of Managing Agreements*.

To generate a document for an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Documents view tab.
3. Create a new document record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Name	Type the name of the document.
Template	Select a template for the document.
Local	Displays a check in the check box to indicate the document is stored locally. This field is for information only, and does not affect other fields or functions.

4. Click Generate Draft.

   Microsoft Word (for example) is launched. A draft agreement is created and appears in Microsoft Word. Alternatively, you can click Auto Document to create a standard document from the default document template.

Process of Managing Entitlements

The following list shows the tasks that end users typically perform to manage entitlements. Your company might follow a different process according to its business requirements.

To manage entitlements, end users perform the following tasks:

- *Creating Entitlements (End User)*
- *Associating Other Records with Entitlements (End User)*
- *Adding Service Information to Entitlements (End User)*

- *Adding Metrics for Entitlements (End User)*
- *Verifying Entitlements for Service Requests (End User)*
- *Adding Preventive Maintenance Plans to Entitlements (End User)*

Creating Entitlements (End User)

You can automatically and manually create entitlements. Entitlements contain information about the level of service for a customer.

You can automatically create entitlements for agreement line items. Entitlement templates must be associated with the product on the agreement line item before you can automatically create entitlements using the Auto Entitlement button. For more information, see *Defining Products for Entitlement Templates*.

If you later select the Auto Entitlement button again, then any new entitlements are associated with the agreement line item, but the entitlements that are already associated with the agreement line item do not change.

This task is a step in *Process of Managing Entitlements*.

To automatically create entitlements for agreement line items

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement.
3. In the Line Items view, click Auto Entitlement.

   Entitlements are automatically created for all of the line items in the agreement.

You can also manually create an entitlement for an agreement.

To manually create an entitlement for an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Entitlements view tab.
3. Create a new entitlement record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Type	Select the type of entitlement.
Transferable Flag	Select this check box to indicate the entitlement transfers from a removed asset to an installed asset when recording an asset swap. For more information, see *Asset Swaps*.

Associating Other Records with Entitlements (End User)

Complete the procedures in this topic to associate other records with an entitlement.

This topic contains the following information:

- *Associating Accounts with Entitlements*
- *Associating Contacts with Entitlements*
- *Associating Products and Assets with Entitlements*

This task is a step in *Process of Managing Entitlements*.

Associating Accounts with Entitlements

In the Accounts view, you can associate accounts with entitlements.

To associate an account with an entitlement

1. Navigate to the Entitlements screen, then the Agreement Entitlements view.
2. Select an entitlement, and click the Accounts view tab.
3. Create a new account record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
All Contacts	Select this check box to indicate the entitlement covers all contacts that are associated with the account. Entitlement verification uses this information. For more information, see *Entitlement Selection*.
All Products	Select this check box to indicate the entitlement covers all products. Entitlement verification uses this information.

Associating Contacts with Entitlements

In the Contacts view, you can associate the contacts at an account with an entitlement. The records in this view apply when the All Contacts check box (in the Accounts view for the entitlement) is not selected, and the entitlement is valid only for specific individuals.

To associate a contact with an entitlement

1. Navigate to the Entitlements screen, then the Agreement Entitlements view.
2. Select an entitlement, and click the Contacts view tab.
3. Create a new contact record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Last Name	Displays the last name of the contact that you associate with the entitlement.
All Products	Select this check box to indicate the entitlement covers all products.

Associating Products and Assets with Entitlements

In the Products view, you can associate assets and products with an entitlement. The records in this view apply when the All Products check box (in the Accounts view for an entitlement) is not selected, and the entitlement is valid only for specific products or assets.

> **Note:** The Line Items view of the Agreements screen shows the products purchased or provided under the agreement. The Products view in the Entitlements view of the Agreements screen shows the level of service provided for each product and asset associated with the agreement.

To associate a product and asset with an entitlement

1. Navigate to the Entitlements screen, then the Agreement Entitlements view.
2. Select an entitlement, and click the Products view tab.
3. Create a new product record, and complete the fields as appropriate.

Adding Service Information to Entitlements (End User)

You must associate a service calendar with an entitlement so that you can complete service requests according to customer expectations. You can also add metrics to make sure that the response time is appropriate.

This task is a step in *Process of Managing Entitlements*.

To add service information to an entitlement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Entitlements view tab.
3. Select an entitlement, and click the Entitlement Details view tab.
4. In the Entitlement Details form, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Service Hours	Select a service calendar record.
Initial Qty	Type the initial quantity that the entitlement covers.
Current Qty	Type the current quantity that the entitlement covers. The current quantity is not automatically updated. You must manually update it each time it changes.
Activity Override	Select this check box to indicate the billable flag, rate list, and price list for the entitlement override the billable flag, rate list, and price list for a service request.

Adding Metrics for Entitlements (End User)

You can record metrics (performance measurements) for an entitlement (for example, response time for a service call and customer satisfaction rating). The response time metric is required to calculate the Date Committed field in the Service Request view. Only this entitlement metric directly determines a level of service.

The calculation of the Date Committed field for a service request uses a response time according to the service request priority. Define a series of different response times and priorities so that the Date Committed field can change according to the service request priority. Add several metric records of the Response Time type. For each response time record, select a different priority value. Then enter values in the other fields that apply to the corresponding priority. For example, you might enter 1 hour for a 1-ASAP priority, 4 hours for a 2-High priority, and so on. Now, when the Date Committed field is calculated, the resulting time correlates to the service request priority.

This task is a step in *Process of Managing Entitlements*.

To add a metric for an entitlement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Entitlements view tab.
3. Select an entitlement, and click the Metrics view tab.
4. Create a new metric record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Value	Type the value of the metric.
Units	Select the unit of measurement for the Value field. Values include Days, Hours, and Seconds. The Hours value does not support decimal places in the Value field. For example, you cannot select Hours in this field, and enter 0.25 in the Value field to specify 15 minutes. Instead, select Seconds in this field, and enter 900 in the Value field to specify 15 minutes. Administrators can also add Minutes to the List of Values (LOV) for this field. For more information about adding a value to an LOV for a field, see *Siebel Applications Administration Guide* .

Verifying Entitlements for Service Requests (End User)

When you verify entitlements for a service request, you select the appropriate entitlement from a list of entitlements that apply to the service request.

This task is a step in *Process of Managing Entitlements*.

To verify the entitlements for a service request

1. Navigate to the Service screen, then the Service Request List view.
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 the service request. If no entitlements appear, then the selected service request is not entitled to receive service.
4. Select an entitlement record from the Pick Entitlement dialog box, and click OK.
   The Date Committed field for the service request is calculated from the service calendar associated with the entitlement and from the response time associated with the entitlement metrics. The name of the selected entitlement appears in the Entitlement field. For more information, see *Date Committed*.

Adding Preventive Maintenance Plans to Entitlements (End User)

You can add preventive maintenance (PM) plans to an entitlement. For information about running preventive maintenance plans for an entitlement associated with an agreement, see *Process of Managing Records with Barcode Readers*.

Note: After you run the preventive maintenance plans for the entitlement, you can select PM Actions from the drop-down list to see the scheduled and completed actions for the plans.

This task is a step in *Process of Managing Entitlements*.

To add a preventive maintenance plan to an entitlement

1. Navigate to the Entitlements screen, then the Agreement Entitlements view.
   Alternatively, you can navigate to the List view of the Agreements screen, drill down on the Name field for a selected agreement, and click the Entitlements tab.
2. Select an entitlement, and click the Preventive Maintenance view tab.
3. In the drop-down list at the start of the Preventive Maintenance view, select PM Plans.
4. Create a new PM plan record, and complete the fields as appropriate.

Workflows for Agreement Renewal and Approval

This topic describes the workflows for agreement renewal and approval. Workflows automate the business processes associated with renewing and approving agreements.

You can modify these workflows to suit your own business needs using Siebel Business Process Designer. For more information, see *Siebel Business Process Framework: Workflow Guide* .

This topic includes information about the following workflows:

- *FS - Agreement Renewal Item Workflow*
- *FS - Agreement Renewal All Workflow*
- *ISS Approval (Agreement) Workflow*

FS - Agreement Renewal Item Workflow

The FS - Agreement Renewal Item workflow automates the process of renewing an agreement line item. For more information, see *Setting Up Renewal for Agreements*.

This workflow is called when a user clicks the Renewal button.

The following figure shows this workflow.

Workflow Description. This workflow performs the following action:

- **Renew Agreement.** This step calls the RenewAgreement method to renew 1 agreement line item. For more information, see *FS Agreement Renewal Business Service*.

FS - Agreement Renewal All Workflow

The FS - Agreement Renewal All workflow automates the process of renewing all appropriate agreement line items at once.

You can run this workflow as a batch process.

Note: It is recommended that you run the renewal process every night to create renewal line items for agreements.

The following figure shows this workflow.

Workflow Description. This workflow performs the following action:

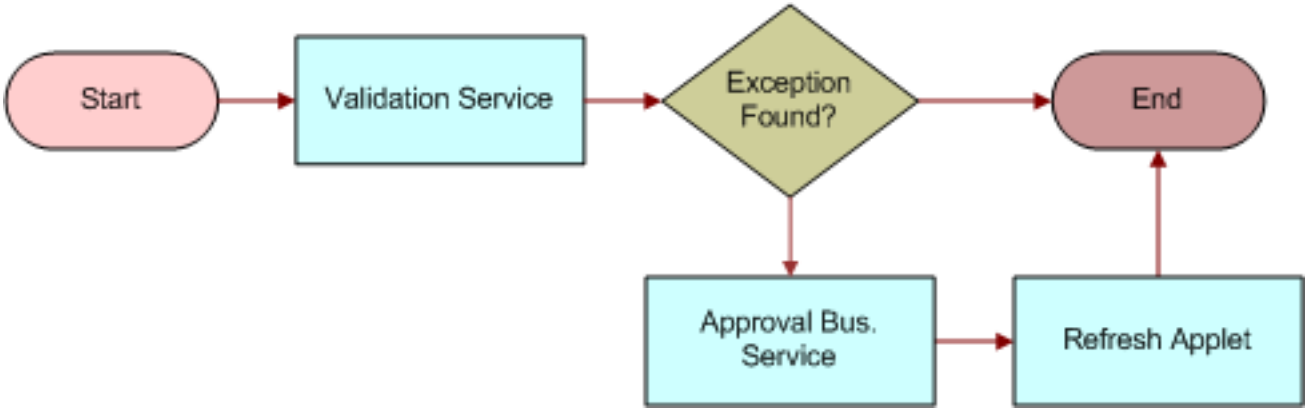
- **RenewAllAgreements.** This step calls the RenewAllAgreements method to renew all agreement line items with a renewal date greater than the date entered in the input argument. For more information, see *FS Agreement Renewal Business Service*.

ISS Approval (Agreement) Workflow

The ISS Approval (Agreement) workflow automates the process of approving agreements. This workflow is called for the ISS Approval (Agreement) approval process. For more information, see *Setting Up Approval for Agreements*.

This workflow is called when a user selects the Generate Approvals menu command for an agreement.

The following figure shows this workflow.



Workflow Description. This workflow performs the following actions:

1. **Validation Service.** This step reviews the validation rule for approval of the agreement.
2. **Exception Found?** This step determines whether the agreement satisfies the validation rule. If the agreement does not satisfy the rule, then the workflow terminates. If the agreement satisfies the rule, then the workflow proceeds to the next step.
3. **Approval Bus Service.** The step calls the ISS Approval Bus Service business service to use the CreateNewApprovalTasks method to place the agreement in the approver Inbox for approval or rejection by the appropriate approvers.
4. **Refresh Applet.** After approval or rejection, this step updates the data in the applet for the list of agreement approvers.

Workflows for Entitlement Creation and Verification

This topic describes the workflows for entitlement creation and verification. Workflows automate the business processes associated with verifying and creating entitlements.

You can modify these workflows to suit your own business needs using Siebel Business Process Designer. For more information, see *Siebel Business Process Framework: Workflow Guide* .

Note: Some entitlement workflows might not apply to your application services.

This topic includes information about the following workflows:

- *FS - Create Entitlement Workflow*
- *FS - Verify Entitlement Activity Workflow*
- *FS - Verify Entitlement Order Best Price Workflow*
- *FS - Verify Entitlement Quote Best Price Workflow*
- *FS - Verify Entitlement SR Workflow*
- *FS - Verify Entitlement SR Best Response Time Workflow*

The methods for verification workflows are included in the FS Verify Entitlement business service. For more information about the individual methods and for a general description of the business service, see *FS Verify Entitlement Business Service*.

FS - Create Entitlement Workflow

The FS - Create Entitlement workflow automatically creates entitlements from entitlement templates. This workflow automates the process of associating an entitlement template with a service product. For more information about the methods that this workflow calls, see *FS Create Entitlement Business Service*.

This workflow is called when a user clicks the Auto Entitlement button in the Line Items view for an agreement. For more information about configuring this button, see *Configuring Auto-Entitlement for Quotes and Orders*.

The following figure shows this workflow.

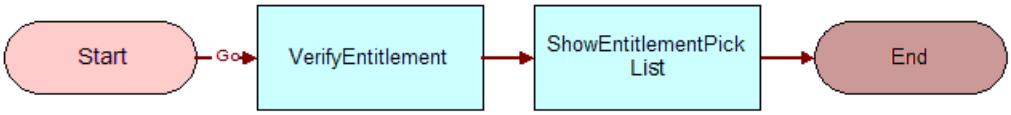
Workflow Description. This workflow performs the following actions:

1. **Get Entitlement Template.** This step uses the GetEntitlementTemplates method and the CreateCoveredProds method to retrieve the entitlement templates for the agreement and the service products that the entitlement templates cover.
2. **Validate Entitlement Template.** This steps uses the ValidateEntitlementTemplates method to check to make sure that the entitlement templates were not already used to create entitlements for the agreement.
3. **Create Entitlements.** This step uses the CreateEntitlements method to use the entitlement templates to create entitlements for the agreement.

FS - Verify Entitlement Activity Workflow

The FS - Verify Entitlement Activity workflow automates the process of verifying entitlements on an activity. This workflow searches for the eligible entitlements and displays these entitlements in a dialog box. For more information about the methods that this workflow calls, see *FS Verify Entitlement Business Service*.

The following figure shows this workflow.



Workflow Description. This workflow performs the following actions:

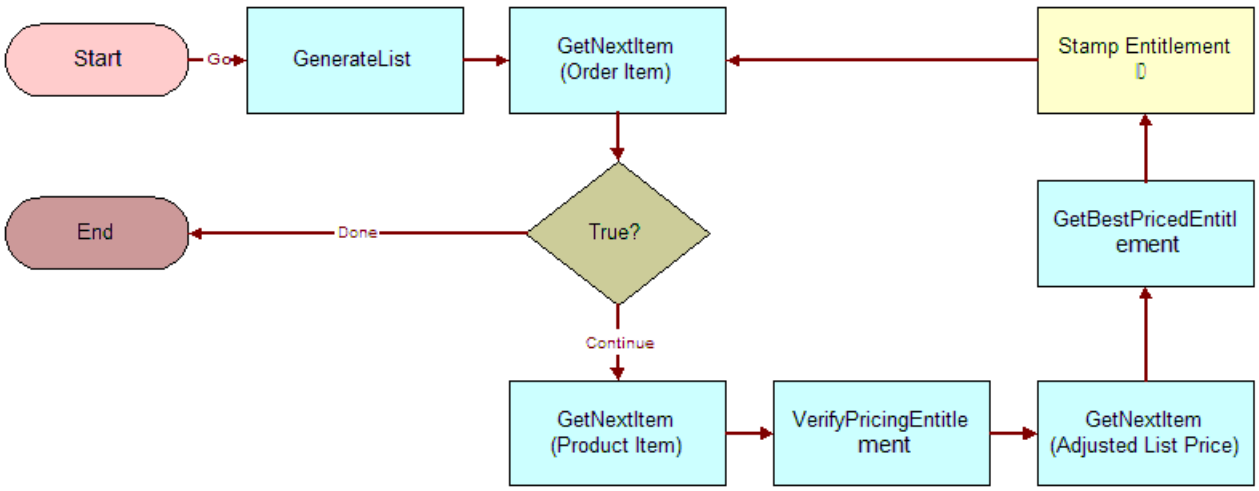
1. **VerifyEntitlement.** This step calls the VerifyServiceEntitlement method to retrieve the eligible service entitlements for an activity.
2. **ShowEntitlementPickList.** This step calls the ShowEntitlementPickList method to show the relevant entitlements according to the search specification that is passed from the VerifyServiceEntitlement method.

FS - Verify Entitlement Order Best Price Workflow

The FS - Verify Entitlement Order Best Price workflow automates the process of verifying entitlements on an order. This workflow cycles through all the entitlements for the order line items of an order and identifies the best-priced entitlement for each line item, and then the workflow enters the ID of the best entitlement on each line item. For more information about the methods that this workflow calls, see *FS Verify Entitlement Business Service*.

This workflow is called when a user selects the Verify command in the Line Items view for an order.

The following figure shows this workflow.



Workflow Description. This workflow performs the following actions:

1. **GenerateList.** This step uses the GenerateList method to query for order data by using search specifications and return a property set according to field list values.
2. **GetNextItem (Order Item).** This step uses the GetNextItem method to cycle through each order line item in the property set.
3. **True?** This step determines whether more order line items exist to process. If no more order line items exist, then the workflow terminates. If more order line items exist, then the workflow continues to the next step.
4. **GetNextItem (Product Item).** This step uses the GetNextItem method to cycle through each product in the property set.
5. **VerifyPricingEntitlement.** This step calls the VerifyPricingEntitlement method to return the eligible pricing entitlements for the order.
6. **GetNextItem (Adjusted List Price).** This step uses the GetNextItem method to cycle through each adjusted price in the property set.
7. **GetBestPricedEntitlement.** This step uses the GetBestPricedEntitlement method to use entitlement discounts to retrieve the best-priced entitlement.
8. **Stamp Entitlement.** This step enters the ID of the best-priced entitlement on the line item in the order.

FS - Verify Entitlement Quote Best Price Workflow

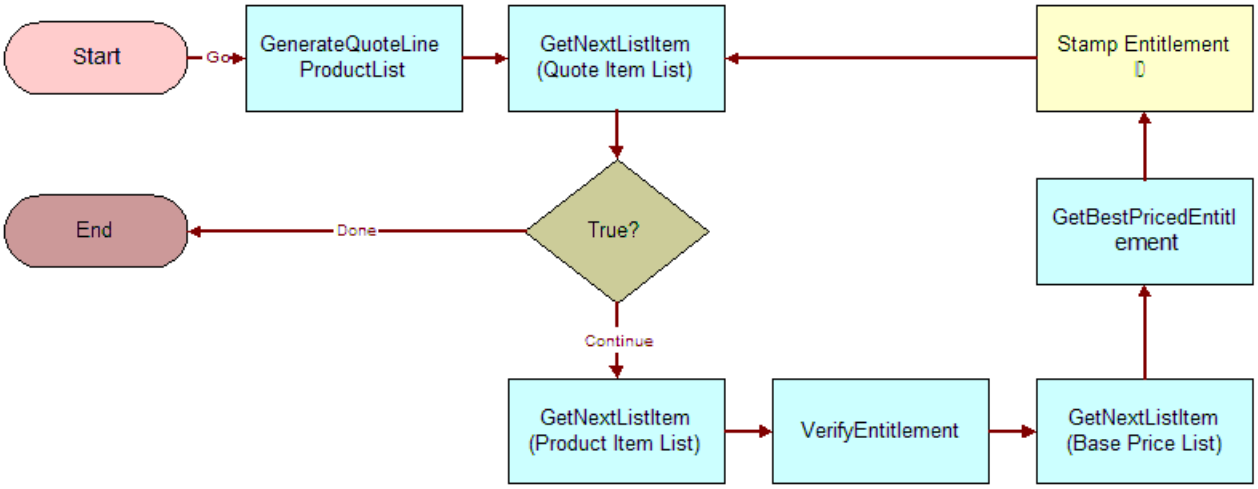
The FS - Verify Entitlement Quote Best Price workflow automates the process of verifying entitlements on a quote. This workflow cycles through all the entitlements for line items of a quote and identifies the best-priced entitlement for each line item, and then the workflow enters the ID of the best entitlement on each line item. For more information about the methods that this workflow calls, see *FS Verify Entitlement Business Service*.

The following data setup is required to allow this workflow to function:

- The quote account must have an agreement with a pricing-type entitlement.
- You must define the values for Products, Type of Calculation and Adjustment Value in the Price Details view in the Entitlements view of the Agreements screen.

This workflow is called when a user selects the Verify command in the Line Items view for a quote.

The following figure shows this workflow.



Workflow Description. This workflow performs the following actions:

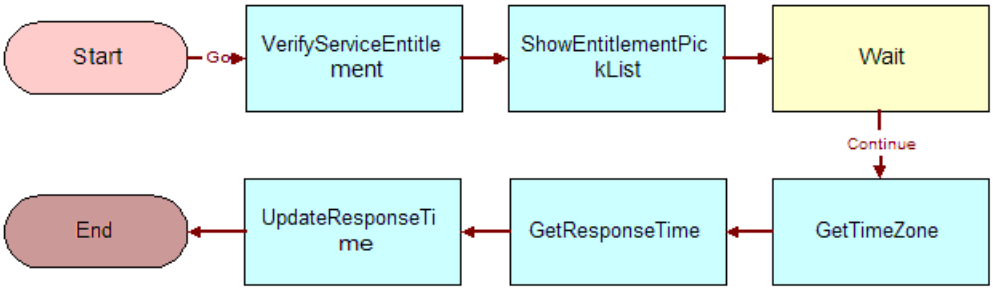
1. **GenerateQuoteLineProductList.** This step uses the GenerateList method to query for quote data by using search specifications and return a property set according to field list values.
2. **GetNextListItem (Quote Item List).** This step uses the GetNextItem method to cycle through each quote line item in the property set.
3. **True?** This step determines whether more quote line items exist to process. If no more quote line items exist, then the workflow terminates. If more quote line items exist, then the workflow continues to the next step.
4. **GetNextListItem (Product Item List).** This step uses the GetNextItem method to cycle through each product in the property set.
5. **VerifyEntitlement.** This step calls the VerifyServiceEntitlement method to retrieve the eligible service entitlements for the quote.
6. **GetNextListItem (Base Price List).** This step uses the GetNextItem method to cycle through each base price in the property set.
7. **GetBestPricedEntitlement.** This step uses the GetBestPricedEntitlement method to use entitlement discounts to retrieve the best-priced entitlement.
8. **Stamp Entitlement.** This step enters the ID of the best-priced entitlement on the line item in the quote.

FS - Verify Entitlement SR Workflow

The FS - Verify Entitlement SR workflow automates the process of verifying entitlements on a service request. This workflow shows a list of entitlements to the user and requests that the user select an entitlement, and then the workflow enters the commit time on the service request. For more information about the methods that this workflow calls, see *FS Verify Entitlement Business Service*.

This workflow is called when a user clicks the Verify button for a service request.

The following figure shows this workflow.



Workflow Description. This workflow performs the following actions:

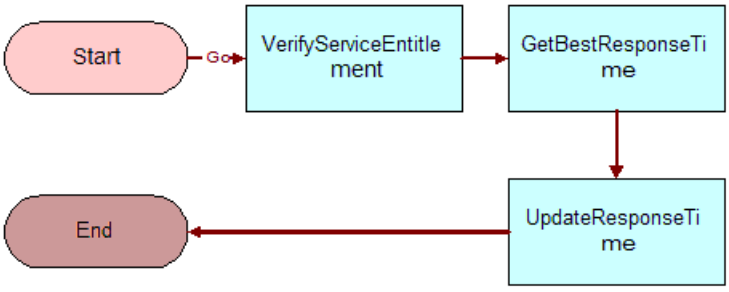
1. **VerifyServiceEntitlement.** This step calls the VerifyServiceEntitlement method to retrieve the eligible service entitlements for a service request.
2. **ShowEntitlementPickList.** This step calls the ShowEntitlementPickList method to show the relevant entitlements according to the search specification that is passed from the VerifyServiceEntitlement method.
3. **Wait.** This step waits for the user to select an entitlement.
4. **GetTimeZone.** This step calls the GetTimeZone method to retrieve the time zone to use for the response time calculation.
5. **GetResponseTime.** This step calls the GetResponseTime method to use the entitlement and priority to retrieve the response time. The method evaluates the response time metric that matches the service request priority for the selected entitlement.
6. **UpdateResponseTime.** This step calculates the commit time according to the service calendar, and sets the Date Committed and Entitlement fields for the service request.

FS - Verify Entitlement SR Best Response Time Workflow

The FS - Verify Entitlement SR Best Response Time workflow automates the process of verifying entitlements on a service request. This workflow automatically selects the entitlement with the best response time, and then enters the commit time on the service request. For more information about the methods that this workflow calls, see *FS Verify Entitlement Business Service*.

This workflow is called when a user click the Verify Best Time button for a service request.

The following figure shows this workflow.



Workflow Description. This workflow performs the following actions:

1. **VerifyServiceEntitlement.** This step calls the VerifyServiceEntitlement method to retrieve the eligible service entitlements for a service request.
2. **GetBestResponseTime.** This step calls the GetBestResponseTime method to get the entitlement with the best response time. The method selects the entitlement with the best response time metric that matches the service request priority.

3. **UpdateResponseTime.** This step calculates the commit time according to the service calendar, and sets the Date Committed and Entitlement field for the service request.

10 Dispatch Board

Dispatch Board

This chapter provides information about setting up and using the Dispatch Board. It includes the following topics:

- *About the Dispatch Board*
- *About the Process Flows for Dispatch Board Scheduling*
- *About Using the Dispatch Board*
- *About Rescheduling Appointments on the Dispatch Board*
- *Process of Administering the Dispatch Board*
- *Process of Configuring the Dispatch Board*
- *Process of Configuring the Dispatch Board*
- *Process of Managing the Dispatch Board*

About the Dispatch Board

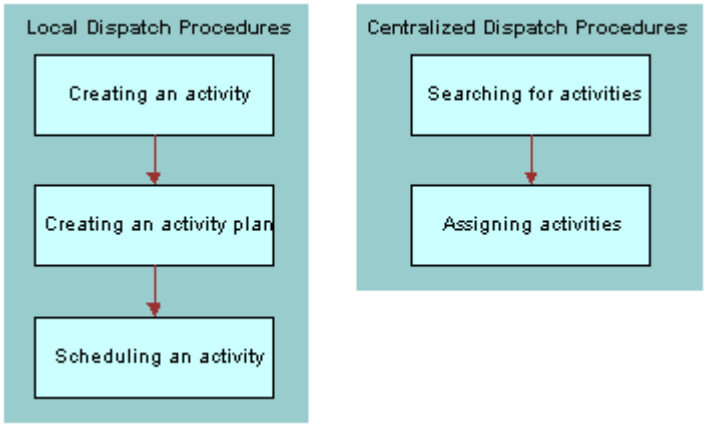
The Dispatch Board screen includes an interface for selecting employees to complete activities and manually scheduling these activities.

Generally, businesses use the Dispatch Board in the following ways:

- **Local dispatch.** A local business uses the Dispatch Board. A local service manager uses the Dispatch Board to manually schedule activities. The dispatcher is familiar with the territory (or territories) and the employees. For more information about this method, see *About the Process Flows for Dispatch Board Scheduling*.
- **Centralized dispatch.** A geographically disperse business with a centralized, dedicated dispatch team uses the Dispatch Board. The dispatch personnel search for and schedule employees according to their skill and their proximity to activities. For more information about this method, see *About the Process Flows for Dispatch Board Scheduling*.

About the Process Flows for Dispatch Board Scheduling

The following figure shows the process flows for local dispatch procedures and for centralized dispatch procedures.



In a local dispatch situation, the dispatcher creates an activity, creates an activity plan, and then schedules an activity. In the centralized dispatch situation, the dispatcher searches for activities and then assigns activities. This topic includes details about each task in these situations.

Local Dispatcher tasks for Scheduling Activities

Local dispatchers can perform the following tasks to schedule activities:

1. Create an activity. For more information, see *Creating Service Activities (End User)*.
2. Create an activity plan. For more information, see *Service Activity Templates and Activity Plans*.
3. Schedule an activity. For more information, see *Assigning Activities to Field Service Engineers (End User)*.

Central Dispatcher Tasks for Scheduling Activities

Central dispatchers can perform the following tasks to schedule activities:

1. Search for activities. They search for activities in the Unscheduled Activities list of the Dispatch Board.
2. Assign activities. For more information, see *Assigning Activities to Field Service Engineers from the Dispatch Board*.

About Using the Dispatch Board

The Dispatch Board provides an interface for manually assigning and scheduling service activities. The Dispatch Board includes the following sections:

- Gantt chart (at the start of the Dispatch Board)
- Unscheduled Activities list (at the end of the Dispatch Board)

To schedule activities, you relocate activities from the Unscheduled Activities list to the Gantt chart as follows: you select the activities from the Unscheduled Activities list and without releasing the selection, then move the activities to the Gantt chart. You can use specific features of the Gantt chart and the Unscheduled Activities list to improve activity scheduling.

Displayed Schedule Information

The Dispatch Board queries the Siebel database for the schedule information so that it can show any date and time range that the user wants to see. It does not show the content in the Appointment Booking System (ABS) and Optimizer caches. The ABS immediately writes any changes to the Siebel database so that the activities in the Siebel database reflect the cache content. However, activities that you move to the Dispatch Board are not automatically loaded into the cache. For more information, see *Scheduling Using Siebel Scheduler* and *About Rescheduling Appointments on the Dispatch Board*.

Gantt Chart

The Gantt chart shows the scheduled and unscheduled time periods for a group of employees associated with a service region. The chart is divided by a frame boundary into two frames as follows:

- **First frame.** Lists employees and related information that helps users to select employees for activities. To see all of the information in this frame, select the frame boundary and without releasing the selection, then move the frame boundary out.
- **Second frame.** Shows the activities associated with employees in different time periods, and appears in a calendar format. Activities appear in colors that represent priority, status, and type. For more information, see *Setting User Preferences for the Dispatch Board(End User)*. To zoom in or out on a time period in this frame, click a zoom interval (1/4, 1/2, 1, 2, or 4) at the start of the Gantt chart.
- The second frame is positioned beside the first frame.

The date (or the first date of the date range) and service region of the Gantt chart default to the values that you set most recently using the following methods:

- From the application-level menu, select Tools, then User Preferences. On the link bar, click Dispatch Board, and select the appropriate options. If you select a value of Today in the Date Shown field, then the date (or the first date of the date range) on the Gantt chart is today. If you select a value of Last Date Chosen in the Date Shown field, then the date (or the first date of the date range) on the Gantt chart is the date that displayed when you last accessed the Dispatch Board.
- From the Activities List view of the Activities screen, drill down on the Status field for an activity. The date (or the first date of the date range) on the Gantt chart defaults to the field values in the Schedules view of the just-visited activity. This date is the Planned Start date field for the activity. If this field contains no data, then this date is the Earliest Start date field for the activity. If this field contains no data, then this date is the date designated in the user preferences for the Dispatch Board. The service region on the Gantt chart of the Dispatch Board defaults to the Service Region field for the activity. If this field contains no data, then the Gantt chart contains no data.

The Gantt chart data is associated with a designated service region. Each service region is associated with a time zone. To change the service region and time zone for the Gantt chart data, click the Select Service Region button.

> **Note:** To accurately display an employee schedule, the time zone associated with the employee in the Employees view of the Administration - User screen must be the same as the time zone associated with the service region of the Gantt chart.

Unscheduled Activities List

By default, the Unscheduled Activities list displays all activities that have a status value of Unscheduled. To change the number of records that appear on the list, click the show more button and the show less button.

In addition to unscheduled activities, you can select the following views in the visibility filter:

- Declined Activities
- Timed Out Activities
- Not Acknowledged Activities

About Rescheduling Appointments on the Dispatch Board

You can reassign or reschedule any activity on the Gantt chart by selecting the activity and then moving the activity, but these activities are not automatically loaded into the Appointment Booking System (ABS).

You can override the drag-and-drop business service to attempt activity loads and provide real-time feedback, but manual and automated scheduling do not combine well. When loading activities into an existing schedule, Siebel Scheduler does not attempt to schedule activities currently in the same time slot because the coding logic for these types of decisions is implemented on only a case-by-case basis. Large numbers of users simultaneously attempting to manually schedule activities (by selecting the Lock Assignment or Lock Schedule check boxes) creates conflicts and a brittle schedule that you cannot easily change if you move people. For more information about these check boxes, see *Locking Assignments and Schedules for Activities (End User)*.

> **Tip:** For appointments in the future, it is recommended that users book appointments again by using the Book Appointment button. For appointments occurring today, it is recommended that you allow users to manually change appointments so that users can use discretion. To allow users to manually change appointments, change the ABS - Days to Start parameter to 1. For more information, see *Defining Cost Functions for the Optimizer*.

Process of Administering the Dispatch Board

The following list shows the tasks that administrators typically perform to administer the Dispatch Board. Your company might follow a different process according to its business requirements.

To administer the Dispatch Board, administrators perform the following tasks:

- Set up rules for Assignment Manager. For more information about assignment rules, see *Siebel Assignment Manager Administration Guide* .
- Associate service regions and schedules with employees. For more information, see *Defining Schedules and Availability for Employees*.
- Define employee exception hours. For more information, see *Setting Exception Hours*.

- Assign responsibilities to employees. For more information, see *Siebel Applications Administration Guide* .
- Change the system preference for the Dispatch Board. For more information, see *Changing the System Preference for the Dispatch Board*.
- Configure assignment scores for the Gantt chart of the Dispatch Board. For more information, see *Configuring Assignment Scores for the Dispatch Board Gantt Chart*.
- Add users with dispatcher responsibility. For more information, see *Setting Up Dispatcher Users*.

Changing the System Preference for the Dispatch Board

The Dispatch Board allows a dispatcher or customer service representative to select an activity from the Unscheduled Activities list and then move the activity to a block of time and employee on the Gantt chart. If the service region of the activity is different from the selected service region for the Gantt chart, then the following settings for the FSDB:Override Service Region system preference determine the result:

- 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 selected service region for the Gantt chart.
- If the value of the system preference is FALSE, then the dispatcher cannot drop the activity on the Gantt chart, and an error is returned.

This task is a step in *Process of Administering the Dispatch Board*.

To changing the system preference for the Dispatch Board

1. Navigate to the Administration - Application screen, then the System Preferences view.
2. Select the FSDB:Override Service Region system preference.
3. In the System Preference Value field, enter TRUE or FALSE.
4. To implement changes to system preferences, restart the Field Service server.

Configuring Assignment Scores for the Dispatch Board Gantt Chart

The Score field on the Gantt chart of the Dispatch Board displays scores that indicate the degree to which the skills of each employee match the skills that are required to complete an activity. This field is populated for all employees on the Gantt chart when you select an activity and click the Assignment Score button.

The value of the assignment score for an employee on the Gantt chart is calculated as follows:

(Score that is associated with the assignment rule for the selected activity on the Gantt chart) plus (Score that is associated with the assignment rule for that employee)

However, the score that is associated with the assignment rule for the employee is not included in the calculation if this score does not exceed the Candidate Passing Score field value for the employee in the assignment rule.

This task is a step in *Process of Administering the Dispatch Board*.

To configure the assignment scores for the Dispatch Board Gantt chart

1. Enable the Assignment Manager server component group.

   For more information about enabling server component groups, see *Siebel System Administration Guide* .

2. Make sure that the appropriate schedule, schedule hours, parameter set, time window, and service region are set up.

   For more information about this setup, see *Scheduling Using Siebel Scheduler*
3. Associate the appropriate employees with the schedule and service region.
4. Set up an assignment rule, criteria, employee candidates, and scores.

   For more information about this setup, see *Siebel Assignment Manager Administration Guide* .

Setting Up Dispatcher Users

Siebel Field Service includes responsibilities for employees. Responsibilities determine the views that employees can access. Employees see only the views that they need to complete their job. An employee with the responsibility of a dispatcher can assign activities to employees. For more information about responsibilities and visibility, see *Siebel Applications Administration Guide* .

This task is a step in *Process of Administering the Dispatch Board*.

To set up a dispatcher user

1. Navigate to the Administration - Application screen, then the Responsibilities view.
2. In the Responsibilities list, select the Dispatcher record.

   If this record is not in the list, then create a new record with the responsibility of Dispatcher.
3. To add the name of the employee for the Dispatcher role, create a new user record in the Users list.
4. In the Views list, make sure that the selected user can access the following views:
   - FS AxGanttChart View
   - FS AxGanttChart Declined View
   - FS AxGanttChart Timed Out View
   - FS AxGanttChart Not Acknowledged View

     These views are associated with the applet for the Gantt chart.

Process of Configuring the Dispatch Board

Developers can configure any Dispatch Board enhancements that dispatchers need to efficiently perform their job.

To configure the Dispatch Board, developers perform the following tasks:

- *Optimizing Display Speeds for the Dispatch Board*
- *Displaying Additional Information on the Y-Axis of the Dispatch Board Gantt Chart*
- *Adding Drilldowns to the Dispatch Board Gantt Chart*
- *Adding Query Fields to the Dispatch Board Gantt Chart*
- *Changing Information for the Dispatch Board Gantt Chart*
- *Changing Displayed Tooltip Details on the Dispatch Board Gantt Chart*

- *Creating Time Zoom Intervals on the Dispatch Board Gantt Chart*
- *Enabling Applets for Relocation to the Dispatch Board Gantt Chart*
- *Adding User Preference Colors to the Dispatch Board Gantt Chart*
- *Configuring Colors for Activities on the Dispatch Board Gantt Chart*
- *Changing Colors for Periods on the Dispatch Board Gantt Chart*
- *Restricting the Displayed Employees on the Dispatch Board Gantt Chart*
- *Configuring the Display of Employees on Dispatch Dashboard Gantt Chart*
- *Changing Colors for Employee Name Text on the Dispatch Board Gantt Chart*

Optimizing Display Speeds for the Dispatch Board

To speed up the display of the Dispatch Board, the Dispatch Board user interface component gets activity data from a cache and not from the Siebel database. You can further improve the display speed of the Dispatch Board by changing the cache size.

With a large cache, a user can retrieve more data without accessing the Siebel database. Thus, a larger cache size increases the display speed of the Dispatch Board. However, a larger cache also requires more browser memory.

The cached data is valid only until the user navigates from the Dispatch Board screen to another screen. Each time the user navigates back to the Dispatch Board screen, the cache is reloaded.

The following table shows the default cache settings for the time scale identifiers that are associated with major time value and minor time value combinations. To increase the cache size, you increase the default cache setting for the time scales. For more information about customizing the cache size for time scales, see *Configuring Siebel Open UI* .

Major Time Value	Minor Time Value	Time Scale Identifier	Default Cache Setting
Day	Quarter Hour	4096	2
Day	Half Hour	2048	2
Day	Hour	4	2
Day	2 Hours	512	2
Day	4 Hours	1024	2
Week	Day	1	1
Month	Day	64	0
Month	Week	32768	0
Year	Week	16384	0
Year	Month	8192	0

Major Time Value	Minor Time Value	Time Scale Identifier	Default Cache Setting

This task is a step in *Process of Configuring the Dispatch Board*.

Displaying Additional Information on the Y-Axis of the Dispatch Board Gantt Chart

Generally, employee names appear on the y-axis of the Gantt chart of the Dispatch Board. If dispatchers want to see additional information, then the administrator must configure the Dispatch Board. The following example tasks describe how to add a new work phone number field to the y-axis information on the Gantt chart of the Dispatch Board. For more information about performing configuration tasks with Siebel Tools, see *Using Siebel Tools* .

To display phone number information on the y-axis of the Gantt chart of the Dispatch Board, perform the following procedures:

1. *Creating a New Field on the Business Component*
2. *Creating the Applet User Properties*
3. *Viewing the New Field*

This task is a step in *Process of Configuring the Dispatch Board*.

Creating a New Field on the Business Component

Perform the following procedure to create a new field on the Employee business component.

To create a new field on the business component

1. Log in to Siebel Tools or Web Tools as an administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. Lock the Employee project for editing.
4. In Object Explorer, navigate to Business Component, and query for the Employee business component.
5. Navigate to Business Component, then Field, and query for the Phone number (#) field.
6. Copy the record, and name the new record Phone.

> **CAUTION:** The hash symbol (#) is a special character in the Dispatch Board user properties, so do not include this symbol in the name of any new fields that you create in the Dispatch Board.

Creating the Applet User Properties

Perform the following procedure to create a new applet user property named Pane 0 Field 6 and applet user properties for the new column.

To create the applet user properties

1. Lock the FS Dispatch Board project for editing.
2. In Object Explorer, navigate to Applet, and query for the FS Dispatch Board Gantt Applet.

3. Navigate to Applet, then Applet User Prop.

   Note: If Applet User Prop is not visible, then navigate to View, then Options, select the Object Explorer tab, and then select the Applet User Prop object definition.

4. Query for Pane 0 Field*, making sure to include the wildcard asterisk symbol (*).

   All the Employee business component Pane 0 Fields that currently appear on the Gantt chart of the Dispatch Board are listed in order.

5. Copy the Pane 0 Field 3 record, and update the fields in the new record as follows:

   a. Enter Pane 0 Field 6 as the name for the record.
   b. Enter Phone in the Value field.

      The value field is the name of the field in the business component.

6. Create user property records for the new column.

   Information about the records is described in the following table.

Name	Value
Pane 0 Col 6	NM, Phone NM denotes Header Display Text.
Pane 0 Col 6 Attr 0	IID, 211 IID denotes Unique ID.
Pane 0 Col 6 Attr 1	FLD, Phone FLD denotes the field of the business component.
Pane 0 Col 6 Field 0	Phone, Val

Viewing the New Field

Deliver the changes to the Integration Branch and view the new field on the Gantt chart of the Dispatch Board.

Adding Drilldowns to the Dispatch Board Gantt Chart

You can add drilldowns to the Gantt chart of the Dispatch Board to help streamline navigation to and from this screen. In the following tasks, you configure a drilldown for the Phone field that you added in *Displaying Additional Information on the Y-Axis of the Dispatch Board Gantt Chart*. For more information about performing configuration tasks with Siebel Tools, see *Using Siebel Tools* .

To allow users to drill-down on the new Phone field, perform the following procedures:

1. *Creating the Drilldown Object*
2. *Creating the Applet User Properties for the Drilldown*
3. *Viewing the New Drilldown Object*

This task is a step in *Process of Configuring the Dispatch Board*.

Creating the Drilldown Object

Perform the following procedure to create a new Phone drilldown object.

To create the drilldown object

1. Log in to Siebel Tools or Web Tools as an administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. Lock the FS Dispatch Board project for editing.
4. In Object Explorer, navigate to Applet, then Drilldown Object.
5. Create a new record, and update the fields with the following information:
    a. Enter Phone as the name of the record.
    b. Enter Phone as the Hyperlink Field value.
    c. Enter Employee List More Info View as the View value.
    d. Enter ID as the Source Field value.
    e. Enter Employee as the Business Component value.
    f. Enter ID as the Destination field value.

> **Note:** In the applet control, the control name and the field name must match so that users can successfully drill down from the Gantt chart of the Dispatch Board.

Creating the Applet User Properties for the Drilldown

Perform the following procedure to create the applet user properties for drilldown on the Pane 0 Col 6 Phone field.

To create the applet user properties for the drilldown

1. Lock the FS Dispatch Board project for editing.
2. In the Object Explorer, navigate to Applet, and query for the FS Dispatch Board Gantt Applet.
3. Navigate to Applet, then Applet User Prop, and query for Pane 0 Col 6*, making sure to include the wildcard asterisk symbol (*).

    To add these records, see *Creating the Applet User Properties*.

    The user properties for the new column appear.
4. Create user property records for the drilldown.

    Information about the records is described in the following table.

Name	Value
Pane 0 Col 6 Attr 2	IDO, Phone IDO denotes Drilldown Object.
Pane 0 Col 6 Attr 3	DDFLD, Id DDFLD denotes Drilldown Field.
Pane 0 Col 6 Field 1	Id, DDID DDID denotes Drilldown ID.

Viewing the New Drilldown Object

Deliver the changes to the Integration Branch and view the new Phone drilldown object on the Gantt chart of the Dispatch Board.

Adding Query Fields to the Dispatch Board Gantt Chart

A dispatcher must enter specific query parameters to search for the appropriate employee or set of employees. If the Search pane for the Gantt chart of Dispatch Board does not include a parameter that the dispatchers need, then you can add this parameter by completing the tasks in this topic. For more information about performing configuration tasks with Siebel Tools, see *Using Siebel Tools* .

To add a query field to the Search pane for the Gantt chart of the Dispatch Board, perform the following procedures:

1. *Creating the Applet Controls*
2. *Creating the Applet Web Template Item*
3. *Using the New Query Field*

This task is a step in *Process of Configuring the Dispatch Board*.

Creating the Applet Controls

Perform the following procedure to create new applet control named Phone.

To create the applet controls

1. Query again for the FS Dispatch Board Gantt Applet.
2. Navigate to Applet, then Control.
3. Create a new record, and update the fields with the following information:
    a. Enter Phone as the name for the record.
    b. Enter Phone as the value for the Caption - String Override field.
    c. Enter Phone # as the value for Field.
4. Navigate to Applet, Control, and then Control User Property.
5. Create a new record, and update the fields with the following information:
    a. Enter Field Name as the name for the record.
    b. Enter Phone as the value for the record.

Creating the Applet Web Template Item

Perform the following procedure to create a new Phone Web template item.

To create the applet Web template item

1. Log in to Siebel Tools as an administrator.
2. Lock the FS Dispatch Board project for editing.
3. In the Object Explorer, navigate to Applet, and query for the FS Dispatch Board Gantt Applet.
4. Navigate to Applet, Applet Web Template, and then Applet Web Template Item.
5. Create a new record, and update the fields with the following information:
    a. Enter Phone as the name of the record.
    b. Enter Phone as the value for the Control field.

c. Enter a numeric value in the Item Identifier field.

> **Tip:** Siebel Tools assigns controls unique numbers. It is recommended that you enter a high numeric value to prevent identifiers from overlapping and causing conflict.

Using the New Query Field

Deliver the changes to the Integration Branch and test the new Phone Number query field.

To use the new query field

1. Relaunch the application, and navigate to the Dispatch Board.
2. Click Search in the header of the Name field in the Gantt chart.
3. In the Search pane, enter a query using Phone Number.

   A successful query demonstrates that you can use the phone number as an additional search parameter in the Search pane.

Changing Information for the Dispatch Board Gantt Chart

By default, activities appear on the Gantt chart of the Dispatch Board. You can show other information needed for decision-making on the Gantt chart. In the following example task, you configure the Gantt chart to display account names instead of activities. For more information about performing configuration tasks with Siebel Tools, see *Using Siebel Tools* .

This task is a step in *Process of Configuring the Dispatch Board*.

To change the information for the Dispatch Board Gantt chart

1. Log in to Siebel Tools or Web tools as an administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. Lock the Activity project for editing.
4. In the Object Explorer, navigate to Business Component, and query for the Action business component.
5. Navigate to Business Component, then Field, and query for the TXTCLRField.
6. Change the Calculated Value field to the field name to appear as text in the Gantt chart.

   In this example, the value is Account Name.

   > **Note:** Do not change the Calculated Value field if it is Priority, Type, or Status.

7. Deliver the changes to the Integration Branch.
8. Restart the client, and view the changes on the Dispatch Board.

   The names of the accounts and not the names of the activities appear on the Gantt chart.

Changing Displayed Tooltip Details on the Dispatch Board Gantt Chart

Users can position the mouse pointer over an activity on the Gantt chart to view activity details. Also, users can position the mouse pointer over an employee name on the Gantt chart to view employee details. You can change the details that users see when they position the mouse pointer. For more information about performing configuration tasks with Siebel Tools, see *Using Siebel Tools* .

To change displayed Tooltip details on the Dispatch Board Gantt chart, complete the following procedures:

1. *Creating a User Property for the Tooltip Field*
2. *Creating a Value for the Tooltip Field*

This task is a step in *Process of Configuring the Dispatch Board*.

Creating a User Property for the Tooltip Field

Perform the following procedure to create a new user property for the Tooltip field.

To create a user property for the Tooltip field

1. Log in to Siebel Tools or Web Tools as an administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. Lock the FS Dispatch Board project for editing.
4. In the Object Explorer, navigate to Business Service, and query for the FS Dispatch Board Utils business service.
5. Navigate to Business Service, then Business Service User Prop, and create a new user property for the activity Tooltip as follows:

    a. Enter Pane 2 Tooltip Field *x* as the name of the user property, where *x* is the next available integer in the list of user properties for Tooltip fields.

    > **Note:** Make sure that you enter the next available integer. Do not skip integers.

    b. Enter the business component field as the value of the user property.

    This field appears when users position the mouse pointer over an activity in the Gantt chart.
6. Create a new user property for the employee name Tooltip as follows:

    a. Enter Pane 0 Tooltip Field *x* as the name of the user property, where *x* is the next available integer in the list of user properties for Tooltip fields.

    > **Note:** Make sure that you enter the next available integer. Do not skip integers.

    b. Enter the business component field as the value of the user property.

    This field appears when users position the mouse pointer over an employee name in the Gantt chart.
7. Deliver the changes to the Integration Branch.

Creating a Value for the Tooltip Field

Perform the following procedure to create a value for the new Tooltip field in the list of values for Tooltip fields.

To create a value for the Tooltip field

1. Navigate to the Administration - Data screen, then the List Of Values view.
2. Query for the Type field value of FSDB_TOOLTIP_OBJECTS.
   The current values for Tooltip fields appear.
3. Create a record for the Tooltip field, and enter the field name for the business service in the Language-Independent Code field.

Creating Time Zoom Intervals on the Dispatch Board Gantt Chart

By default, the zoom intervals on the Gantt chart are 1/4, 1/2, 1, 2, and 4. However, dispatchers might have to work with time frames that are larger than these default values. You can configure the zoom intervals to different time spans, making the information appear more compact. For more information about using the time zoom intervals with the Gantt chart, see *Setting User Preferences for the Dispatch Board(End User)*.

To create a time zoom interval on the Dispatch Board Gantt chart, complete the following procedures:

1. *Creating a New Time Zoom Interval*
2. *Configuring the Applet Control and User Properties*
3. *Configuring the JavaScript Files*

This task is a step in *Process of Configuring the Dispatch Board*.

Creating a New Time Zoom Interval

Perform the following procedure to create a new time zoom interval in the list of values for time zoom intervals.

For example, to create custom time zoom interval of 6, 7, 8 hours, the time units to use for these are:

6 hours = "131072", 7 hours = "262144", 8 hours = "524288"

To create a new time zoom interval

1. Navigate to the Administration - Data screen, then the List Of Values view.
2. Query for the Type field value of DISPATCH_BOARD_TIME_UNIT.
   The current values for time zoom intervals appear.
3. Create a record for a time zoom interval.
   For example, create a record for 7 Hours like you did for the existing timescale records.
4. Query the Type field for the following value:
   TNT_SHM_GNTAX_TIME_SCALE
5. Create a record for the new value.
   For example,
   Display Value: Day/Seven-Hour
   Language-Independent Code: 262144 (Highest last value2)

   > **Note:** Siebel Open UI uses the Language-Independent Code field value to identify the time scale that it displays in the Display Value field.

6. Siebel Open UI uses the Language-Independent Code field value to identify the time scale that it displays in the Display Value field.

Configuring the Applet Control and User Properties

Perform the following procedure to configure the applet control and user properties for the new time zoom interval.

For more information about performing configuration tasks with Siebel Tools, see *Using Siebel Tools* .

To configure the applet control and user properties

1. Log in to Siebel Tools or Web Tools as an administrator.
2. Lock the FS Dispatch Board project for editing.
3. In the Object Explorer, navigate to Symbolic String, and create a New Record.

   Create the appropriate Symbolic String for the button caption that you would create in Step 5.

   For example, if the time zoom interval is 7 hours, the values for new Symbolic String will be as following:

   - Name= "SBL_FS_DB_DAY_SEVEN_HOUR"
   - Current String Value=7
   - Project="Symbolic Strings"
   - Type="Conversion"
   - Translate=checked
4. In the Object Explorer, navigate to Applet, and query for the FS Dispatch Board Gantt Applet.
5. Navigate to Applet, then Control, and create a new applet control with the following values:

   Type= MiniButton

   Method Invoked= RefreshGantt

   For example, if the time zoom interval is 7 hours, the values for the new applet control will be as following:

   - Name = 262144
   - Caption = 7
   - Caption String Reference = SBL_FS_DB_DAY_SEVEN_HOUR
   - Caption String Override = 7
   - HTML Display Mode = EncodeData
   - HTML Row Sensitive = Checked
   - HTML Type = MiniButton
   - Method Invoked = RefreshGantt
   - Sort = Checked
   - Text Alignment = Left
   - Visible = Checked
   - Text Alignment Label = Right

   Make sure the button name is a unique ID. You can pattern the name to be consistent with the existing timescales.

6. Move and place the new button to the placeholder for the Time Zoom Interval button. Do the following:
   a. In Web Tools, navigate to Object Explorer, then Applets, and query for FS Dispatch Board Gantt Applet.
   b. Select the pencil icon to edit the Applet web template.
   c. Select option Controls/Columns. You will see the mini button you created in step 5 (minibutton for value 7).
   d. Move and place the new time zoom interval button (minibutton) in the placeholders available in the page.
      For example, place the new timescale of 7 hours at placeholder 349.
      It is recommended to maintain the timescales in ascending order. To meet that, since the timescale 4 hours is at placeholder 349, remove it from 349 and reassign it to placeholder 343. Now assign timescale 7 hours to placeholder 349.
   e. Go to Applet web template Item, query for your item under Control column that is for 262144.
      Make sure there is no value under Expression column (clear the value if it is there one.)
7. Navigate to Applet, then Applet User Prop, and complete the following steps for the new time zoom interval in the format used for existing time zoom intervals.
   a. Query for the SupportedTSMapping user property and add details for the new time zoom interval in the following format:

      ```
      #Major Time Value#Minor Time Value#ID of the time zoom interval#
      ```

      For example, if the new time zoom interval for 7 hours, add the value #Day#7 Hours#262144 in the following way:

      ```
      #Day#7 Hours#262144#Day#4 Hours#1024#Day#2 Hours#512#Day#Hour#4#Day#Half
       Hour#2048#Day#QuarterHour#4096#Week#Day#1#Month#Day#64#Month#Week#32768#Year#Week#16384#Year#Month#8192#
      ```

   b. Query for the DateBar Navigation TS user property and add the ID for the new time zoom interval in the following format:
      For example, if the new time zoom interval is 7 hours, add the ID is 262144:1,7 in the following way:

      ```
      1:7,30;4:1,7;2:1,7;64:30,365;128:7,30;256:1,35;512:1,7;1024:1,7;2048:1,7;4096:1,7;8192:365,365;
       16384:365,365;32768:35,365;262144:1,7;
      ```

   c. Query for AvailabilitySupportedTS and add the new time zoom interval in the following format:
      For example, if the new time zoom interval is 7 hours, add the value #262144 in the following way:

      ```
      #1024#512#4#2048#4096#262144#
      ```

   d. Query for Date Padding for TimeScale LIC and add the new time zoom interval in the following format:
      For example, if the new time zoom interval is 7 hours, add the value 262144:2; in the following way:

      ```
      1:1;2:1;4:2;32:1;64:0;128:1;256:1;512:2;1024:2;2048:2;4096:2;8192:0;16384:0;32768:0;262144:2;
      ```

   e. Query for Duration for TimeScale LIC and add the new time zoom interval in the following format:
      For example, if the new time zoom interval is 7 hours, add the value 262144:1 in the following way:

      ```
      1:7;2:1;4:1;32:36;64:31;128:7;256:31;512:1;1024:1;2048:1;4096:1;8192:365;16384:365;32768:31;262144:1;
      ```

8. In the Object Explorer, navigate to Applet, and query for the User Profile Dispatch Board OUI Applet.

Navigate to Applet, then Applet User Prop, and complete the following steps:

a. Query for the SupportedMajorTS user property, and add the new time zoom interval to the available major time values, if necessary.

   This user property has a default value of #Year#Month#Week#Day#.

b. Query for the SupportedMinorTS:Day user property for a major time value, and add the new time zoom interval to the available minor time values for the major time value.

   For example, if the new time zoom interval is 7 hours, add the value #7 Hours in the following way:

   ```
   #7 Hours#4 Hours#2 Hours#Hour#Half Hour#Quarter Hour#
   ```

9. Deliver the changes to the Integration Branch.

Configuring the JavaScript Files

Perform the following procedure to configure the JavaScript files for the time zoom interval.

To configure the JavaScript files

Perform the following procedure to configure the JavaScript files for the time zoom interval.

1. Navigate to the following directory:

   ```
   AI_INSTALL/applicationcontainer_external/siebelwebroot/scripts/siebel
   ```

   In the siebelconstants.js file, create a constant, and assign the applet control ID that you created in Step 5 in *Creating a new Time Zoom Interval*.
2. You can pattern the constant to be consistent with the SWE_GANTT_DAY_TWOHOUR constant.
3. In the fsdispatchboardpmodel.js file, complete the following steps:
   a. Create a variable inside the fsDispatchBoardPM constructor function, and assign the constant value.
   b. In the "TIMEUNITVALUE" variable inside the fsDispatchBoardPM constructor function, add the time unit value as in the following example:

      TIMEUNITVALUE = {.., 262144: 7 } : for 7 hours time zoom interval where 7 is the time unit value.
   c. Add the new time zoom interval value to timeScaleMap{} map.

      The map key is the LIC (Language-Independent Code) for the time zoom interval in Major Time Value/ Minor Time Value format. The value is the applet control ID that you created in Step 5 in Creating a new Time Zoom Interval.
   d. In the createPeriod() function, create a new case for the time zoom interval under the DAY_HOUR case.

      The case ID is the variable name that you create in the fsDispatchBoardPM constructor function.
   e. Add the time zoom interval check with the OR condition where the calcDayLeft() function is invoked at the end of the createPeriod() function.
4. In the ganttrenderer.js file, complete the following steps:
   a. Create a variable in the GanttRenderer constructor function and assign a constant value.
   b. In the renderTimeScale() function, add the new case for the time zoom interval under the DAY_HOUR case.

      The case ID is the variable name that you create in the GanttRenderer constructor function.

5. In the ganttpmodel.js file, complete the following steps:
    a. Create a variable inside the GanttPresentationModel constructor function and assign the constant value.
    b. Add the following values in the TIMESCALEUNITS and TIMESCALEPERIODS variables in the GanttPresentationModel constructor function.

       For example, if the timescale is 7 hours, then

       ```
       TIMESCALEUNITS = {..., 262144: 1}, TIMESCALEPERIODS = {..., 262144: 0}
       ```

    c. In the getTimeUnits() function, add a new case for the new time zoom interval, and set the unit value for time zoom interval. The case ID is the variable name that you create in the GanttPresentationModel constructor function.
6. Restart the client to view the new time interval on the Dispatch Board.

Enabling Applets for Relocation to the Dispatch Board Gantt Chart

By default, users can relocate only activities in the Unscheduled Activities list to the Gantt chart of the Dispatch Board. However, you can configure additional applets so that users can relocate activities on the other lists to the Gantt chart of the Dispatch Board. The Dispatch Board can include multiple source applets for the *relocate* event. In the following example task, you configure the FS DB Timed Out Activity List Ax Applet to allow users to relocate activities from the Timed Out Activities list to the Gantt chart of the Dispatch Board. For more information about performing configuration tasks with Siebel Tools, see *Using Siebel Tools* .

This task is a step in *Process of Configuring the Dispatch Board*.

To enable applets for relocation to the Dispatch Board Gantt chart

1. Log in to Siebel Tools or Web Tools as an administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. Lock the FS Dispatch Board project for editing.
4. In the Object Explorer, navigate to Applet, and query for the FS DB Timed Out Activity List Ax Applet.
5. Navigate to Applet, then Applet User Prop.
6. Create two new applet user properties, and perform the following steps:
    a. In the Name field for the first user property, enter EnableDragAndDropInList.
    b. In the Value field for the first user property, enter TRUE.
    c. In the Name field for the second user property, enter ClientPMUserProp.
    d. In the Value field for the second user property, enter EnableDragAndDropInList.
7. Deliver the changes to the Integration Branch.
8. Relaunch the client, navigate to the Dispatch Board, and select Timed Out Activities from the visibility filter.

   You are can relocate activities from this list to the Gantt chart of the Dispatch Board.

Adding User Preference Colors to the Dispatch Board Gantt Chart

Applet user properties define the colors on the Gantt chart of the Dispatch Board. You specify the color definitions using hexadecimal format. For more information about performing configuration tasks with Siebel Tools, see *Using Siebel Tools* .

Although you can add new colors for user selection on the Gantt chart of the Dispatch Board, do not change or deactivate the existing colors. The following activity fields determine the colors that appear on the Gantt chart of the Dispatch Board:

- Priority (LOV type: ACTIVITY_PRIORITY)
- Status (LOV type: EVENT_STATUS)
- Type (LOV type: TODO_TYPE)

Note: Do not change or deactivate the values in the LOV types for these activity fields.

This task is a step in *Process of Configuring the Dispatch Board*.

To add a user preference color to the Dispatch Board Gantt chart

1. Log in to Siebel Tools or Web Tools as an administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. Lock the FS Dispatch Board project for editing.
4. In the Object Explorer, navigate to Applet, and query for the FS Dispatch Board Gantt Applet.
5. Navigate to Applet, then Applet User Prop.
6. Create a new applet user property record, and perform the following steps:
   a. In the Name field, enter an appropriate value.

      For example, to add a color named Blue Royal, enter the following in the Name field: #Color#Blue Royal#.
   b. In the Value field, enter the value that corresponds to the hexadecimal value for that color.

      For example, #800000 is the HEX number for a dark blue in BGR format.
7. Deliver the changes to the Integration Branch.
8. Relaunch the client, navigate to the Dispatch Board, click the menu button, and select User Preferences.

   You can select Blue Royal as a color option.

Configuring Colors for Activities on the Dispatch Board Gantt Chart

For activities on the Gantt chart, users can configure the major color scheme, the minor color scheme, and the color of grid objects. In the Dispatch Board view of the User Preferences screen, they can configure color schemes for only the Priority, Status, and Type field values in activity records. For more information, see *Setting User Preferences for the Dispatch Board(End User)*.

You can use Siebel Tools to configure colors for other field values in activity records. Your color configurations override the color configurations that users set up in the User Preferences screen. For more information about performing configuration tasks with Siebel Tools, see *Using Siebel Tools* .

This task is a step in *Process of Configuring the Dispatch Board*.

To configure colors for activities on the Dispatch Board Gantt chart

1. Log in to Siebel Tools or Web Tools as an administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. Lock the FS Dispatch Board project for editing.
4. In the Object Explorer, navigate to Applet, and query for the FS Dispatch Board Gantt Applet.
5. Navigate to Applet, then Applet User Prop, and complete the following steps:
   a. Query for the DispatchBoardColourAttrib1 user property, and change the Value field as follows:
      - To change the major color scheme, change the value to #BGRCLR#Class#.
      - To change the minor color scheme, change the value to #BDRCLR#Class#.
      - To change the color of the grid object, change the value to #TXTCLR#Class#.
   b. Add the following user properties:
      - DispatchBoard_Class_LOVMap with a value of #Research#Follow-Up#Urgent# Outsourced#Customer Retention Activity#Field Engineer Activity#Repair Activity#.

        Each item in this value is a language-independent code for the Type field value of FS_ACTIVITY_CLASS in the List of Values view of the Administration - Data screen.
      - DispatchBoard_Class_ColMap with a value that contains items that designate the colors of the items in the value for the DispatchBoard_Class_LOVMap user property (for example, #Blue#Blue Medium#Blue Light#Blue Dark#Green#Green Light#Gray#).
6. Lock the Activity project for editing.
7. In the Object Explorer, navigate to Business Component, and query for the Action business component.
8. Navigate to Business Component, then Field, and query for the appropriate field as follows:
   a. To change the major color scheme, query for BGRCLRField.
   b. To change the minor color scheme, query for BDRCLRField.
   c. To change the color of the grid object, query for TXTCLRField.
9. Change the Calculated Value field to [Class].
10. Deliver the changes to the Integration Branch.

Changing Colors for Periods on the Dispatch Board Gantt Chart

On the Gantt chart, each of the following periods for an employee appears in a different color:

- Working periods
- Nonworking periods
- Overtime periods
- Extended overtime periods

You can change these colors.

This task is a step in *Process of Configuring the Dispatch Board*.

To change the colors for the periods on the Dispatch Board Gantt chart

1. Navigate to the theme-gray.css file in the following directory:

   ```
   AI_INSTALL\applicationcontainer_external\siebelwebroot\files
   ```

2. Open this file in the CSS (Cascading Style Sheet) editor.
3. Search for the appropriate class as follows:
   - To change the colors for working periods, search for the siebui-taskBoxNormal class.
   - To change the colors for nonworking periods, search for the siebui-taskBoxUnavail class.
   - To change the colors for overtime periods and extended overtime periods, search for the siebui-taskBoxOT class.
4. Change the value of the background-color property to the hexadecimal value of the new color.

Restricting the Displayed Employees on the Dispatch Board Gantt Chart

Users can determine the employees that appear by selecting a service region and entering a date on the Gantt chart of the Dispatch Board. They can also query to filter the list of displayed employees. Administrators can use Siebel Tools to further restrict the employees that users can view on the Gantt chart of the Dispatch Board. For more information about performing configuration tasks with Siebel Tools, see *Using Siebel Tools* .

This task is a step in *Process of Configuring the Dispatch Board*.

To restrict the displayed employees on the Dispatch Board Gantt chart

1. Log in to Siebel Tools or Web Tools as an administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. Lock the FS Dispatch Board project for editing.
4. In Object Explorer, navigate to Applet, and query for the FS Dispatch Board Gantt Applet.
5. Navigate to Applet, then Applet User Prop, and query for the Pane 0 BC Search Spec user property.

   > **Note:** If Applet User Prop is not visible, then navigate to View, then Options, select the Object Explorer tab, and select the Applet User Prop object definition.

6. Define the search specification in the Value field of this user property.
7. Deliver the changes to the Integration Branch.

Configuring the Display of Employees on Dispatch Dashboard Gantt Chart

Users can set the number of employees that display on the Dispatch Dashboard at a time on one page in a service region.

To configure the display of employees on the Dispatch Dashboard

1. Log in to Siebel Tools or Web Tools as an administrator.
2. Create a workspace.
3. Lock the FS Dispatch Board project for editing.
4. In Object Explorer, navigate to Applet, and query for the FS Dispatch Board Gantt Applet.
5. Add the user property EnableWorkSetSizeEmpPerPage in the applet FS Dispatch Board Gantt Applet.

   On setting this user property to True, only ten employees are displayed on the Dispatch Dashboard at once. You can navigate through the employees using the buttons First, Previous, Next and Last.
6. Deliver the changes to the Integration Branch.

Note: Note: This user property is not available by default. When it is not available, employees in the service region display all at once.

Changing Colors for Employee Name Text on the Dispatch Board Gantt Chart

In the preconfigured application, the color of the text for an employee name designates the type of employee (for example, intern, contractor, and employee). For more information, see *Viewing Employee Details in the Dispatch Board Gantt Chart (End User)*.

You can change the colors for employee names and the field that determines these colors. For more information about performing configuration tasks with Siebel Tools, see *Using Siebel Tools* .

To change the colors for employee name text on the Dispatch Board Gantt chart, complete the following procedures:

1. *Create a New Color for the Employee Name Text*.
2. *Add the New Color to the Field on the Business Component*.

This task is a step in *Process of Configuring the Dispatch Board*.

Create a New Color for the Employee Name Text

Perform the following procedure to create a new color for the employee name text.

To create a new color for the employee name text

1. Navigate to the theme-gray.css file in the following directory:

   ```
   AI_INSTALL\applicationcontainer_external\siebelwebroot\files
   ```

2. Open this file in the CSS (Cascading Style Sheet) editor.
3. Search for the siebui-resourcecolor-a class.
4. Copy this class, and name the copy siebui-resourcecolor-d.
5. For the siebui-resourcecolor-d class, change the value of the color property to the hexadecimal value of the new color.

Add the New Color to the Field on the Business Component

Perform the following procedure to add the new color to the field on the business component.

To add the new color to the field on the business component

1. Log in to Siebel Tools or Web Tools as an administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. Lock the Employee project for editing.
4. In Object Explorer, navigate to Business Component, and query for the Employee business component.
5. Navigate to Business Component, then Field, and query for the Status field.
6. Change the Calculated Value field as necessary.

   For example, to designate the new color in the name text of employees that are available for scheduling, change the Calculated Value field as follows:

   ```
   IIf ( [Availability Status] = LookupValue("AVAILABILITY_STATUS",
   "Unavailable"),"resourcecolor-a", IIf ( [Availability Status] =
   LookupValue("AVAILABILITY_STATUS", "Fully Available"),"resourcecolor-b",
   "resourcecolor-d"))
   ```

7. Deliver the changes to the Integration Branch.

Process of Managing the Dispatch Board

The following list shows the tasks that end users typically perform to manage the Dispatch Board. Your company might follow a different process according to its business requirements.

To managing the Dispatch Board, end users perform the following tasks:

- *Setting User Preferences for the Dispatch Board(End User)*
- *Displaying Data in the Dispatch Board Gantt Chart (End User)*
- *Viewing Employee Details in the Dispatch Board Gantt Chart (End User)*
- *Assigning Activities to Field Service Engineers (End User)*
- *Creating Activities from the Dispatch Board (End User)*

Setting User Preferences for the Dispatch Board (End User)

You can set user preferences to control some aspects, such as date and time parameters, color schemes, and display options, for the Dispatch Board. These user preferences are in effect during the current session of Siebel Field Service and when you later access a new session of Siebel Field Service.

This task is a step in *Process of Managing the Dispatch Board*.

To set the user preferences for the Dispatch Board

1. Navigate to the Dispatch Board screen.
2. Click the menu button, and select User Preferences.

   The Dispatch Board view of the User Preferences screen appears.
3. In the Date/Time section of the Dispatch Board form, complete the fields as necessary.

   Some fields are described in the following table.

Field	Comments
Major Time Value	Select the time span (for example, 1 day) that you can view without scrolling on the Gantt chart of the Dispatch Board. Values include Year, Month, Week, and Day.
Minor Time Value	Select the time increments (for example, 24 1-hour slots) of the Major Time Value field. The value in the Major Time Value field determines the values that you can select in this field. Note the following situations: o If you select a value of Year in the Major Time Value field, then you can select a value of Month or Week in this field. o If you select a value of Month in the Major Time Value field, then you can select a value of Week or Day in this field. o If you select a value of Week in the Major Time Value field, then you can select a value of Day in this field. o If you select a value of Day in the Major Time Value field, then you can select a value of 4 Hours, 2 Hours, Hour, Half Hour, or Quarter Hour in this field.
Start Day At	Type the starting time for a workday. The default value is 7:00:00 AM. If you display the time in hour (or shorter) increments on the Gantt chart of the Dispatch Board, then the Start Day At and End Day At fields determine the time period that appears on the Gantt chart and thus the time period when you can schedule activities. If you display time in longer time increments, then this field has no effect. For example, if you display day time increments, then you can schedule activities only at the beginning of the day (12:00 A.M.).
End Day At	Type the ending time for a workday. The default value is 7:00:00 PM.
Days in a Week	Select the number of days that appear in a week on the Gantt chart of the Dispatch Board.
Weekly Start Day	Select the day of a week from which a week begins on the Gantt chart of the Dispatch Board.

4. In the Color section of the Dispatch Board form, complete the fields as necessary.

   The color scheme fields set the colors of the time bars representing activities on the Gantt chart. Some fields are described in the following table.

Field	Comments
Enable Default Colors	Select this check box to indicate the default color scheme overrides the user preferences, and the Grid Object field displays the account name by default.
Activity Priority	Select a corresponding color for each activity priority value.

Field	Comments
Activity Status	Select a corresponding color for each activity status value.
Activity Type	Select a corresponding color for each activity type value. **Note:** When you select the values in the activity fields and the corresponding colors, your selections are automatically saved.
Major Color Scheme	Select an activity field. This field determines the body color of the time bars for that field.
Minor Color Scheme	Select an activity field. This field determines the border color of the time bars for that field.
Grid Object	Select an activity field. This field determines the text that appears on the time bars for that field. When you select the Enable Default Colors field, the Grid Object field displays the account name by default.

5. In the Display Options section of the Dispatch Board form, complete the fields as necessary.

   Some fields are described in the following table.

Field	Comments
Service Region	Select the service region to show on the Gantt chart of the Dispatch Board. If you drill down on the Status field in the Activities List view of the Activities screen, then the service region on the Gantt chart of the Dispatch Board defaults to the Service Region field in the Schedules view of the just-visited activity. If this field contains no data, then the Gantt chart contains no data.
Date Shown	Select the date (or the first date of the date range) to show on the Gantt chart of the Dispatch Board. If you select a value of Today, then the date (or the first date of the date range) on the Gantt chart is today. If you select a value of Last Date Chosen, then the date (or the first date of the date range) on the Gantt chart is the date that displayed when you last accessed the Dispatch Board. If you drill down on the Status field in the Activities List view of the Activities screen, then the date (or the first date of the date range) on the Gantt chart of the Dispatch Board defaults to the field values in the Schedules view of the just-visited activity. This date is the Planned Start date field for the activity. If this field contains no data, then this date is the Earliest Start date field for the activity. If this field contains no data, then this date is the date designated in the user preferences for the Dispatch Board.

Field	Comments
Auto-Update Service Region	Select this check box to indicate the last service region on the Gantt chart appears the next time the user accesses the Dispatch Board screen.
Enable Service Region Constraint on Unplan Activity	Select this check box to indicate only activities for the selected service region appear in the Unscheduled Activities list (instead of all unscheduled activities).
Enable Earliest/Latest Start Violation	Select this check box to indicate the Dispatch Board - Generic workflow determines whether the current time is earlier than the earliest start time for the selected activity, or whether the current time is later than the latest start time for the activity. If the current time violates the earliest or latest time constraints, then the workflow stops.
Load Activity into ABS	Select this check box to indicate the Dispatch Board - Generic workflow loads the activity into the Appointment Booking System cache.

6. In the Travel Time section of the Dispatch Board form, complete the fields as necessary.
Some fields are described in the following table.

Field	Comments
Enable Travel Time Display	Select this check box to display the travel time between appointments on the Gantt chart of the Dispatch Board.
Hatch Pattern Color	Select the color for travel time.

Displaying Data in the Dispatch Board Gantt Chart (End User)

You can display the needed data on the Gantt chart of the Dispatch Board.

When you select a service region that is a parent region, the list of available employees on the Gantt chart includes the following employees:

- Employees of the selected service region.
- Employees of the child service region and all its descendants. For more information, see *Specifying Parent Service Regions*.

Activities appear as horizontal bars on the Gantt chart. You can specify the colors for these horizontal bars in the Dispatch Board view of the User Preferences screen.

If there is a large amount of legacy data, then older activities that users did not schedule using the Dispatch Board can also appear in the list of activities in the Dispatch Board. To make sure that extraneous data does not appear in the list of activities, it is recommended that you display only records that users create after the Dispatch Board installation.

On the Gantt chart, each of the following periods for an employee appears in a different color:

- Working periods
- Nonworking periods
- Overtime periods
- Extended overtime periods

You define these periods for a schedule in the Schedule Hours view in the Schedules view of the Administration - Service screen. You define these periods for an employee by selecting a schedule in the Service Details view in the Employees view of the Administration - User screen. You further define the exception periods for an employee in the Employee Exception Hours view in the Employees view of the Administration - User screen. For information about changing the colors for these time periods, see *Changing Colors for Periods on the Dispatch Board Gantt Chart*.

This task is a step in *Process of Managing the Dispatch Board*.

To display data in the Dispatch Board Gantt chart

1. Navigate to the Dispatch Board screen.
2. To display data on the Gantt chart for a specific service region, perform the following steps:
   a. Click Select Service Region.
   b. In the Pick Service Region dialog box, select a service region, and click OK.

      The employees associated with the selected service region and descendant service regions (child and grandchild service regions) appear on the Gantt chart.
3. To change the number of records that appear on the Gantt chart, click the show more button and the show less button.
4. To further refine the records that appear in the Gantt chart, perform the following steps:
   a. Click Search in the header of the Name field of the Gantt chart.
   b. In the Search pane that appears, enter search criteria for the records that you want to see.
   c. Click Search.

      The records that met the search criteria appear in the Gantt chart.
   d. Click Search again to close the Search pane.
5. To display data on the Gantt chart for a specific date or date range, complete at least one of the following steps:
   - To navigate to a previous date:

     Click the single arrow preceding the Gantt chart date range to navigate to the data for the date range that is immediately before the Gantt chart date range, or click the double arrow preceding the Gantt chart date to navigate to the data for the date range that is exactly one week, month, or year before the Gantt chart date range.

     For example, the major time value is Week, and the minor time value is Day. If the Gantt chart date range is August 6, 2012 - August 12, 2012, and if you click the singe arrow, then the Gantt chart date range changes to July 30, 2012 - August 5, 2012. If the Gantt chart date range is August 6, 2012 - August 12, 2012, and if you click the double arrow, then the Gantt chart date range changes to July 6, 2012 - July 12, 2012.

- To navigate to a date in the future:

  Click the single arrow following the Gantt chart date range to navigate to the data for the date that is immediately after the Gantt chart date, and click the double arrow following the Gantt chart date to navigate to the data for the date that is exactly one week, month, or year after the Gantt chart date.

  For example, the major time value is Week, and the minor time value is Day. If the Gantt chart date range is July 3, 2013 - July 31, 2013, and if you click the singe arrow, then the Gantt chart date range changes to July 31, 2013 - August 28, 2013. If the Gantt chart date range is July 3, 2013 - July 31, 2013, and if you click the double arrow, then the Gantt chart date range changes to July 3, 2014 - July 31, 2014.
- Click the Today button to navigate to the data for the current date.
- Click the calendar select button, and then click a date in the calendar control that appears to navigate to the data for that date.

6. To view more details about an activity, complete one of the following steps:

   - Position the mouse pointer over an activity on the Gantt chart.

     A Tooltip appears.
   - Drilldown on the text in an activity on the Gantt chart.

     The Schedule view in the Activity List view of the Activities screen appears.
   - Drilldown on the Type field for an activity in the Unscheduled Activities list.

     The Schedule view in the Activity List view of the Activities screen appears.

Viewing Employee Details in the Dispatch Board Gantt Chart (End User)

You can view details about the employee names that appear on the Gantt chart of the Dispatch Board.

The color of the text for an employee name designates the type of employee (for example, intern, contractor, and employee). The Employee Type field in the Employees view of the Administration - User screen shows the type of employee. Administrators might set up icons that designate additional information about employees on the Gantt chart of the Dispatch Board. These icons appear next to the employee names. For more information about setting up icons in Gantt charts, see *Configuring Siebel Open UI* .

This task is a step in *Process of Managing the Dispatch Board*.

To view employee details in the Dispatch Board Gantt chart

1. Navigate to the Dispatch Board screen.
2. To view details about an employee, position the mouse pointer over the name of the employee.

3. Select the frame boundary next to the Primary Region field column and without releasing the selection, then move the frame boundary out to display the additional fields on the Gantt chart.

   The fields are described in the following table.

Field	Comments
Availability	Displays information about the availability of the employee. This field is populated when you click the Select Service Region button, and select a service region to populate the Gantt chart with the names of the employees in the selected service region.
Score	Displays a score that indicates the degree to which the skills of each employee match the skills that are required to complete an activity. This field is populated for all employees on the Gantt chart when you select an activity, and click the Assignment Score button. For more information about assignment scores, see *Configuring Assignment Scores for the Dispatch Board Gantt Chart*.
Distance	Displays the distance (in miles) between the employee location and the work site location. This field is populated for all employees on the Gantt chart when you select an activity, and click the Calculate Distance button. A distance of -1 indicates an incomplete or incorrect source or destination address. If the employee is at an activity, then the source address is the ZIP Code of the current activity for the employee. If the employee is in transit, then the source address is the ZIP Code of the previous activity for the employee. Otherwise, the source address is the ZIP Code of the start depot address for the employee. The destination address is the ZIP Code of the contact service location for the activity, unless there are multiple contact service locations. If there are multiple contact service locations, then the destination address is the ZIP Code of the account service location.
Wireless	Displays a value of Y if the wireless device of the selected employee is in the coverage area and a value of N if the wireless device of the selected employee is not in the coverage area. This field is populated only for the selected employee when you select the employee on the Gantt chart, and click the Wireless Coverage button.

4. Click the name of an employee to see information about the employee in the Employees view of the Administration - User screen.

Assigning Activities to Field Service Engineers (End User)

After creating activities and activity plans, local dispatchers who are familiar with their territory and field engineers can schedule activities (assign activities to field service engineers) by using the following screens:

- **Service screen.** For more information, see *Assigning Activities to Field Service Engineers from the Service Screen*.

- **Activities screen (using Assignment Manager).** For more information, see *Assigning Activities to Field Service Engineers with Assignment Manager*.
- **Dispatch Board screen.** For more information, see *Assigning Activities to Field Service Engineers from the Dispatch Board*.

This task is a step in *Process of Managing the Dispatch Board*.

About Using the Dispatch Board to Assign Activities

Note the following information when using the Dispatch Board to assign activities to field service engineers:

- An unlimited number of activities can overlap (apply to the same hours for an field service engineer). All overlapping activities appear on the Gantt chart. Adding multiple activities to a time slot reduces the height of the bar representing the activity and removes the description of the activity.
- You can reassign and reschedule any activity on the Gantt chart. Instead of selecting the appointment and then moving the appointment to a different time on the Gantt chart, click the Book Appointment button if you want to reschedule an appointment. For more information, see *Booking Appointments for Activities Using Siebel Scheduler (End User)* and *About Rescheduling Appointments on the Dispatch Board*.
- You can assign activities to available or unavailable hours in the schedule for a field service engineer.
- You can change the field service engineer who is assigned to an activity from the Unscheduled Activities list or from the Activity List view.
- You can change the duration of an activity from the Unscheduled Activities list or from the Activity List view. You can also change the duration of an activity by selecting the activity bar and then moving the activity bar outwards on the Gantt chart of the Dispatch Board.
- You cannot schedule repeated activities on the Dispatch Board.

Assigning Activities to Field Service Engineers from the Service Screen

You can assign activities to engineers from the Service screen.

To assign an activity to a field service engineer from the Service screen

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Activities view tab.
3. Drill down on the Status field for the selected activity you want to assign.

   The Dispatch Board screen appears. The unscheduled activity list appears after the Gantt chart. The Gantt chart displays the names of field engineers and associated activities, if any.

   > **Note:** The Gantt chart displays only the names of field engineers associated with a selected service region or a service region hierarchy.

4. If no names appear on the Gantt chart, then select a service region for the activity.
5. In the Unscheduled Activities view, select and then move the activity to the schedule of a field service engineer on the Gantt chart.

   The activity appears as a horizontal bar. You can position the mouse pointer over this bar to see a description of the activity.
6. To remove the activity from the schedule, complete one of the following steps:
   - Drill down on the text in the activity on the Gantt chart, and change the Status field value to Unscheduled and the Employees field value to your user ID in the Schedule view in the Activity List view of the Activities screen.

The Status field for the activity changes to a value of Unscheduled, and the Employees field for the activity changes to the value for your user ID.

Assigning Activities to Field Service Engineers with Assignment Manager

You can assign activities to engineers with Assignment Manager.

To assign an activity to a field service engineer with Assignment Manager

1. Navigate to the Activities screen, then the Activities List view.
2. Select an activity.
3. Click the menu button in the activity form, and select Assign.

   A dialog box appears with names of field service engineers ranked in order of preference.

   The suggested assignments are based on a variety of criteria including workload and skills that you set up by using Assignment Manager. For instructions about configuring Assignment Manager, see *Siebel Assignment Manager Administration Guide* .
4. Select the field service engineer to perform the activity, and click OK.

Assigning Activities to Field Service Engineers from the Dispatch Board

You can assign activities to engineers from the Dispatch Board. For more information, see *About Using the Dispatch Board to Assign Activities*.

Note: You can also call Contract Scheduling from the Unscheduled Activities view of the Dispatch Board by clicking the Insert Activity button. For more information, see *About Running Contract Scheduling*.

To assign an activity to a field service engineer from the Dispatch Board

1. Navigate to the Dispatch Board screen.
2. In the Unscheduled Activities view, select an activity.

   Note: To assign an activity, it must have a type.
3. Select and then move the selected activity to the schedule of a field service engineer on the Gantt chart.

   The activity appears as a horizontal bar. You can position the mouse pointer over this bar to see a description of the activity.
4. To remove the activity from the schedule, complete one of the following steps:
   - Drill down on the text in the activity on the Gantt chart, and change the Status field value to Unscheduled and the Employees field value to your user ID in the Schedule view in the Activity List view of the Activities screen.

Creating Activities from the Dispatch Board (End User)

Instead of working with the activities that appear on the Dispatch Board, you can create a new activity while viewing the Dispatch Board.

This task is a step in *Process of Managing the Dispatch Board*.

To create an activity from the Dispatch Board

1. Navigate to the Dispatch Board screen.
2. In the Unscheduled Activities view, create a new activity record, and complete the fields as appropriate.

   Centralized dispatchers can assign and schedule activities after searching for activities in a service region.

11 Siebel Advanced Contracts

Siebel Advanced Contracts

This chapter describes Siebel Advanced Contracts. It includes the following topics:

- *About Siebel Advanced Contracts*
- *Scenario for Using Siebel Advanced Contracts*
- *About Workflows for Siebel Advanced Contracts*
- *Configuring Buttons for Siebel Advanced Contracts*
- *About Using the Task UI Application to Add Assets to Agreements*
- *Scenario for Adding Assets to Agreements with the Task UI Application*
- *Process of Administering Siebel Advanced Contracts*
- *Process of Managing Siebel Advanced Contracts*

About Siebel Advanced Contracts

Contract administrators, account managers, and customer service representatives can use Siebel Advanced Contracts. Agreement data is stored in agreement records that they can create, revise, examine, and print.

Siebel Advanced Contracts includes the following important features:

- Benefits
- Conditions
- Compliance History
- Terms
- Benefit, Condition, and Term Templates

An *agreement* is a document that defines the business relationship between 2 parties. It provides information about obligations to offer, provide, or produce specific products or services over a set period of time for a specific amount of compensation. An *entitlement* is coverage available to the customer under the terms and conditions of the agreement, and a *benefit* is a service or product available to the customer under the terms and conditions of the agreement. Benefits are associated with conditions. A *condition* denotes criteria that determine whether the customer is entitled to the benefit that the agreement defines.

Advanced Contracts are associated with compliance history. *Compliance history* is the detailing of adherence to the terms and conditions of the agreement. Advanced Contracts can include terms. A *term* is language not already included in the agreement.

Common types of agreements are a service agreement and sales agreement. A *service agreement* is a contract for service. For example, a customer purchases a product from an equipment manufacturer. The manufacturer might negotiate a service agreement with the customer providing a special discounted rate for service over a predetermined period of time. A *sales agreement* is a contract that includes special pricing and other benefits when a customer

purchases products. For example, a supply company negotiates a sales agreement with a customer that includes rebates for volume purchases.

Scenario for Using Siebel Advanced Contracts

This topic gives one example of how Siebel Advanced Contracts might be used. You might use Siebel Advanced Contracts differently, depending on your business model.

A contract administrator sets up the templates for entitlements, benefits, conditions, and terms, administers the agreement during its term, and manages its renewal. A customer service representative or account manager negotiates and documents the agreement. Using the entitlement, benefit, condition, and term templates, the customer service representative or account manager creates the draft agreement to represent the negotiated terms and conditions. After negotiation is complete, and all parties approve the agreement, a contract manager makes it active.

A hardware company signs an agreement with a purchasing department of a multinational company. This agreement entitles the department to a 10% rebate for its purchases of a specific product when the volume of product purchases exceeds 3,000 units each quarter.

Independent from this agreement, the contract administrator creates new term templates. He creates a term template stating that the parties use arbitration to resolve disputes. The contract administrator also creates new benefit and condition templates. Users might use a benefit template when creating the agreement for this customer to set up a 10% rebate. The contract administrator can define associated conditions for the benefit template. For the benefit template for the 10% rebate, the contract administrator can add a condition that the benefit applies only when the customer purchases more than 3,000 units of the product in a quarter.

The account manager creates a new agreement in Siebel Field Service and adds the appropriate data. He uses templates to add terms, benefits, and conditions to the agreement, or manually adds this information.

After the agreement is active, the account manage evaluates the conditions governing the benefit, records the compliance to determine whether benefit delivery is appropriate.

About Workflows for Siebel Advanced Contracts

You can create workflows to suit your business model using Siebel Business Process Designer. For more information, see *Siebel Business Process Framework: Workflow Guide* .

Workflows are especially helpful in automating the following agreement-related business processes:

- Routing an agreement for approval.
- Evaluating agreement conditions in real time (for example, when you invoice an order) and at scheduled intervals (for example, at the end of quarter).
- Delivering agreement benefits, if appropriate (for example, creating an invoice for a rebate or creating an order for a give-away).
- Tracking condition compliance.
- Automating agreement renewal.

Configuring Buttons for Siebel Advanced Contracts

You can configure the following buttons for Siebel Advanced Contracts:

- Add Benefits
- Auto Entitlement

Configuring Add Benefits Button

You can configure the Add Benefits button so that the parent entitlement record constrains the available benefit templates. This button is located in the Benefits view in the Entitlements view of the Agreements screen. If you configure the Add Benefits button, then only templates associated with the parent entitlement record appear in the Benefit Template Popup Applet.

If you do not configure this button, then the Benefit Template Popup Applet displays all available benefit templates instead of constraining the list to templates that are associated with the parent entitlement template.

To configure this button, you set the Apply Template user property to Y.

Configuring Auto Entitlement Button

The Auto Entitlement button is located in the Line Items view of the Agreements screen. When you add a line item, you click this button to automatically associate entitlements with the line item by using the entitlement template for the product in the line item. For more information about this button, see *Agreements and Entitlements*.

About Using the Task UI Application to Add Assets to Agreements

Siebel Field Service includes the Assets to Agreement task to streamline the process of adding assets to an agreement. This task is typical for salespeople who sell service agreements that cover existing assets. This repeatable task navigates through screens and views where you can enter multiple records easier and faster than manually navigating through individual screens. For more information about using the Task UI application, see *Siebel Fundamentals* . For more information about customizing, activating, and assigning access privileges for tasks, see *Siebel Business Process Framework: Task UI Guide* .

To use the Assets to Agreements task in the Task UI application, you must activate and assign access privileges for the following tasks:

- FS Asset To Contract Task
- FS Cover Asset SubTask
- FS Submit Agreement SubTask

Scenario for Adding Assets to Agreements with the Task UI Application

This topic gives one example of how to add assets to agreements with the Task UI application. You might add assets to agreements with the Task UI application differently, depending on your business model.

A contract manager for a printer manufacturing company is communicating with a customer for a new support agreement to cover 250 printer assets. The customer is concerned about the ongoing maintenance and repair of printers, the responsiveness of service calls, and how quickly field repairs are performed. The customer requires not only a high availability for printers, but also a competitive price. While the contract manager understands that he wants to deliver a high quality service agreement for the company to make sure the printers are kept working, he also must deliver a profitable service for his own company. Using the Asset to Contract task, he creates a service package, adds several printers to it, quotes a price for the agreement, and creates a charge plan and promotional price discount for the first 6 months. Finally, he submits the agreement for approval before printing it.

Process of Administering Siebel Advanced Contracts

The following list shows the tasks that administrators typically perform to administer Siebel Advanced Contracts. Your company might follow a different process according to its business requirements.

To administer Siebel Advanced Contacts, administrators perform the following tasks:

- *Creating Benefit Templates*
- *Creating Condition Templates*

The administrator also sets up workflows. For more information about workflows, see *About Workflows for Siebel Advanced Contracts*. For more information about other tasks that administrators perform, see *Agreements and Entitlements*.

Creating Benefit Templates

The contract administrator can create templates for new benefits. These benefit templates enable users to more easily add benefits to agreements.

This task is a step in *Process of Administering Siebel Advanced Contracts*.

To create a benefit template

1. Navigate to the Administration - Contracts screen, then the Entitlement Templates view.
2. Select an existing entitlement template, or create a new entitlement template.
3. Click the Benefits view tab to view benefit templates associated with the selected entitlement template.

4. Create a new benefit template record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Priority	Type a value for the priority of the benefit in relation to other benefits.
Name	Type the name of the benefit (for example, Rebate on a product).
Type	Select the type of benefit. Values include Credit and Rebate.
Schedule	Select the benefit schedule. Values include Weekly and Quarterly.
Amount	Type the total amount of the benefit in the unit defined in the U/M field.
U/M	Select the measurement unit for the benefit. Values include Currency and Percent.
Status	Select the current status of the benefit. Values include Active and On Hold.
Action Basis	Select the basis for evaluating or delivering the benefit. For example, if an invoice for a quantity of products initiates the benefit, then the Action Basis field is Invoice.
Action Method	Select the action that the Action Basis field produces. For example, if adjusting the invoice administers an allowance, then the Action Method field is Adjustment.
Current Amount	Type the existing amount of the benefit or the current liability for the benefit. Take into account any past adjustments.
Description	Type a brief description of the benefit.
Benefit Basis	Select the basis for the benefit. This field applies when the benefit amount is variable and calculated using another value. For example, for a 10% of invoice amount, the Benefit Basis field is Invoice Amount.
Benefit Price	Select the price for the benefit. This field applies when the benefit amount is variable and calculated using another value. For example, for a 5% discount, the Benefit Price field is the starting price for Siebel Pricer.
Benefit Constraint	Type the maximum or minimum amount of the benefit calculated using the Benefit Basis and Benefit Price fields.

Field	Comments
Tier	Type the value for the tier of the benefit. Different benefit definitions can apply to different tiers (for example, 10% discount for Tier 1, 15% discount for Tier 2, and so on). The volume of purchases determines the appropriate tier.
Division	Select the division associated with the benefit.
Product Category	Select the product category associated with the benefit.
Product	Select the product associated with the benefit.
Product Class	Select the product class associated with the benefit.
All Products	Select this check box to indicate all products are associated with the benefit.
Level	Select the level associated with the benefit. Values include Account, Agreement, and Entitlement.
Comments	Type additional information related to the benefit.
Reset	Select this check box to indicate the benefit is reset. For example, the benefit is reset, if exhausted, when you renew the agreement or annually.
Conditions Relationship	Select the condition relationship for the benefit. A value of AND indicates all conditions must be met to deliver the benefit. A value of OR indicates only 1 condition must be met to deliver the benefit.
Adjustment Amount	Type the adjustment amount. This field applies when the Action Method field is Adjustment.
Adjustment Currency	Select the currency associated with the Adjustment Amount field.
Adjustment Exchange Date	Select the exchange date for the currency in the Adjustment Currency field.
Product Line	Select the product line associated with the benefit.
Amount Currency	Select the currency when the U/M field is Currency.

Field	Comments
Amount Exchange Date	Select the exchange date for the currency in the Amount Currency field.
Count Method	Select the count method for the benefit. A value of Increment indicates to increment the Current Amount field when you deliver the benefit. This value tracks the amount of delivered benefit. A value of decrement indicates to decrement the Current Amount field when you deliver the benefit. This value tracks the remaining benefit liability.

Creating Condition Templates

The contract administrator can create templates for new conditions. These condition templates enable users to more easily add conditions to benefits in agreements.

This task is a step in *Process of Administering Siebel Advanced Contracts*.

To create a condition template

1. Navigate to the Administration - Contracts screen, then the Entitlement Templates view.
2. Select an existing entitlement template, or create a new entitlement template.
3. Click the Benefits view tab to view benefit templates.
   When you click the Benefits view tab, the Conditions list also appears.
4. Select a benefit record, create a new condition record in the Conditions list, and complete the fields as appropriate.

   Note: You can use AND, OR, and other expressions to define the condition.

   Some fields are described in the following table.

Field	Comments
Order	Type the sequence number of the condition.
Type	Select the condition type. Values include Volume and Growth.
Subtype	Select the condition subtype. Values include Product and Product Line.
Operator	Select the logical operator that defines the condition, for example, when more than 3,000 products are ordered (operator is >), or when membership is Gold (operator is =).
Target Amount	Type the target amount to reach to satisfy the condition.

Field	Comments
Target U/M	Select the measurement unit for the target amount. Values include Currency and Units.
Enforceable	Select this check box to indicate the condition is enforced when determining benefit delivery. You can clear this check box to learn more about the customer so that you can negotiate better agreements in the future without affecting benefit delivery.
Description	Type a brief description of the condition.
Status	Select the status of the condition. Values include Active and Exhausted.
Timing	Select the timing of the condition. For example, if you select Quarterly, then the condition must be met in a single quarter.
Comments	Type additional comments for the condition.
Current Amount	Type the existing amount used to evaluate the condition. For example, for this condition: revenue > $40,000, the Current Amount field tracks the current revenue.
Range	Type a value for the range around the target amount.
Range U/M	Select the unit of measurement for the Range field.
Expression	Type an expression to define complex conditions, such as conditions with logical complexities or complex field combinations.
Adjustment Value	Type the adjustment value. This field adjusts the benefit by using the condition (for example, adjust the benefit to 0% discount).
Adjustment U/M	Select the unit of measurement for the Adjustment Value field.
Mix %	Type the mix percentage. You can use this field to track expected purchases (for example, 20% Product A, 15% Product B, and so on).
Type of Calculation	Select the type of calculation that adjusts the benefit amount.
Tier	Type the value for the tier of the condition. Different conditions can apply to different tiers of customers.

Field	Comments
Product Category	Select the product category associated with the condition. This field applies when you select Product Category in the Subtype field.
Product	Select the product associated with the condition. This field applies when you select Product in the Subtype field.
Product Line	Select the product line associated with the condition. This field applies when you select Product Line in the Subtype field.
Product Class	Select the product class associated with the condition. This field applies when you select Product Class in the Subtype field.
Target Currency	Select the currency for the target amount. This field applies when the Target U/M field is Currency.
Target Exchange Date	Select the exchange date for the target currency. This field applies when the Target U/M field is Currency.
Range Currency	Select the currency for the range amount. This field applies when the Range U/M field is Currency.
Range Exchange Date	Select the exchange date for the range currency. This field applies when the Range U/M is Currency.
Adjustment Currency	Select the currency for the adjustment amount. This field applies when the Adjustment U/M field is Currency.
Adjustment Exchange Date	Select the exchange date for the adjustment currency. This field applies when the Adjustment U/M field is Currency.
Condition Object Name	Select a business object containing the field used to evaluate the condition.
Condition Object Field	Select a field in the business object in the Condition Object Name field. This field is used to evaluate the condition.
Count Method	Select the count method for the condition. A value of Increment indicates to increment the Current Amount field. A value of decrement indicates to decrement the Current Amount field.

Field	Comments

Process of Managing Siebel Advanced Contracts

The following list shows the tasks that end users typically perform to manage Siebel Advanced Contracts. Your company might follow a different process according to its business requirements. For more information about the tasks that end users perform, see *Agreements and Entitlements*.

To manage Siebel Advanced Contracts, end users perform the following tasks:

- *Adding Terms to Agreements (End User)*
- *Adding Benefits to Agreements (End User)*
- *Adding Conditions to Benefits (End User)*
- *Verifying Compliance (End User)*
- *Using the Task UI Application to Add Assets to Agreements (End User)*

Adding Terms to Agreements (End User)

You can add agreement terms to agreements in the following ways:

- Contract administrators can create agreement term templates in the Term Templates view of the Administration - Contracts screen. For more information, see *Creating Term Templates*.

  Users can then add these terms to the agreement in the Terms view in the List view of the Agreements screen.
- Users can create terms directly from the Terms view in the List view of the Agreements screen.

  These terms are included in the final agreement document.

  This task is a step in *Process of Managing Siebel Advanced Contracts*.

To add a term to an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Terms view tab.
3. In the Terms view, complete one of the following steps:
   a. Create a new term record for a term that does not exist in the library of term templates, and complete the fields as appropriate.

      Some fields are described in the following table.

Field	Comments
Section	Type a document section number for the term (for example, 1.1, 1.2, and so on).

Field	Comments
Term Name	Type a representative description for the term (for example, Term Length).
Type	Select the legal type of the term (for example, Standard, Non-Standard, or Special).
Description	Type a description of the actual term to include in the agreement.

b. Add an existing term record to the agreement by clicking Add, selecting a term, and clicking OK.

You can use Ctrl+Click to select multiple terms and Ctrl+A to select all terms in the list.

> **Note:** After you insert the terms into the agreement, you can edit the terms.

Adding Benefits to Agreements (End User)

An account manager can add specific benefits to an agreement. Benefits and conditions are associated with entitlements.

This task is a step in *Process of Managing Siebel Advanced Contracts*.

To add a benefit to an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Entitlements view tab.
3. Select an existing entitlement, or create a new entitlement.
4. Click the Benefits view tab.
5. In the Benefits view, add a benefit from existing benefit templates, or create a new benefit:
   - Click Add Benefits to add a benefit from an existing benefit template.

     > **Note:** You can click Apply Template to constrain the list of benefits by using the selected parent entitlement template.

     Adding an existing benefit from a template with conditions associates both the benefit and the related conditions with the entitlement.
   - Click New to create a new benefit, and complete the fields as appropriate.

   For more information about the fields available in the Benefits view, see *Creating Benefit Templates*.

Adding Conditions to Benefits (End User)

After creating a benefit, the sales representative might have to add conditions to the benefit. You can create many different types of benefits and conditions, such as a rebate when the customer purchases a certain number of products for each quarter. Until that condition is met, the customer does not receive the benefit.

This task is a step in *Process of Managing Siebel Advanced Contracts*.

To add a condition to a benefit

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Entitlements view tab.
3. Select an existing entitlement, or add a new entitlement.
4. Click the Benefits view tab.
5. Select an existing benefit, or add a new benefit.

   The Conditions list appears after the Benefits list.

   Adding an existing benefit from a template with conditions associates both the benefit and related conditions with the entitlement. For more information, see *Adding Benefits to Agreements (End User)*.
6. Create a new condition record, and complete the fields as appropriate.

   Note: You can use AND, OR, and other expressions to define the condition.

   For more information about the fields available in the Condition list, see *Creating Benefit Templates*.

Verifying Compliance (End User)

After adding conditions to the benefits, you can use a workflow to automatically evaluate compliance, or you can manually verify compliance. Use the Compliance list to track compliance to the conditions over time.

This task is a step in *Process of Managing Siebel Advanced Contracts*.

To manually verify compliance

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Entitlements view tab.
3. Click the Benefits view tab.
4. Select the entitlement, benefit, and condition to evaluate.

   The Compliance list appears next to the Conditions list.

5. In the Compliance list, create a new compliance record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Verified	Select the date that you verify compliance. This field is populated with the current date when you create a new record.
Verified By	Select the username of the employee who verifies compliance. This field is populated with your username. You can select a different name.
Actual	Type the actual value used to evaluate the condition. For the condition evaluation, this value is compared to the value in the Target Amount field.
Achieved	Select this check box to indicate the condition is met.
Comments	Type additional comments.
Start Date	Select the start date of the period for the condition evaluation.
End Date	Select the end date of the period for the condition evaluation.

Using the Task UI Application to Add Assets to Agreements (End User)

This topic includes an example procedure with steps that you perform to execute the Assets to Agreements task. For more information, see *About Using the Task UI Application to Add Assets to Agreements*.

This task is a step in *Process of Managing Siebel Advanced Contracts*.

To execute an Assets to Agreements task

1. Navigate to the Assets screen, then the List view.
2. Click Task.
3. In the Task UI pane, click Assets to Agreement.
4. In the Review Address and Details screen, review and adjust any necessary fields.
5. In the Identify Agreement screen, create a new agreement.
6. In the Agreement Details screen, complete or verify the information for the agreement, and click Next.
7. Select a service package to add to the agreement.
8. Verify or change the service agreement details.
9. Decide whether you want to add or remove assets to the service package:

- If yes, then click Next to add or remove assets that the service package covers.
- If no, then click Next to continue in the task.

10. Decide whether you want to add a charge plan to the agreement:
    - If yes, then click Next to enter charge plan details.
    - If no, then click Next to continue in the task.
11. In the Service Package Summary screen, review the details of the package.
12. In the Add Service Package screen, select from the following options:
    - Create new line item
    - Use an existing line item
    - Continue
13. In the Add Agreement Terms screen, create a new record, and query for the appropriate term.
14. In the Submit Agreement for Approval screen, submit the agreement for approval or continue.

    If you submit an agreement for approval, then verify the information on the Agreement Approval History screen.
15. In the Generate Agreement Document screen, click Submit.

12 Charges and Invoices

Charges and Invoices

This chapter describes how to set up and generate charges and invoices for service requests, activities, and agreements. It includes the following topics:

- *About Charges and Invoices*
- *About Lists for Charges and Invoices*
- *About Processing Logic for Generating Invoices*
- *Improving Performance and Scalability of Workflows for Charges*
- *Process of Administering Charges*
- *Process of Administering Invoices*
- *Process of Managing Charges*
- *Process of Managing Invoices*
- *Workflows for Charges and Invoices*

About Charges and Invoices

You can manually or automatically create charges and invoices for service requests, activities, and agreements. For more information, see *About Agreements* and *About Entitlements*.

A *charge* is an expense item. An *invoice* is a bill that summarizes a group of incurred charges, or future charges, during a specific time period. You can consolidate all the charges for an individual account into a single invoice, and then send an invoice to each account.

Charges must be generated before an invoice can be automatically generated, but not before you can manually generate an invoice. You can use a charge consolidation plan to define the parameters for consolidating charges into invoices. After you define the charge consolidation plan, you can use it to automatically generate invoices.

Invoices for activities can include charges for parts, labor, and expenses. Invoices for service requests incorporate orders and the charges for all of the activities related to the service requests. Only records with selected Billable check boxes are automatically added to the invoice.

You can print pro forma invoices onsite for customers, and send them to an accounting application to track accounts receivable and revenue. If an invoice is delinquent, then the Workflow Manager can track it and send automatic reminders to customers or employees.

Each invoice can include the following line items:

- Time and materials
- Miscellaneous expenses and tax
- Nonrecurring charges

- Recurring charges
- Use charges
- Project charges
- Credits or other adjustments

You can integrate Siebel Invoices with third-party applications to manage taxation for entire invoices or for invoice line items. Without tax integration, Siebel Invoices prepares pro forma invoices, statements of work, and reports to customers. You can collect applicable charges and activities to efficiently pass this information to a financial application.

About Lists for Charges and Invoices

You must set up cost, price, and rate lists to correctly create charges and invoices. For more information about these lists, see *Siebel Pricing Administration Guide* .

Cost Lists

Siebel Field Service contains a costing infrastructure that allows users to track the costs when they occur and then to export these costs to financial applications for posting to the general ledger. Service organizations can associate costs with service calls when service engineers perform the service.

Most companies include product cost information in financial applications. Incorporating this information into Siebel Field Service provides the following advantages:

- Costs are associated with service requests and activities when service engineers perform them.
- Costs are associated with orders for profitability analysis.
- Cost lists can have time limits so that they provide an accurate record of costs when they occur.
- Service inventory is created and valued at any time.

Price Lists

Price lists play an important part in charging and invoicing. The price list provides information to the Charge Engine about the price of parts and materials for an activity associated with a service request. Using a service package might adjust the price.

Price lists link cost lists to service requests, orders, and activities. For example, a cost list, North American Costs, includes the costs of products and resources in North America. When a field service engineer selects a price list for a service request, the associated cost list is automatically linked to the service request.

Rate Lists

Rate lists show the billable rate for company employee labor. When creating a rate list, perform the following main tasks:

1. Create and release a new product with the necessary resource name (for example, Field Engineer). Make sure you select the Project Resource check box. Then, add the resource to your rate list with the corresponding rate.

2. Create a new position for the resource product that you create and associate the position with the billing product. You can then enter the users to bill at the newly created rate.

   Tip: The service calendar is used to calculate regular, overtime, and extended overtime charges. To set up schedule hours for employees, use the Schedule Hours view in the Schedules view of the Administration - Service screen. You can then associate the appropriate service calendar with an entitlement in the Entitlement Details view in the Entitlements view in the List view of the Agreements screen. For more information, see *Defining Schedule Hours* and *Adding Service Information to Entitlements (End User)*.

   The entitlement schedule takes precedence over the schedule for the employee.

About Processing Logic for Generating Invoices

Invoices can be generated for service requests, activities, and agreements. For more information about the business service used to consolidate charges for invoice generation, see *FS Generate Conditional Charge Process Business Service*.

This topic contains the following information about the processing logic for generating invoices:

- *Processing Logic for Service Requests*
- *Processing Logic for Activities*
- *Processing Logic for Agreements*

Processing Logic for Service Requests

The Charge Consolidation business service uses the following processing logic for service requests:

1. For a selected service request, find all activity and order records for which the Billable check box is selected.
2. Find the rate and price lists for the items in these records.
3. Calculate the price for each billable item.
4. If an entitlement applies to the service request, then complete the following steps:
   a. Find the price and rate lists associated with the entitlement.
   b. If the Activity Override check box is selected, then recalculate the billable cost for the billable 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 covered activity types.
5. If there is no entitlement, then access the next billable item.
6. If there are no more billable items, then create an invoice.

Processing Logic for Activities

The Charge Consolidation business service uses the following processing logic for activities:

1. For a selected activity, find all expense, time, and part records for which the Billable check box is selected.
2. Find the rate and price list for the activity.
3. Calculate the price for each record.
4. Create an invoice.

Processing Logic for Agreements

To automate the consolidation of agreement charges into invoices, the FS - All Charge Consolidation and FS - Charge Consolidation workflows call the Charge Consolidation business service methods. The following processing logic applies to agreements:

1. Generate a list of the charge consolidation plans.
2. For the first charge consolidation plan, if the Next Invoice Date field is before today, then proceed.
3. Search for charges by using the consolidation rules.
4. Consolidate the charges, and generate the invoice.
5. Set the Last Invoiced field to today, and get the new value in the Next Invoice Date field.
6. Check for additional charge consolidation plans to process.
7. If there is another plan, then repeat Step 1 through Step 6.

The Charge Consolidation business service can generate periodic invoices that include the following types of charges:

- **NRC.** Installment payments for one-time, nonrecurring charges (for example, a one-time fee for service billed in 1 or more installments).
- **RC.** Payment of periodic, recurring charges (for example, a monthly service charge).
- **Usage.** Payments that are 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. For more information about this business service, see *FS Agreement Charge Business Service*.

Processing Logic for NRC Line Items

The Charge Consolidation business service uses the following processing logic for NRC (nonrecurring charge) line items:

1. If there is a previous charge, then find the NRC charged amount. If the NRC amount is greater than or equal to the NRC charged amount plus the next amount to invoice, then proceed.
2. If the charge is the first charge, and if the NRC amount for the line item is greater than zero, then proceed.
3. Calculate the NRC amount for the next charge using the NRC plan, if selected.
4. Create an NRC line item.

Processing Logic for RC Line Items

The Charge Consolidation business service uses the following processing logic for RC (recurring charge) line items:

1. If the recurring charge on the invoice is greater than zero, then proceed.
2. Calculate the RC amount.
3. Create an RC line item.

Processing Logic for Usage Line Items

To generate charges from usage line items, you must first define the asset for the usage measurement. You specify this asset in the Usage Asset number (#) field in the Line Detail view in the Line Items view of the Agreements screen. For accurate billing, the charge schedule must match the measurement frequency of the asset.

If you want to charge for estimated usage, then you must define certain fields in the product measurement record of the product for the asset. For more information, see *Setting Up Use Plans*.

The Charge Consolidation business service uses the following processing logic for usage line items:

1. If there is a previous charge for the use plan of the agreement line item, then find the reading on the last charge.
2. If the charge is the first charge for the use plan, then find the reading closest to the date in the Use Start field.
3. Find the reading closest to the current date or the Advance Invoice date.
4. If there is no new reading after the last charge or the date in the Use Start field, and if the Estimate check box is selected (in the Use Plans view of the Administration - Service screen), then use the calculated average use in the Usage field (in the Measurements view of the Assets screen) as the estimated reading.
5. If a reading is found, then verify the following values for the reading:
    - The Complete check box is selected.
    - The Counter Type field (in the Measurements view in the Service Information view in the Products view of the Administration - Product screen) is set to Incremental or Absolute.
6. If the conditions in Step 5 are satisfied, then calculate the usage.

Processing Logic for Adjustment Line Items

The Charge Consolidation business service uses the following processing logic for adjustment line items:

1. For the charge period and agreement, if any value exists in the Adjustment field, then add a new line item for this amount to the Charges view.
2. Create an adjustment line item in the Charges view.
3. Clear the Adjustment and the Adjustment Reason fields.

Improving Performance and Scalability of Workflows for Charges

The performance of the workflows for charges depends on many variables. These variables include the complexity of the recurring charge (RC), nonrecurring charge (NRC), and usage plans, the number of line items for each agreement, and the number of charges to consolidate. For more information, see *Workflows for Charges and Invoices*.

You can improve the performance of the workflows and the Charge Engine in the following ways:

- For the FS - Generate Agreement Charge workflow, remove some of the charge steps. For example, if you run charges only for agreements that are based on nonrecurring charges and recurring charges, then remove the usage plan subprocess.

- Disable logging.
- Run the processes in parallel. You can run the workflows on different computers or on a multiple processor computer. The performance of the workflows improves if fewer processes are running. For example, run the FS - Generate All Agreement Charges workflow and the FS - All Charge Consolidation workflow in parallel to improve performance.
- Run the search specification of a consolidation rule on an indexed field.
- Make sure that the consolidation rules are not too complex.

Process of Administering Charges

The following list shows the tasks that administrators typically perform to administer charges. Your company might follow a different process according to its business requirements.

To administer charges, administrators perform the following tasks:

- *Setting Up NRC Plans*
- *Setting Up Use Plans*
- *Setting Up Conditional Charge Plans*
- *Defining Contract Schedules*

Setting Up NRC Plans

Nonrecurring charge (NRC) plans are used to define installment plans for payment of one-time charges. For example, a service package includes an initial payment to start the service followed by 12 monthly charges that are billed on the first of the month. You can define this type of charge plan, and create invoices for the monthly billing charges. For more information about how NRC plans are associated with agreement line items, see *Defining Charge Plans for Agreement Line Items (End User)*.

This task is a step in *Process of Administering Charges*.

To set up a NRC plan

1. Navigate to the Administration - Contracts screen, then the Non-Recurring Plans view.
2. Create a new nonrecurring plan record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Active	Select this check box to display the NRC plan as an option in the Charge Plan view in the Line Items view of the Agreements screen.
Commit	Select this check box to convert this record and child records to read-only status. When you select this check box, the Plan Details view becomes read-only. **Note:** To use an NRC plan, it must be active and committed.

Field	Comments

3. Click the Plan Details view tab.
   Each record in the Plan Details view denotes the amount to charge for each installment payment.
4. Create a new plan detail record for each installment, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Number	Type the installment number. For example, the number 4 denotes the fourth installment of the nonrecurring charge.
NRC %	Type the percentage of the NRC total amount to charge for the installment.
Additional %	Type the additional percentage amount to charge for the installment, such as an interest charge.
Additional Charge	Type the additional fixed fee to charge for the installment, such as a service fee.

Setting Up Use Plans

Administrators can set up use plans to create usage-based charges for equipment. For example, the number of documents that are printed on a printer can determine a usage charge.

To set up use plans and the corresponding charges, you must first create a serialized product, create a measurement type for the product, and create a service product. A *service product* is a product sold as a service. You can sell this service independently, package it, or combine it with the physical product. For more information, review the following information:

- For more information about creating service products, see *Defining Service-Based Pricing*.
- For more information about creating measurement types for products, see *Setting Up Measurement Types for Products*.
- For more information about associating use plans with agreement line items, see *Defining Charge Plans for Agreement Line Items (End User)*.

This task is a step in *Process of Administering Charges*.

To set up a use plan

1. Navigate to the Administration - Contracts screen, then the Use Plans view.
2. Create a new use plan record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Name	Type the name of the use plan.
Estimate	Select this check box to indicate usage is estimated if the readings do not apply to the specified billing period. When you select this check box, the information in the Expected Usage field and Use Basis (Days) field is used to estimate usage. If this check box is not selected, and the billing period has incomplete data, then the period is not billed.

3. Click the Plan Details view tab.
4. In the Plan Details view, create a new plan detail record, and complete the fields as appropriate.

   The usage charge is based on asset readings or estimates for this product.
5. Scroll down to the Pricing list, create a new pricing record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
From	Type the lowest value of a measurement for the pricing record.
Units	Select the units for the pricing record. Values include: - **Per Count.** Charges the amount in the Amount field for each unit of measurement (for example, $0.50 for each mile). - **Total.** Charges the amount in the Amount field for the total measurement interval that the From and To fields specify, for example, $15 for 0 to 100 miles (100 total miles).
Rollback	Select this check box to indicate discounted pricing for higher usage. If you select this check box for a tier, then the price for that tier overrides the prices for all lower tiers. For an example of tiered pricing, see *Adding Pricing Information for Use Plans*. In this example, if you select the Rollback check box for the Over 1,000 tier, then all miles are billed at a rate of $0.40 for each mile, if the usage reaches this tier during the time period.

6. Repeat Step 4 and Step 5 for each product in the use plan.
7. In the Plan Details view, and select the Commit check box for each product in the use plan.

   The plan detail records are now read-only, and the associated fields in the Pricing list are now read-only.

Adding Pricing Information for Use Plans

The Pricing list in the Plan Details view in the Use Plans view of the Administration - Contracts screen defines the price structure of each product in a use plan. You enter a record for each range of measurement. The Pricing list allows for tiered pricing. The following table shows an example of tiered pricing.

Measurement Range	Price
0 to 100 miles	$0.25
101 to 500 miles	$0.30
501 to 1,000 miles	$0.35
Over 1,000 miles	$0.40

Note: To set up aggregate and not tiered pricing, select Absolute for the Use Plan Bill Method field. This setting supplies a cumulative reading, starting from the beginning of the plan.

Setting Up Conditional Charge Plans

Siebel Field Service supports termination of an agreement, specifically, the charges involved in such events as the return of products, overflow, and so on. A termination or prorated plan typically covers these types of charges, and you use conditional charge plans to handle these types of charges. For more information about the business service for conditional charges, see *FS Generate Conditional Charge Process Business Service*. For more information about associating conditional charge plans with agreement line items, see *Defining Conditional Charge Plans for Agreement Line Items (End User)*.

This task is a step in *Process of Administering Charges*.

To set up a conditional charge plan

1. Navigate to the Administration - Contracts screen, then the Conditional Charge Plan view.
2. Create a new conditional change plan record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Name	Type the name of the conditional charge plan (for example, Termination Plan).
Schedule	Select a schedule for the conditional charge plan. For more information about creating these schedules, see *Defining Contract Schedules*.
Commit Flag	Select this check box to convert the record to read-only status.

3. Scroll down to the lower Conditional Charge Plan list.
4. Create a new record for each charge installment, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Sequence #	Type a value for the order of the charge installment. You might want to charge more the earlier a customer cancels or changes an agreement.
Percentage	Type the percentage amount to charge for the installment. For example, create 12 installments of 8.33% for each month of a 12-month agreement. If the customer cancels or changes the agreement before this 12-month period expires, then the customer must pay each month 8.33% of the total penalty charge until the agreement terminates.
Additional %	Type the additional percentage amount to charge for the installment, such as an interest charge.
Additional Charge	Type the additional fixed fee to charge for the installment, such as a service fee.

Defining Contract Schedules

You can automatically generate charges according to a fixed schedule by defining 1 or more contract schedules. Then, when defining a charge plan for an agreement line item, you can select the appropriate schedule. On a recurring schedule, an invoice is created from the consolidation of charges. For example, you can schedule product charges to generate on the last day of each month or every Sunday.

This task is a step in *Process of Administering Charges*.

To define a contract schedule

1. Navigate to the Administration - Contracts screen, then the Contract Schedule view.
2. Create a new contract schedule record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Repeat Type	Select a value that determines how often an event occurs. The value that you select in this field determines the available fields in the form that appears after the Contract Schedule list. Values include: - **Daily.** If you select this value, then the Every Number of Days field appears in the form. For example, if you enter 30 in the Every Number of Days field, then the event occurs every 30 days. - **Monthly By Day.** If you select this value, then the Day field and the of Every Number of Months field appear in the form. For example, if you select 5th of Month in the Day field,

Field	Comments
	and enter 6 in the of Every Number of Months field, then the event occurs on the 5th of the month every 6 months. ○ **Monthly By Week.** If you select this value, then 2 fields to designate the day of the week and the of Every Number of Months field appear in the form. For example, if you select Third in the first field, select Wednesday in the second field, and enter 7 in the of Every Number of Months field, then the event occurs the 3rd Wednesday every 7 months. ○ **Weekly.** If you select this value, then the Every Number of Weeks field and check boxes for each day of the week appear. For example, if you enter 2 in the Every Number of Weeks field, and select the check boxes for Mon and Wed, then the event occurs each Monday and Wednesday every 2 weeks. The event occurs at the beginning of the specified day (midnight of the previous day) for the repeat type. Consequently, the charges for the specified day are not included in the consolidation of charges. For example, to consolidate the charges for each month in a calendar year, you create a record with a value of Monthly By Day in the Repeat Type field, select 1st of Month in the Day field, and enter 1 in the of Every Number of Months field. Charges for the previous month are consolidated on the 1st of each month.
Released Flag	Select this check box to indicate the schedule is available for use. After you select this check box, you cannot clear this check box or change the record for the contract schedule, so select this check box only when the record for the contract schedule is complete and correct.

Process of Administering Invoices

The following list shows the tasks that administrators typically perform to administer invoices. Your company might follow a different process according to its business requirements.

To administer invoices, administrators perform the following tasks:

- *Setting Up Auto-Invoice*
- *Creating Charge Consolidation Plans*
- *Consolidating Charges to Generate Customized Invoices*
- *Canceling Charges After Charge Consolidation Completion*

Setting Up Auto-Invoice

Users can use the auto-invoice feature to quickly generate invoices for service requests and activities. To set up the auto-invoice feature, complete the task in this topic.

This task is a step in *Process of Administering Invoices*.

To set up auto-invoice

1. Specify a price list for all of the billable items for an activity.

   The selected price list must include the billable items as products (in the Price List Line Items view in the Price Lists view of the Pricing screen).

2. Make sure that there is a rate list line item (a billing product) for each type of resource (for example, a field service engineer) for an activity.

   You specify the activities rate list in the More Info view of the Activities screen. In the Rate Lists Line Items view in the Rate Lists view of the Pricing screen, you define the resource, rates, and markups.
3. Make sure that the rate types in the Type field are identified for billable expenses and labor (in the Expense Tracker view and Time Tracker view of the Activities screen).
4. Make sure that each user has a position that is associated with a billing product (in the Billing Product field in the Positions view of the Administration - Group screen).
5. Make sure that price and rate lists are defined for activities and that a price list is defined for orders.

   Auto-invoicing uses these lists to determine the total amount to bill to a customer.

Creating Charge Consolidation Plans

You can create customized invoices by creating a charge consolidation plan that searches for and consolidates charges by using predefined criteria, such as account and currency. To automatically generate customized invoices, perform the procedure in this topic, and see *Setting Up Auto-Invoice*.

A charge consolidation plan consolidates all charges for a charge schedule into a single invoice. You can use this plan to define the charges that are included in an invoice for the invoice period. Ideally, when a service package is associated with a charge consolidation plan, a monthly invoice is created for the recurring and nonrecurring charges. For more information, see *About Processing Logic for Generating Invoices* and *FS Charge Consolidation Business Service*.

To specify the charges to include on an invoice for the invoice period, define the following information:

- A schedule that determines when consolidation occurs.
- Consolidation rules that determine the charges that appear on invoices.

  You can restrict the invoice charges to those charges that meet the specified rule criteria. You can consolidate the charges by account name, activity type, agreement, currency code, organization ID, or service request ID. All of the charges applicable to either the activities or the recurring and nonrecurring charges for the agreement are consolidated into a single invoice. This consolidation reduces the requirement for providing multiple invoices to the customer at different billing addresses over a time period.

To use the charge consolidation plan, activate the FS - Charge Consolidation workflow. For more information about activating workflows, see *Siebel Business Process Framework: Workflow Guide* .

This task is a step in *Process of Administering Invoices*.

To create a charge consolidation plan

1. Navigate to the Administration - Contracts screen, then the Charge Consolidation Plans view.
2. Create a new charge consolidation plan record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Start Date	Select the starting date for charges. Charges dated after this date, and before the ending date, are included in the invoice for the charge consolidation plan.

Field	Comments
End Date	Select the ending date for charges. Charges dated after this date are excluded in the invoice for the charge consolidation plan.
Released	Select this check box to release the charge consolidation plan and make it active and available for use.
Last Invoiced	Select the last invoiced date. When a charge consolidation plan is released, the Last Invoiced field value is set to the Start Date field value.
Next Invoice Date	Select the date on the next invoice. When a charge consolidation plan is released, or an invoice is created, this field is recalculated according to the schedule.
Use Bill To Account Flag	Select this check box to create a new invoice for each unique bill-to account on the service request or agreement instead of invoicing the account address.

3. In the More Info view, complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Advance To	Select the date up to which to execute the charge consolidation plan. For example, select the 20th day of the month to create invoices on the 10th of the following month that include charges up to and including the 20th day of the month.
Payment Term	Select the payment term for the charge consolidation plan (for example, Net 30).
Currency Code	Select the currency code of the invoice to create using the charge consolidation plan.

4. Click the Consolidation Rule view tab.
5. Create a new consolidation rule record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Sequence Number	Displays the sequence number of the consolidation rule. This field is not important in the consolidation process because if the consolidation rule contains multiple criteria records, then the records are evaluated using the AND relationship.

Field	Comments
Name	Select the name of the consolidation rule. Typically, this name denotes the charge field for comparison purposes in the rule. You can select Search Spec in this field to define a search specification in the Value field.
Operand	Select the criteria applicable to the field in the Name field. If the rule operand is =, LIKE, or NOT LIKE, then you must enter a value in the Value field.
Value	Type the value to compare with the field in the Name field. If the rule operand is =, LIKE, or NOT LIKE, then you must enter a value in this field.

Consolidating Charges to Generate Customized Invoices

Follow the procedures in this topic to consolidate charges to generate customized invoices.

This task is a step in *Process of Administering Invoices*.

To consolidate charges to generate customized invoices

1. Navigate to the Administration - Contracts screen, then the Charge Consolidation Plans view.
2. Select a charge consolidation plan.
3. In the More Info view, click Execute Now.

   You can also use a repeating component job to consolidate charges to generate customized invoices.

To consolidate charges to generate customized invoices using a repeating component job

1. Navigate to the Administration - Server Management screen, then the Jobs view.
2. In the Jobs list, create a new Job record.
3. In the Component/Job field, select Workflow Process Manager.
4. Enter the appropriate Repeat Interval and Repeat Unit in the Job Details view.
5. Scroll down to the Job Parameters list, and create a new parameter record.
6. In the Name field, select Workflow Process Name, and in the Value field, enter FS - Charge Consolidation or FS - All Charge Consolidation.
7. Click Start in the Jobs list.

Canceling Charges After Charge Consolidation Completion

After the charge consolidation plan runs, and the corresponding invoice is created, you might want to rerun the charge consolidation because of errors or for other reasons. Before you rerun the charge consolidation plan, you must cancel the original charges that were created from the charge consolidation.

This task is a step in *Process of Administering Invoices*.

To cancel charges after charge consolidation completion

1. Log in to Siebel Tools or Web Tools as an administrator (see *Using Siebel Tools*).
2. Create a workspace.
3. Display the Consolidate Flag for the FS Charge business component on the FS Charge Form Applet.
4. Deliver the changes to the Integration Branch.
5. Relaunch the client, and navigate to the Charges screen, and complete the following steps:
    a. Clear the check in the check box for the Consolidate field.
    b. Change the Status field of the charge to Pending.
6. Navigate to the Administration - Contract screen, then the Charge Consolidation Plan view.
7. Change the Next Invoice Date field to the previous schedule date.

Process of Managing Charges

The following list shows the tasks that end users typically perform to manage charges. Your company might follow a different process according to its business requirements.

To manage charges, end users perform the following tasks:

- *Creating Charges Manually (End User)*
- *Creating Charges Automatically (End User)*

Creating Charges Manually (End User)

Follow the procedures in this topic to manually create charges. To manually create charges, no setup is required.

This task is a step in *Process of Managing Charges*.

To manually create a charge

1. Navigate to the Charges screen.
2. Create a new charge record, and complete the fields as appropriate.

You can also manually create charges as follows:

- For service requests in the Charges view in the Service Request List view of the Service screen.
- For activities in Charges view in the Activity List view of the Activities screen.
- For agreement line items in the Charges view in the Line Items view in the List view of the Agreements screen.

To manually create a charge for an agreement line item

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement.
3. In the Line Items view, select a line item.
4. On the link bar, click Charges.
5. Create a new charge record, and complete the fields as appropriate.

Creating Charges Automatically (End User)

Complete the procedures in this topic to automatically create charges.

This topic contains the following information:

- *Creating Charges for Service Requests Automatically*
- *Creating Charges for Activities Automatically*
- *Creating Charges for Agreement Line Items Automatically*

This task is a step in *Process of Managing Charges*.

Creating Charges for Service Requests Automatically

To automatically create charges for a service request, the service request must contain billable data. For more information about recording billable activities and orders for service requests, see *Associating Activities with Service Requests (End User)* and *Creating Orders for Service Requests (End User)*.

To automatically create a charge for a service request

1. Navigate to the Service screen, then the Service Requests List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Charges view tab.
3. Click Auto Charge.

Creating Charges for Activities Automatically

To automatically create charges for an activity, the activity must contain billable data. For more information about recording billable data for activities, see the following information:

- *Recording Expenses for Activities (End User)*
- *Recording Labor for Activities (End User)*
- *Recording Part Movements for Activities (End User)*

If the Entitlement field for the activity contains data, then the following information is used to automatically calculate the charge:

- Data in the fields for records in the Time Tracker view for the activity (except for the Rate field)
- Data in the Rate List field and the Price List field in the More Info view for the activity
- Service hours and metrics for the entitlement (service detail definitions and exceptions) that the administrator sets up in the Administration - Contracts screen
- Schedule hours and exception hours that the administrator sets up in the Schedules view of the Administration - Service screen

If the Entitlement field for the activity does not contain data, then the following information is used to automatically calculate the charge:

- Data in the fields for records in the Time Tracker view for the activity
- Data in the Rate List field and the Price List field in the More Info view for the activity

To automatically create a charge for an activity

1. Navigate to the Activities screen, then the Activity List view.

2. Drill down on the Type field for a selected activity, and click the Charges view tab.
3. Click Auto Charge.

   A charge is automatically generated for the activity if the check box is selected in the Billable field for the activity and if the Rate List field in the More Info view for the activity contains data.

Creating Charges for Agreement Line Items Automatically

You can automatically create charges for agreement line items.

To automatically create a charge for an agreement line item

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement.
3. In the Line Items view, select a line item.
4. On the link bar, click Charges.
5. Click Charge.

Process of Managing Invoices

The following list shows the tasks that end users typically perform to manage invoices. Your company might follow a different process according to its business requirements.

To manage invoices, end users perform the following tasks:

- *Creating Invoices Manually (End User)*
- *Creating Invoices Automatically (End User)*
- *Printing Invoices (End User)*
- *Associating Payments with Invoices (End User)*

Creating Invoices Manually (End User)

Follow the procedures in this topic to manually create invoices.

This task is a step in *Process of Managing Invoices*.

To manually create an invoice

1. Navigate to the Invoices screen.
2. Create a new invoice record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
State	Displays a color-coded bar that represents the state of the invoice. The values in the Status field and Late field determine this state. For more information, see the Bar Appearances for Invoices table.

Field	Comments
Total Due	Displays the total amount due for the invoice. In the Invoice form, click the menu button, and select Refresh Total to update this field. The data in following views for the invoice is used to calculate this total: Line Items, Line Item Details, and Payments.
Late	Displays a check if the current date is past the due date of the invoice. The values in the Invoice Date field in the Invoices view and the Payment Term field in More Info view of the Invoices view determine the due date.

3. Drill down on the Invoice number (#) field for a selected invoice, and click the Line Items view tab.
4. Create a new line item record, and complete the fields as appropriate.

> **CAUTION:** If the amounts recorded for the activity and order do not match the amounts recorded for the invoice line item, then manually associating entered line items with activities or orders can cause data quality issues.

Some fields are described in the following table.

Field	Comments
Order #	Select the number of the order associated with the invoice line item. The Charge Consolidation business service can populate this field value if the Auto Gen feature generated the invoice. For more information, see *Recording Expenses for Activities (End User)*. If an order is associated with a service request, and the user activates the Auto Invoice command for the service request (in the Invoices view in the Service Requests List view of the Service screen), then the order number is populated for the invoice line item.
Activity #	Select the number of the activity associated with the invoice line item. The Charge Consolidation business service can populate this field value.
Project Role	Select the project team associated with the invoice line item.
Agreement Line Item	Select the number of the agreement line item associated with the invoice line item. The Charge Consolidation business service can populate this field value.

5. Click the Line Item Details view tab.

6. In the Details list, create a new line item detail record, and complete the fields as appropriate.

   Note: The Charge Consolidation business service uses the line item details. A manual invoice does not use this data.

   Some fields are described in the following table.

Field	Comments
Expense Item	Select the number the expense item associated with the invoice line item. The Charge Consolidation business service can populate this field value.
Time Item	Select the number of the time item associated with the invoice line item. The Charge Consolidation business service can populate this field value.
Part Movement #	Select the number of the part movement associated with the invoice line item. The Charge Consolidation business service can populate this field value.
Order Line Item ID	Select the number of the order line item associated with the invoice line item. The Charge Consolidation business service can populate this field value.

In the State field of the Invoices screen, a bar indicates the status of the invoice. The following table describes the bar appearance for invoices.

Status Field Value	Amount of Fill When Late	Amount of Fill When Not Late	Color When Late	Color When Not Late
Closed Cancelled Written Off Submitted	100%	100%	Yellow	Gray
New Draft In-Process Consolidated Paid	50%	100%	Red	Green
Prepared Partially Paid Open Billed	75%	75%	Red	Green
Partially Written Off On-Hold Pending Rejected	100%	50%	Red	Green

You can also manually create invoices as follows:

- For service requests in the Invoices view in the Service Request List view of the Service screen.
- For activities in the Invoices view in the Activity List view of the Activities screen.
- For contacts in the Invoices view in the Contacts List view of the Contacts screen.

- For accounts in the Invoices view in the Accounts List view of the Accounts screen.
- For agreement line items in the Invoice view in the Line Items view in the List view of the Agreements screen.

To manually create an invoice for an agreement line item

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field of a selected agreement.
3. In the Line Items view, select a line item.
4. On the link bar, click Invoice.
5. Create a new invoice record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Invoice #	Displays the number of the invoice.
Late	Displays a check if the current date is past the due date of the invoice.

6. If you want to cancel the invoice, then change the Status field to Cancelled.

Creating Invoices Automatically (End User)

Follow the procedures in this topic to automatically create invoices. The Charge Consolidation Engine (Invoice Engine) automatically creates records in the Invoices view when you click the Auto Invoice button or when a workflow calls the engine. The Auto Invoice command executes the following steps:

1. Any billable expenses, time, or parts related to the service request or activity are located.
2. The associated price and rate lists are applied.
3. Invoices for the service request or activity are generated.

The Charge Consolidation business service does not consider entitlements for service. This business service requires the following information to automatically generate an invoice:

- **Billable flags.** Only records for which the Billable check box is selected are included in the invoice.
- **Price list.** You must specify the price list.
- **Product prices.** In the Price List Line Items view in the Price Lists view of the Administration - Pricing screen, billable products must belong to the selected price list.
- **Rate list.** You must specify the rate list for service activities in the More Info view of the Activities screen.
- **Activity prices.** In the Rate List Line Items view in the Rate Lists view of the Administration - Pricing screen, the position (the resource) that performs billable service activities must be associated with the selected rate list.
- **Positions.** You must specify the Billing Product field for the person (the resource on the rate list) providing the service in the Positions view of the Administration - Group screen. This position applies to the employee who is associated with the billable service recorded in the time tracker for the activity and does not apply to the owner of the activity.
- **Rate types.** You must identify the rate types (Rate field) for billable expenses and labor in the Expense Tracker view and the Time Tracker view of the Activities screen.

> **Note:** The Rate field does not appear by default. Click the menu button and select Columns Displayed. In the Columns Displayed dialogue box, move the Rate field from the Available Columns list to the Selected Columns list and click Save.

This task is a step in *Process of Managing Invoices*.

To automatically create an invoice for a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Invoices view tab.
3. Click Auto Invoice.

You can also automatically create invoices for activities.

To automatically create an invoice for an activity

1. Navigate to the Activities screen, then the Activity List view.
2. Make sure that the billable check box is selected for the activity.
3. Drill down on the Type field for a selected activity, and click the Invoices view tab.
4. Click Auto Invoice.

Printing Invoices (End User)

After you generate invoices, you might want to print them.

This task is a step in *Process of Managing Invoices*.

To print an invoice

1. Navigate to the Invoices screen.
2. Select an invoice record.
3. Click Reports.

   The Run Report dialog box appears showing the Customer Invoice report in the Report Name field.
4. Run and print the report.

   For more information about running and printing reports, see *Siebel Reports Guide* .

Associating Payments with Invoices (End User)

After you generate invoices, you can associate payments with them.

This task is a step in *Process of Managing Invoices*.

To associate a payment with an invoice

1. Navigate to the Invoices screen.
2. Drill down on the Invoice number (#) field for a selected invoice, and click the Payments view tab.
3. Create a new payment record, and complete the fields as appropriate.

Some fields are described in the following table.

Field	Comments
Payment #	Select the payment associated with the invoice. You can also create a payment in the Pick Payment dialog box. Payment records can originate from a back-office application.
Reference	Displays a reference number that the customer assigns to the payment.

Workflows for Charges and Invoices

This topic describes the workflows for charges and invoices. Workflows automate the business processes associated with charges and invoices.

You can modify these workflows to suit your own business needs using Siebel Business Process Designer. For more information, see *Siebel Business Process Framework: Workflow Guide* .

> **Tip:** The Invoice Engine business service is deactivated in version 7.7 of Siebel Field Service. Update workflows that reference the Invoice Engine business service to reflect this change. For more information about the business services, see *Business Service Methods for Invoices*.

This topic includes information about the following workflows:

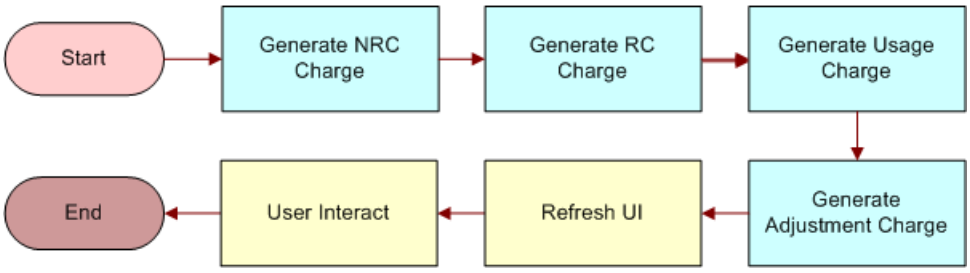
- *FS - Generate Agreement Charge Workflow*
- *FS - Generate All Agreement Charges Workflow*
- *FS - Generate Agreement Charge wo Goto Charges View Workflow*
- *FS - Generate Conditional Charge Process Workflow*
- *FS - Charge Consolidation Workflow*
- *FS - All Charge Consolidation Workflow*

FS - Generate Agreement Charge Workflow

The FS - Generate Agreement Charge workflow automates the process of creating agreement charges. The child workflows in this workflow process all the charges in the charge plan, including recurring charges, nonrecurring charges, usage plan charges, and adjustments. For more information about running the workflow as a batch process without these steps, see *FS - Generate All Agreement Charges Workflow*.

This workflow is called when a user clicks the Charge button.

The following figure shows this workflow.



Workflow Description. This workflow performs the following actions:

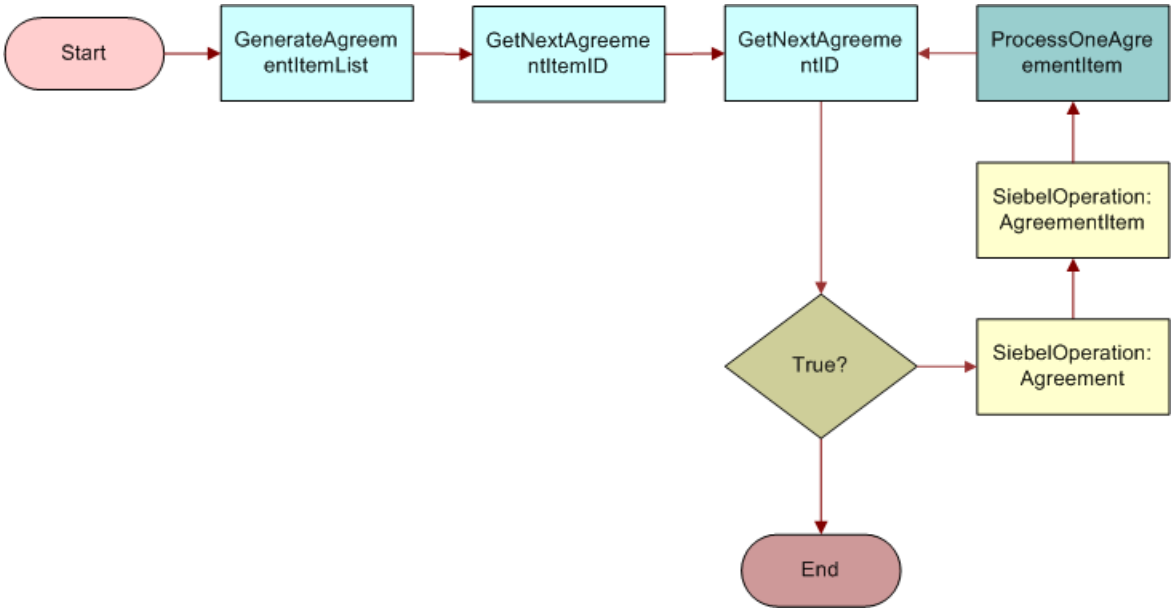
1. **Generate NRC Charge.** This step calls the FS - Generate NRC Charge child workflow that generates nonrecurring charges for an agreement line item. The input date for this workflow is in the local time format. The workflow converts this format to ODBC format (YY-MM-DD). After the nonrecurring charge is generated, the workflow also updates the last-charged date for the nonrecurring charge on the charge plan (the NRC Last Charged Date field on the FS Agreement Item business component).
2. **Generate RC Charge.** This step calls the FS - Generate RC Charge child workflow that generates recurring charges for an agreement line item. The workflow retrieves and converts the asset readings to charge amounts. The input date for this workflow is in the local time format. The workflow converts this format to the ODBC format (YY-MM-DD). After the recurring charge is generated, the workflow also updates the last-charged date for the recurring charge on the charge plan (the RC Last Charged Date field on the FS Agreement Item business component).
3. **Generate Usage Charge.** This step calls the FS - Generate Usage Charge child workflow that generates charges for an agreement line item according to asset usage. The workflow retrieves and converts the asset readings to charge amounts. The input date for this workflow is in the local time format. The workflow converts this format to ODBC format (YY-MM-DD). After the usage charge is generated, the workflow also updates the usage last-charged date on the charge plan (the Usage Last Charged Date field on the FS Agreement Item business component).
4. **Generate Adjustment Charge.** This step calls the FS - Generate Adjustment Charge child workflow that generates adjustment charges for an agreement line item.
5. **Refresh UI** and **User Interact.** These steps redirect the user to the Charges view in the Line Items view in the List view of the Agreements screen.

FS - Generate All Agreement Charges Workflow

The FS - Generate All Agreement Charges workflow automates the process of generating charges from all agreement line items.

You can run this workflow as a batch process.

The following figure shows this workflow.



Workflow Description. This workflow performs the following actions:

1. **GenerateAgreementItemList.** This step generates a list of agreement line items.
2. **GetNextAgreementItemID.** This step retrieves each agreement line item from the list.
3. **GetNextAgreementID.** This step retrieves each agreement from the list. This step calls the FS - Generate Agreement Charge wo Goto Charges View workflow.

   In this subprocess, the user interface steps are removed because the workflow is expected to run as a batch process with little or no intervention from the user.
4. **True?** This step determines whether more agreement line items exist to process. If no more agreement line items exist, then the workflow terminates. If more agreement line items exist, then the workflow continues to the next step.
5. **ProcessOneAgreementItem.** This step actually generates the agreement charge.

Setting the Advance To Date in the Workflow

The workflow retrieves the Advance To date from the object ID of the FS Agreement Item business component that is passed into the workflow. The Advance To field on the business component is a calculated field that defaults to the current date. Typically, this default date is not a problem because most administrators run the job using the job scheduler.

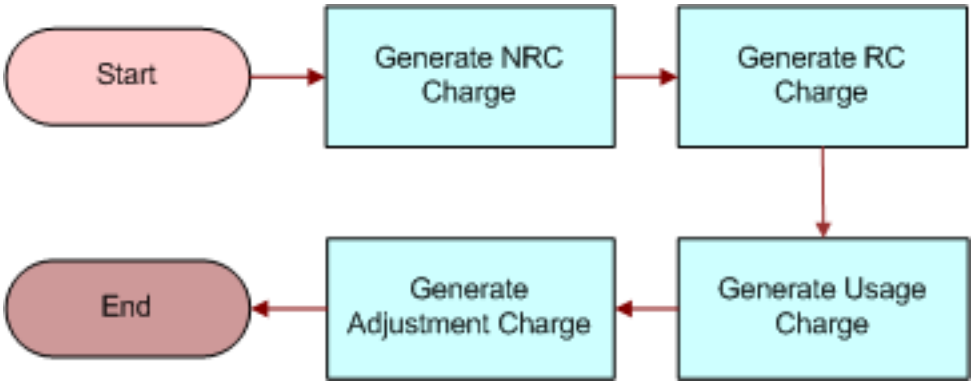
However, if you want to set a different Advance To date, then you can change the calculated field of the business component or edit the input parameters for the workflow so that the Advance To date changes when calling the business services.

FS - Generate Agreement Charge wo Goto Charges View Workflow

The FS - Generate Agreement Charge wo Goto Charges View workflow is the same as the FS - Generate Agreement Charge workflow, except that the final 2 user interface steps are removed so that the workflow can run as a batch process.

You can run this workflow as a batch process.

The following figure shows the FS - Generate Agreement Charge wo Goto Charges View workflow.



Workflow Description. This workflow performs the following actions:

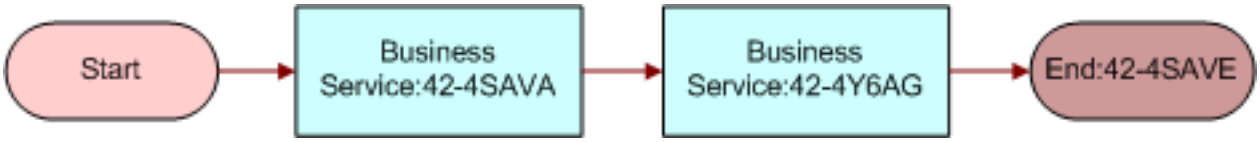
1. **Generate NRC Charge.** This step calls the FS - Generate NRC Charge child workflow that generates nonrecurring charges for an agreement line item. The input date for this workflow is in the local time format. The workflow converts this format to ODBC format (YY-MM-DD). After the nonrecurring charge is generated, the workflow also updates the last-charged date for the nonrecurring charge on the charge plan (the NRC Last Charged Date field on the FS Agreement Item business component).
2. **Generate RC Charge.** This step calls the FS - Generate RC Charge child workflow that generates recurring charges for an agreement line item. The workflow retrieves and converts the asset readings to charge amounts. The input date for this workflow is in the local time format. The workflow converts this format to the ODBC format (YY-MM-DD). After the recurring charge is generated, the workflow also updates the last-charged date for the recurring charge on the charge plan (the RC Last Charged Date field on the FS Agreement Item business component).
3. **Generate Usage Charge.** This step calls the FS - Generate Usage Charge child workflow that generates charges for an agreement line item according to asset usage. The workflow retrieves and converts the asset readings to charge amounts. The input date for this workflow is in the local time format. The workflow converts this format to ODBC format (YY-MM-DD). After the usage charge is generated, the workflow also updates the usage last-charged date on the charge plan (the Usage Last Charged Date field on the FS Agreement Item business component).
4. **Generate Adjustment Charge.** This step calls the FS - Generate Adjustment Charge child workflow that generates adjustment charges for an agreement line item.

FS - Generate Conditional Charge Process Workflow

The FS - Generate Conditional Charge Process workflow creates conditional charges by using the defined rules in the conditional charge plan. For more information about the methods that this workflow calls, see *FS Generate Conditional Charge Process Business Service*.

This workflow is called when the user clicks the Charge button in the Conditional Charges view in the Line Items view in the List view of the Agreements screen.

The following figure shows this workflow.



Workflow Description. This workflow performs the following actions:

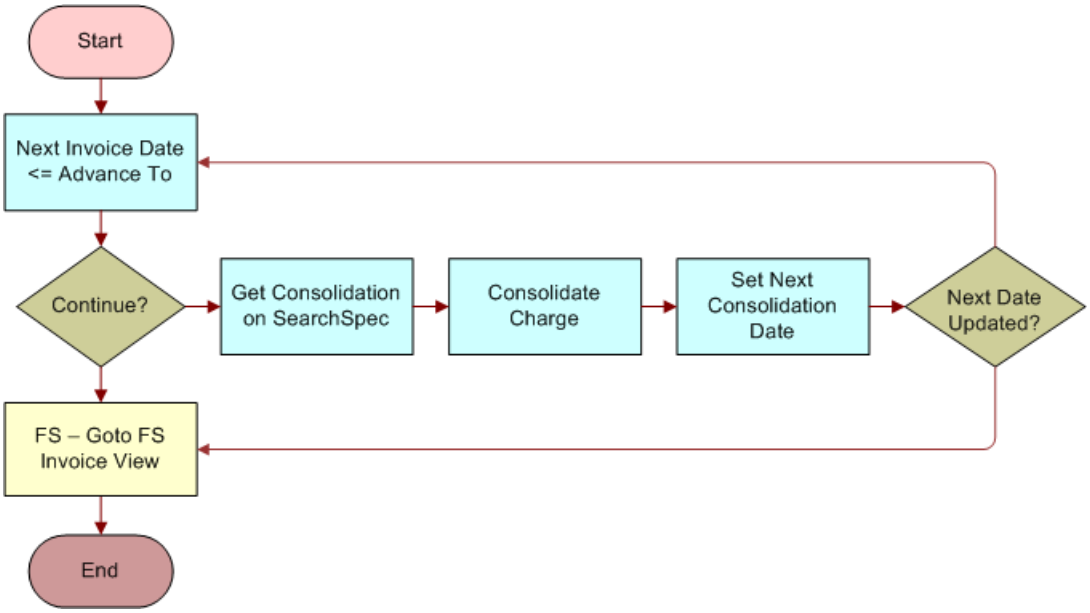
1. **Business Service:42-4SAVA.** This step calls the GetCondCharge method to get the conditional charge for the agreement.
2. **Business Service:42-4Y6AG.** This step calls the GenerateCharge method to use the conditional charge to adjust the charge.

FS - Charge Consolidation Workflow

The FS - Charge Consolidation workflow consolidates the charges in the Charge table by using a defined set of rules in the consolidation plans. For more information about the methods that this workflow calls, see *FS Charge Consolidation Business Service*.

This workflow is called with the user clicks the Execute Now button in the Charge Consolidation Plans view of the Administration - Contracts screen.

The following figure shows this workflow.



Workflow Description. This workflow performs the following actions:

1. **Next Invoice Date <= Advance To.** This step checks to see whether the Next Invoice Date field is earlier than or equal to the Advance To field.
2. **Continue?** This step determines how the workflow continues. If the Next Invoice Date field is later than the Advance To field, then the workflow terminates after navigating to the Invoices screen. If the Next Invoice Date field is earlier than or equal to the Advance To field, then the workflow continues to the next step.
3. **Get Consolidation on SeachSpec.** This step creates a search specification for the FS Charge business component by using the consolidation rules.
4. **Consolidate Charge.** This step consolidates found charges into 1 or more invoices. By default, only a single invoice is created. However, if the Use Bill To Account check box is selected for the consolidation plan, then 1 or

more invoices are generated for each bill-to account for the charges. The charges are consolidated by using a schedule.

5. **Set Next Invoice Date.** This step enters the value in the Next Invoice Date field at the end of each invoice run by using the schedule and the last invoice date.

   > **Note:** By default, the first invoice run on a consolidation sets the last invoice date to the start date of the consolidation plan.

6. **Next Date Updated?** This step determines how the workflow continues. If the Next Invoice Date field is not updated in the previous step, then the workflow terminates after navigating to the Invoices screen. If the Next Invoice Date field is updated in the previous step, then the workflow continues from the beginning.
7. **FS - Goto FS Invoice View.** This step navigates to the Invoices screen. This screen displays only the recently created records.

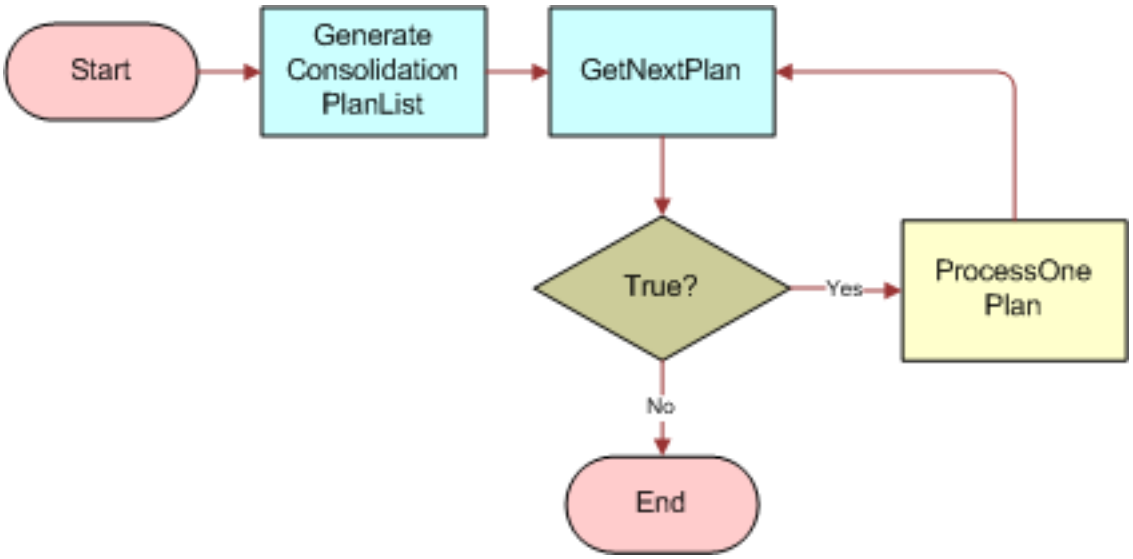
FS - All Charge Consolidation Workflow

The FS - All Charge Consolidation workflow batches consolidation charges.

You can run this workflow as a batch process.

> **Note:** It is recommended that you run the charge consolidation process on the same repeating schedule as the contract schedule created for the charge plans.

The following figure shows this workflow.



Workflow Description. This workflow performs the following actions:

1. **GenerateConsolidationPlanList.** This step generates a list of consolidation plans. The list is generated from the FS Invoice Consolidation Plan business component when the Released field is selected and the Next Invoice Date field is less than or equal to the current date.

2. **GetNextPlan.** This step retrieves each consolidation plan from the list. After retrieval, GetNextPlan passes the consolidation plan ID to the Set Next Consolidation Date subprocess. This subprocess calls the FS - Charge Consolidation wo Goto Invoice View workflow.

   In this subprocess, the user interface steps are removed because the workflow is expected to run as a batch process with little or no intervention from the user. The first step of this subprocess retrieves the consolidation rule from the consolidation plan with the correct plan ID.

   > **CAUTION:** In the repository, the business object property in the FS - Charge Consolidation wo Goto Invoice View workflow is set to FS Invoice Consolidation. Clear this business object property, redeploy the workflow, and test it. If you do not change this object property, then performance issues might result.

3. **True?** This step determines whether more consolidation plans exist to process. If no more consolidation plans exist, then the workflow terminates. If more consolidation plans exist, then the workflow continues to the next step.
4. **ProcessOnePlan.** This step actually runs the consolidate plan. The process then updates the Next Invoice Date field on the FS Invoice Consolidation Plan business component so that the charge consolidation workflow can determine when to next run the plan.

13 Third-Party Invoicing Applications

Third-Party Invoicing Applications

This chapter describes how to set up Siebel Field Service to obtain invoice information from a third-party invoicing application that your company uses. It includes the following topics:

- *About Invoice Integration*
- *Process of Configuring Invoice Integration*

About Invoice Integration

Invoice integration applies to companies that rely on back-office billing and accounting applications to generate invoices for sold products and rendered services. In the business process for invoice retrieval, Siebel Field Service sends the billable source data (billable time, expenses, and materials) to a billing application for invoice processing.

After generating a final customer invoice, the third-party invoicing application can publish the invoice data as an XML file, and pass this file to Siebel Field Service. Siebel Field Service updates the Invoice business object, populates the base tables with the invoice data, and displays the invoice in the Invoices views.

This functionality assists users in answering inquiries from customers about invoices. A user can view a customer invoice in Siebel Field Service without accessing the third-party invoicing application.

To integrate Siebel Field Service with an invoicing application, you use the Siebel Invoice business service, of the Data Synchronization type, and the prebuilt Siebel Invoice Application Services Interface (ASI). For more information about how to configure, use, and modify integrations by using ASIs, see *Siebel Application Services Interface Reference* .

A *bill* is a detailing of accumulated charges over a defined period of time for one or more products or services. A customer receives these products or services and owes your company for them. An *invoice* is a document that shows the balance the customer owes to your company and to other involved parties, such as third-party shippers and government tax bureaus. An invoice includes billing information, taxes, and incidentals. It contains account balance information and shows transactions applicable to balance. It can be associated with one bill or multiple bills.

Process of Configuring Invoice Integration

The following list shows the tasks that administrators typically perform to configure invoice integration. Your company might follow a different process according to its business requirements.

To configure invoice integration, administrators perform the following tasks:

- *Configuring the Web Service*
- *Extending the Data Set*
- *Disabling Invoicing*
- *Customizing Invoicing*

Configuring the Web Service

You use Web services to direct the inbound messages from the third-party invoicing application. Make sure that you correctly configure and activate the Web services. For more information about configuring Web services, see *Siebel Application Services Interface Reference* .

This task is a step in *Process of Configuring Invoice Integration*.

To configure the Web service

1. Navigate to the Administration - Web Services screen, then the Inbound Web Services view.
2. For the selected record, make sure that the values for the Namespace, Name, and Status fields match the values in the following table.

Namespace	Name	Status
http://siebel.com/asi/	Siebel Invoice	Active

3. In the Comments field, enter the type of protocol to call the Siebel Application Interface, and then enter the location of the Siebel Application Interface and the user who is authorized to call the Web service.

Extending the Data Set

You might want to extend the data set by adding more fields to the relevant integration objects. The Siebel data model must support the fields. For more information about how to extend the data that Siebel Field Service receives from the third-party inventory management application, see *Siebel Application Services Interface Reference* .

This task is a step in *Process of Configuring Invoice Integration*.

Disabling Invoicing

You might want to disable the third-party invoicing function if, for example, your company does not use a third-party billing application. In this case, do not publish the ASI. For more information about publishing ASIs, see *Siebel Application Services Interface Reference* .

This task is a step in *Process of Configuring Invoice Integration*.

Customizing Invoicing

You might want to customize the third-party invoicing function to add special functions or additional business processes. For more information about extending the data that Siebel Field Service receives from the third-party invoicing application, see *Siebel Application Services Interface Reference* .

This task is a step in *Process of Configuring Invoice Integration*.

Defining Service Ports

You might want to define service ports different from, or in addition to, the ports in Siebel Field Service. For more information about defining customized service ports, see *Siebel Application Services Interface Reference* .

Creating Workflow Processes

You might want to define workflow processes to automate certain functions associated with third-party invoicing. For more information about creating workflow processes, see *Siebel Business Process Framework: Workflow Guide* .

14 Fulfillment

Fulfillment

This chapter provides information about orders in the Siebel Order Entry module and the Fulfillment and Part Locator Engines (components of the Field Service Logistics Management). It includes the following topics:

- *About Fulfillment*
- *About the Fulfillment Engine*
- *Process of Administering Fulfillment*
- *Process of Managing Fulfillment*

About Fulfillment

Siebel Field Service includes the following methods for automatically filling an order:

- The Fulfillment Engine automatically finds in inventory the products (or substitutes for those products) in the order line items, allocates (or reserves) the products in those line items, and generates pick tickets for those products.
- The Part Locator Engine, a semi-automated version of the Fulfillment Engine, provides the user control over fulfillment of the individual line items in an order. The user can separately complete each of the following automatic tasks for a selected line item:
  - Find in inventory the product (or substitute for the product) in that line item. You use the Locate button or Locate command to complete this task.
  - Allocate (or reserve) the product in that line item. You use the Allocate button or Allocate command to complete this task.
  - Generate a pick ticket for that product. You use the Generate PickTickets command to complete this task.

About the Fulfillment Engine

The Fulfillment Engine automatically finds and allocates (or reserves) the products for a selected order, and creates pick tickets for the order. The engine uses the following information to find a product:

- The distances from the source inventory locations to the order address.
- The priority of an order. Priority can influence fulfillment relationships. For more information about the Order Priority field, see *Defining Relationships Between Inventory Locations (End User)*.
- The types of inventory locations.
- The preferred inventory location for the customer. Each account has a default inventory location.
- The relationships between inventory locations. The engine uses relationships to determine the next location to query if it does not find a product at a location.

- The product information (for example, available substitutes).

  The engine can run from the Siebel Field Service user interface, from Siebel Business Process Designer, or in batch mode using a repeat interval. As a batch process, you can initiate fulfillment 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, immediately for high-priority orders).

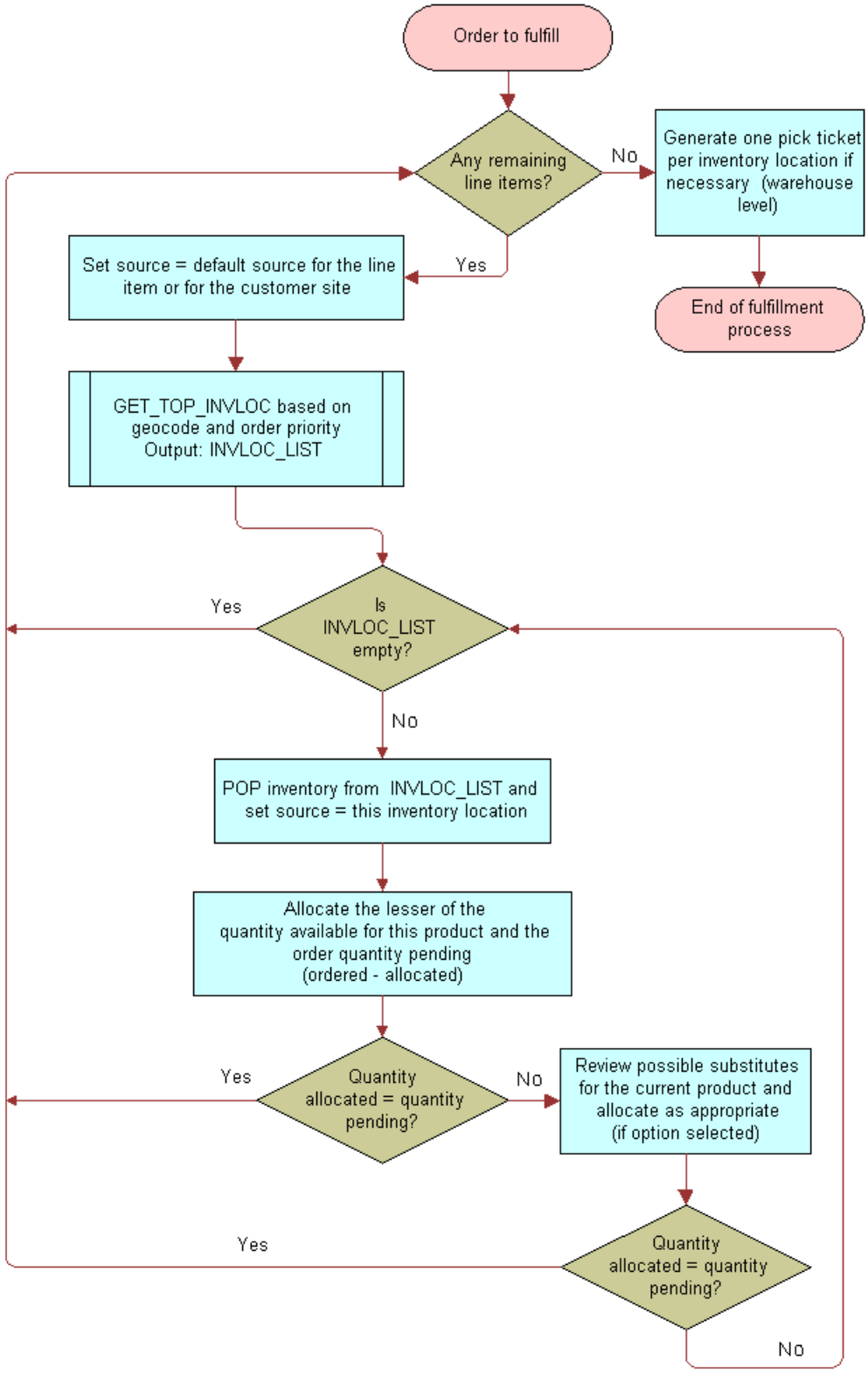
  The engine uses the information in Siebel Field Service to fulfill an order. For example, the engine uses account information to select the default source inventory location if the order and the order line items have no source inventory location. If necessary, the engine uses the substitutes for a product. If the product is out of stock at the warehouse of first choice, then the engine evaluates the fulfillment relationships between inventory locations to determine another warehouse to fulfill the order. For more information, see *Inventory Relationships*.

  The Fulfillment Engine produces the following information:

  - Allocated (or reserved) products for the order.
  - Pick tickets for the products in the order. Employees use pick tickets to pick, pack, and ship the order.
  - Inventory transactions for product allocation.

Note: For the Fulfillment or Part Locator Engines to allocate a product in an order line item from inventory, the product must have an Availability field value of On-Hand for the inventory level.

The following figure shows the process flow for the Fulfillment Engine.



For each order line item to fulfill, the Fulfillment Engine completes the following steps:

1. Sets the source as the default source for the line item or the customer site.

2. Generates a prioritized list of inventory locations by using the distance to the order address, order priority, and warehouse type.
3. If the prioritized list of inventory locations is not empty, then populates inventory from the list and sets the source as the inventory location.
4. Allocates the lesser of the quantity available for the product and the pending order quantity.
5. If the allocated quantity does not equal the pending quantity, then reviews possible substitute products and allocates as appropriate.
6. If the allocated quantity still does not equal the pending quantity, then sets the source as the next source for the order priority.
7. If there is a next source, then repeats Step 2 through Step 6. If there is no next source, then starts again at Step 1.
8. When no line items remain for fulfillment, generates a pick ticket for each selected inventory location.

Product Searches for Fulfillment

When fulfilling an order, the Fulfillment Engine looks for products in the following sequence:

1. The source inventory location, if any, in the Line Details view in the Line Items view of the Service Orders screen.
2. The source inventory location in the Fulfillment view of the Service Orders screen. This location might be different from the source location in the Line Details view.
3. The inventory location, if any, in the Accounts screen.
4. The value in the SysPref_DefaultFulfillInvLoc server component parameter. For more information, see *Component Parameters for the Fulfillment and Part Locator Engines*.

Pick Ticket Generation

The Generate PickTickets command in the Service Orders screen creates a pick ticket record. The processing logic for the command follows:

- For each order line item action of the Allocate type, when the product is not on a pick ticket (when the Shipment number field is blank in the Actions view in the Line Items view in the List view of the Service Orders screen), the Generate PickTickets function tries to create a valid pick ticket (a new row in table S_SHIPMENT) by reviewing the source inventory for the allocation.

  If the source inventory is not the type in the InventoryTypeForPT system preference, then the Generate PickTickets function tries to find a parent inventory for the source inventory with the type in the InventoryTypeForPT system preference. (The default value for this system preference is Warehouse.) If a parent inventory is found, then a pick ticket record for this location is generated. For other line item actions with the same source, the same pick ticket applies. A new pick ticket is generated only when the sources are different.
- The Generate PickTickets function associates the line item action to the pick ticket by updating the Shipment number field.

You can process pick tickets in the Shipments view of the Shipments screen.

Part Locator Engine

The Part Locator Engine provides for semi-automated fulfillment of the line items in an order. This engine analyzes orders, locates products for each line item, and returns the located products (or substitute products). The user can manually allocate (or reserve) these products and generate the pick tickets.

For example, a customer service representative receives a service request that requires shipping a product. The representative creates an order, selects a line item in the order, and clicks Locate for the line item. Using the configuration parameters, the Part Locator Engine browses various inventory locations and provides sources for order fulfillment.

The Part Locator Engine follows the fulfillment process in the figure in *About the Fulfillment Engine*, and uses the same parameters for the fulfillment process. This engine, unlike the Fulfillment Engine, cannot run asynchronously. When you initiate a product search by clicking the Locate button, Siebel Field Service is unavailable for other operations.

Component Parameters for the Fulfillment and Part Locator Engines

Component parameters for the engines in Siebel Field Service determine the behavior of each engine. Changing the values of these component parameters changes the default behavior of the engine. To implement changes to component parameters, restart the Field Service server. For more information about changing the values of component parameters, see *Siebel System Administration Guide* .

The following table describes these component parameters for the Fulfillment Engine and Part Locator Engine.

Component Parameter	Default Value	Description
SysPref_DefaultFulfillInvLoc	SFO	Specifies the default inventory location to use as a source inventory location. The engines use this default value as the source inventory location if the user does not specify the source inventory location at run time. The value must be the row ID of the service inventory location. To see this ID, select an inventory location in any Service Inventory view, and then select About Record from the Help menu.
SysPref_OrderItemStatusToBeFulfilled	Open, New, Pending	Specifies the valid values for the order item status. The values come from the Order Item Status LOV, and the individual values are LIVs.
SysPref_OrderStatusToBeFulfilled	Open, New, Pending	Specifies the valid values for the order status. The values come from the Order Status LOV, and individual values are any of the LIVs.
SysPref_OrderTypeToBeFulfilled	Service Order, Internal Order, RMA Advance Exchange	Specifies the valid values for the order type. The values come from the Order Type LOV, and individual values are any of the LIVs.

Component Parameter	Default Value	Description
SysPref_Fulfill-SearchAllSublevels	TRUE	Specifies whether child locations are searched. Values include: • **TRUE.** Search the specified inventory location and all of its child inventory locations that sublevel relationships specify. • **FALSE.** Search the specified inventory location and all of its fulfillment hierarchy locations, but *not* the child inventory locations that sublevel relationships specify.
SysPref_InventoryTypeForPT	Warehouse	Specifies the inventory location type for generating pick tickets. The values come from the Inventory Location Type LOV, and individual values are any of the LIVs.
SysPref_AllocationRule	1	Specifies the rules for substitution. Values include: • **1.** Always allocate a substitute before attempting to find the product at the next inventory location. • **2.** Allocate a substitute only if shipment from a single inventory location is allowed. • **3.** Never allocate a substitute if the exact product is found in another inventory location.

Substitution and Allocation Options

The Fulfillment Engine uses the following inventory-specific fields for substitution and allocation:

- **Auto Allocate.** If you select the check box in this field, then the Fulfillment Engine can allocate the product.
- **Auto Substitute.** If you select the check box in this field, then the Fulfillment Engine can substitute another product when the product is unavailable in inventory.
- **Allocate Below Safety.** If you select the check box in this field, then the Fulfillment Engine allocates from the available quantity even if the allocation creates available stock that is below the safety level. If you do not select the check box in this field, then any allocation that can create available stock that is below the safety level is not completed.

You can set allocation and substitution options for the following information:

- **Products.** For more information, see *Setting Up Product Fulfillment*.
- **Inventory types.** For more information, see *Setting Up Product Fulfillment*.
- **Inventory locations.** For more information, see *Adding Products to Inventory Locations (End User)*.

  For products, the attribute values are Yes or No. But for inventory types or inventory locations, the attribute values are Yes, No, or Default. A Yes or No value means override the value for the product and use this value. A Default value means use the value for the product.

Conditions for Auto-Substitution

If the Fulfillment Engine is running and any of the conditions in this topic is met, then the Fulfillment Engine attempts to allocate a substitute product from the inventory sublevel, then from the parent inventory, and then from the fulfillment center using the order priority.

The following conditions must apply for auto-substitution to occur during fulfillment:

- The Inventory Location and Product 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 order line item exists.
- The value for the AllocationRule system preference is 1. For more information, see *Component Parameters for the Fulfillment and Part Locator Engines*.

> **Note:** FS_PROD_ALLOC_RULES can have values of Yes, No, and Default. Administrators can specify these values in the List of Values view of the Administration - Data screen. These values are *not* related to the AllocationRule values.

After an internal order for a substitute is automatically generated to replenish a product that has an inventory amount below its minimum quantity, internal orders for the substitute continue to automatically generate because the inventory amount of the product remains below its minimum quantity. Consequently, auto-substitution is not supported for internal orders.

Parameters for the Fulfillment and Part Locator Engines

By specifying input parameters for the Fulfillment and Part Locator Engines, an administrator can define the processing for a specific set of orders (using order search specifications), for a single order (using the order ID), and for a single order line item (using the line item ID). The following table describes the parameters for the Fulfillment and Part Locator Engines.

Parameter	Value	Description
InputMode	ORDERSEARCHSPEC	Specifies the WHERE clause to set up criteria and fulfill the orders that meet that criteria.
	ORDERID	Specifies the single order ID to fulfill. The engine fulfills the specified order.
	LINEITEMID	Specifies the single order line item ID to fulfill. The engine fulfills the specified order line item.
	TEMPTABLE	Places all required parameters into a temporary table with a temporary Client Request ID and passes that ID to the server to retrieve the parameters from Temp Table.

Parameter	Value	Description
		Note: Do not run component jobs in TEMPTABLE mode to call the Fulfillment and Part Locator Engines. This mode is reserved for interactive engine jobs sent directly from a client application.
ClientReqId	A row ID for retrieving line items input from the temporary table	This parameter is required when the InputMode parameter is TEMPTABLE.
RowId	A row ID of a single order to fulfill or a single order line item to fulfill	This parameter is required when the InputMode parameter is ORDERID or LINEITEMID.
OrderSearchSpec	Where Clause	This parameter is required when the InputMode parameter is ORDERSEARCHSPEC.

Methods for Starting the Fulfillment Engine

The Fulfillment Engine applies to the FS Fulfillment Service business service, and the Part Locator Engine applies to the FS Part Locator Service business service. For more information, see *FS Fulfillment Service Business Service* and *FS Part Locator Service Business Service*.

Start the Fulfillment Engine in the following ways:

- Use the Workflow Manager.
- Use component jobs.
- Select the Fulfill or Fulfill All command after selecting 1 or more order line items.
- Select the Locate or Locate All command.

Process of Administering Fulfillment

The following list shows the tasks that administrators typically perform to administer fulfillment. Your company might follow a different process according to its business requirements.

To administer fulfillment, administrators perform the following tasks:

- *Setting Component Job Parameters for the Fulfillment and Part Locator Engines*
- *Setting Up Product Fulfillment*
- *Setting Up Processing for Orders*

Setting Component Job Parameters for the Fulfillment and Part Locator Engines

Follow the procedure in this topic to set the component job parameters for the Fulfillment and Part Locator Engines. For more information about server components and component parameters, see *Siebel System Administration Guide* .

This task is a step in *Process of Administering Fulfillment*.

To set the component job parameters for the Fulfillment and Part Locator Engine

1. Navigate to the Administration - Server Management screen, Jobs, then the Job Detail view.
2. Create or edit a component job for one of the following server components:
   - Service Order Fulfillment Engine (alias FSFulfill)
   - Service Order Part Locator Engine (alias FSLocate)
3. Add or modify the server component parameters, as needed.

   For information about the applicable parameters, see the previous table.

Setting Up Product Fulfillment

To set up product fulfillment, you add information about fulfillment, inventory options, and substitute products to the Service Information view in the Products view of the Administration - Product screen. Users can view this information in the Service Details view of the Products screen.

This task is a step in *Process of Administering Fulfillment*.

To set up product fulfillment

1. Navigate to the Administration - Product screen, then the Products view.
2. Create or select a product record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Equivalent Product	Select equivalent products for the product. The Fulfillment Engine uses the values in this field if a specified product is unavailable. The values in this field are the same as the substitute products that you can specify in Step 6.
Orderable	Select this check box to indicate you can obtain the product by ordering from any specified source. If you cannot order the product, then it does not appear in the Pick Product dialog box. This dialog box includes values for the Product field in the Line Items view in the List view of the Service Orders screen.

Field	Comments
Service Product	Select this check box to indicate the product is a service product and can have special pricing. For more information about pricing and product administration, see *Siebel Pricing Administration Guide* and *Siebel Product Administration Guide* . When you select this check box, the Part Locator Engine cannot allocate parts for the product. To allow the Part Locator Engine to allocate parts for the product, clear this check box.

3. Click the Service Information view tab.
4. On the link bar, click Fulfillment, and complete the fields as appropriate.

> **Note:** If you change the check boxes for the Allocate Below Safety, Auto Allocate, or Auto Substitute fields in the Fulfillment view, then you must restart the Part Locator and Fulfillment Server components. (You do not have to restart the entire server.) If you do not restart these components, then the product attribute settings in the Part Locator Engine and the Fulfillment Engine are not reset. For more information about how to restart server components, see *Siebel System Administration Guide* .

Some fields are described in the following table.

Field	Comments
Lead Time	Type the waiting time (in minutes) for the product to arrive from a source. You want to order the product with enough lead time to serve the customer.
Ship Via	Select the default mode of transportation for the product. Values include Air, Ground, and Sea.
Ship Carrier	Select the default carrier for the product. Values include UPS and FedEx.
Auto Allocate	Select this check box to indicate the Fulfillment and Part Locator Engines can allocate the product. If this check box is not selected, then the engines do not allocate the product.
Auto Substitute	Select this check box to indicate the Fulfillment and Part Locator Engines can substitute another product when the product is unavailable in inventory.
Allocate Below Safety	Select this check box to indicate the Fulfillment and Part Locator Engines can allocate the product when its level in inventory is below the safety level. You set the safety level in the Product Inventory view of the Inventory screen.
Serialized	Select this check box to indicate the product and all of its assets are serialized. Siebel Field Service handles serialized products differently from nonserialized products. When you ship or receive a serialized product, the correct number of assets with serial numbers must exist in Siebel Field Service. For example, if you ship or receive 4 serialized hard drives, then 4 serialized assets must exist in Siebel Field Service.

Field	Comments
Tool	Select this check box to indicate the item is a tool that field service engineers use in service tasks. This field is for information only, and does not affect other fields or functions.
Field Replaceable	Select this check box to indicate you can replace the product at the customer site. This field is for information only, and does not affect other fields or functions.
Return Defective	Select this check box to indicate you return a defective product to the service center. This field is for information only, and does not affect other fields or functions.
Revision	Select the current version of the product. This field is copied to new asset records.
Status	Select the status of a product. Values include Production, Obsolete, and Prototype. This field is copied to new asset records.
MTTR	Type the mean time to repair the product. This field is a measure of the time required to repair the product.
MTBF	Type the mean time between product failures. This field is a measure of the dependability of the product.

5. In the Inventory Options list, create a new record for each type of inventory from which to allocate the product, and complete the fields as appropriate.

> **Note:** Cycle counting and replenishment use the Class ABC and Class XYZ fields in the Inventory Options list. For more information about these fields, see *Defining Cycle Counting Classes for Products*.

Some field are described in the following table.

Field	Comments
Inventory Type	Select the location type for the inventory.
Auto Allocate	Select a value in this field. When you select Yes, the Fulfillment Engine can automatically allocate a product from the location type. When you select Default, the engine uses the Auto Allocate field setting (in the Fulfillment view) for the product at all inventory locations. This setting does not affect replenishment.
Allocate Below Safety	Select a value in this field. When you select Yes, the Fulfillment Engine can automatically allocate a product from the location type when the quantity falls below the safe level. When you

Field	Comments
	select Default, the engine uses the Allocate Below Safety field setting (in the Fulfillment view) for the product at all inventory locations. This setting does not affect replenishment.
Auto Substitute	Select a value in this field. When you select Yes, the Fulfillment Engine can substitute another product when the product is unavailable in inventory. When you select Default, the engine uses the Auto Substitute setting (in the Fulfillment view) for the product at all inventory locations. This setting does not affect replenishment.

6. If you select the check box for the Auto Substitute field, then add the substitute products in the Substitute Products list.

> **Note:** Substitutions are unidirectional. Product A can substitute for product B, but B cannot substitute for A unless you explicitly define that substitution.

Setting Up Processing for Orders

You can set up processing for orders. The procedures in this topic make available from a predefined list the types of orders that appear in order-related views. After you add new types of orders and order actions, you must customize the processing that must occur when users select these new types and actions.

> **CAUTION:** Do not delete types of orders or order actions because the associated ROW_IDs provide values for other tables in orders. To change or replace these entries, modify the List of Values (LOV) for the entry, and then update (do not delete and re-add) the entry.

This topic contains the following related information:

- *Defining Actions for Orders*
- *Defining Types of Orders*

This task is a step in *Process of Administering Fulfillment*.

Defining Actions for Orders

Order actions process orders. These actions indicate the product is reserved for an order line item (Allocate action), is substituted with another product (Substitute action), is shipped (Ship action), and so on. In the Order Actions view, you define the actions for a type of order. You set the order action values that are available in this view in the List of Values view of the Administration - Data screen.

To define an action for an order

1. Navigate to the Administration - Data screen, Orders, and then the Order Actions view.
2. Create a new order action record, and complete the fields as appropriate.

Defining Types of Orders

Types of orders (for example, Internal Order, Service Order, RMA Return, and so on) define the classes of orders that Siebel Field Service processes. Types of orders are associated with order actions. Order actions are associated with inventory transactions. For more information about inventory transactions, see *About Inventory Transactions*.

For example, an order type of Purchase Order is associated with an order action of Receive in the preconfigured Siebel Field Service application. An order action of Receive is associated with the following inventory transactions: Receive From TP, Receive Internal, and Receive Other. Also for example, an order type of Internal Order is associated with an order action of Allocate (and with other order actions) in the preconfigured Siebel Field Service application. An order action of Allocate is associated with the Allocate inventory transaction. Inventory transactions that you manually create are not associated with an order type.

If you create a custom order type that you want include in shipment and receipt processing, then associate that order type with the Ship order action, the Receive order action, or another order action that is associated with an inventory transaction that is part of shipment and receipt processing. For more information about shipment processing, see *About Shipping Orders*. For more information about receipt processing, see *About Receiving Orders*.

In the Order Types view, you define the types of orders. You set the order type values that are available in this view in the List of Values view of the Administration - Data screen.

The Type Code field determines whether an order is a sales or service order.

To define a type of order

1. Navigate to the Administration - Data screen, Orders, and then the Order Types view.
2. Create a new order type record, and complete the fields as appropriate.

Process of Managing Fulfillment

The following list shows the tasks that end users typically perform to manage fulfillment. Your company might follow a different process according to its business requirements.

To manage fulfillment, end users perform the following tasks:

- *Setting Up the Fulfillment and Part Locator Engines (End User)*
- *Adding Details to Order Line Items (End User)*
- *Fulfilling Orders Using the Fulfillment Engine (End User)*
- *Allocating and De-Allocating Products Manually (End User)*
- *Locating and Allocating Products Using the Part Locator Engine (End User)*
- *Generating Pick Tickets for Orders (End User)*

Setting Up the Fulfillment and Part Locator Engines (End User)

You can set up asynchronous or synchronous operation of the Fulfillment and Part Locator Engines. For more information about synchronous and asynchronous processing, see *Siebel Application Services Interface Reference* .

Note: In synchronous processing, the client screen can lock, and you see a blank screen.

This task is a step in *Process of Managing Fulfillment*.

To set up the Fulfillment and Part Locator Engine

1. From the application-level menu, select Tools, then User Preferences.

   The User Preferences screen appears.
2. On the link bar, click Service.

   The Field Service form appears.
3. In the Asynchronous Fulfillment of section, complete one of the following steps:
   - To set asynchronous operation, select the Orders check box.
   - To set synchronous operation, clear the Orders check box.

Adding Details to Order Line Items (End User)

Before you fulfill an order, you might want to add details to the order line items.

The Qty field for order line items must be an integer. Administrators can change the unit of measure for a product to an integer value. For example, they can add a value of Milliliter to the LOV type of UNIT_OF_MEASURE so that users can use this unit of measure for liquid products.

> **Note:** The Line Items business component is based on the CSSBCLineItem special class. Because of the special behavior of the Line Items business component, you can update a line item record only if its parent order record appears (present and active) in the Service Orders screen.

This task is a step in *Process of Managing Fulfillment*.

To add details to an order line item

1. Navigate to the Service Orders screen, then the List view.
2. Drill down on the Order number (#) field for a selected order, and click the Line Items view tab.
3. Select an order line item.
4. If you are using Siebel Configurator to customize products, then click Customize.

   For more information about configurable products and Siebel Configurator, see *Siebel Product Administration Guide* .
5. On the link bar, click Line Details.
6. Complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Billable	Select this check box to indicate the line item is billable to the customer. The Charge Engine creates a charge for the line item, and the Charge Consolidation business service includes the line item in an invoice. You can select this field regardless of the type or status of the order.

Field	Comments
Warranty Recovery	Select this check box to indicate a warranty credit applies to the product in the line item.
Loaner	Select this check box to indicate the product in the line item is on loan.
Qty Shipped	Type the shipped quantity for the line item. When the Status field for the line item is Complete, this field is updated with the sum of the Qty field values for the line item action records with a Ship value in the Type field.
Source Location	Select the source location for the product in the line item.
Destination Location	Select the destination location for the product in the line item.
Ship Complete	Clear this check box to indicate the service center can ship only some of the quantity for the line item, as needed. This field is for information only, and does not affect other fields or functions.
Related Activity	Select a related activity from the Pick Related Activity dialog box to associate parts and tools with the line item.

Fulfilling Orders Using the Fulfillment Engine (End User)

Follow the procedures in this topic to fulfill service orders using the Fulfillment Engine. You can fulfill a single order.

Note: To fulfill an order, you must be a member of the organization that is associated with the order.

This task is a step in *Process of Managing Fulfillment*.

To fulfill an order using the Fulfillment Engine

1. Navigate to the Service Orders screen, then the List view.
2. Select an order.
3. Click the menu button, and select Fulfill.

   The Fulfillment Engine fulfills all of the line items in the order. An inventory transaction that allocates products from inventory is created, and pick tickets for all of the line items in the order are created.

You can also fulfill a line item in an order.

To fulfill an order line item using the Fulfillment Engine

1. Navigate to the Service Orders screen, then the List view.
2. Drill down on the Order number (#) field for a selected order, and click the Line Items view tab.

3. Select an order line item, click the menu button, and select one of the following commands:
    - **Fulfill.** The Fulfillment Engine fulfills the selected order line item.

      The product in the order line item is located, an inventory transaction that allocates (or reserves) the product from inventory is created, and pick tickets for the line item are created.
    - **Fulfill All.** The Fulfillment Engine fulfills all of the order line items.

      Alternatively, you can click the Fulfill All button.

      The products in the order line items are located, an inventory transaction that allocates (or reserves) products from inventory is created, and pick tickets for all of the line items in the order are created.

Allocating and De-Allocating Products Manually (End User)

The Actions view shows manual and automatic transactions for an order line item. When you allocate a product in an order line item, you reserve the product for the order line item. The Fulfillment and Part Locator Engines automatically create Allocate transactions. The shipping process can automatically create De-Allocate transactions. For more information about the processing logic for shipments, see *About Shipping Orders*.

The values that you can select in the Type field of this view depend on the transactions that occurred previously. For example, you can select the De-Allocate value only after the Allocate action is performed on the order line item.

This task is a step in *Process of Managing Fulfillment*.

To manually allocate products in an order line item

1. Navigate to the Service Orders screen, then the List view.
2. Drill down on the Order number (#) field for a selected order, and click the Line Items view tab.
3. Select the line item with products to allocate.
4. On the link bar, click Actions.
5. Create a new action record, and complete the fields as appropriate.

   When the Logistics Manager and its Fulfillment Engine are installed:
    - If you are connected to the server, then the Fulfillment Engine automatically specifies a value of Allocate in the Type field of the action record.
    - If you are not connected to the server (for example, if you are using a mobile device), then you must select a value of Allocate in the Type field of the action record.

After allocating products, you can manually de-allocate the products in an order line item.

To manually de-allocate products in an order line item

1. Navigate to the Service Orders screen, then the List view.
2. Drill down on the Order number (#) field for a selected order, and click the Line Items view tab.
3. Select the line item with products to de-allocate.
4. On the link bar, click Actions.
5. Select an action (with a value of Allocate in the Type field) to de-allocate.
6. Click the menu button, and select De-Allocate.

Locating and Allocating Products Using the Part Locator Engine (End User)

Instead of using the Fulfillment Engine to locate and allocate (or reserve) the products in order line items, you can use the Part Locator Engine to locate and allocate these products. You have more control over the fulfillment process when you use the Part Locator Engine.

This task is a step in *Process of Managing Fulfillment*.

To locate and allocate products using the Part Locator Engine

1. Navigate to the Service Orders screen, then the List view.
2. Drill down on the Order number (#) field for a selected order, and click the Line Items view tab.
3. Select a line item.
4. On the link bar, click Part Locator, and click one of the following buttons:
   - **Locate.** In the Available/Substitute list, the Part Locator Engine displays the available quantity of the product in the selected line item and the available quantity of substitute products for this product. You can see the inventory location of each product.
   - **Locate All.** In the Available/Substitute list, the Part Locator Engine displays the available quantities of the products in all of the line items of the order and the available quantities of substitute products for these products. You can see the inventory location of each product.

     > **Note:** Make sure that the check box is not selected in the Service Product field in the Products view of the Administration - Product screen. If this check box is selected, then the Part Locator Engine does not find any products.
5. Select a record in the Available/Substitute list.
6. In the Qty field, enter the quantity of product to allocate to the order line items.

   If you do not specify a quantity, then the total available quantity is allocated to the order line items.
7. Select one of the following commands:
   - **Allocate.** For the selected record in the Available/Substitute, the Part Locator Engine allocates (or reserves) the quantity for the order line item. The allocated quantity appears in the Line Allocation list, and an inventory transaction of the Allocate type is created.

     Alternatively, you can click the Allocate button.
   - **Allocate All.** For all of the records in the Available/Substitute list, the Part Locator Engine allocates (or reserves) the quantities for the appropriate order line items. The allocated quantities appear in the Line Allocation list, and an inventory transaction of the Allocate type is created.

Generating Pick Tickets for Orders (End User)

You can generate pick tickets for orders. Employees use pick tickets to pick, pack, and ship the order.

This task is a step in *Process of Managing Fulfillment*.

To generate a pick ticket for an order

1. Navigate to the Service Orders screen, then the List view.
2. Drill down on the Order number (#) field for a selected order, and click the More Info view tab.
3. Click the menu button, and select Generate PickTickets.

15 Service Inventories

Service Inventories

This chapter describes how to set up and maintain service inventories. It includes the following topics:

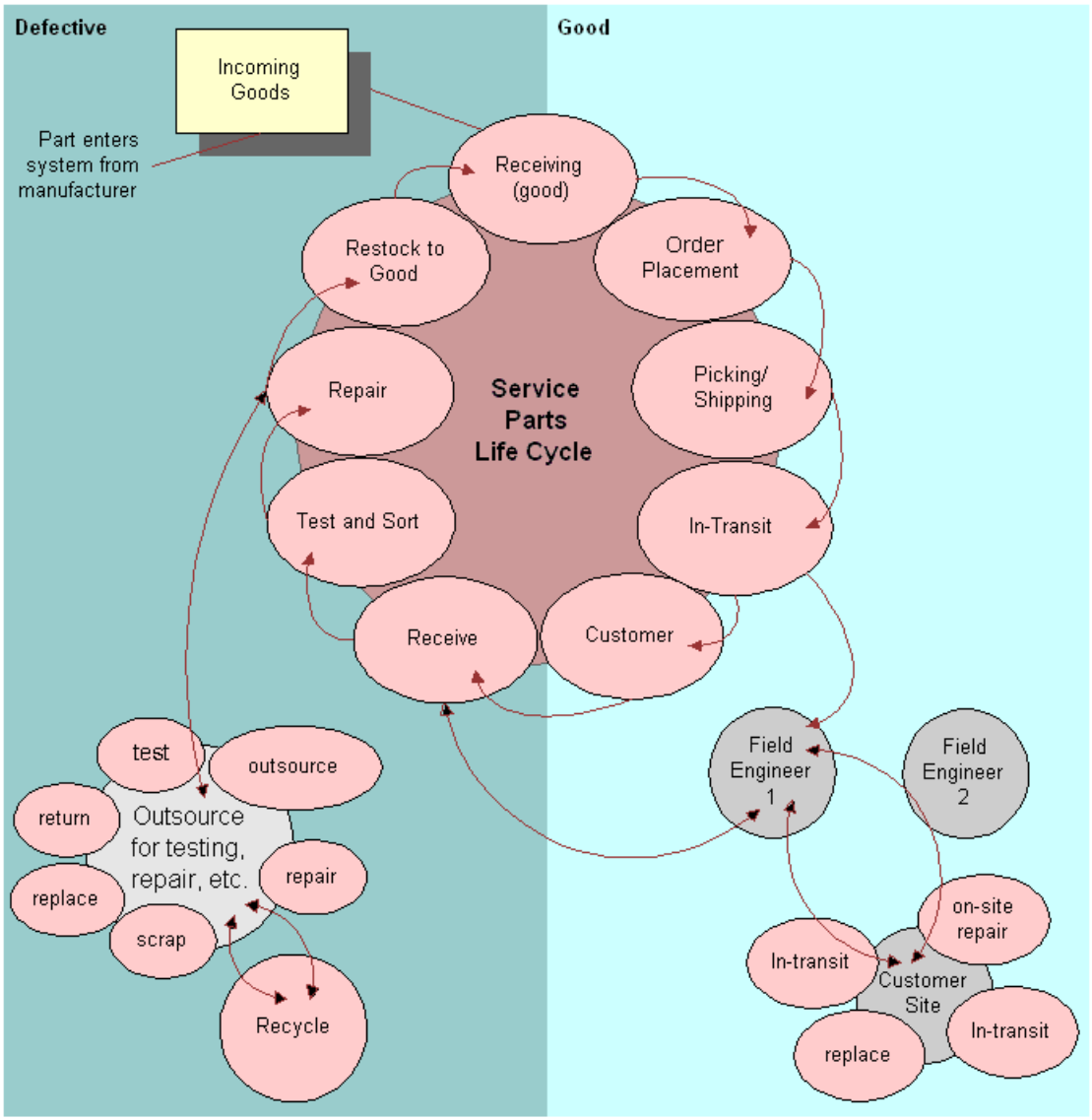
- *About Service Inventories*
- *About Structure for Service Inventories*
- *About the Process Flow for Setting Up Service Inventories*
- *About Inventory Transactions*
- *Process of Administering Service Inventories*
- *Process of Managing Service Inventories*

About Service Inventories

Service businesses use the Service Inventory module to manage service inventory throughout its life cycle and to monitor inventory consumption during order fulfillment and during activities for field service engineers. Service Inventory also allows field service engineers who are mobile to manage their trunk inventories using a disconnected client.

Process Flow of Goods in Service Inventories

The following figure shows the process flow of goods in a service inventory.



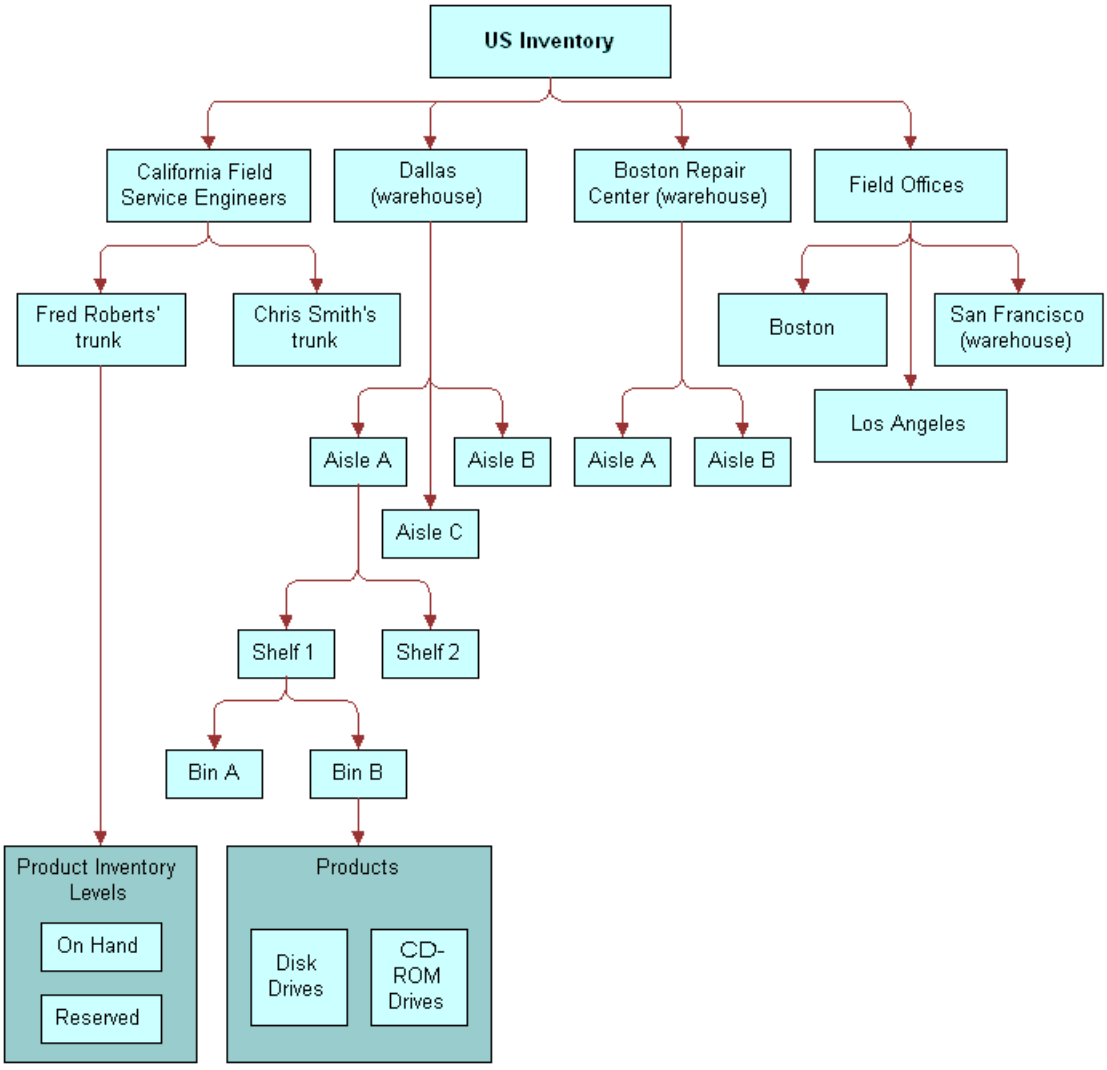
At the center of the process flow is the service parts life cycle, a closed-loop process. The life cycle includes the following stages: receiving (good), order placement, picking and shipping, in-transit, customer, receive, test and sort, repair, restock to good, and back again to receiving (good). Incoming goods from the manufacturer arrive at the receiving (good) stage. Goods go out to field service engineers during the in-transit and receive stages. Through the field service engineers, these goods go to customer sites through an in-transit stage for on-site repairs or replacements. Goods also leave the life cycle during the repair stage, when the outsource vendor can test, repair, scrap, recycle, and replace the goods.

A materials manager can automate these tasks using the Fulfillment or Part Locator Engines. The Replenishment Engine automates the production of orders to restock inventory locations. For more information, see *Cycle Counting and Replenishment*.

About Structure for Service Inventories

A primary objective of the Service Inventory module is to record the organization of inventory.

The following figure shows an example of a service inventory structure that is hierarchical.

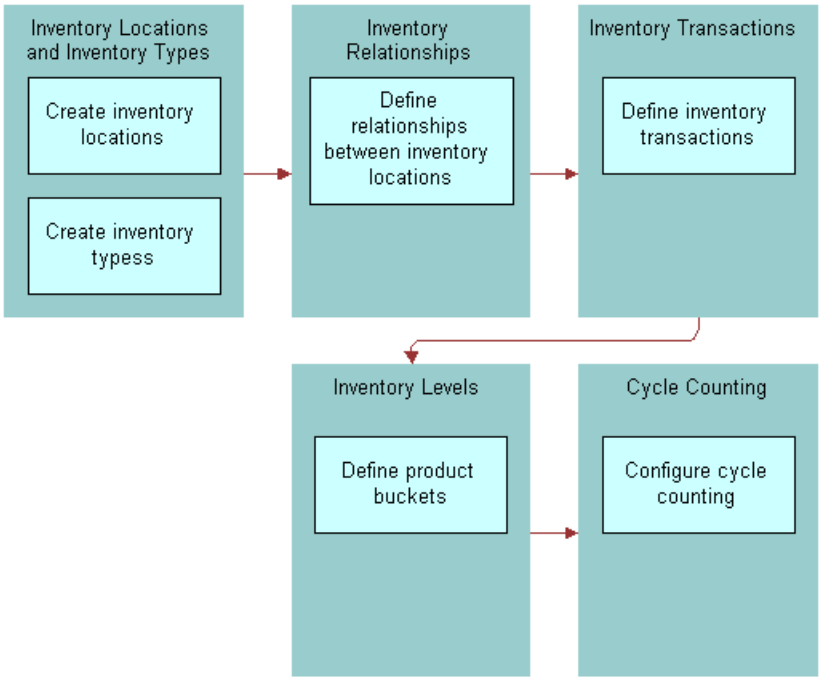


At the first level is US Inventory. At the next level, the structure is divided into California Field Service Engineers, Dallas (warehouse), Boston Repair Center (warehouse), and Field Offices.

California Field Service Engineers is divided into Fred Roberts' trunk and Chris Smith's trunk. Fred Roberts' trunk has product inventory levels of On-Hand and Reserved. Dallas (warehouse) is divided into Aisle A, Aisle B, and Aisle C. Aisle A has Shelf 1 and Shelf 2. Shelf 1 is divided into Bin A and Bin B. Bin B has products of Disk Drives and CD-ROM Drives. Boston Repair Center (warehouse) is also divided into Aisle A and Aisle B. Field Offices is divided into Boston, Los Angeles, and San Francisco (warehouse).

About the Process Flow for Setting Up Service Inventories

The following figure shows the process flow of the tasks for setting up a service inventory.



Inventory Locations

You use inventory locations to consolidate and manage all records pertaining to a service inventory. An inventory location can be a trunk for a field service engineer, a warehouse, or a portion of a warehouse, such as a shelf or an aisle. An *inventory level* specifies the availability and status of a product. You can add an inventory level to any location in an inventory structure. For more information about inventory locations, see *Creating Inventory Locations (End User)*.

Note: Inventory levels are *product buckets* in previous versions of Siebel Field Service.

Consider the following factors when setting up inventory locations:

- The inventory locations that you track using the Service Inventory module
- The inventory locations that you track using other means, such as an external back-office inventory application
- The number of hierarchical levels that apply to each inventory location

You can define different types of inventory locations. The following types of locations are basic to service inventory:

- **Warehouse.** The default inventory location. You define the inventory fulfillment and replenishment relationships for this inventory location. Also, you generate pick tickets at this location. You can define all other inventory locations as subcategories of the warehouse.

- **Trunk.** Mobile inventory that is assigned to a field service engineer. Each engineer has inventory for 1 trunk location.
- **Field Office.** Inventory that can supply several field service engineers. This location is an intermediate location between a warehouse and trunk inventory.
- **Virtual.** A logical, not a physical, inventory location. The External Location virtual location is essential for proper functioning of inventory transactions, and has a ROW_ID value of VIRTUAL_INVLOC. This location allows an inventory application to receive products from outside of the company. A virtual inventory location is the source, and the destination is a physical inventory location (for example, a shelf).

External Inventory Locations

The seed data in Siebel Field Service contains an inventory location value of External Location. This inventory location that has a Type field value of Virtual is the default inventory location if a source or destination location is not specified.

Inventory transactions can occur between organizations by using 2 transactions and the inventory location value of External Location as follows:

- The first transaction (Inv1) is from the source location in an organization to the External Location value. A user can view this transaction, and the External Location commits this transaction.
- The second transaction (Inv2) is from the External Location to the destination location in a different organization. A user can view this transaction, and the External Location value commits this transaction.

Do not delete the External Location record. The ROW_ID (VIRTUAL_INVLOC) makes this record unique. Some C ++ code in Siebel Field Service uses this ROW_ID. If you delete this record and re-create it, then the record is assigned a new ROW_ID and some inventory transactions fail. However, you can rename this record.

To make sure that all field service engineers in any organization in the company can use the External Location value, use the Organization field to associate all organizations in the company with the External Location value.

Trunk Inventory Locations

To manage trunk inventories, field service engineers record part movements on their laptop computers. They periodically connect their laptop computers to a Siebel Server and synchronize data.

To maximize performance during synchronization to and from the local database of the field service engineer, docking rules control the number and context of the records that are extracted, initialized, and synchronized. Because of these rules, an engineer might not see asset records needed to commit a field part movement for a serialized product. To solve this problem, the engineer can add the asset numbers. After synchronization, an administrator reconciles the add-in asset numbers with the corresponding Siebel database records, and the administrator commits the transaction. After the administrator commits the transaction, the field service engineer must synchronize again to update the local database.

After the field service engineer synchronizes the laptop computer in the field, an administrator can use the Parts Movement Administration view to review and commit transactions. For more information, see *Committing Transactions from Mobile Computers*.

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 includes a network of these relationships.

You can implement an inventory structure in the following ways:

- Create an inventory location (for example, a warehouse), maintain the products at this location (in inventory levels), and then associate the physical location with the inventory level.
- Assign locator numbers to logically divide an inventory location. Locator codes have values such as A1S3B7, meaning Aisle 1, Shelf 3, and Bin 7. A locator number does not imply an inventory type (for example, a bin). Use the locator numbers, along with the locator order, to optimize shipping and cycle counting.
- Define each aisle, shelf, and bin as a separate inventory location. Only bin inventory has products. Typically only 1 or 2 products exist in each bin. The inventory name can reflect the combination of location and product. You can link these different inventory locations to each other with the Sublevel relationship type. This relationship type indicates, for example, that Aisle 1 is a sublevel inventory location of Warehouse.

When fulfilling orders, generating cycle counting lists, or running the Replenishment Engine for a warehouse, all inventories below the Warehouse level (and connected through sublevels) are automatically considered.

To improve performance (for example, to avoid traversing the inventory structure every time you want to find all sublevels of inventory for a warehouse), Siebel Field Service uses a denormalized table. This table stores every child, direct child, or grandchild (to any number of levels) of a parent inventory. For example, an inventory hierarchy is defined as follows:

- Inventory A is a parent of Inventories B, C, and D
- Inventory B is a parent of inventories E and F

The following table shows some entries in the denormalized table.

Parent Invloc	Invloc
A	B
A	C
A	D
A	E
A	F
B	E
B	F

You can also relate inventory locations to each other through replenishment. Set fulfillment and replenishment relationships between inventory locations for warehouses, and not for lower levels (for example, aisles, bins, or shelves). When using relationships, the Fulfillment, Replenishment, and Part Locator Engines automatically search for products at lower levels by using sublevel relationships. Configuring a replenishment relationship to indicate that a field office replenishes a trunk might result in overstocking the trunk inventory if the trunk location is already a sublevel of parent inventory.

Inventory Tracking

You can track the physical location of a product in inventory using the following methods:

- If you define inventory locations down to the shelf or bin, then associate the inventory level with a bin or shelf related to a fixed location that identifies the product.
- Enter a description of the inventory location of the product in the Locator fields in the Product Inventory view of the Inventory screen. This view provides 3 Locator fields to allow multiple possible locations. For example, you might first find a product in the northeast corner of the San Francisco field office, then on shelf A in the supplies room, and then on shelf B in the supplies room.

Inventory Levels

An inventory level is a grouping of products that have the same Availability field value (for example, On Hand, On Order, and Reserved) and the same Status field value (for example, Good and Defective). The following table shows some examples of inventory levels for a product.

Availability Field	Status Field
On Order	Good
On Hand	Good
Reserved	Good
In Transit	Defective

You do not have to manually create products and associated inventory levels in the Product Inventory view of the Inventory screen. When an inventory transaction occurs, products and associated inventory levels are automatically created in the Siebel database if they do not exist. However, such products are not assigned minimum amounts, maximum amounts, safety amounts, an ABC class for cycle counting, and an XYZ class for cycle counting. You might have to navigate to the Product Inventory view of the Inventory screen and update these newly created records.

You can create or update inventory levels by loading the levels through the EIM_PRODINVLOC table. You can also create or update inventory transactions by loading the transactions through the EIM_INV_TXN table.

Negative Inventory Levels

Negative inventory levels can result from some inventory transactions. Only nonserialized products can have negative inventory levels. Inventory levels can acquire negative values in the following circumstances:

- When the logical inventory does not match the physical inventory (when the product is on the shelf, but the Siebel database does not show that the product 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.

Managing Inventory Levels

If the Inventory levels do not exist, then an inventory transaction automatically creates them. However, it is recommended that you set up inventory levels as part of the authorized stock list for an inventory location. As part of the authorized stock list, create the default inventory levels (for example, On Hand - Good) when users create an inventory location or add a new product to an inventory location. If your company plans to stock an inventory level, then do not rely on an inventory transaction to create the inventory level.

You can set up a workflow process to automatically create an inventory level when a user adds a product to an inventory location. For more information about setting up workflows, see *Siebel Business Process Framework: Workflow Guide* .

Location Order

You can specify a preferred order for using inventory at several different locations. By specifying the location to use first, you minimize the time required for a warehouse clerk to find a product for shipping, to replenish inventory, or to perform cycle counting. Location order can suggest order management strategies, such as First-In-First-Out (FIFO). However, allocation takes the place of inventory levels and does not follow strategies such as FIFO or Last-In-First-Out (LIFO).

Note: Location order does not affect the Fulfillment or Cycle Counting Engines.

Location order is represented by locator numbers (1, 2, and 3). Each locator number is represented by a locator code that applies to a specific warehouse or inventory location. The following table shows examples of locator codes and inventory locations.

Locator Number	Locator Code	Inventory Location
1	A3S1B1	Aisle 3, shelf 1, bin 1
2	A3S2B6	Aisle 3, shelf 2, bin 6
3	A15S3B1	Aisle 15, shelf 3, bin 1

Location order can be any sequence of locator numbers (for example, 123 or 213). Make sure that the location order represents the optimal path through the warehouse.

You specify locators (1, 2, and 3) for inventory levels in the Inventory Level list in the Product Inventory view of the Inventory screen. The Location Order field appears as a read-only field in the Inventory Locations view of the Products screen. Locators appear as read-only fields in the Part List view of the Cycle Counts screen.

About Inventory Transactions

The Service Inventory module is transaction-based. Inventory transactions update inventory levels when you move parts between locations or when an inventory level changes. Each inventory transaction has a product, quantity, source, and destination.

Some examples of business activities that create inventory transactions follow:

- Perform a part movement by installing or removing the part and moving it out of or into the trunk of the field service engineer.
- Allocate (or reserve) or de-allocate a product for an order line item. You can manually perform this task, or the Fulfillment Engine can perform this task.
- Ship an order, and click the Process Shipment button in the Shipping screen.
- Receive an order, and click the Generate Transaction button in the Receiving screen.
- Manually create a transaction in the Inventory Transactions screen.

The following table describes the types of inventory transactions.

Type	Description
Adjustment	Adjusts inventory levels when, after a cycle count, there is a variance between original inventory and counted inventory. This type is automatically generated in the Variance view of the Cycle Counts screen. You can manually generate this type in the Inventory Transactions screen.
Allocate	Adds inventory to an inventory level with an Availability field value of Reserved. This type is automatically generated when an Allocate action is called for an order line item.
De-Allocate	Clears inventory from an inventory level with an Availability field value of Reserved. This type is automatically generated when a De-Allocate action is called for an order line item.
Exchange Between FSEs	Moves inventory from a trunk inventory to another trunk inventory. This type applies to part movements between trunks of field service engineers. You can manually generate this type in the Inventory Transactions screen.
Over-the-counter	Moves inventory from an inventory location or level to another location or level. This type applies to part movements from warehouses to trunks of field service engineers. You can manually generate this type in the Inventory Transactions screen.
Receive From TP	Moves inventory from a third-party location defined in the Fulfillment view of the Service Orders screen to the inventory location defined in the Line Item Receipts view of the Receiving screen.
Receive Internal	Moves inventory from an inventory level with an Availability field value of In Transit to a physical inventory level, such as a shelf in a warehouse. This type is a stock transfer that is automatically generated in the Receiving screen.
Receive Other	Moves received inventory to an inventory level. This type is part of a customer transaction that uses a virtual inventory location of External Location or Customer. These locations are included as seed data in Siebel Field Service. Inventory is received from the Customer location to the location in the Line Item Receipts view of the Receiving screen.
Ship Internal	Moves inventory from a physical inventory level to an inventory level with an Availability field value of In Transit. This type is for internal orders and is a stock transfer that is automatically generated in the Shipping screen.
Ship Other	Moves inventory from a physical inventory level to an inventory level with an Availability field value of In Transit. This type is for outside orders and is part of a customer transaction that uses a virtual inventory location of Customer. The Customer location is included as seed data in Siebel Field Service.

Type	Description
Ship To TP	Moves inventory from the location from which the inventory is allocated (and for which the pick ticket is generated) to the destination location defined in the Fulfillment view of the Service Orders screen.
Stock Transfer	Moves inventory from an inventory level or location to another level or location. The inventory levels or locations can be in the same warehouse or in different warehouses. You can manually generate this type in the Inventory Transactions screen.

Conditions for Generating Transactions

The following table lists the types of inventory transactions that are created for combinations of source and destination locations, inventory levels, and serialized or nonserialized assets.

Inventory Transaction	Inventory Txn Type	Source			Destination		
		Inventory	Inventory Level	Assets	Inventory	Inventory Level	Assets
Part movement on activity	Ship Other	Trunk of FSE	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
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 Hdr Destination Invloc ID	In Transit	Yes
	De-Allocate	Ord Part Movement	Reserved	Yes	Customer	On Order	Yes

Inventory Transaction	Inventory Txn Type	Source			Destination		
		Inventory	Inventory Level	Assets	Inventory	Inventory Level	Assets
		Source Invloc ID					
Receive RMA and PO	Receive Other	Customer	On Hand	Yes	Ord Part Movement Destination Inv	Ord Part Movement Availability and Status	Yes
Receive internal	Receive Internal	Order Hdr Destination Inv	In Transit	Yes	Ord Part Movement Destination Inv	On Hand	Yes
Ship RO	Ship To TP	Ord Part Movement Source Inv	On Hand	Yes	Order Hdr 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	Order Hdr Destination Inv	On Hand	Yes	Ord Part Movement Dest Inv	On Hand	Yes

Note: For the asset columns in the preceding table, the assets are included in the transaction validation if the product is serialized. Also, TP represents third-party vendor in this table.

The following rules regulate the generation of inventory and asset transactions:

- If a product is serialized, then:
  - The part movement must be associated with an asset.
  - The quantity of the part movement must be 1.
  - The asset must be included the source inventory.

  When these conditions apply, the inventory transaction is validated, and the inventory database is updated.
- If the product is not serialized and no asset number is specified, then a committed inventory transaction is successfully generated without validation.
- If the product is not serialized and no asset number is specified, then an asset validation and an asset transaction do not occur. The inventory location is not associated with the asset.

Mobile Inventory Transactions

Siebel Field Service can record part movements in the field (mobile inventory) without synchronizing with the Field Service server so that field service engineers can record asset transfers without having the asset number or serial number on their laptop computers.

Normally, recording transfers of assets without having asset numbers or serial numbers causes a transaction to fail. However, in Siebel Field Service, the part movement is recorded but not applied to the inventory database.

If the mobile computer is disconnected, then the local database is updated. When you synchronize the mobile computer with the Siebel Server, the information about the part movement is transferred to the server. If the server identifies the asset in the database on the remote computer, then the server records the change in inventory location in the Siebel database and then creates a transaction.

If a part movement (including part movements for add-in assets) is not validated on the remote computer, then an uncommitted part movement appears in the Parts Movement Administration view of the Administration - Service screen. An administrator must review uncommitted part movements and reconcile add-in serial numbers with existing asset numbers. The administrator then clicks a commit button to create transactions. For more information, see *Committing Transactions from Mobile Computers*. For more information about the types of transactions that are created for specific combinations of source and destination locations, see *About Inventory Transactions*.

The next time you synchronize the remote computer, its local database is updated to match the server database.

Validation Checks for Commit Buttons

Commit buttons appear in the Part Tracker view of the Activities screen and the Parts Movement Administration view of the Administration - Service screen. The commit step for a transaction begins when users save the record and select the Commit check. The field service engineer uses the commit buttons in the Part Tracker view to perform the following validation checks:

1. Verify that the source and destination inventories are specified. If the asset does not exist in the source inventory, then do not commit the asset.
2. Verify that the position of the activity owner is associated with a trunk inventory. Trunk inventories have a Type field value of Trunk.
3. If an asset number is specified, then verify that the number is valid.
4. For each asset transaction, verify that the asset exists at the specified inventory source location. This validation is not performed for the External location or the Customer location. For more information about external inventory locations, see *Inventory Locations*.
5. Verify that the asset is available. Verify the availability and status. This validation is not performed for the External location.
6. Verify that the quantity of specified assets exists in the source inventory. This quantity is 1 if the product is serialized.
7. If the product is serialized, then verify that the total quantity for the inventory transaction is equal to the total number of specified assets for the transaction.

If these validation checks are successful, then the Commit check box is selected for the records, and transaction records for part movements are generated in the Siebel database.

The commit buttons validate the movement of serialized and nonserialized assets that are recorded in the local database. If the part movement record defines an asset, then an asset transaction is recorded.

A user can create a part movement record without changing the inventory levels. To change the inventory levels, the user selects the Commit check box for the record or clicks the Commit button for the record.

The Commit button creates a transaction for a selected uncommitted record in the view. The Commit All button creates transactions for all uncommitted records in the view. Committed records are read-only. You cannot uncommit a record that is committed.

Part Movement Recognition

To generate records to record part movements, the processing logic performs the following steps:

1. Create a committed inventory transaction (for example, Receive Other).
2. Create assets for the inventory transaction.
3. Create new Siebel database records for the source and destination inventory location.
4. Update the asset record (ID).
5. Create asset transactions (for example, Install).
6. Commit the part movement by updating the Siebel database.

Asset Transactions

The asset transactions that maintain an installed 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 automatically generated. For example, a part movement record with a Source field value of Customer and a Destination field value of Trunk means that the field service engineer took a part out of the installed base for the customer and put it in the 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 installed base).

When a field service engineer repairs, updates, or replaces products in a service order, the engineer selects Service Order as the Source field value and Customer as the Destination field value. Because the engineer adds the product to the installed base for the customer, only an asset transaction is generated. You can manually create asset transactions in the Transactions view of the Assets screen.

If you perform any inventory transaction on a hierarchical asset, then only the Inventory Location field of the parent component shows the correct location. The Inventory Location field of the child subcomponents are blank or have a value of External Location.

Changes can occur in some other fields of the parent component for the asset according to the type of inventory transaction. These changes occur in the fields of the child subcomponents for the hierarchical asset if the fields are set to cascade values from the parent to the children. For more information, see *Hierarchical Assets*.

Serialization for Products

If a product is serialized (if the Serialized check box is selected in the Fulfillment view in the Service Information view in the Products view of the Administration - Product screen), then a serial number is required for all movements and transactions of assets for the product, including the following:

- Inventory transactions
- Field part movements
- Cycle counts
- Shipments

- Receipts

Serialized products are treated differently from nonserialized products. If a product is serialized, then the user must enter assets for the product. When you ship or receive a serialized product, the correct number of assets with serial numbers must exist in Siebel Field Service. For example, if you ship or receive 4 serialized hard drives, then 4 separate serial numbers must exist in Siebel Field Service. For more information, see *Siebel Enterprise Integration Manager Administration Guide* .

Note: When a serialized asset is allocated through a manual order, the product quantity specified in the order is allocated, not the asset itself. Consequently, the asset remains in the On Hand - Good or On Hand - Defective inventory.

Process of Administering Service Inventories

The following list shows the tasks that administrators typically perform to administer service inventories. Your company might follow a different process according to its business requirements.

To administer service inventories, administrators perform the following tasks:

- *Defining Products for Inventories*
- *Setting Up Location Types for Inventories*
- *Setting Up Inventory Levels*
- *Setting Up Inventory Transaction Types*
- *Setting Up Siebel Remote*
- *Committing Transactions from Mobile Computers*

Defining Products for Inventories

Before you set up inventory, you must define the products to include in inventory. For more information about defining products, see *Siebel Product Administration Guide* .

After you define the products, you must specify allocation for those products in the Fulfillment view in the Service Information view in the Products view of the Administration - Product screen. For more information, see *Setting Up Product Fulfillment*.

Users can associate the products with assets in the Assets screen.

This task is a step in *Process of Administering Service Inventories*.

Setting Up Location Types for Inventories

You set up inventory location types to designate the different kinds of locations for inventory. Users can select these inventory location types in the Type field in the Inventory Locations view of the Inventory screen. Examples of inventory location types include Aisle, Trunk, and Virtual. For more information about the fields for inventory location types that are used in cycle counting, see *Defining Configuration Parameters for Inventory Location Types*.

CAUTION: Do not delete inventory location types, inventory levels, or inventory transaction types because the associated Row_IDs provide values for other tables in inventory. To change or replace these entries, modify the List of Values (LOV) for the entry, and then update (do not delete and re-add) the entry.

This task is a step in *Process of Administering Service Inventories*.

To set up an inventory location type

1. Navigate to the Administration - Service screen, then the Inventory Administration view.
2. In the Inventory Location Types view, create a new inventory location type record, and complete the fields as appropriate.

Setting Up Inventory Levels

You can set up inventory levels. An inventory level is a grouping of products that have the same Availability field value (for example, On Hand, On Order, and Reserved) and the same Status field value (for example, Good and Defective). Users can select these inventory levels in the Inventory Level list in the Product Inventory view of the Inventory screen.

You do not have to manually create products and associated inventory levels. When an inventory transaction occurs, products and associated inventory levels are automatically created in the Siebel database if they do not exist. However, such products are not assigned specific inventory levels, allocation values, substitution values, or cycle counting classes. You might have to navigate to the Inventory Administration view of the Administration - Service screen and update these newly created records in the Inventory Location Types view and the Inventory Level Categories view.

This task is a step in *Process of Administering Service Inventories*.

To set up an inventory level

1. Navigate to the Administration - Service screen, then the Inventory Administration view.
2. Click the Inventory Level Categories view tab.
3. Create a new inventory level record, and complete the fields as appropriate.

Setting Up Inventory Transaction Types

You can set up inventory transaction types. Inventory transaction types denote the nature of changes to product levels. Users can select these inventory transaction types in the Type field of the Inventory Transactions screen. For more information about inventory transaction types, see *About Inventory Transactions*.

This task is a step in *Process of Administering Service Inventories*.

To set up an inventory transaction type

1. Navigate to Administration - Service screen, then the Inventory Administration view.
2. Click the Inventory Transaction Types view tab.
3. Create a new inventory transaction type record, and complete the fields as appropriate.

Setting Up Siebel Remote

Siebel Remote allows mobile or remote clients (typically laptop computers) to connect to a Siebel Server and exchange updated data and files. This process is synchronization. For more information about setting up and using Siebel Remote, see *Siebel Remote and Replication Manager Administration Guide* .

This task is a step in *Process of Administering Service Inventories*.

Committing Transactions from Mobile Computers

The administrator can commit the field transactions that are not committed to the Siebel database. These transactions can apply to part movements between customer sites, service orders, and the truck inventories of field service engineers. For more information, see *Mobile Inventory Transactions*.

This task is a step in *Process of Administering Service Inventories*.

To commit a transaction from a mobile computer

1. Navigate to the Administration - Service screen, then the Parts Movement Administration view.
2. Select an uncommitted part movement record.
3. In the Asset number (#) field, select an asset.

   The asset number must correspond to the add-in serial number that the mobile field service engineer entered.
4. Select the Commit check box to generate an inventory transaction that decrements the source inventory location and increments the destination location.

Process of Managing Service Inventories

The following list shows the tasks that end users typically perform to manage service inventories. Your company might follow a different process according to its business requirements.

To manage service inventories, end users perform the following tasks:

- *Creating Inventory Locations (End User)*
- *Adding Products to Inventory Locations (End User)*
- *Associating Vendors with Inventory Locations (End User)*
- *Associating Roles with Inventory Locations (End User)*
- *Defining Relationships Between Inventory Locations (End User)*
- *Viewing Inventory Statuses (End User)*
- *Creating Inventory Transactions (End User)*
- *Moving Parts Between Trunks (End User)*
- *Performing Bulk Inventory Transactions (End User)*
- *Scrapping Inventories (End User)*

Creating Inventory Locations (End User)

You use inventory locations to consolidate and manage all records pertaining to a service inventory.

This task is a step in *Process of Managing Service Inventories*.

To create an inventory location

1. Navigate to the Inventory screen.
2. In the Inventory Locations view, create a new inventory location record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Position	Select a position for the inventory location. When you select a value of Owned in the Ownership field, employees who are associated with this position can view the inventory location in the My Inventory Locations view.
Ownership	Select a value that indicates the ownership of the inventory location. Values include Owned, Customer, and 3rd Party.
Organization	Select an organization for the inventory location. The organization limits the visibility of data. If you select All Inventory Locations Across Organizations in the visibility filter, then the inventory locations for all organizations appear. Inventory transactions can occur only between locations in the same organization. For more information about setting up organizations, see *Siebel Security Guide* . If you own a record, then you can see it when you select My Inventory Locations in the visibility filter, even if the record does not apply to your organization. However, you do not see the record when you select All Inventory Locations in the visibility filter if the record does not apply to your organization. **CAUTION:** Improper configuration of organizations and inventory locations can lead to unintended results. For example, you might be unable to complete inventory transactions between some locations.

Adding Products to Inventory Locations (End User)

You add products to inventory locations to designate the products that can exist at those locations and to specify other details about the products. Administrators set up products in the Products view of the Administration - Product screen.

This task is a step in *Process of Managing Service Inventories*.

To add a product to an inventory location

1. Navigate to the Inventory screen.
2. Drill down on the Name field for a selected inventory location.
3. In the Product Inventory view, create a new product record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Min	Type the minimum acceptable quantity of inventory for the product at the location.
Max	Type the maximum acceptable quantity of inventory for the product at the location.
Safety	Type the safe quantity of inventory for the product at the location. The safe quantity is less than or equal to the minimum acceptable quantity. The Fulfillment Engine does not allocate a product if the quantity is less than this quantity. You can override this value.
Serialized	Displays a check if instances of the product must have recorded serial numbers.
ABC Class	Select the financial-value classification of a product. Values include A, B, and C. Class A has the highest financial value. This value overrides the Class ABC field in Inventory Options list in the Fulfillment view in the Service Information view in the Products view of the Administration - Product screen.
XYZ Class	Select the turnover-rate classification of a product. Values include X, Y, and Z. Class X has the highest turnover rate. This value overrides the Class XYZ field in Inventory Options list in the Fulfillment view in the Service Information view in the Products view of the Administration - Product screen.

   The Assets list shows the assets for the product at the selected inventory location.
4. In the Inventory Level list, create a new inventory level record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Location Order	Type a value for the preferred order for looking for product in Locators 1 through 3. For example, 213 means that the product is best obtained from location 2, then from location 1, and finally from location 3. The physical process of shipping and cycle counting uses this order. This order does not affect the Fulfillment or Cycle Counting Engines. For more information about location order, see *Inventory Tracking*.
Locator 1	Type the description of the physical location of a product at an inventory level.

Field	Comments
Locator 2 Locator 3	

Associating Vendors with Inventory Locations (End User)

To replenish inventory from an outside source, you must specify the vendors that can supply inventory for an inventory location.

This task is a step in *Process of Managing Service Inventories*.

To associate a vendor with an inventory location

1. Navigate to the Inventory screen.
2. Drill down on the Name field for a selected inventory location, and click the Vendors view tab.
3. Create a new vendor record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Account	Select a vendor.
Type	Select Vendor or Primary Vendor.

Associating Roles with Inventory Locations (End User)

You can associate the roles of employees with an inventory location.

This task is a step in *Process of Managing Service Inventories*.

To associate a role with an inventory location

1. Navigate to the Inventory screen.
2. Drill down on the Name field for a selected inventory location, and click the Roles view tab.
3. Create a new role record, and complete the fields as appropriate.

Defining Relationships Between Inventory Locations (End User)

The Relationships view shows the relationship between a selected inventory location and other inventory locations. If you use multiple inventory locations, then relationships between inventory locations are useful for automating inventory replenishment and order fulfillment. A relationship can be physical and hierarchical (for example, a shelf in an aisle) or logistical (for example, replenishment of inventory or fulfillment of orders).

This task is a step in *Process of Managing Service Inventories*.

To define the relationship between inventory locations

1. Navigate to the Inventory screen.
2. Drill down on the Name field for a selected inventory location, and click the Relationships view tab.
3. Create a new relationship record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Name	Select another inventory location.
Type	Displays the type of location. Values include Warehouse and Trunk.
Relationship	Select the relationship of the inventory location to the inventory location in the Inventory Locations view. Values include: o **Fulfills.** The inventory location fulfills orders for the inventory location in the Inventory Locations view. o **Replenishes.** The inventory location replenishes inventory for the inventory location in the Inventory Locations view. o **Sublevel.** The inventory location is a sublevel of the inventory location in the Inventory Locations view (for example, a shelf in an aisle).
Order Priority	Select the priority of an order to fulfill from the inventory location when the Relationship field value is Fulfills.

Viewing Inventory Statuses (End User)

You might want to view the status of products in inventory. Follow the procedures in this topic to view these statuses. You can view inventory transactions in the Inventory Transactions screen. You can view inventory status in the Inventory screen.

This task is a step in *Process of Managing Service Inventories*.

To view inventory status in the Inventory screen

1. Navigate to the Inventory screen.
2. Drill down on the Name field for a selected inventory location, and click the Product Inventory view tab.
3. Select a product.

   The Inventory Level list shows the inventory status for all products at the selected location.

You can also view inventory status in the Part Browser screen.

To view inventory status in the Part Browser screen

1. Navigate to the Part Browser screen.
2. Select a record for a product at an inventory location.

   Note: A product can exist at multiple locations.

   The Inventory Level list shows the inventory status for the selected product at that location.

Creating Inventory Transactions (End User)

Follow the procedures in this topic to create inventory transactions. Inventory transactions represent changes to product levels. The Inventory Transactions view includes all inventory transactions to allocate, ship, receive, transfer, or adjust the quantity and inventory levels for a product. You can create inventory transactions in other screens and views and in the Inventory Transactions view.

This task is a step in *Process of Managing Service Inventories*.

To manually create an inventory transaction

1. Navigate to the Inventory Transactions screen.
2. Create a new inventory transaction record, and complete the fields as appropriate.
3. If you want to add an asset to the inventory transaction, then complete the following steps:

   a. Drill down on the Transaction number (#) field for the inventory transaction.
   b. In the Assets view, create a new asset record, and complete the fields as appropriate.

      Available assets vary dynamically according to the Source Location in the inventory transaction record. You can select only the assets that are available at that Source Location. If the Source Location is External Location, then all assets not currently assigned to any location appear.

You can receive a product as a stock transfer or over-the-counter transaction.

To receive a product as a stock transfer or over-the-counter transaction

1. Navigate to the Inventory Transactions screen.
2. Create a new inventory transaction record, and complete the fields as appropriate.
3. In the Type field, select Over-the-counter.
4. (Optional) If the product is serialized, then create a new record for the transaction in the Assets view.

Moving Parts Between Trunks (End User)

Follow the procedures in this topic to record the movement of parts between the trunks of field service engineers. You record these movements on the Inventory Transactions screen.

This task is a step in *Process of Managing Service Inventories*.

To move a part between trunks on the Inventory Transactions screen

1. Navigate to the Inventory Transactions screen.
2. Create a new inventory transaction record, and complete the fields as appropriate.
3. In the Type field, select Exchange Between FSEs.

You can also move a part from a trunk to another trunk on the Activities screen.

To move a part between trunks on the Activities screen

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity, and click the Part Tracker view tab.
3. Create a new part record, and complete the fields as appropriate.

Performing Bulk Inventory Transactions (End User)

Bulk inventory transactions allow you to simultaneously record the movement of multiple assets to a new inventory location. This functionality is useful in bulk stock transfers and receiving dock situations.

> **Note:** You can transfer only the assets of the serialized products. For each product that you want to transfer, the Serialized check box must be checked in the Products screen. For more information about the Serialized check box, see *Setting Up Product Fulfillment*.

This task is a step in *Process of Managing Service Inventories*.

To perform a bulk inventory transaction

1. Navigate to the Assets screen, then the List view.
2. Select the assets to transfer, and click Transfer.
3. In the Inventory Transactions dialog box, complete the following steps:
    a. In the Selection Type field, select Selected Items to transfer only the assets selected in the list, or select Entire Document to transfer all assets in the list.
    b. Complete the other fields as appropriate.
    c. Click Transfer.

Workflows for Performing Bulk Inventory Transactions

The Bulk Inventory Transaction - Asset List - Default workflow uses the FS Inventory Transaction business service and the Inventory Transaction - Asset List - Default workflow to move all assets from current inventory locations to the specified destination. Separate inventory transactions are created, and you can review them on the Inventory

Transaction screen. The workflow is called when the user clicks the Transfer button in the Inventory Transactions dialog box. For more information about the methods used in this business service, see *FS Inventory Transaction Business Service*.

The Bulk Inventory Transaction - Asset List - Default workflow gets the asset-related details and source details, then organizes the asset list according to location, product, source, and availability. The workflow then calls the Inventory Transaction - Asset List - Default workflow. This workflow creates the inventory transaction headers, adds the asset details to the transaction headers, and commits the transaction.

Scrapping Inventories (End User)

You can create an inventory transaction to record scrapping (or writing-off) product inventory.

This task is a step in *Process of Managing Service Inventories*.

To scrap inventory

1. Navigate to the Inventory Transactions screen.
2. Create a new inventory transaction record, and complete the fields as appropriate.

Some fields are described in the following table.

Field	Comments
Type	Select Ship Other or a new type that you create (for example, Scrap). For more information about creating a transaction type, see *Setting Up Inventory Transaction Types*.
Destination Location	Select External Location or a new virtual location that you create (for example, Scrap Location). For more information about assigning products to an inventory location, see *Adding Products to Inventory Locations (End User)*. For more information about creating a virtual inventory location, see *Creating Inventory Locations (End User)*.

16 Shipping and Receiving

Shipping and Receiving

This chapter describes shipping and receiving orders and the records that Siebel Field Service creates to track orders. It includes the following topics:

- *About Shipping Orders*
- *About Receiving Orders*
- *About Validations for Shipping and Receiving Transactions*
- *About Hierarchical Assets for Shipping and Receiving*
- *Process of Managing Shipping*
- *Process of Managing Receiving*

About Shipping Orders

You can ship products to a customer or to another inventory location for your service business. The replenishment process can initiate internal shipments.

Shipping activities focus on the pick ticket and the waybill. The pick ticket includes detailed information about the products required to fill orders. The waybill includes data related to the shipment, normally accompanies with the shipment, and connects shipping and receiving.

Process Flow for Shipping

Shipping begins when fulfillment ends and a pick ticket is generated. The following figure shows the process flow for shipping.

The process flow for shipping includes the following steps:

1. Get the pick ticket.
2. Pick the products.
3. Update the pick ticket with the products that you ship.
4. Select a carrier, and update the waybill.
5. Process the shipment.

Processing Logic for Shipments

The Process Shipment button is located in the Pick Ticket form of the Shipping screen. (To see this button, navigate to the Shipping screen, then the Shipments view, and drill down on the Pick Ticket field for a selected pick ticket.) Clicking this button generates following actions:

1. Examines all the records for allocated lines (in the S_ORDPART_MVMT table) for the selected pick ticket, and validates the Ship transaction for each allocated line. If a single validation constraint (for example, Product, Source Inventory Location, Source Availability, or Source Status) fails, then the entire transaction rolls back.
2. For each shipped record for an allocated line, generates an inventory transaction with a Ship type and another inventory transaction with a De-Allocate type. Inventory transactions (for example, Ship Internal or Ship Other) are generated by using the order type of the pick ticket. For more information about these inventory transactions, see *About Inventory Transactions*.
3. If the shipped quantity is less than the allocated quantity, then inserts a De-Allocate action for the line for any extra quantity and generates an inventory transaction with a De-Allocate type. This transaction is in addition to the De-Allocate transaction in Step 2.
4. Checks whether the Auto-Receive check box is selected in the Fulfillment view in the List view of the Service Orders screen. The Auto-Receive check box applies to internal orders, and (if selected) automatically generates received line items and processes the receipt for the trunk inventory location of a field service engineer. For an internal order with a Trunk type for the inventory location of the destination, this check box is automatically is selected.

   If this check box is selected, then generates the received line items for the processed shipped line items, and processes the receipt of the order. For more information about the processing logic for receipts, see *About Receiving Orders*.

Note: Step 2 and Step 3 are independent processes, so they generate separate De-Allocate transactions. These separate transactions facilitate auditing.

Pick Tickets and Orders

Pick tickets and orders have the following relationship:

1. Orders include 1 or more line items.
2. Order line items can include 1 or more actions (records) in the Siebel database.
3. One or more actions (with a value of Allocate in the Type field) can have 1 pick ticket.

Although Order ID and Order Item ID do not appear in the Pick Tickets view, these values are located in the Siebel database. S_SHIPMENT_ID and S_ORDER_ITEM_ID are located in the S_ORDPART_MVMT table. S_ORDER_ID is located in the S_ORDER_ITEM table.

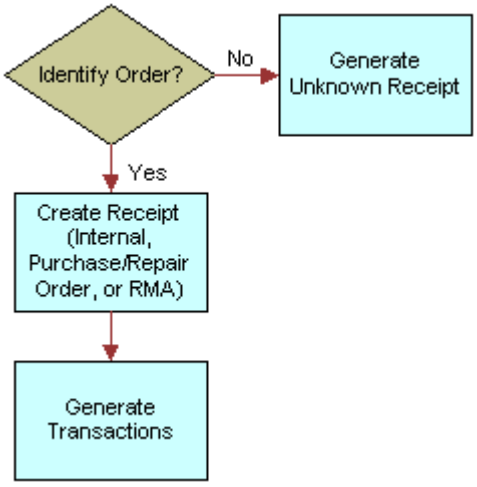
About Receiving Orders

Receiving applies to all order types, including the following types:

- Internal orders for replenishment or internal transfers that a field office, repair center, or a field service engineer receives.
- Return material authorizations (for product returns from a customer).
- Purchase orders and repair orders (for product receipts from an external vendor).
- Orders for any other received products (a receipt type of Unknown).

Process Flow for Receiving

When you receive a product, a receipt is generated as proof that the product arrived. The following figure shows the process flow for receiving.



The process flow for receiving includes the following steps:

1. If the order is unidentified, then generate an unknown receipt.
2. If the order is identified (Internal Order, Purchase Order, Repair Order, or Return Material Authorization), then create a receipt.
3. Generate the transactions.

   The necessary inventory transactions are created, and the necessary line item actions on received orders are created.

Processing Logic for Receipts

The Process Receipt button is located in the order form in the Receive Internal Order, Receive Purchase Order, Receive Repair Order, and Receive RMA views of the Receiving screen. Clicking this button generates the following actions:

- Verifies that the asset exists at the source inventory location.

- Generates the appropriate inventory transactions (for example, Receive Internal, Receive Other, and Receive From TP) affecting inventory levels. The order type determines the appropriate inventory transactions. For more information about inventory transactions, see *About Inventory Transactions*.
- If the product received is serialized, then checks that the total number of assets received matches the product quantity.

About Validations for Shipping and Receiving Transactions

Siebel Field Service includes the following automatic validations for shipping and receiving transactions:

- Quantity to ship must be less than or equal to the allocated quantity.
- Quantity to receive must be less than or equal to the shipped quantity.
- Total number of assets must be equal to the total quantity of a serialized product.
- When generating inventory transactions, the source location of a serialized asset must be valid.

After an inventory transaction is generated, you cannot update the shipped or received line item. However, you can receive partial shipments for all order types except internal orders. You can add new receive actions as long as the quantity of received products does not exceed the quantity in the order.

About Hierarchical Assets for Shipping and Receiving

When you ship or receive a hierarchical asset, changes occur in some fields of the parent component for the asset according to the type of shipping or receiving transaction. These changes occur in the fields of the child subcomponents for the hierarchical asset if the fields are set to cascade the values from the parent to the children. For more information, see *Hierarchical Assets*.

Process of Managing Shipping

The following list shows the tasks that end users typically perform to manage shipping. Your company might follow a different process according to its business requirements.

To manage shipping, end users perform the following tasks:

- *Shipping Products in Orders (End User)*
- *Finding Pick Tickets for Order Line Items (End User)*
- *Consolidating Pick Tickets (End User)*
- *Creating Waybills for Pick Tickets (End User)*

Shipping Products in Orders (End User)

The Shipments view displays pick tickets that are generated for specific orders. The Fulfillment and Part Locator Engines automatically generate pick tickets. Also, you can use the Generate PickTickets command in the Service Orders screen to generate pick tickets. For more information about generating pick tickets, see *About the Fulfillment Engine*.

You can create pick ticket records in the Shipments view. If you select the Pending Pick Ticket views from the visibility filter, then only pick ticket records with a Status field value of Open appear in the view. The default shipment number in the Shipment number (#) field is the pick ticket number.

Serialized products have a check in the Serialized field in Fulfillment view in the Service Information view in the Products view of the Administration - Product screen. You must enter serial numbers for all movements and transactions of assets for serialized products.

This task is a step in *Process of Managing Shipping*.

To ship the products in an order

1. Navigate to the Shipping screen, then the Shipments view.
2. Drill down on the Pick Ticket field for a selected pick ticket.
3. In the Allocated Lines list, select a line.
4. If the selected line relates to a product for a serialized asset, then create a new records for the product in the Serial Numbers list.

   The number of records in the Serial Numbers list cannot exceed the value in the Qty field in the Pick Ticket view.
5. If the selected line relates to a repaired product, then add repair numbers for the product in the Repair number (#) list of the Repair Pick Ticket view.

   The number of records in the Repair number (#) list must equal the value in the Qty field in the Repair Pick Ticket view.
6. In the Allocated Lines list, click Ship to ship the products for 1 or more selected lines, or click Ship All to ship the products for all lines.

   A shipped quantity in the Pick Ticket view or the Repair Ticket view that is equal to the allocated quantity for the lines is generated. Inventory transactions are not yet created.
7. If you want to ship a lesser quantity of product for the line, then click New in the Pick Ticket view or the Repair Ticket view, and change the quantity in the Qty field in that view.

   > **Note:** If the shipped quantity is less than the quantity for the corresponding quantity in the Allocated Lines list, then the quantity difference is de-allocated in a De-Allocate transaction. The De-Allocate transaction (and any other inventory transaction) occurs after you click Process Shipment in the next step.

8. In the Pick Ticket form, click Process Shipment to create inventory transactions for the selected lines in the Allocated Lines list and for the specified quantity in the Pick Ticket view or the Repair Ticket view.

   The appropriate inventory transactions are generated. For more information about the processing logic for shipments, see *About Shipping Orders*.

   The Ship Qty field in the Allocated Lines list is populated with the shipment quantity, and the Status field in the Pick Ticket form changes to Shipped for internal orders and to Closed for other orders.

   > **Note:** If the Qty field on the Pick Ticket view or the Repair Ticket view does not contain a value, then inventory transactions are not created when you click Process Shipment.

Finding Pick Tickets for Order Line Items (End User)

You might want to find pick tickets for order line items.

This task is a step in *Process of Managing Shipping*.

To find a pick ticket for an order line item

1. Navigate to the Service Orders screen, then the List view.
2. Drill down on the Order number (#) field for a selected order, and click the Line Items view tab.
3. Select an order line item record.
4. On the link bar, click Actions.
5. Note the number in the Pick Ticket field for an action record.
6. Navigate to the Shipping screen, then the Shipping view.
7. In the Pick Tickets field, query for the pick ticket number.

Consolidating Pick Tickets (End User)

In the Consolidation view, you can combine products from existing pick tickets into a single pick ticket. This consolidation reduces shipping costs. You can process all order types, except for the Repair Order type, in this view.

The Qualified Lines list in this view shows the allocated lines for pick tickets that have the following attributes:

- An Open or Pending status
- The same Ship To address
- The same source inventory location
- The same order type

The Consolidated Lines list in this view shows the products and quantities combined into 1 pick ticket. The consolidated lines are processed as though they are part of the original order.

This task is a step in *Process of Managing Shipping*.

To consolidate pick tickets

1. Navigate to the Shipping screen, then the Consolidation view.
2. In the Pick Ticket form, select a pick ticket.

3. In the Qualified Lines list, select at least 1 other pick ticket to add to the consolidation.
4. Click Consolidate.

   Products move from the Qualified Lines list to the Consolidated Lines list. The donor pick ticket no longer appears in the All Pick Tickets view.

Creating Waybills for Pick Tickets (End User)

You can create waybills for pick tickets. The waybill includes data related to the shipment, normally accompanies with the shipment, and connects shipping and receiving.

This task is a step in *Process of Managing Shipping*.

To create a waybill for a pick ticket

1. Navigate to the Shipping screen, then the Waybill view.
2. In the Pick Ticket form, select a pick ticket.
3. In the Waybill form, complete the fields as appropriate to ship the products in the selected pick ticket.

   Some fields are described in the following table.

Field	Comments
Shipment #	Type the shipment number. The default shipment number is the same as the pick ticket number.
Waybill #	Type the waybill number. The default waybill number is the same as the Waybill number (#) field in the Shipments view.

Process of Managing Receiving

The following list shows the tasks that end users typically perform to manage receiving. Your company might follow a different process according to its business requirements.

To manage receiving, end users perform the following tasks:

- *Receiving Products in Orders (End User)*
- *Receiving Repaired Products from Third-Party Vendors (End User)*
- *Viewing All Lines Items for Orders (End User)*
- *Adding Information to Unknown Receipts (End User)*

Receiving Products in Orders (End User)

You can track the products in incoming orders and the associated line items in the Receiving screen. These orders originate from the Service Orders screen. For more information about service orders, see *Siebel Order Management Guide* .

When you ship the products in an internal order, the Status field value for the associated pick ticket changes to Shipped. (When you ship the products in other orders, this Status field value changes to Closed.) For internal orders, the Status field value for the associated pick ticket changes from Shipped to Closed when you receive the products in the order.

This task is a step in *Process of Managing Receiving*.

To receive the products in an order

1. Navigate to the Receiving screen.
2. In the Pending POs/ROs/RMAs list, drill down on the Receive Type field for a selected order.

   For example, if you want to receive defective products with a return material authorization (RMA), then drill down on a Receive Type field of RMA Repair Return. Also, for example, if you want to receive defective products by stock transfer, then drill down on a Receive Type field of Internal Order.
3. In the Line Items list, select an order line item with products to receive.
4. In the Received Line Item list, create new records that describe the receipt details for the products in the selected line item.

   The value in the Qty field in the Received Line Item list cannot exceed the value in the Qty field in the Line Items list.
5. If the selected line item relates to a product for a serialized asset, then create new records for the product in the Serial Numbers list.

   The number of records in the Serial Numbers list cannot exceed the value in the Qty field in the Received Line Item list.

   > **Note:** The uniqueness of serial number is not verified in the Serial Numbers list.
6. In the order form, click Process Receipt.

   The appropriate inventory transactions are generated. For more information about the processing logic for receipts, see *About Receiving Orders*.

Receiving Repaired Products from Third-Party Vendors (End User)

Perform the following procedure to receive repaired products from a third-party vendor. For information about shipping defective products to a third-party vendor, see *Creating Transactions for Shipping Defective Products to Third-Party Vendors (End User)*.

> **Note:** Do not change the data on repair orders before you receive repaired products from a third-party vendor.

This task is a step in *Process of Managing Receiving*.

To receive a repaired product from a third-party vendor

1. Navigate to the Receiving screen.
2. In the Pending POs/ROs/RMAs list, drill down on the Receive Type field for a selected repair order.
3. In the Line Items list, select an order line item with product to receive.
4. In the Received Line Item list, create a new record that describes the receipt details for the product in the selected line item.

   The value in the Qty field in the Received Line Item list cannot exceed the value in the Qty field in the Line Items list.
5. In the Repairs list, create a new repair record for the product in the selected line item.
6. In the order form, click Process Receipt.

   The movement of the product from the third-party repair vendor to the specified inventory location is recorded.

Viewing All Lines Items for Orders (End User)

In the Receiving screen, you select Line Item Receipts from the visibility filter to view all order line items, including pending, processed, and closed line items. This view is useful for auditing receipts.

This task is a step in *Process of Managing Receiving*.

To view all line items for orders

1. Navigate to the Receiving screen.
2. From the visibility filter, select Line Item Receipts.
3. In the Line Item Receipts list, select a record, and complete at least one of the following steps:
   - Drill down on the Type field.

     The receipt form for the selected receipt shows the status of the receipt and the associated order line items.
   - Drill down on the Order number (#) field.

     Details about the order appear in the Line Items view of the Service Orders screen.
   - Drill down on the Waybill field.

     The receipt form for the selected waybill shows the shipping waybill for the receipt.

In the Receiving screen, you select All Unknown Receipts from the visibility filter to view all line items with products received with incomplete information.

To view all line items with products received with incomplete information

1. Navigate to the Receiving screen.
2. From the visibility filter, select All Unknown Receipts.
3. In the Unknown Receipts list, select a record, and complete at least one of the following steps:
   - If the Shipment number (#) field has a value, then drill down on the field.

     The Receive Unknown form shows the status of the receipt and the associated line items.

- If the Match Order number (#) field has a value, then drill down on the field.

  Details about the order appear in the Line Items view of the Service Orders screen.
- If the Waybill field has a value, then drill down on the field.

  The receipt form for the selected waybill shows the shipping waybill for the receipt.

Adding Information to Unknown Receipts (End User)

In the Receiving screen, you select All Unknown Receipts from the visibility filter to view all line items with products received with incomplete information. You can add this information and match receipts with existing orders.

This task is a step in *Process of Managing Receiving*.

To add information to an unknown receipt

1. Navigate to the Receiving screen.
2. From the visibility filter, select All Unknown Receipts.
3. In the Unknown Receipts list, drill down on the Shipment number (#) field for a selected receipt.
4. If you know the order number, then you can select the order number in the Match Order number (#) field.
5. If the receipt includes line items for products with serial numbers, then complete the following steps:

   a. In the Line Items list, select a line item for which the Serialized field is selected.
   b. In the Received Serial Numbers list, create a new record for the selected line item, and type the serial number in the Serial number (#) field.

17 Cycle Counting and Replenishment

Cycle Counting and Replenishment

This chapter describes cycle counting and replenishment (part of the Logistics Management module) for maintaining inventory. It includes the following topics:

- *About Cycle Counting*
- *About the Cycle Counting Engine*
- *About the Replenishment Engine*
- *Process of Administering Cycle Counting*
- *Process of Managing Cycle Counting*
- *Process of Managing Replenishment*

About 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 time period. You count only some of the products at one time, but you count all of the products over a designated time period. For example, you might count products of class A once every 3 months, products of class B once every 6 months, and products of class C once every year.

Because products move in and out of inventory, cycle counting creates a dynamic, statistical view of inventory. To enhance statistical accuracy, cycle counting uses the following methods of product classification (the cycle count basis):

- **ABC.** The ABC cycle count basis ranks products according to financial value. You count products with a larger dollar value more often than the products with a smaller dollar value.
- **XYZ.** The XYZ cycle count basis ranks products according to turnover. You count higher-turnover products more often than lower-turnover products. This method results in a more accurate count.

You can configure cycle counting for products, inventory location types, and inventory locations.

> **Note:** If you can set a configuration parameter for cycle counting at different levels, then the parameter for the more specific level takes precedence over the other levels. For example, the cycle count basis (ABC or XYZ) for an inventory location takes precedence over the cycle counting bases for an inventory type. The cycle count class (A, B, or C; X, Y, or Z, the class has a high, medium, or low relative value or turnover rate) for an inventory type takes precedence over cycle count class for a product.

About the Cycle Counting Engine

The Cycle Counting Engine requires the following information:

- 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

The Cycle Counting Engine produces the following information:

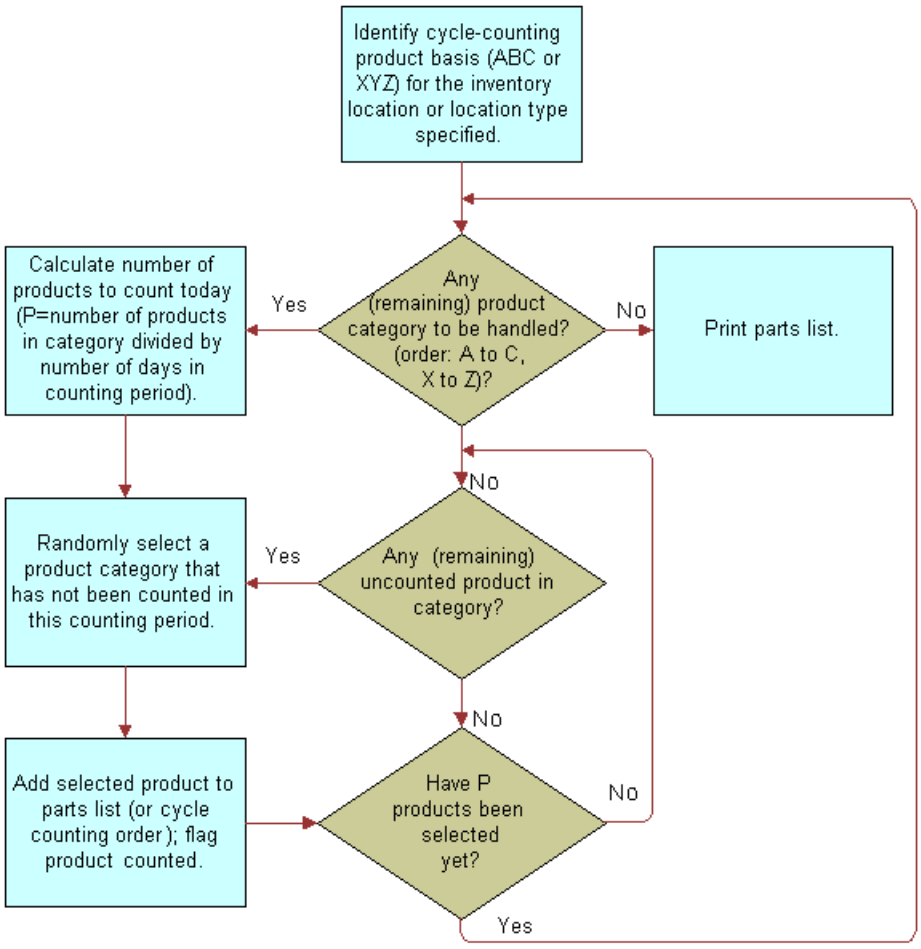
- Cycle counting periods that define the calendar dates that a cycle count covers
- Cycle counting records (headers)
- Products for each cycle counting record

  The products provide instructions for the next count of inventory.

You can enter count data in the Part List view of the Cycle Counts screen. The Cycle Counting Engine compares this data to the inventory records in its database, and allows you to adjust inventory for variances.

Process Flow for Cycle Counting Engine

The following figure shows the process flow in the Cycle Counting Engine.



The Cycle Counting Engine completes the following steps:

1. Identifies the cycle count basis (ABC or XYZ) for the specified inventory location or location type.
2. For any remaining product category to process, calculates the number of products to count today. If there is no remaining product category to process, then prints a part list.

3. If there are any remaining uncounted products in the product category, then selects a product that is not counted in the counting period.
4. Adds the selected product to the part list (or cycle counting order) and flags the product as counted.
5. If the products to count today are selected, then returns to Step 2. If the products to count today are not selected yet, then returns to Step 3.

Configuration Parameters for the Cycle Counting Engine

The Cycle Counting Engine generates cycle counting headers and cycle counting products by using the configuration information from the Cycle Counts view of the Inventory screen. For more information, see *Generating Cycle Counts (End User)*.

Cycle counting uses the following configuration parameters:

- **ABC or XYZ count basis.** The method for cycle counting.
  - **A, B, or C classification.** The product classification that is based on the financial value of the product. A has a higher value than B, and B has a higher value than C.
  - **X, Y, or Z classification.** The product classification that is based on the turnover of the product. X has a higher turnover than Y, and Y has a higher turnover than Z.

  A product can have 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 the counting frequency is 7 days, then you count inventory every 7 days.
- **Period.** The time period in days allotted to counting all A or X, B or Y, or C or Z product classes at a location. For example, if the counting period for class A or X products is 90 days, then the Cycle Counting Engine includes all the products in this class in the part list at least once every 90 days.
- **Start Date and End Date.** The time span in calendar days when the Cycle Counting Engine creates cycle count records.

For example, you configure an inventory location for counting on a financial value basis (count bases of ABC). There are 100 class A products in inventory. You count all of the these products in 20 days (period A/X of 20 days). Every 5 days (frequency of 5 days) you spend as much time as needed to count a quarter (5/20) of these products, with the goal of counting all of these products in 20 days. Counting periods do not have to be even multiples of the frequency.

The following table lists the applicable data and views for the configuration parameters that the Cycle Counting Engine uses.

Configuration Parameter	Applies to	View
Cycle count basis: ABC or XYZ	Inventory locations	Inventory Locations view of the Inventory screen
	Inventory location types	Inventory Location Types view in the Inventory Administration view of the Administration - Service screen
Cycle count class: A, B, or C and X, Y, or Z	Products associated with a specific inventory type	Inventory Options list in the Fulfillment view in the Service Information view in the Products view of the Administration - Products screen

Configuration Parameter	Applies to	View
	Products associated with specific inventory location	Product Inventory view of the Inventory screen.
Frequency	Inventory locations	Inventory Locations view of the Inventory screen
	Inventory location types	Inventory Location Types view in the Inventory Administration view of the Administration - Service screen
Period for A/X, B/Y, and C/Z	Inventory locations	Inventory Locations view of the Inventory screen
	Inventory location types	Inventory Location Types view in the Inventory Administration view of the Administration - Service screen
Start date and end date	Inventory locations	Cycle Count List view of the Cycle Counts screen

Note: If you can set a configuration parameter at different levels of inventory, then the parameter for the more specific level takes precedence over the other levels. For example, the count basis (ABC or XYZ) at an inventory location takes precedence over the count basis for an inventory type. The cycle count class (A, B, or C; X, Y, or Z) for an inventory type takes precedence over cycle count class for a product.

System Preference Table for the Cycle Counting Engine

System preferences for the engines in Siebel Field Service determine the behavior of each engine. These system preferences are stored in the S_SYS_PREF table. The BusComp is System Preferences. Note the following columns in this table:

- **SYS_PREF_CD.** The name of the System Preference.
- **VAL.** The value of the System Preference.

Changing the values in these system preferences changes the default behavior of the engine. To implement changes to system preferences, restart the Field Service server.

Parameters for the Cycle Counting Engine

The Workflow Manager or the client can call all engines. These engines require certain passed parameters. Changing the values of these parameters changes the default behavior of the engine. To implement changes to parameters, restart the Field Service server. The following table describes the parameters for the Cycle Counting Engine.

Parameter	Value	Description
Mode	SQL	Specifies the WHERE clause to set up criteria and count the products that meet that criteria.
	Id	Specifies the ID of the inventory location or the inventory type. The Cycle Counting Engine counts only the products related to that location or type.
	TempTbl	Places all the required parameters into a temporary table with a temporary Client Request ID and passes that ID to the server to retrieve the parameters from Temp Table. **Note:** Do not run component jobs in TempTbl mode to call the Cycle Counting Engine. This mode is reserved for interactive engine jobs sent directly from a client application.
ClientId	A row ID for retrieving parameters from the temp table	This parameter is required when the Mode parameter is TempTbl.
RowID	Row ID of an inventory location or inventory type	This parameter is required when the Mode parameter is Id.
StartDT	Start Date	Specifies the proposed start date of cycle counting. This parameter is required.
EndDT	End Date	Specifies the proposed end date of cycle counting. This parameter is required.
Where	Where Clause	Specifies the Business Component Search Spec mode. This parameter is required when the Mode parameter is SQL.
Loc/Type	Inventory Location or Inventory Type	This parameter is required when the Mode parameter is Id or TempTbl.

Methods for Starting the Cycle Counting Engine

The Cycle Counting Engine applies to the FS Cycle Counting business service. For more information, see *FS Cycle Counting Business Service*.

Start the Cycle Counting Engine in the following ways:

- Start a single or repeating component job in the Jobs view of the Administration - Server Management screen.
- Click the Generate Counts button in Cycle Counts view of the Inventory screen.
- Click the menu button, and select Generate Counts (All Locations) in Cycle Counts view of the Inventory screen.
- Use the command-line interface on a Server Manager program.

About the Replenishment Engine

Replenishment is the process of generating orders to restock depleted products at an inventory location. The Replenishment Engine generates internal orders for other inventory locations or purchase orders for outside vendors using the following information about a product in inventory:

- Minimum and maximum stock levels and a safety level
- Replenishment relationships with other inventories

The following sources apply to replenishment:

- **Another service inventory location.** For example, the main service warehouse replenishes a subsidiary warehouse. The Replenishment Engine generates an internal order.
- **External provider.** You purchase the product from an external vendor. The Replenishment Engine generates a purchase order.
- **Manufacturing inventory.** An internal manufacturing division provides the product. Such replenishments are usually handled as if they originate from an external provider. The Replenishment Engine generates a purchase order.

> **Note:** Replenishment is different from fulfillment. The replenishment process creates orders to restock inventory. The fulfillment process allocates products to fill outgoing orders and generates pick tickets. For more information, see *About Fulfillment*.

The Replenishment Engine requires as input 1 or more inventory locations.

Configuration Parameters for the Replenishment Engine

The following table lists applicable data and views for the configuration parameters that the Replenishment Engine uses.

Configuration Parameter	Applies to	View
Minimum product quantity to keep in stock	Products	Product Inventory view in the Inventory Locations view of the Inventory screen
Maximum product quantity to keep in stock	Products	Product Inventory view in the Inventory Locations view of the Inventory screen
Replenishment relationships between inventory locations	Inventory locations	Relationships view in the Inventory Locations view of the Inventory screen
Vendor	Products	Fulfillment view in the Service Information view in the Products view of the Administration - Product screen
Vendors for an inventory location	Inventory locations	Vendor view in the Inventory Locations view of the Inventory screen

Configuration Parameter	Applies to	View

Component Parameters for the Replenishment Engine

Component parameters for the engines in Siebel Field Service determine the behavior of each engine. Changing the values of these component parameters changes the default behavior of the engine. To implement changes to component parameters, restart the Field Service server. For more information about changing the values of component parameters, see *Siebel System Administration Guide* .

The following table describes these component parameters for the Replenishment Engine.

Component Parameter	Default Value	Description
SysPref_InvLocTypeForReplenish	Warehouse	Specifies the default replenishment level. Orders to replenish any level of an inventory location have this value as the destination.
SysPref_ReplenishOrderPriority	Medium	Specifies the default order priority for newly created orders. The values come from the Order Priority LOV, and individual values are LIVs.
SysPref_OrderItemStatusForOnOrderQty	Open, New, Pending	Specifies the valid values for the existing order item status. The values come from the Order Item Status LOV, and individual values are LIVs.
SysPref_OrderStatusForOnOrderQty	Open, New, Pending	Specifies the valid values for the existing order status. The values come from the Order Status LOV, and individual values are LIVs.
SysPref_OrderTypeForOnOrderQty	Internal Order, Purchase Order	Specifies the valid values for the existing order type. The values come from the Order Type LOV, and individual values are LIVs.

To avoid creating duplicate orders, the last 3 parameters in the previous table specify the order item statuses, order statuses, and order types to find when searching for an existing order.

CAUTION: The Order Status LOV must include Open in the Language-Independent Code field. Otherwise, the Replenishment Engine does not function.

Parameters for the Replenishment Engine

The Workflow Manager or the client can call all engines. These engines require certain passed parameters. Changing the values of these parameters changes the default behavior of the engine. To implement changes to parameters, restart the Field Service server. The following table describes the parameters for the Replenishment Engine.

Parameter	Value	Description
InvokeMode	SQL	Specifies the WHERE clause to set up criteria and replenish the inventory locations that meet that criteria.
	Id	Specifies the ID of the inventory location to replenish. The Replenishment engine replenishes that location.
	TEMP	Places all the required parameters into a temporary table with a temporary Client Request ID and passes that ID to the server to retrieve the parameters from Temp Table. **Note:** Do not run component jobs in TEMP mode to call the Replenishment Engine. This mode is reserved for interactive engine jobs sent directly from a client application.
ClientId	A row ID for retrieving parameters from the temp table	This parameter is required when the InvokeMode parameter is TEMP.
SourceType	I (Inventory Location) V (Vendor)	This parameter is required when the InvokeMode parameter is TEMP and defaults to I when the InvokeMode parameter is Id or SQL.
DestId	Destination Inventory ID	This parameter is required when the InvokeMode parameter is Id.
WhereClause	SQL Where Clause	Specifies the Business Component Search Spec mode. This parameter is required when the InvokeMode parameter is SQL.

Processing Logic for the Replenishment Engine

The processing logic for the Replenishment Engine follows:

1. Obtain the system preferences from the system preference table. For more information, see *System Preference Table for the Cycle Counting Engine*.

   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 by using the InvokeMode parameter 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 parameter is Id or SQL, then get the source inventory location for the current destination inventory location.

   Get the on hand, minimum quantity (Min Qty), and maximum quantity (Max Qty) for all the products in the destination inventory location and the child locations with an on hand quantity less than the minimum quantity. For each product complete the following steps:

   a. Calculate the effective quantity (EffectiveQty).

      Search the existing orders and find the quantity on order (Qty on order). The effective quantity is the quantity (Qty) plus the quantity on order.

      Complete the next 2 steps if the effective quantity is less than the minimum quantity.

   b. If the order header does not exist (first time only), then generate the order header with an Internal Order type.
   c. Add a line item to the order header for the required quantity (ReqQty). The required quantity is the maximum quantity less the effective quantity.

4. Generate the purchase order.

   Get the on hand, minimum quantity, and maximum quantity for all the products in the destination inventory location and the child locations with an on hand quantity less than the minimum quantity. For each product complete the following steps:

   a. Calculate the effective quantity.

      Search the existing orders and find the quantity on order. The effective quantity is the quantity plus the quantity on order.

      Complete the next 3 steps if the effective quantity is less than the minimum quantity.

   b. Get the vendor for the product if vendor exists in the user supplied Vendor list.
   c. If the order header does not exist (first time only), then generate the order header with a Purchase Order type.
   d. Add a line item to the order header for the required quantity. The required quantity is the maximum quantity less the effective quantity.

Methods for Starting the Replenishment Engine

The Replenishment Engine applies to the FS Replenishment business service. For more information, see *FS Replenish Business Service*.

Start the Replenishment Engine in the following ways:

- Use the Workflow Manager to generate internal orders and purchase orders according to stock levels.
- Click the Order button in the Generate Orders view of the Inventory screen.
- Use the Server Manager program on the application server.

Process of Administering Cycle Counting

The following list shows the tasks that administrators typically perform to administer cycle counting. Your company might follow a different process according to its business requirements.

To administer cycle counting, administrators perform the following tasks:

- *Setting Component Job Parameters for the Cycle Counting Engine*
- *Changing System Preferences for the Cycle Counting Engine*
- *Defining Configuration Parameters for Inventory Location Types*
- *Defining Cycle Counting Classes for Products*
- *Configuring Tracing for the Cycle Counting Engine*

Setting Component Job Parameters for the Cycle Counting Engine

Follow the procedure in this topic to set the component job parameters for the Cycle Counting Engine. For more information about server components, component parameters, and setting repeating component jobs, see *Siebel System Administration Guide* .

This task is a step in *Process of Administering Cycle Counting*.

To set the component job parameters for the Cycle Counting Engine

1. Navigate to the Administration - Server Management screen, Jobs, then the Job Detail view.
2. Create or edit a component job for the Field Service Cycle Counting Engine (alias FSCyccnt) server component.

   If you want to set the component job parameters for the Replenishment Engine, then create or edit a component job for the Field Service Replenishment Engine (alias FSRepl) server component.
3. Add or modify the server component parameters, as needed.

   For more information about the applicable parameters, see *Parameters for the Cycle Counting Engine* and *Parameters for the Replenishment Engine*.

Changing System Preferences for the Cycle Counting Engine

You can change the system preferences for the Cycle Counting Engine.

This task is a step in *Process of Administering Cycle Counting*.

To change the system preferences for the Cycle Counting Engine

1. Navigate to Administration - Application screen, then the System Preferences view.
2. Select a system preference for the Cycle Counting Engine.

   For more information about the system preferences for the Cycle Counting Engine, see the following table.
3. In the System Preference Value field, enter a new value.
4. To implement the changes to the system preferences, restart the Field Service server.

The following table describes some system preferences for the Cycle Counting Engine.

System Preference Name	Default Value	Description
BucketAvailCDtobeCounted	OnHand, Customer-Owned	Specifies the valid values for the availability code of the inventory level. The values come from the Bucket Availability Code LOV, and individual values are LIVs.
BucketStatusCDtobeCounted	Good	Specifies the valid values for the status code of the inventory level. The values come from the Bucket Status Code LOV, and individual values are LIVs.

Only the inventory levels (buckets) with an Availability field value and a Status field value that match the values in these system preferences are included in the cycle counting process.

Defining Configuration Parameters for Inventory Location Types

You can define the configuration parameters related to cycle counting for inventory location types.

This task is a step in *Process of Administering Cycle Counting*.

To define the configuration parameters for an inventory location type

1. Navigate to the Administration - Service screen, then the Inventory Administration view.
2. In the Inventory Location Types list, select an existing inventory location type, or add a new inventory location type, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Count Basis	Select the method of product classification for cycle counting. Values include: o **ABC.** This cycle count basis ranks products according to financial value. You count products with a larger dollar value more often than the products with a smaller dollar value. o **XYZ.** This cycle count basis ranks products according to turnover. You count higher-turnover products more often than lower-turnover products.

Field	Comments
Frequency	Type the time period in days between physical counts of inventory at any location with the inventory type.
Period A/X	Type the time period in days for counting all A or X class products at any location with the inventory type.
Period B/Y	Type the time period in days for counting all B or Y class products at any location with the inventory type.
Period C/Z	Type the time period in days for counting all C or Z class products at any location with the inventory type.

Defining Cycle Counting Classes for Products

In the Inventory Options list, you can define the configuration parameters related to cycle counting (the cycle counting classes) for products. The Allocate Below Safety, Auto Allocate, and Auto Substitute fields in this list do not apply to cycle counting or replenishment.

This task is a step in *Process of Administering Cycle Counting*.

To define cycle counting classes for a product

1. Navigate to Administration - Product screen, then the Products view.
2. Select a product record, and click the Service Information view tab.
3. On the link bar, click Fulfillment.
4. In the Inventory Options list, select an existing record, or add a new record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Inventory Type	Select an inventory type for the product.
Class ABC	Select the financial-value classification of the product. Values include A, B, and C. Class A has the highest financial value.
Class XYZ	Select the turnover-rate classification of the product. Values include X, Y, and Z. Class X has the highest turnover rate.

Field	Comments

Note: A product can have any combination of class ABC and XYZ values (for example, an A value and a Y value). However, cycle counting must be based on either ABC or XYZ, not both.

Configuring Tracing for the Cycle Counting Engine

Depending on the type and quantity of information you want to collect, you can set different tracing levels for the Cycle Counting Engine.

This task is a step in *Process of Administering Cycle Counting*.

To configure tracing for the Cycle Counting Engine

1. Navigate to the Administration - Server Configuration screen, then the Servers view.
2. Click the 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.

Process of Managing Cycle Counting

The following list shows the tasks that end users typically perform to manage cycle counting. Your company might follow a different process according to its business requirements.

To manage cycle counting, end users perform the following tasks:

- *Setting Up the Cycle Counting Engine (End User)*
- *Setting Up Cycle Counts (End User)*
- *Specifying the Products for Cycle Counts (End User)*
- *Generating Cycle Counts (End User)*
- *Viewing Pending Cycle Counts (End User)*
- *Recording Results of Cycle Counts (End User)*
- *Completing Cycle Counts (End User)*
- *Adjusting Inventory for Cycle Counts (End User)*

Setting Up the Cycle Counting Engine (End User)

You can set up asynchronous or synchronous operation of the Cycle Counting Engine. For more information about synchronous and asynchronous processing, see *Siebel Application Services Interface Reference* .

Note: In synchronous processing, the client screen can lock, and you see a blank screen.

This task is a step in *Process of Managing Cycle Counting*.

To set up the Cycle Counting Engine

1. From the application-level menu, select Tools, then User Preferences.
   The User Preferences screen appears.
2. On the link bar, click Service.
   The Field Service form appears.
3. In the Asynchronous Generation of section, complete one of the following steps:
   - To set asynchronous operation, select the Cycle Counts check box.
   - To set synchronous operation, clear the Cycle Counts check box.

Setting Up Cycle Counts (End User)

Complete the procedures in this topic to set up cycle counts.

This task is a step in *Process of Managing Cycle Counting*.

To set up a cycle count

1. Navigate to the Cycle Counts screen, then the Cycle Counts List view.
2. From the visibility filter, select All Cycle Counts.
3. Create a new cycle count record, and complete the fields as appropriate.
   Some fields are described in the following table.

Field	Comments
Inventory Location	Select the inventory location for the cycle count.
Status	Select the status of the cycle count. Values include Assigned, Closed, and Open.
Due	Select the date and time to schedule the cycle count completion. This field is for information only, and does not affect the Cycle Counting Engine.
Start	Select the date and time to start the cycle count. This date and time is used to generate Cycle Count Detail reports.
End	Select the actual date and time to complete the cycle count. This date and time is used to generate Cycle Count Detail reports.

After you set up a cycle count, you set up the cycle count data for the inventory location in the cycle count.

To set up the cycle count data for an inventory location

1. Navigate to the Inventory screen.
2. Drill down on the Name field for a selected inventory location, and click the More Info view tab.
3. In the More Info form, complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Period A/X	Type the time period in days for counting all A or X class products at the location.
Period B/Y	Type the time period in days for counting all B or Y class products at the location.
Period C/Z	Type the time period in days for counting all C or Z class products at the location.
Count Basis	Select the method of product classification for cycle counting. Values include: o **ABC.** This cycle count basis ranks products according to financial value. You count products with a larger dollar value more often than the products with a smaller dollar value. o **XYZ.** This cycle count basis ranks products according to turnover. You count higher-turnover products more often than lower-turnover products.
Frequency	Type the time period in days between physical counts of inventory at the location.

Specifying the Products for Cycle Counts (End User)

After you set up a cycle count, you can specify the products to include in the cycle count.

This task is a step in *Process of Managing Cycle Counting*.

To specify the product for a cycle count

1. Navigate to Inventory screen.
2. Drill down on the Name field for a selected inventory location, and click the Cycle Counts view tab.
3. Drill down on the Status field for a selected cycle count.
4. In the Part List view, create a new product record, and complete the fields as appropriate.

Generating Cycle Counts (End User)

When you generate cycle counts, you use the Cycle Counting Engine to automatically create lists of products to count at inventory locations.

This task is a step in *Process of Managing Cycle Counting*.

To generate cycle counts

1. Navigate to the Inventory screen.
2. Drill down on the Name field for a selected inventory location for cycle counting, and click the Cycle Counts view tab.
3. Complete one of the following steps:
   - Click Generate Counts to create count lists for the selected inventory location.
   - Click the menu button, and select Generate Counts (All Locations) to create count lists for all inventory locations.

   The products to count at the inventory locations appear in the Part List view of the Cycle Counts screen.

   The cycle count records appear on the Cycle Counts view. Some fields in the Cycle Counts view are described in the following table.

Field	Comments
ABC Class	Displays the financial-value classification of the product. Values include A, B, and C. Class A has the highest value.
XYZ Class	Displays the turnover-rate classification of the product. Values include X, Y, and Z. Class X has the highest turnover rate.
Started	Displays the actual start date for the cycle count.
Ended	Displays the actual end date for the cycle count.
Status	Displays the status of the cycle count. Values include Assigned, Closed, and Open.

   Additional information appears in the Cycle Counts list of the Cycle Counts view. Some fields in the Cycle Counts list are described in the following table.

Field	Comments
Status	Displays the status of the cycle count. Values include Assigned, Closed, and Open.
Inventory Location	Displays the name of the inventory location for the cycle count.
Assigned To	Displays the employee assigned to complete the cycle count.

Field	Comments
Due	Displays the date and time for the scheduled completion of the counting cycle.
Start	Displays the date and time the cycle count period starts.
End	Displays the date and time the cycle count period ends.

Viewing Pending Cycle Counts (End User)

You can view pending cycle counts and the associated products to determine the products that remain to count.

This task is a step in *Process of Managing Cycle Counting*.

To view pending cycle counts

1. Navigate to the Inventory screen.
2. Drill down on the Name field for a selected inventory location for cycle counting, and click the Cycle Counts view tab.

   Pending cycle counts have a Status field value of Open or Assigned.
3. Drill down on the Status field for a selected cycle count.

   The Part List view shows all products included in the selected cycle count.

Recording Results of Cycle Counts (End User)

The Part List view of the Cycle Counts screen displays the products to count at inventory locations. You click Generate Counts or click the menu button and select Generate Counts (All Locations) in the Cycle Counts view of the Inventory screen to create records in this view. You can also manually create records in this view. You record the results of your cycle counts in this view.

This task is a step in *Process of Managing Cycle Counting*.

To record the result of a cycle count

1. Navigate to the Cycle Counts screen, then the Cycle Count List view.
2. Drill down on the Status field for a selected cycle count.
3. In the Part List view, enter the quantity that you counted in the Count field of each product.
4. If a counted product is serialized, then create a new record for each serialized asset for the product in the Counted Serial Numbers list.

Completing Cycle Counts (End User)

After you record the results of a cycle count, you can complete the cycle count. When you click the Count Complete button in the Part List view of the Cycle Counts screen, the quantity in the Count field in the Part List view is compared to the quantity of the product in the Siebel Field Service database. Then, records are created for the variance in the Missing Assets list in the Variance view of the Cycle Counts screen and in the Counted Serial Numbers list in the Part List view of the Cycle Counts screen.

This task is a step in *Process of Managing Cycle Counting*.

To complete a cycle count

1. Navigate to the Cycle Counts screen, then the Cycle Count List view.
2. Drill down on the Status field for a selected cycle count.
3. In the Part List view, click Count Complete.
   The records in the Variance view and the Counted Serial Numbers list are populated.

Adjusting Inventory for Cycle Counts (End User)

The Variance view shows the differences between the quantity in the Siebel Field Service database and the quantity for a product count. When you click the Adjust button in this view, Siebel Field Service database transactions are created to match the quantity recorded in the Siebel Field Service database with the product count.

These transactions are either the Receive Other type (from the External Location) or the Ship Other type (to the External Location). The Cycle Counting Engine does not validate the quantity or source for the External Location. For more information, see *Inventory Locations* and *About Inventory Transactions*.

This task is a step in *Process of Managing Cycle Counting*.

To adjust inventory for a cycle count

1. Navigate to the Cycle Counts screen, then the Cycle Count List view
2. Drill down on the Status field for a selected cycle count, and click the Variance view tab.
3. Review the results (Original, Count, and Variance fields) of the product count and the counted serial numbers, if applicable.
4. To adjust the inventory, click Adjust.

Process of Managing Replenishment

The following list shows the tasks that end users typically perform to manage replenishment. Your company might follow a different process according to its business requirements.

To manage replenishment, end users perform the following tasks:

- *Setting Up Replenishment (End User)*
- *Replenishing Inventories (End User)*

- *Viewing Pending Orders for Replenishment (End User)*

Setting Up Replenishment (End User)

To set up replenishment, perform the following tasks:

- Set up replenishment parameters for products. For more information, see *Adding Products to Inventory Locations (End User)*.
- Set up a replenishment relationship between inventory locations. For more information, see *Defining Relationships Between Inventory Locations (End User)*.
- Associate vendors with products. For more information, see the procedure in this topic.

This task is a step in *Process of Managing Replenishment*.

To associate a vendor with a product

1. Navigate to the Products screen, then the Internal Product List view.
2. Drill down on the Product field for a selected product, and click the More Info view tab.
3. In the Logistics section of the form, select a vendor in the Primary Vendor field.

Replenishing Inventories (End User)

The read-only records in the Generate Orders view come from data in the Inventory screen. In this view, you can automatically generate orders to restock inventory products through an internal transfer between inventory locations or through a purchase from an outside vendor. For replenishment, the product must have a defined inventory level. For replenishment from a vendor, you must also define the authorized vendor. For more information about defining an authorized vendor, see *Associating Vendors with Inventory Locations (End User)*.

The replenishment process uses a source inventory location for replenishment to a selected location and a target location for replenishment from the selected location. The Source Locations list includes replenishment sources for the related target locations. The Target Locations list includes target locations to replenish from a related source location. You define specific relationships between locations in the Relationships view of the Inventory screen. Click the Order button to create internal orders to replenish the target locations.

This task is a step in *Process of Managing Replenishment*.

To replenish inventory

1. Navigate to the Inventory screen.
2. Drill down on the Name field for a selected inventory location, and click the Generate Orders view tab.

   This view displays a read-only list of authorized vendors for this inventory location. The lists following this view show the source and target locations.
3. In the Generate Orders list, click Order.

   The Replenishment Engine runs, and purchase orders or internal orders are generated to replenish every product at the selected inventory location that is below its minimum level.

Viewing Pending Orders for Replenishment (End User)

You can view pending internal orders or purchase orders to replenish an inventory location. The Replenishment Engine generates the read-only records for these orders. For more information about replenishment, see *About the Replenishment Engine*.

This task is a step in *Process of Managing Replenishment*.

To view pending orders for replenishment

1. Navigate to the Inventory screen.
2. Drill down on the Name field for a selected inventory location, and click the Pending Orders view tab.

   This view displays the order numbers and types of pending orders for the inventory location.

18 Quality Management

Quality Management

This chapter describes how to work with change requests and patch requests. It includes the following topics:

- *About Siebel Quality*
- *Process of Administering Siebel Quality*
- *Process of Managing Siebel Quality*

About Siebel Quality

Siebel Quality supports the product development and maintenance life cycle by managing change requests. 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 features for creating, responding to, and tracking CRs. Siebel Quality manages CRs in the following ways:

- Managing CRs from creation through resolution.
- Tracking and analyzing details about CRs.
- Coordinating and integrating CR management activities across multiple departments.
- Displaying status information about product stability.

If a customer must resolve a CR and cannot wait for the next product release, then Siebel Quality can generate a patch request. 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 Siebel Field Service. Siebel Quality includes the following features:

- Create, track, and close the various types of change requests (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 a product, it sometimes occurs in other, related products. In such cases, users can create child CRs, or multiple occurrence CRs, from a primary CR and link the CRs together so that they can manage them as a single unit through resolution.

  Siebel Quality also allows users to designate other types of relationships, such as CRs that depend on each other or are duplicates of each other.

- Analyze and report on product issues. Because you can run reports and charts 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 is assigned to, if ownership is reassigned, and if the product area associated with the CR is modified.

Siebel Quality and Release Manager

Siebel Quality is packaged with 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.

Siebel Quality and Release Manager together support the product life cycle management process from beginning to end. For more information about Release Manager, see *Release Management*.

Best Practices for Administering and Using Siebel Quality

Implement the following best practices for administering and using the Siebel Quality:

- **Automatically assign change requests (CRs).** To help productivity, you can automate the CR assignment process. Use Siebel Business Process Designer to detect the creation of a new CR and call Assignment Manager to assign the CR to the appropriate employee. For more information about Siebel Business Process Designer, see *Siebel Business Process Framework: Workflow Guide* . For more information about 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 link CR records, you can track and close multiple CRs together.
- **Appoint multiple owners.** To help manage issue follow-up, assign at least 2 employees to the processing of each CR. For example, an employee can log, prioritize, and assign the CR, while another employee can implement a solution.
- **Write descriptively.** Users can help make the CR life cycle more efficient by writing clear and descriptive CRs that everyone involved in CR processing can understand.
- **Query frequently.** Because owners are not automatically alerted when users log a new CR or update an existing CR, users in all teams that work with CRs must query often for their CRs.
- **Add comments.** To help the employees involved in processing a CR to trace the history and to understand the current status, make sure that everyone who updates a CR writes a comment describing the update.

Process of Administering Siebel Quality

The following list shows the tasks that administrators typically perform to administer Siebel Quality. Your company might follow a different process according to its business requirements.

To administer Siebel Quality, administers perform the following tasks:

- *Setting Up Roles and Responsibilities*. Set up roles and responsibilities to allow the employees who use Siebel Quality to access the Quality screen and its views.
- *Setting Up Lists of Values*. Set up Lists of Values (LOVs) for the fields in the Quality screen.

- *Mapping Area-Subarea Combinations*. After you enter field value LOVs, map Area and Subarea field values to each other. Link each Area-Subarea combination to Product Line, Engineering Group, and QA Owner field values.
- *Adding Release Product Builds*. Add product builds that users can link to change requests.

Setting Up Roles and Responsibilities

You can set up access to the screens and views in Siebel Field Service, including the Quality screen and its associated views, by assigning roles and responsibilities. For more information about setting up roles and responsibilities and associating screens and views with roles and responsibilities, see *Siebel Security Guide* .

This task is a step in *Process of Administering Siebel Quality*.

Setting Up Lists of Values

You can set up Lists of Values (LOVs), including LOVs for Siebel Quality, for use in Siebel Business Applications. For more information about setting up LOVs, see *Siebel Applications Administration Guide* .

The following table lists the LOVs to set up before using Siebel Quality.

Field	Type Value for LOV Items	Description	Example LOV Items
Area	PROD_DEFECT_AREA	The functional product area.	Accounts Orders
Browser	PSTASK_CLIENT_BROWSER	The type of Web browser running in the test environment.	IE 5.5 NS 6.2
Client OS	PSTASK_CLIENT_OS	The type of operating system running on the client.	Win 2000 Mac OS
Database	PSTASK_CLIENT_DB	The type of database running in the test environment.	IBM DB2 MS SQL Svr 7.0
Priority	PROD_DEFECT_PRIORITY	The relative importance of the issue.	P1. Critical P3. Medium
Server OS	PSTASK_SERVER_OS	The type of operating system running on the server.	HP-UX 11i Solaris 8
Severity	PROD_DEFECT_SEVERITY	The severity of the issue.	3. Wrong Behavior 4. Minor Error

Field	Type Value for LOV Items	Description	Example LOV Items
Special Tag	PD_SPEC_TAG	The statuses or actions that other fields do not identify. Use for reporting, querying, exporting, or localization purposes.	BETA3 HIGH RISK
Status	PROD_DEFECT_SUB_STATUS	The implementation or development stage.	Open-Disagree Closed-Verified
Subarea	PROD_DEFECT_SUB_AREA	The functional product area subdivision.	Expenses Fulfillment
Substatus	PROD_DEFECT_SUB_STATUS	The implementation or development substage.	Unassigned Approved
Type	PROD_DEFECT_TYPE	The type or classification for the change request.	Product Defect Enhancement
Siebel Application Interface	PSTASK_SERVER_OS	The type of operating system running on the Siebel Application Interface.	AIX 4.3.3 Win NT 4.0

This task is a step in *Process of Administering Siebel Quality*.

Mapping Area-Subarea Combinations

The values that are available for selection in the Subarea field in the Quality screen views change dynamically according to the value a user selects in the Area field. When the user then selects a value in the Subarea field, the Product Line, Engineering Group, and QA Owner fields are automatically populated.

You activate this process by setting up mappings for Area-Subarea combinations. After defining the Lists of Values (LOVs) for the Area and Subarea fields, you define each Area-Subarea combination. Then you designate the Product Line, Engineering Group, and QA Owner field values for each Area-Subarea combination.

When product parameters change in the course of development, you might have to map new Area-Subarea combinations.

This task is a step in *Process of Administering Siebel Quality*.

To map an Area-Subarea combination

1. Navigate to the Quality screen, then the Quality Administration view.
2. Create a new 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 the records with the Area and Subarea fields in the following table.

Area	Subarea
Inventory	Shipping
Inventory	Receiving
Inventory	Cycle Counting

3. Complete the other fields.

   These fields are described in the following table.

Field	Comments
Product Line	Select the grouping of products associated with the Area-Subarea combination.
Engineering Group	Select the engineering team associated with the Area-Subarea combination.
QA Owner	Select the quality assurance team owner associated with the Area-Subarea combination.

Adding Release Product Builds

You control product version information for the organization by setting up release product builds. Because every Release Manager and Siebel Quality record must be associated with a specific release product build, you must set up product builds before users enter any records.

As a product progresses through the release cycle, increasingly advanced product prototypes apply. (In the case of software development, these prototypes are *builds*.) When each new prototype is available, enter it into Siebel Quality to allow users of Siebel Quality and Release Manager to record each record for the appropriate build.

Releases include the following types:

- **Future Releases.** Although only 1 active release can be in progress, you must also set up records for future releases. Consequently, if a manager defers a feature or fix from the current release, then a user can target it to a specific future release.
- **Unspecified Releases.** Sometimes you might not know the appropriate future release for a feature or fix. For this contingency, you must set up at least 1 artificial release named Unspecified Release or a similar term. Users can link orphan items to this release. When the appropriate future release is determined, users can then retarget an item to that release.

This task is a step in *Process of Administering Siebel Quality*.

To add a release product build

1. Navigate to the Quality screen, then the Release Product Administration view.
2. In the Release Product Administration list, create a new record for a build, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Product	Type the prototype product for the build.
Version	Type the version number of the product.
Build	Type the number or code that identifies the build.
Language	Type the 3-letter language code.
Target Version	Select this check box to make the build available as a value in the Target field of the Change Requests view.
End Date	Select the date after which the build disappears from the Build and Target fields of the Change Requests view.

Note: When you create a record in the Release Product Administration view, the information in the Build, Language, Product, and Version fields is available to users in the Build field in the QA Tests view of the Release screen and the Change Requests view of the Quality screen. If you select the Target Version check box, then this information also is available in the Target field in the Change Requests view of the Quality screen.

Process of Managing Siebel Quality

The following list shows the tasks that end users typically perform to manage Siebel Quality. Your company might follow a different process according to its business requirements.

To manage Siebel Quality, end users perform the following tasks:

- *Logging Change Requests (End User)*
- *Assessing Change Requests (End User)*
- *Resolving Change Requests (End User)*
- *Verifying Change Request Closures (End User)*

- *Creating Patch Requests (End User)*

Logging Change Requests (End User)

Anyone can log a change request (CR). During testing, quality assurance employees, however, create the vast majority of CRs for product issues. When a QA tester discovers a product issue, the tester creates a new CR.

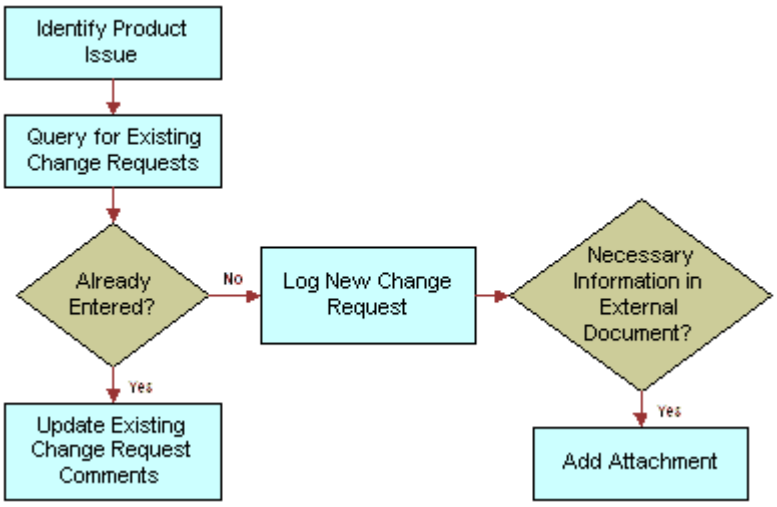
This topic contains the following related information:

- *Process Flow for Logging Change Requests*
- *Querying for Existing Change Requests*
- *Logging Change Requests*
- *Generating Change Requests from Service Requests*

This task is a step in *Process of Managing Siebel Quality*.

Process Flow for Logging Change Requests

After you set up Siebel Quality, quality assurance testers and others can log change requests (CRs). The following figure shows the process flow for the tasks in logging.



More information about the tasks in this process follows:

1. **Query for Existing Change Requests.** After identifying a product issue, but before logging a new CR, the CR creator queries to see whether a duplicate issue already exists. For more information, see *Querying for Existing Change Requests*.
    - **Update Existing Change Request Comments.** If the search reveals an existing CR for the issue, then the CR creator enters a comment with missing relevant information.
    - **Log New Change Request.** If the CR creator cannot find an existing issue, then the creator generates a new CR. For more information, see *Logging Change Requests* and *Generating Change Requests from Service Requests*.
2. **Add Attachment.** Optionally, the CR creator can add attachments, such as screen captures and configuration files, to clarify the issue.

Querying for Existing Change Requests

Before logging a new change request (CR), a CR creator queries to see whether a user already recorded a duplicate issue in an existing CR. The creator can find duplicate issues by searching on various combinations of key words used to describe the problem.

To query for an existing change request

1. Navigate to the Quality screen, then the Change Request List view.
2. In the Change Request form, 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, then you might query on one of the following phrases:

   - Attachment not working
   - Attachment function broken
4. Run the query.
5. If the query results show that a CR record already exists for the issue, then drill down on the Change Request number (#) field in the Change Request list.
6. In the More Info form, update the Comments field with relevant information that is not already recorded.

Logging Change Requests

If the change request (CR) creator cannot find an existing CR that describes the issue, then the creator enters a new CR. The CR creator must enter all relevant details including the functional area for the problem, the environment (operating system, server type, and so on) where the problem occurs, and the precise steps for reproducing the problem.

The creator enters most of this information in the Change Request Description area of the Change Requests form.

To log a change request

1. Navigate to the Quality screen, then the Change Request List view.
2. Create a new CR record, and complete the fields as appropriate.

   Some fields are listed in the following table.

Field	Comments
Summary	Type a brief description of the CR. Enter a description that is concise enough so a reader can immediately understand the overall issue.
Type	Select the CR type. Accept the default value of Product Defect, or select another value to identify the CR as an enhancement request, a user interface issue, and so on.
Build	Select the product build in which the issue occurs.
Area	Select the functional product area for the CR.

Field	Comments
Subarea	Select the functional product area subdivision related to the Area field that you select. When you select a value in this field, the Product Line, QA Owner, and Engineering Group fields are automatically populated.
Severity	Select an assessment of the seriousness of the issue.
Description/How to Reproduce	Type a detailed description of the issue. If the CR describes a product defect, then enter complete step-by-step directions for reproducing the issue.

3. Drill down on the Change Request number (#) field.
4. In the More Info form, complete the fields as appropriate.

   Some fields are listed in the following table.

Field	Comments
Product Line	Displays the product line the CR affects. This field is automatically populated when you select a value in the Subarea field.
QA Owner	Select the quality assurance team owner of the CR. This field is automatically populated when you select a value in the Subarea field.
Special Tag	Select statuses or actions that other fields do not identify. You can use special tags for purposes such as reporting, tracking, querying, exporting, and localization. You can specify multiple tags.
Tag Summary	Displays all the tags that you select in the Special Tag field.
Comments	Type a comment describing actions for the CR and any additional information that other users might need to understand, track, or resolve the issue.

Generating Change Requests from Service Requests

Occasionally, a change request (CR) originates from a customer by way of a service request. If the technical support person who receives the service request for a customer decides that it represents a product issue, then this person can log a CR for the service request.

For more information about service requests, see *Service Requests and Solutions*.

To generate a change request from a service request

1. Navigate to the Service screen, then the Service Requests List view.
2. Drill down on the SR number (#) field for a selected service request, and click the Change Requests view tab.

3. In the Change Request list, add a new CR record.

   Note: In addition to adding existing records in the Change Request list, you can create a new record. First add the required fields to the list. Click the menu button, and select Columns Displayed. In the Columns Displayed dialogue box, move the required fields from the Available Columns list to the Selected Columns list, and click Save.

   Additional required fields are described in the following table.

Field	Comments
Area	Select the functional product area for the CR.
Subarea	Select the functional product area subdivision related to the Area field that you select. When you select a value in this field, the Product Line, QA Owner, and Engineering Group fields are automatically populated.
Status	Displays the status of the CR.
Substatus	Displays the substatus of the CR.
Severity	Select an assessment of the seriousness of the issue.
Database	Select the type of database running in the environment.

4. Complete the fields as appropriate from the information in the service request.

   Some fields in the Change Requests view are listed in the table in *Closing Resolved Change Requests*.
5. In the Change Request list, drill down on the Change Request number (#) field.
6. In the Comments field of the More Info form, note that this CR originated from a service request, and add any additional relevant information.

   The new CR appears in the Customer Change Requests view of the Quality screen.

Assessing Change Requests (End User)

After users log change requests (CRs), the product marketing team assesses the new CRs in its functional areas.

Product managers assess and assign CRs. A product manager reviews each new logged CR in the assigned area of responsibility. If the product manager determines that an issue is valid, then the product manager defines the priority and assigns the CR to the appropriate engineering manager.

This topic contains the following related information:

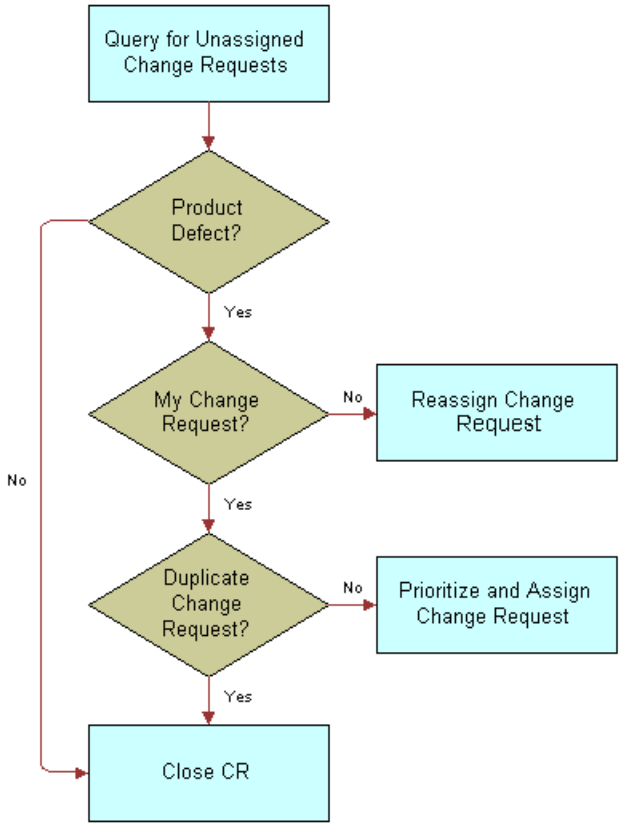
- *Process Flow for Assessing Change Requests*

- *Querying for Unassigned Change Requests*
- *Reassigning Change Requests*
- *Closing Unassigned Change Requests*
- *Prioritizing and Assigning Change Requests*

This task is a step in *Process of Managing Siebel Quality*.

Process Flow for Assessing Change Requests

After users enter change requests (CRs), product marketing managers assess the CRs to determine how important they are and who must resolve the issues. The following graphic shows the process flow for the tasks in assessment.



More information about the tasks in this process follows:

1. **Query for Unassigned Change Requests.** The product manager queries for new CRs in the manager's area of responsibility. For more information, see *Querying for Unassigned Change Requests*.
    - **Close CR.** If the product manager decides the CR is not a real issue, then the manager closes it. For more information, see *Closing Unassigned Change Requests*.
    - **Reassign Change Request.** If the product manager decides that the CR is a real issue, then the manager determines whether the manager's team can resolve the issue. If the manager finds that the functional area of the CR is incorrect, then the manager assigns it to a new owner. For more information, see *Reassigning Change Requests*.
    - **Close CR.** The product manager investigates to determine whether the CR is a duplicate of an existing issue. If appropriate, the manager closes the new CR as a duplicate CR. For more information, see *Closing Unassigned Change Requests*.

2. **Prioritize and Assign Change Request.** If the product manager determines that the CR represents a real issue in the manager's area of responsibility and is not a duplicate of another CR, then the product manager prioritizes the CR and assigns it to an engineering manager. For more information, see *Prioritizing and Assigning Change Requests*.

Querying for Unassigned Change Requests

The product manager queries for unassigned change requests in the manager's functional area.

To query for unassigned change requests

1. Navigate to the Quality screen, then the Change Request List view.
2. Create a query with the necessary field values.

   Some values that you can use are listed in the following table.

Field	Value
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 change request (CR) describes a real issue, then the manager first confirms that the CR is in the manager's functional area. If the manager determines that the functional area for the CR is incorrect, then the manager reassigns the CR to the appropriate area.

To reassign a change request

1. Navigate to the Quality screen, then the Change Request List view.
2. Select a CR record.
3. In the Change Request form, change the values in the Area and Subarea fields, as needed.
4. In the Change Request list, drill down on the Change Request number (#) field.
5. In the Comments field of the More Info form, add a brief explanation of the reason for reassigning the CR.

Closing Unassigned Change Requests

If the product manager decides the change request (CR) is not a real issue, then the manager can close it for various reasons. For example, the manager might determine that the issue is not a product defect, or the manager might decide to decline an enhancement request.

To close an unassigned change request

1. Navigate to the Quality screen, then the Change Request List view.
2. Select a CR record.
3. In the Change Request form, select Closed in the Status field.
4. In the Substatus field, complete one of the following steps:
   - If the CR does not reflect a real issue in the current product, then select a value such as Not a Bug or No Longer Applicable.
   - If the CR is an enhancement request, and you cannot accommodate the request, then select Enhancement Declined.
   - If the CR is a duplicate of an existing issue, then select Dup-Double Entry, and enter the CR number for the existing issue in the Primary Occurrence field.
5. In the Change Request list, drill down on the Change Request number (#) field.
6. In the Comments field of the More Info form, add a note explaining the reason for closing the CR.

Prioritizing and Assigning Change Requests

If the product manager determines that the issue in a change request (CR) is new and an owner must resolve it, then the manager 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 relating to the issue.

The product manager enters priority and assignment information in the Resolution section of the Change Requests form.

To prioritize and assign a change request

1. Navigate to the Quality screen, then the Change Request List view.
2. Select the CR record, and change the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Owner	Select the engineering manager who manages resolving the reported issue in the CR.
Priority	Select the urgency to resolve the issue compared to other issues at hand. The value in this field can be different from the value in the Severity field.
Targeted Version	Select the release in which to fix the CR issue.

3. Drill down on the Change Request number (#) field.
4. In the Comments field of the More Info form, add a comment summarizing the reasons for your prioritization and assignment of this CR.

5. Complete the other fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Engineering Group	Select the group that delivers the resolution. This field is automatically populated when you select a value in the Subarea field.
Special Tag	Select statuses or actions that other fields do not identify. You can use special tags for purposes such as reporting, tracking, querying, exporting, and localization. You can specify multiple tags.
Tag Summary	Displays all the tags that you select in the Special Tag field.

Resolving Change Requests (End User)

The engineering manager who owns an open change request (CR) assigns the CR to a team engineer. The engineer first tries to re-create the issue by following the description that the CR creator enters. The engineer debugs the issue and isolates its cause. The engineer then implements the appropriate fix, updates the CR with all relevant details, and closes the CR.

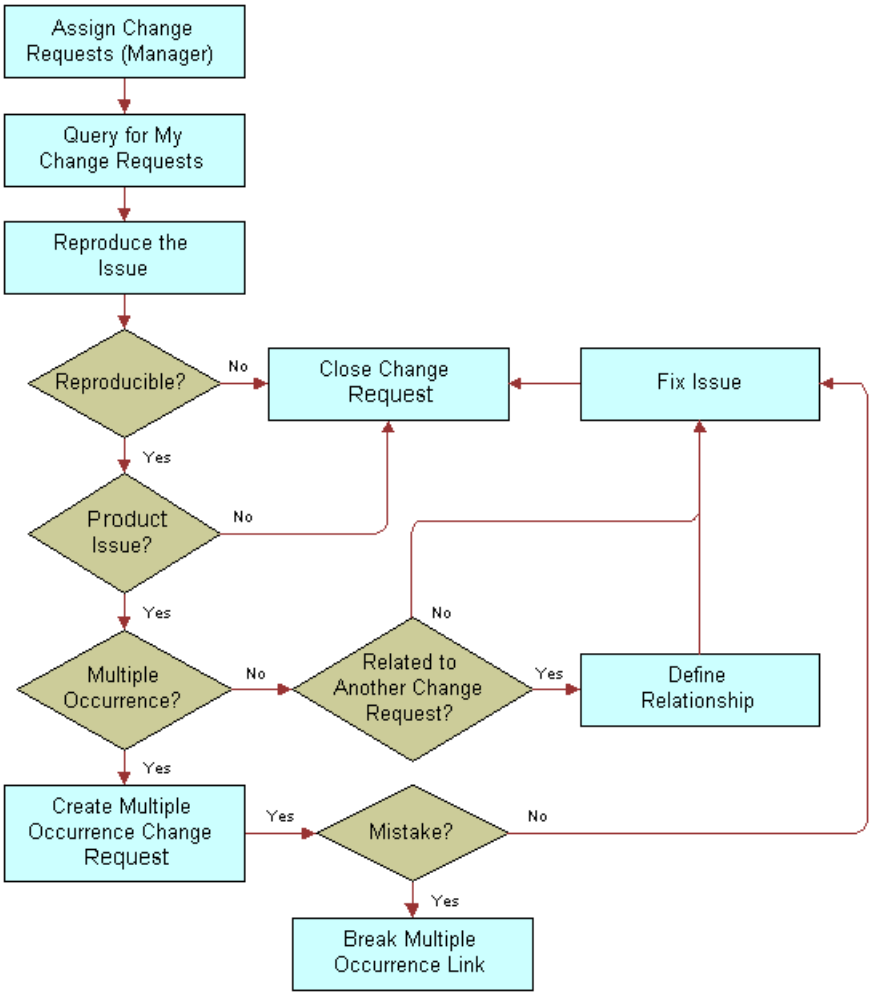
This topic contains the following related information:

- *Process Flow for Resolving Change Requests*
- *Assigning Change Requests to Engineers*
- *Creating Multiple Occurrence Change Requests*
- *Breaking Multiple Occurrence Links*
- *Linking Related Change Requests*
- *Closing Resolved Change Requests*

This task is a step in *Process of Managing Siebel Quality*.

Process Flow for Resolving Change Requests

After Product Management assigns change requests (CRs) to Engineering, Engineering can proceed to resolve the CRs. The following figure shows the process flow for the tasks in resolution.



More information about the tasks in this process follows:

1. **Assign Change Requests (Manager).** The engineering team manager to whom the product manager assigned the CR assigns it to a team engineer. For more information, see *Assigning Change Requests to Engineers*.
2. **Query for My Change Requests.** The engineer performs a query to find the CRs that are assigned to the engineer.
3. **Reproduce the Issue.** When receiving a newly assigned CR, the engineer tries to reproduce the issue in the CR.
4. **Close Change Request.** At this point, the engineer might close the CR for the following reasons:
   - The engineer cannot reproduce the issue.
   - The engineer can reproduce the issue, but the issue does not apply to the current product.

   If the engineer closes the CR for these reasons, then the engineer does not take further action. For more information, see *Closing Resolved Change Requests*.
5. **Create Multiple Occurrence Change Request.** If the engineer determines that the CR contains a real issue with the current product, then the engineer checks to see whether the same issue occurs in multiple versions of the same product. If so, then the engineer creates a multiple occurrence CR for each product variant or version with the same issue. For more information, see *Creating Multiple Occurrence Change Requests*.
6. **Break Multiple Occurrence Link.** If subsequent investigation shows that the issue does not occur in another product version, or occurs differently in other product versions, then the engineer breaks the multiple occurrence link. For more information, see *Breaking Multiple Occurrence Links*.

7. **Define Relationship.** If the CR is not a multiple occurrence CR, then the engineer tries to determine whether the CR is related to other CRs in some other way. For example, correcting the issue in the CR might depend on first correcting the issue in another CR. In this case, the engineer determines the relationship. For more information, see *Linking Related Change Requests*.
8. **Fix Issue.** The engineer then applies the appropriate fix and closes the CR. For more information, see *Closing Resolved Change Requests*.

Assigning Change Requests to Engineers

After the product manager assigns the change request (CR) to an engineering manager, the engineering manager assigns the CR to an engineer with the expertise to resolve the issue.

To assign a change request to an engineer

1. Navigate to the Quality screen, then the Change Request List view.
2. Select a CR record.
3. In the Owner field, select the engineer you want to assign to resolve the issue.
4. Drill down on the Change Request number (#) field.
5. In the Comments field of the More Info form, enter any comment or explanation to help the engineer to understand the issue.

Creating Multiple Occurrence Change Requests

In the course of resolving a change request (CR), an engineer might find the same problem in another testing environment, another language version, or another product release version. For this situation, users can create parent-child relationships between CRs. With this functionality, users can create multiple occurrence CRs, and link these CRs to a parent CR.

Multiple occurrence CRs have the same functional description but apply to multiple critical factors such as environment, language, or product. Alternatively, multiple occurrence CRs can describe different symptoms that originate from the same problem and that require the same resolution. Multiple occurrence CRs must have the same owner and the same files or other components to fix.

The ability to create multiple occurrence CRs allows users to manage related issues from a single source, eliminate double-counting of product issues, and track together the linked CRs.

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 the Quality screen, then the Change Request List view.
2. Select a CR record for the parent to multiple occurrences.
3. In the Change Request form, click the menu button, and select Create Multiple Occurrence.

   The original record is copied 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 the table in *Closing Resolved Change Requests*.
5. In the Change Request list, drill down on the Change Request number (#) field.
6. In the Comments field of the More Info form, record the action you took, and note any additional relevant information.

   The parent and child CRs are linked, and the new CR is a multiple occurrence CR.

Breaking Multiple Occurrence Links

In some cases, you must remove the links between multiple occurrence change requests (CRs). For example, further investigation might 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 a parent change request

1. Navigate to the Quality screen, then the Change Request List view.
2. Select a CR record for a parent multiple occurrence CR.
3. Drill down on the Change Request number (#) field, and 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 want to remove.

   > **Note:** Child multiple occurrence CRs have a value of Multiple Occurrence in the Relationship Type field.

5. In the Related CRs list, click the menu button, and select Delete Relationship.
6. In the confirmation dialog box, click OK.

   The CR is removed from the Related CRs list.

You can also break a multiple occurrence link from a child change request.

To break a multiple occurrence link from a child change request

1. Navigate to the Quality screen, then the Change Request List view.
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. Drill down on the Change Request number (#) field.
5. On the Comments field of the More Info form, record the action you took, and note any additional relevant information.
6. Click the menu button.

   If the link is broken successfully, then the Go to Primary Occurrence command is unavailable.

Linking Related Change Requests

Related change requests (CRs) are useful when investigating a solution for a CR that might be similar to other CRs. Siebel Quality uses the following other designations to define the relationships that can occur between CRs:

- **Duplicate (Dup-Double Entry).** The same CR is entered more than once. Not only is the functional description the same, but other critical factors such as environment, language, or product are the same.
- **Dependent Upon.** You cannot resolve the CR until another CR is fixed.
- **Miscellaneous (Misc).** An arbitrary relationship exists between CRs. This designation allows you to track together multiple CRs, although they might not depend on each other or match each other.

This topic includes tasks for creating and managing the related CRs. To create a relationship between 2 existing CRs, perform the following tasks.

To link a related change request from a parent change request

1. Navigate to the Quality screen, then the Change Request List view.
2. Select the primary CR to which you want to relate another CR.
3. Drill down on the Change Request number (#) field, and click the Related CRs view tab.
4. In the Related CRs list, create a new related CR 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 OK.
6. In the Relationship Type field, select the type of relationship that the related CR has to the parent CR.
7. In the Comments field, record the action you took, and note any additional relevant information.

You can also link a related change request from a child change request.

To link a related change request from a child change request

1. Navigate to the Quality screen, then the Change Request List view.
2. Select the CR record you want to link to another CR record as a child.

   > **Note:** The child CR cannot have any related child CRs. To check for related child CRs, drill down on the Change Request number (#) field, and check the Related CRs view tab.

3. In the Primary Occurrence field, select the CR number of the parent CR.
4. Drill down on the Change Request number (#) field.
5. In the Comments field of the More Info form, record the action you took, and note any additional relevant information.
6. Click the menu button, and select Go to Primary Occurrence.

   The Change Request form displays the CR record you just designated as the parent (primary occurrence).
7. Click the Related CRs view tab.
8. In the Related CRs list, select the child CR record you just linked as related to the parent.
9. In the Relationship Type field, select the type of relationship that the child CR record has to the parent CR record.

Closing Resolved Change Requests

When receiving a newly assigned change request (CR), the engineer tries to reproduce the issue. At this point, the engineer can close the CR for several reasons, such as the issue applies to a third-party product, the issue is no longer applicable to the current release, or the engineer cannot reproduce the issue.

If the engineer determines that the CR is a real issue, then the engineer investigates further, implements the appropriate fix, and tests the fix. After completing the fix, the engineer 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, only close the parent CR, or close a child CR independently of its parent.

When closing a CR, the engineer enters information in the Resolution section of the Change Requests form. Use the following procedures to close CRs that are fixed or otherwise resolved.

To close a resolved change request

1. Navigate to the Quality screen, then the Change Request List view.
2. Select a CR record that you want to close as fixed.
3. In the Change Request form, complete the following steps:
   a. Select a value of Closed in the Status field.

b. Select the reason for closing the CR in the Substatus field. Values include:

- **FOL.** Fact of Life. Because of a limitation such as dependency on a third-party product, the development team has no control over the issue.
- **No Longer Applicable.** The issue applies to an older or different version of the product, and not to the current version or the version under development.
- **Not Reproducible.** You cannot reproduce the issue as described. (It is recommended that before closing the CR, you contact the CR creator to obtain clarification.)
- **Fixed.** You corrected the issue.

4. In the Change Request list, drill down on the Change Request number (#) field.
5. In the More Info view, complete the fields as appropriate.

Some fields are described in the following table.

Field	Comments
Approval	Select a value to track approval for the stage of the resolution.
Special Tag	Select statuses or actions that other fields do not identify. You can use special tags for purposes such as reporting, tracking, querying, exporting, and localization. You can specify multiple tags.
Tag Summary	Displays all the tags that you select in the Special Tag field.
Fixed Build	Select the product version in which you implement the resolution.
Files Fixed	Type the filename and archiving location of each modified electronic file for the resolution. This field is required when the Substatus field or Integration Status field changes to Fixed.
Integration Status	Select the status of the CR on the integration branch. When the Integration Status field is Closed, the Integration Fixed Date field is automatically populated, and the Integration Fixed Build field is required.
Integration Fixed Date	Select the date and time when the resolution is implemented in the integration branch.
Integration Fixed Build	Select the integration branch build number in which the resolution is implemented.
Comments	Type a comment that explains the resolution.

You can also close a resolved parent multiple occurrence change request.

To close a resolved parent multiple occurrence change request

1. For a parent CR, follow the steps in the procedure for closing resolved change requests in this topic.

   When you save the record, a message box appears.
2. Complete one of the following steps:
   - 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 (End User)

After the engineer resolves a change request (CR), the QA tester or other CR creator who reported the issue verifies that the resolution is correct.

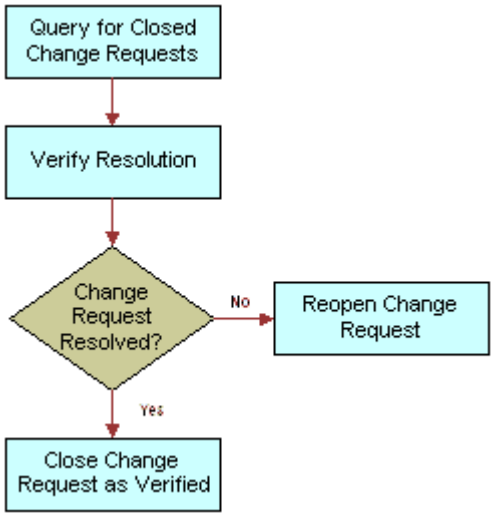
This topic contains the following related information:

- *Process Flow for Verifying Change Request Closures*
- *Querying for Closed Change Requests*
- *Reopening Change Requests*
- *Closing Change Requests as Verified*

This task is a step in *Process of Managing Siebel Quality*.

Process Flow for Verifying Change Request Closures

After engineers resolve change requests (CRs), the CR creator attempts to verify the resolutions. The following figure shows the process flow for the tasks in verification.



More information about the tasks in this process follows:

1. **Query for Closed Change Requests.** The creator queries for logged CRs that are now closed. For more information, see *Querying for Closed Change Requests*.
2. **Verify Resolution.** The creator tries to verify the resolution.

- **Reopen Change Request.** If the creator determines that the issue is not resolved, then the creator reopens the CR to send the CR back to Engineering for further review. For more information, see *Reopening Change Requests*.
- **Close Change Request as Verified.** If the creator determines that the CR is correctly resolved as stated, then the creator closes the CR as verified. For more information, see *Closing Change Requests as Verified*. At this point, the CR life cycle is complete.

Querying for Closed Change Requests

The change request (CR) creator queries for closed CRs in a functional area.

To query for closed change requests

1. Navigate to the Quality screen, then the Change Request List view.
2. In the Change Request form, create a query with a Status field of Closed.
3. Run the query.

Reopening Change Requests

The change request (CR) creator tries to verify the resolution on the version that the engineer identifies. If the creator determines that the issue is not resolved, then the creator reopens the CR. Reopening the CR sends it back to the engineer for further review.

To reopen a change request

1. Navigate to the Quality screen, then the Change Request List view.
2. Select a CR record.
3. In the Change Request form, select Open-Disagree in the Status field.
4. In the Change Request list, drill down on the Change Request number (#) field.
5. In the Comments field of the More Info form, enter an explanation of your reason for disagreeing with the resolution.

Closing Change Requests as Verified

If the creator determines that the change request (CR) is correctly resolved, then the creator 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 the Quality screen, then the Change Request List view.
2. Select a CR record.
3. In the Change Request form, select Closed-Verified in the Status field.
4. In the Change Request list, drill down on the Change Request number (#) field.
5. In the Comments field of the More Info form, enter a note indicating that you agree with the resolution.

Creating Patch Requests (End User)

The release management team, which might include representatives from the major functional groups, tracks the overall health of the product release. They monitor product status and stability. They monitor the progress of the development effort through reports and charts in Siebel Quality. They then provide the final recommendations for shipment of the product.

The release management group also manages patch requests. A *patch request (PR)* is a resolved product issue with a resolution that you must deliver to a customer prior to the next scheduled release, through a maintenance release. The release management group makes sure that users immediately resolve in maintenance releases critical issues for which customers need fixes.

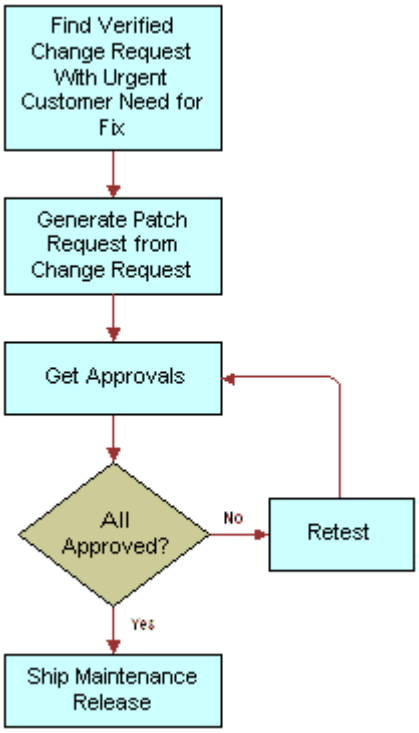
This topic contains the following related information:

- *Process Flow for Creating Patch Requests*
- *Generating Patch Requests from Change Requests*
- *Approving and Shipping Patch Requests*

This task is a step in *Process of Managing Siebel Quality*.

Process Flow for Creating Patch Requests

After users close change requests (CRs) as verified, the release management group might determine that they must provide a CR fix to a customer immediately and not in the next release of the product. The following figure shows the process flow for the tasks in patch request creation.



More information about the tasks in this process follows:

1. **Find Verified Change Request with Urgent Customer Need for Fix.** A member of the release management group identifies a closed and verified CR that represents a resolution for which a customer cannot wait until the next scheduled release to receive.
2. **Generate Patch Request from Change Request.** A release manager generates a patch request (PR) from a CR. For more information, see *Generating Patch Requests from Change Requests*.
3. **Get Approvals.** The release manager obtains the approvals necessary for shipping the patch, and records the approvals in the PR record. For more information, see *Approving and Shipping Patch Requests*.
4. **Retest.** If all approvers do not agree that the patch is ready to ship, then the release manager sends the patch back to engineering for further development, testing, and another approval cycle.

5. **Ship Maintenance Release.** After the release manager gathers all the approvals for the PR, the maintenance release is ready to ship to the customer. For more information, see *Approving and Shipping Patch Requests*.

Generating Patch Requests from Change Requests

A member of the release management team generates a patch request (PR) from a change request (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 the Quality screen, then the Change Request List view.
2. Select the closed and verified CR record from which you want to generate a PR.
3. In the Change Requests form, click the menu button, and select Copy To Patch.

   The Patch Requests view appears with the new PR record generated from the CR. Most fields are populated from the CR.
4. In the Account field, select the customer to receive the patch.
5. In the Date Required field, enter the date to deliver PR fix to the customer.

Approving and Shipping Patch Requests

You approve a patch request (PR) for shipping as a maintenance release in the Patch Requests view. The release management team uses this view. The main groups involved in product development must approve a patch before you can deliver it 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 the Quality screen, then the Patch Request List view.
2. Drill down on the Patch Request number (#) field for a selected patch to ship.
3. When you receive approvals for the patch to ship, complete the Technical Services, Product Marketing, Engineering, and QA fields.
4. When all teams approve the PR, select Approved to Ship in the Patch Status field.
5. When you ship the patch, select Closed-Shipped in the Patch Status field.

19 Release Management

Release Management

This chapter describes how application administrators can configure Release Manager. It also describes how managers for product marketing, engineering, quality assurance, and technical publications can monitor the progress of their teams and how users (product marketers, engineers, QA testers, and technical writers) can record their development tasks. It includes the following topics:

- *About Release Manager*
- *Scenarios for Using Release Manager*
- *Process of Administering Release Manager*
- *Process of Managing Release Manager*

About Release Manager

The Release Manager module helps to manage new product development and release cycles from start to finish. Release Manager uses data collected in Siebel Field Service to help guide product feature selection and development.

Release Manager assists with numerous release-related activities. Users can perform the following tasks:

- Communicate feature descriptions throughout the organization.
- Prioritize features to implement the most important features.
- 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 items.
- Monitor development status.

The Release Manager and Siebel Quality modules of Siebel Field Service work together. After you release a product, the Siebel Quality module tracks the product improvement process and channels requests for improvements to future releases. For more information about the Siebel Quality module, see *Quality Management*.

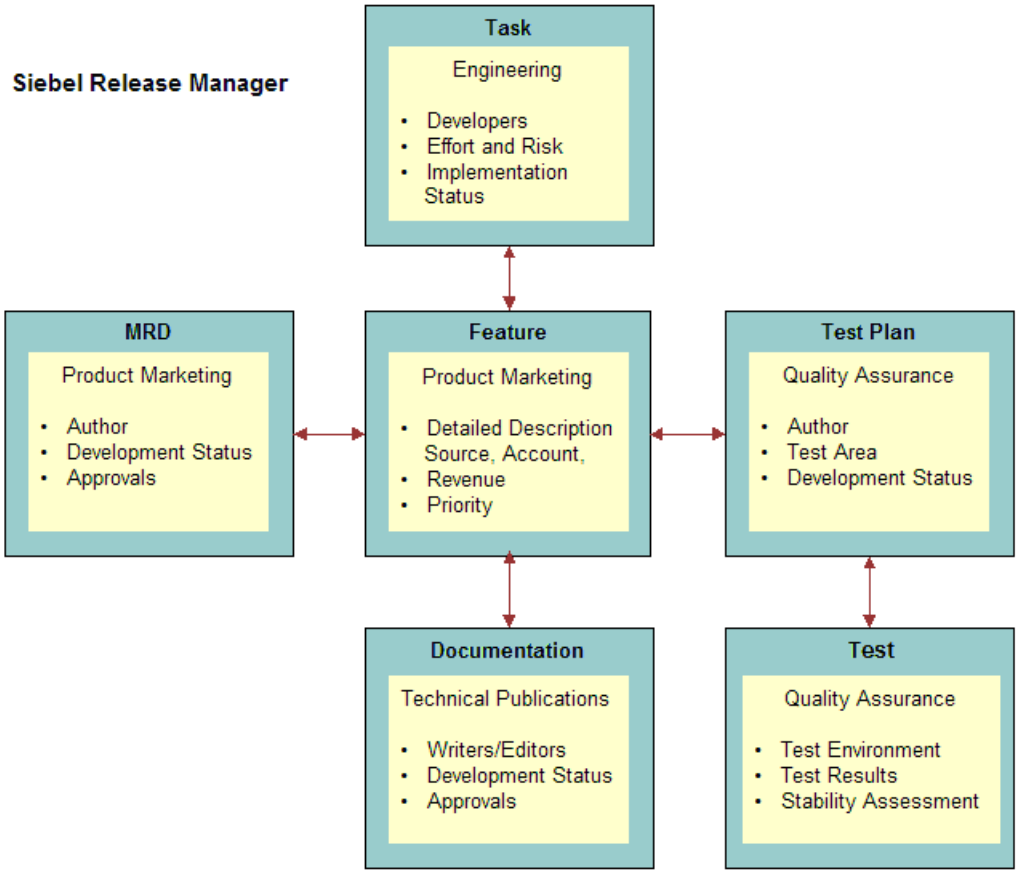
Structure of Release Manager

You can think of a product release as a collection of features. The decision to implement these features generates multiple release items: MRDs to identify the features, engineering tasks to implement the features, QA test plans to test the features, and documentation to describe the features. Siebel Field Service helps to make sure that each task, test plan, and document is linked to at least 1 feature.

In Release Manager, engineering tasks, MRDs, QA test plans, and technical publications documents are linked to associated features. Users gain the following benefits:

- Executives can justify decisions about how to allocate engineering resources and schedule QA testing.
- Product marketing managers can see the features in MRDs, and determine the development, testing, and documentation status for the features.
- Engineering and QA managers can see the new features to incorporate into project plans and test plans.

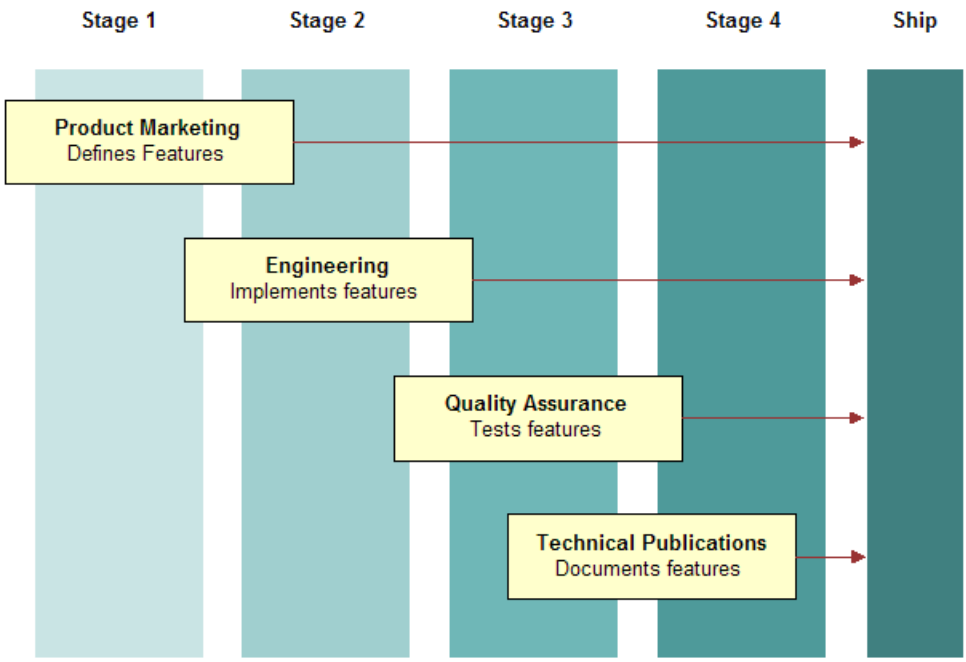
The following figure shows how the release items are linked to features.



This figure shows an area that represents Release Manager. In this area, tests are linked to test plans, and test plans, engineering tasks, MRDs, and documentation are linked to features at the center.

Product Release Process

The following figure shows the stages in the product release process.



The product release process includes the following stages:

- **Stage 1.** Product Marketing begins the release cycle by defining product features, entering those features in Siebel Field Service, determining the features to implement, 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 Siebel Field Service to track task completion.
- **Stage 3.** Quality Assurance (QA) defines test plans to test 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.

Stage 1 (Product Marketing), Stage 2 (Engineering), Stage 3 (Quality Assurance), and Stage 4 (Technical Publications) lead toward the final stage, Ship. In practice, these stages are not rigidly sequential. At any point in the release development cycle, activities for several of the stages can overlap when teams pursue goals simultaneously.

Scenarios for Using Release Manager

This topic describes how Release Manager might be used. You might use Release Manager differently, depending on your business model. This topic includes the following scenarios:

- *Managing Administrator Work*
- *Managing Product Marketing Work*
- *Managing Engineering Work*
- *Managing Quality Assurance Work*
- *Managing Technical Publications Work*

Managing Administrator Work

Before the release cycle begins, the administrator sets up a master record for the release. Then the administrator defines an *access list* of employees who are associated with the release. Then the administrator designates the employees on the access list for *project teams* that are associated with various stages of the release. The administrator also sets up Lists of Values (LOVs) for fields with drop-down lists in the Release Manager views. Finally, the administrator sets up activity templates. Users can use these templates to associate lists of specific activities with certain stages of the release process.

During release work, the administrator might have to perform certain maintenance tasks to make sure Release Manager continues to run smoothly for users. After Engineering completes product builds, the administrator adds *product prototype* records. Quality Assurance records tests for these records. When product parameters change in the course of development, the administrator might have to add new Area-Subarea combinations to add to the LOVs for Release Manager. When a new release cycle begins, the release administrator determines the need for new and revised test plans and test strategies.

Managing Product Marketing Work

At the beginning of a release cycle, Product Marketing defines a set of *release-defining features*, which are product requirements and enhancements that are based on customer needs. After prioritizing and finalizing the detailed features list, Product Marketing enters the features into Release Manager as feature records. If a feature is complex with multiple components, then Product Marketing enters each component as a feature record, and then designates the main feature as its parent feature.

After entering the features for a release, Product Marketing writes Marketing Requirement Documents (MRDs) and enters the documents into Release Manager. Product Marketing creates a new record for each MRD or logical group of MRDs. After creating the MRD records, Product Marketing links the MRD document files to respective MRD records as attachments. Finally, Product Marketing links the MRDs to the features that they reference.

Managing Engineering Work

After Product Marketing defines release features, Engineering writes *engineering tasks* to implement those features in the product. Engineering enters each task as an individual record in Release Manager, and links each task to the features it is designed to implement. If a task is complex with multiple components, then Engineering enters each component as a subtask record, then links it to the main engineering task.

Managing Quality Assurance Work

After Product Marketing defines release features and Engineering implements the features, Quality Assurance writes *test plans* to validate the features. QA enters each completed test plan as an individual record in Release Manager, and links each test plan to the features it is designed to validate.

Next, Quality Assurance creates *test strategies*, which are logical groupings of test plans. (For example, Quality Assurance might group together all test plans for an application module as a test strategy. Alternatively, Quality Assurance might group together all test plans to execute on the same platform and browser combination as a test

strategy.) QA enters each completed test strategy as an individual record in Release Manager, and links each test strategy to the test plans that it groups together.

After defining test strategies, Quality Assurance runs test plan executions, or *test passes*. QA logs each test plan execution as a test pass record. When recording the test passes, Quality Assurance links the test pass records to respective test plans. QA records the defects found during testing as change request records and links the records to the associated test passes.

During and after testing, Quality Assurance managers can run various reports about test pass results to monitor the health and progress of the product release effort.

Managing Technical Publications Work

When 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. Technical Publications enters each technical document as an individual record in Release Manager, and links each technical document to the features it describes. Technical Publications then links an activity plan with standard milestones and deadlines to each technical document record. After creating the technical document records, Technical Publications links the technical document files to respective records as attachments.

Process of Administering Release Manager

Administrators must set up several areas of Release Manager in advance to make sure that product marketers, quality assurance testers, engineers, and technical writers can use Siebel Field Service. They must also perform some Release Manager maintenance tasks as needed.

Depending on your company structure and policies, these activities might be the duties of the Release Manager, application administrator, or another person who sets up Siebel Field Service. For convenience and brevity, this chapter refers to this person as the administrator.

To administer Release Manager, administers perform the following tasks:

- *Setting Up Releases*
- *Setting Up Access Lists*
- *Setting Up Project Teams*
- *Setting Up Activity Templates*
- *Setting Up Lists of Values*
- *Adding Product Prototypes*
- *Adding Area-Subarea Combinations*
- *Updating Test Plans and Test Strategies*

Setting Up Releases

When entering a release item, a user must associate the release item with a release. In Release Manager, a release is a type of project. For more information about setting up projects, see *Siebel Project and Resource Management Administration Guide* .

Releases include the following types:

- **Future Releases.** Because you must associate each release item with a release, you must set up the release (project) before entering any records. Although only a single active release can be in progress, you must also set up records for future releases. Consequently, the product marketing manager can immediately target a deferred feature to a specific future release.
- **Unspecified Releases.** Frequently the appropriate future release for a feature or other release item is unknown. Because you must associate all release items with a release, set up an artificial release named Unspecified Release or a similar term. You can link orphan release items to this release. When you determine the appropriate future release, you can then retarget an item to that release.

This task is a step in *Process of Administering Release Manager*.

Setting Up Access Lists

Release Manager includes the concept of an access list. Each project includes a group of employees (the employees on its access list) who are associated with a release. You can include in the release access list only an employee who is associated with a release project. For more information about adding employees to an access list, see *Siebel Project and Resource Management Administration Guide* .

To add a person to an access list, you must first set up the person as an employee. For more information about setting up employees, see *Siebel Security Guide* .

This task is a step in *Process of Administering Release Manager*.

Setting Up Project Teams

Release Manager includes the concept of project teams. Each project includes a group of employees (the project team) who own, approve, or are associated with each release item (feature, MRD, engineering task, QA test plan, QA test, or document). You can associate only an employee who is a member of the project team with a release item. For more information about setting up project teams and adding employees to these teams, see *Siebel Project and Resource Management Administration Guide* .

To add a person to a project team, you must first add the person to the release access list. For more information, see *Setting Up Access Lists*.

This task is a step in *Process of Administering Release Manager*.

Setting Up Lists of Values

The administrator typically sets up Lists of Values (LOVs) for use in Siebel Business Applications. Although all types of release items share the Status field, the LOVs for the Status field are likely 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). So that users do not have to review long LOVs for phases that are related to their work, you might have to restrict the views where specific LOVs appear. For more information about setting up LOVs and restricting the views associated with specific LOVs, see *Siebel Applications Administration Guide* .

The following table describes the LOVs to set up before using Release Manager. In this table, the Type column denotes the drop-down list record in the List of Values view.

View Label	Associated Release Items	Type	Description	Typical Values
Client OS	QA Tests	PSTASK_CLIENT_OS	The type of operating system running on the client.	Windows 2000, Mac OS
Client Type	QA Tests	PSTASK_CLIENT_TYPE	The type of test computer used by the tester.	HTML
Database	QA Tests	PSTASK_CLIENT_DB	The type of database running in the test environment.	IBM DB2, Microsoft SQL Server 7.0
Effort	Engineering Tasks	PSTASK_ENGINEER_EFFORT	The amount of effort required of the engineer to complete the task.	High, Low, 1 Man Month
Priority	Features	PSTASK_PRIORITY	The relative importance of the feature.	High, Medium, P1. Critical
Revenue	Features	PSTASK_REVENUE	The amount of expected revenue if the feature is implemented.	High, Low, >5M, <1M
Risk	Engineering Tasks	PSTASK_ENGINEER_RISK	The amount of risk to destabilizing the product by undertaking the engineering task.	High, Low
Server OS	QA Tests	PSTASK_SERVER_OS	The type of operating system running on the server.	Windows NT
Source	Features	PSTASK_SOURCE	The source of the feature.	Customer Input, Market Survey
Status	All	PSTASK_STATUS	The current implementation or development phase of the release item.	Draft, Unit Test, Final
Test Class	QA Tests	PS_QA_TEST_STRATEGY_ TEST_ CLASS	The 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	The product area applicable to the test.	Install, Upgrade, Report, Charts, General

View Label	Associated Release Items	Type	Description	Typical Values
Type	QA Tests	PSTASK_ALT_TYPE	The type of test that is conducted.	Blitz, Ad Hoc, Detailed, White Glove

This task is a step in *Process of Administering Release Manager*.

Lists of Values for Special Tag Fields

You must also add a List of Values (LOV) for the Special Tag field in the QA Test Plans view. The following table shows an example of how you might set the fields of several new LOV records to populate the Special Tag field with values.

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 can access activity templates. An activity template contains multiple predefined activities to associate with a release item. Users can use these templates instead of manually entering each activity, and these templates help to standardize activities for groups or teams. If user teams need activity templates, then create the templates before anyone uses Release Manager. For more information about how to create activity templates and add activities to these templates, see *Process of Administering Service Activities*.

This task is a step in *Process of Administering Release Manager*.

Adding Product Prototypes

As a product progresses through the release cycle, increasingly advanced product prototypes are available for testing. (In the case of software development, these prototypes are *builds*.) When QA testers execute a test plan, they select the version number of each tested prototype. When each new prototype is available, enter it into Release Manager so that QA can record tests for it.

You enter builds as products in the Release Product Administration view of the Quality screen.

This task is a step in *Process of Administering Release Manager*.

Adding Area-Subarea Combinations

Area and Subarea fields are linked so that the values available in the Subarea field change dynamically according to the selected value in the Area field. These Lists of Values (LOVs) appear in both the Release Manager and Siebel Quality modules. In Release Manager, an Area field value is associated with a feature. For more information about adding Area-Subarea combinations, see *Mapping Area-Subarea Combinations*.

When product parameters change in the course of development, you might have to add new Area-Subarea combinations to Release Manager.

This task is a step in *Process of Administering Release Manager*.

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 relevant. The QA release administrator must review existing test plans and test strategies for relevance to the new release, and update the relevant ones. The QA release manager must also identify and fill gaps in the existing resources with new test plans and test strategies. For more information about adding and linking test plans and test strategies, see *Managing Quality Assurance Work for Release Manager (End User)*.

This task is a step in *Process of Administering Release Manager*.

Process of Managing Release Manager

The following list shows the tasks that end users typically perform to manage Release Manager. Your company might follow a different process according to its business requirements.

To manage Release Manager, end users perform the following tasks:

- *Managing Product Marketing Work for Release Manager (End User)*
- *Managing Engineering Work for Release Manager (End User)*
- *Managing Quality Assurance Work for Release Manager (End User)*
- *Managing Technical Publications Work for Release Manager (End User)*

Managing Product Marketing Work for Release Manager (End User)

After administrators configure Release Manager, product marketers can record the progress and results of product design efforts in Siebel Field Service. Their managers can monitor the information that they enter.

This topic contains the following related information:

- *Creating Features and Subfeatures*
- *Adding MRDs and Linking Features*
- *Monitoring Features and MRDs*
- *Monitoring Release Items*

This task is a step in *Process of Managing Release Manager*.

Creating Features and Subfeatures

Product marketing managers can use Release Manager to enter new product features and, if appropriate, subfeature components of these features.

To create a feature and subfeatures

1. Navigate to the Release screen, then the Features view.
2. Add a new feature record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Status	Select the status of the feature, which can be one of the following values: o **Green.** Approved for the release. o **Yellow.** Can include in the release. o **Red.** Not included in the release
Priority	Select the priority of the feature relative to other features targeted for the same release.
Release	Select the name or number of the product release for the feature.
Product Line	Displays the product line. The value in the Subarea field determines this field value.
Area	Select the product area associated with the feature.
Subarea	Select the product subarea associated with the feature. The list of subarea values depends on the value in the Area field.

Field	Comments
EAT Completion Date	Select the Engineering Acceptance Test completion date.
Source	Select the source of the idea for this feature.
Account	Select the account that requested the feature or the account to which your company is contractually obligated to deliver the feature.
Associated Parties	Select the individuals associated with the feature. Set the product marketing manager who manages the feature as Primary.
Revenue	Select the amount of revenue tied to delivering this feature in the targeted release.

3. If you want to add subfeatures to the feature, then complete the following steps:
    a. Drill down on the Feature field, and click the Subfeatures view tab.
    b. Create new subfeature records, and complete the fields as appropriate.

Adding MRDs and Linking Features

Product marketing managers can group similar 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 and link features

1. Navigate to the Release screen, then the Marketing Requirement Documents view.
2. Add a new MRD record, and complete the fields as appropriate.

    Some fields are described in the following table.

Field	Comments
Associated Parties	Select the individuals associated with the MRD. Set the author as Primary.
Release	Select the name or number of the product release associated with the MRD.

3. If you want to associate features with the MRD, then complete the following steps:
    a. Drill down on the MRD number (#) field, and click the Features view tab.
    b. Create new feature records, and complete the fields as appropriate.

Monitoring Features and MRDs

As a release progresses, product marketing managers can use Release Manager to track the status of features and the related release items. In addition, product marketing managers can monitor the features to make sure that they do not overlook important features.

Monitoring Release Items

During the release process, product marketing managers can monitor features to make sure they meet the following criteria:

- MRDs properly specify the features.
- Engineering implements the features.
- QA test plans test the features.
- Technical publications documents describe the features.

Product marketing managers can run queries to identify features that do not meet these criteria. The procedures that follow provide examples.

To query for features without corresponding MRDs, perform the following procedure.

> **Note:** You can follow similar procedures to query for features without corresponding engineering tasks, test plans, or technical publications documents.

To identify features without linked MRDs

1. Navigate to the Release screen, then the Marketing Requirement Documents view.
2. Launch a query with the following parameters:
    - In the Release field, select the current release.
    - In the MRD field, enter `NOT(EXISTS(LIKE*)).`

During the release process, engineering managers can monitor development plans to make sure that their teams are not working on tasks without corresponding features. To query for engineering tasks without linked features, perform the following procedure.

> **Note:** You can follow similar procedures to query for MRDs, test plans, or technical publications documents without corresponding features.

To identify engineering tasks without linked features

1. Navigate to the Release screen, then the Engineering Tasks view.
2. Launch a query with the following parameters:
    - In the Release field, select the current release.
    - In the Related Features field, enter `NOT(EXISTS(LIKE*)).`

Managing Engineering Work for Release Manager (End User)

After product marketing manager enter features and MRDs in Release Manager, engineers can begin recording the progress and results of development efforts in Siebel Field Service. Their managers can monitor the information that they enter.

This topic contains the following related information:

- *Adding Engineering Tasks and Linking Features*
- *Adding Subtasks to Engineering Tasks*
- *Monitoring Engineering Tasks*

This task is a step in *Process of Managing Release Manager*.

Adding Engineering Tasks and Linking Features

After product marketing managers enter some features and corresponding MRDs into Release Manager, engineering managers can begin analyzing the development work and identifying the discrete tasks required to implement the features. They can enter these tasks directly into Release Manager. When engineering managers create engineering task records, they link the records to the appropriate features.

The product marketing and engineering managers match the requested features with the available engineering resources. During this process, they weight the relative importance of the features with the required investment to implement the features. They might defer some features to a future release. Consequently, the necessary engineering resources are available for the final set of release features.

To add an engineering task and link features

1. Navigate to the Release screen, then the Engineering Tasks view.
2. Create a new engineering task record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Related Feature	Select the features to associate with the engineering task.
Engineering Group	Select the engineering group that manages the task. Usually, the engineering manager (owner) of the task belongs to this group.
Target Date	Select the expected date of the task completion.
Release	Select the name or number of the product release associated with the engineering task.
Parent Task	Select the parent task for the current task. You can use this field to set up a hierarchy of parent tasks and child subtasks.

Field	Comments
Effort	Select the level of effort required from the engineer to complete the task.
Risk	Select the level of risk of destabilizing the product by undertaking this engineering task.
Comp %	Type the percentage of the task that is completed to date.
Design Review	Select the date when the design review occurs.
Code Review	Select the date when the code review occurs for software releases.
Associated Parties	Select the individuals associated with the engineering task. Set the engineering manager who manages the task as Primary.

Adding Subtasks to Engineering Tasks

If a task is complex with multiple components, then 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 the Release screen, then the Engineer Task - Subtasks view.
2. Create a new subtask record, and complete the fields as appropriate.

Monitoring Engineering Tasks

During the development process, engineering managers can use Release Manager to track the status of the tasks that are underway. They can conduct and record design reviews and (for software releases) code reviews. For each task, they log the portion completed and the target completion dates so that they can address potential issues before they are critical.

Managing Quality Assurance Work for Release Manager (End User)

After Engineering enters engineering tasks in Release Manager, QA testers can begin recording the progress and results of testing efforts in Siebel Field Service. Their managers can monitor the information that they enter.

This topic contains the following related information:

- *Creating Test Plans and Linking Features*
- *Creating Test Strategies*
- *Recording Test Passes and Linking Test Plans*

- *Associating Change Requests with Test Passes*
- *Monitoring Test Results*

This task is a step in *Process of Managing Release Manager*.

Creating Test Plans and Linking Features

After QA identifies the features for a release, QA can begin revising existing test plans or developing new plans to exercise new product functionality. QA tracks test plan development in Release Manager. The test plan available as an attachment to the test plan record. Parties such as product marketers who are associated with the development of the test plan are linked to the record, they can record their approvals.

For each test plan, QA logs the portion completed and the target completion dates so that potential issues are addressed before they are critical. The QA manager determines whether they must run a test plan to validate 1 or more test strategies, and if so, then specifies those strategies.

To create a test plan and link features

1. Navigate to the Release screen, then the Test Plan Administration view.
2. Create a new test plan record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Target Date	Select the expected date of the test plan completion.
QA Owner	Select the employee who performs the testing.
Release	Select the name or number of the product release associated with the test plan.
Suggested Strategies	Select the test strategies to apply to the test plan. Available selections come from test strategy records that the administrator enters in the Strategy Administration view. For more information, see *Creating Test Strategies*.
Test Set	Select the grouping of tests for the test. Groupings might reflect, for example, the parts of the product that apply to multiple tests.
Special Tag	Select the tags that your company defines for convenience in grouping or querying tests. You can specify multiple tags. For more information about defining special tags, see *Setting Up Lists of Values*.
Tag Summary	Displays all of the tags that you select in the Special Tag field. This field is for convenience in querying for the tags in the Special Tag field.
Related Feature	Select the features to associate with the test plan.

Field	Comments
Product Line	Displays the product line. The values in the Area and Subarea fields determine this field value.
Complete %	Type the percentage of the test plan that is completed to date.
Test Plan Owner	Select the individuals associated with the test plan. Set the author of the test plan as Primary.
Automated	Select this check box to indicate the test is automated.
% Auto	Type the percentage of the test that is automated.
% Auto Platforms	Type the percentage of platforms that is automated for the test.
% Auto Horizontal	Type the percentage of the cross-industry version of the product that is automated for the test.
% Auto-International	Type the percentage of the international version of the product that is automated for the test.
Tools	Select the software used to automate the test.
Auto Complete Date	Select the date the automated test is completed.

An activity plan originates from a predefined activity template. An activity template contains multiple predefined activities to associate with a release item. Users can use activity templates instead of manually entering each activity, and activity templates help to standardize activities for QA teams.

To add an activity plan to a test plan

1. Navigate to the Release screen, then the QA Test Plans view.
2. Drill down on the Test Plan number (#) field for a selected a test plan, and click the Activity Plans view tab.
3. Create a new activity plan record, and complete the fields as appropriate.

   When you associate the activity plan with the test plan, all the activities in the activity plan are associated with the test plan and appear in the Activities view.

Creating Test Strategies

At the beginning of a release cycle, you define a set of criteria (or matrix) that identifies the various combinations for running any QA test plan. For example, the matrix for a software product might include criteria such as Server, Database, Browser, and so on. These criteria sets are *test strategies*.

To create a test strategy

1. Navigate to the Release screen, then the QA Test Strategies view.

2. From the visibility filter, select Strategy Administration.
3. Create a new strategy record, and complete the other fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Release	Select the name or number of the product release associated with the test strategy.
Test Class	Select the type of test pass for the test strategy.
Web Srv App	Select the application that runs on the selected Siebel Application Interface.

   After you save the test strategy, it appears as a choice in the Suggested Strategies field in the Strategy Test Plan Admin view.
4. Drill down on the Title field to access the QA Test Plans view if you want to associate test plans with the test strategy.
5. Select the test plan you want to associate to the current test strategy.

Recording Test Passes and Linking Test Plans

After a complete QA test plan is associated with a test strategy, you can run tests to validate the test plan. Because test plans are linked to features in Release Manager, QA managers can focus efforts of their teams on those test plans that are associated with the greatest number of new features. After executing each test, QA testers record the results in Release Manager and link each test pass to the test plan that it executes.

To record a test pass and link a test plan

1. Navigate to the Release screen, then the QA Tests view.
2. Create a new QA test record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Tester	Select the individuals associated with the test. Set the individual who conducted the test as Primary.
Release	Displays the name or number of the product release associated with the test.
Date	Select the date and time when you conduct the test.
Status	Select the prototype stability that you assess during the test.
Cover %	Type the percentage of the test plan that test covers.

Field	Comments
Pass %	Type the percentage of the test plan that passed the test.
Type	Select the type of test that you conduct.
Build	Select the product prototype that you test.
Server OS	Select the type of operating system running on the server computer in the test environment.
Client OS	Select the type of operating system running on the client.
Database	Select the type of database running in the test environment.
Client Type	Select the type of test computer that you use.

3. Drill down on the Test Plan field if you want to associate tests with the test plan.

Associating Change Requests with Test Passes

While performing a test pass, QA testers might encounter product defects and ideas for design improvements. QA testers record these defects and ideas as change requests and associate the change requests with the test pass where they find them. For more information about entering change requests, see *Quality Management*.

To associate a change request with a test pass

1. Navigate to the Release screen, then the QA Test Defects view.
2. In the Change Requests view, select the change requests that you want to associate with the test pass.

Monitoring Test Results

QA managers can then review test summary information to assess overall product quality and determine when the product is ready to ship.

In the QA Test Plans view, the tester assesses the number of test plan executions (passes) and the status of the last test plan execution. The more test plan passes and the higher the stability of the tested area, the greater the overall product quality.

QA managers can run queries on fields to pinpoint areas of risk to product quality. To identify the new product features that are minimally tested, and the features that might be unstable, complete the procedure in this topic.

To monitor test results

1. Navigate to the Release screen, then the QA Test Plans view.

2. In one of the following fields, create a query to identify the features that are incompletely tested or unstable:
    - In the Passes field, enter <n (less than n) , where n is the minimum number of test iterations that you think is adequate at this point in the release.

      In each test plan the query returns, click the Related Features field to display the features that are at risk because they are not fully tested.
    - In the Last Build field, enter Unstable or another value in the Status field on the QA Tests view that represents a low-quality assessment.

      In each test plan the query returns, click the Related Features field to display the features that are at risk because they were not functional in the most recent test.

Managing Technical Publications Work for Release Manager (End User)

When users enter design, development, and test data in Release Manager, technical writers can begin recording the progress and results of documentation efforts in Siebel Field Service. Their managers can monitor the information that they enter.

This topic contains the following related information:

- *Creating Technical Documents and Linking Features*
- *Adding Activity Plans to Technical Documents*

This task is a step in *Process of Managing Release Manager*.

Creating Technical Documents and Linking Features

After they identify release features, Technical Publications can begin revising existing documentation or developing new documents to describe new product functionality.

Technical Publications can track documentation development in Release Manager. The document available as an attachment to the record. Technical Publications links the document with associated features. Product marketers who are associated with the development of the document are linked to the record, and they can record their approvals. For each document, Technical Publications logs the portion completed and the target completion date so that they can address potential issues before they are critical.

To create a technical document

1. Navigate to the Release screen, then the Technical Documents view.
2. Create a new technical document record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Target Date	Select the expected date of the document completion.
Complete %	Type the percentage of the document that is completed to date.

Field	Comments
Release	Select the name or number of the product release associated with the document.
Est Pages	Type the estimated number of pages for the completed document.
New %	Type the percentage of the document that is new in this version of the document.
Associated Parties	Select the individuals associated with development of the document. Set the author as Primary.

Adding Activity Plans to Technical Documents

An activity plan comes from a predefined activity template. An activity template contains multiple predefined activities to associate with a release item. Users can use activity templates instead of manually entering each activity, and activity templates help to standardize activities for technical publications teams.

To add an activity plan to a technical document

1. Navigate to the Release screen, then the Technical Document Activity Plans view.
2. Select a technical document record.
3. In the Activity Plans view, create a new activity plan record, and complete the fields as appropriate.

   When you associate the activity plan with the technical document, all the activities in the activity plan are associated with the technical document and appear in the Activities view.

20 Assets

Assets

This chapter describes how to track and manage assets. You can collect of data from assets in the field to provide information for preventive maintenance, repairs, billing, and marketing. This chapter includes the following topics:

- *About Assets*
- *About the Asset Dispatch Board*
- *Asset Charts*
- *Process of Administering Assets*
- *Process of Managing Assets*

About Assets

An *asset* in Siebel Field Service is an instance of a product that has an individual identity and is associated with a customer. You can create an asset for any product by assigning it a unique asset number. An asset has a quantity, a location, and a monetary value and is associated with a product and an organization. In Siebel Field Service, assets have the following additional properties:

- Assets can be physical or virtual.
- Assets can have serial numbers.
- Assets can exist individually, or they can have components.
- You can associate assets with other assets when the assets depend on each other.
- You can associate teams of employees with an asset.

Assets can be associated with other Siebel business objects and with internal data and calculations as follows:

- Assets can contain a hierarchy of other assets as components. There is no restriction on the number of tiers and the number of components in a multi-tiered asset.
- You can perform actions such as install, uninstall, upgrade, or downgrade on an asset. You record these actions as asset transactions.
- The same asset can have different products over time. For example, when the product associated with an asset is obsolete, you might replace it with a different product. The same asset record remains in Siebel Field Service, but the associated product changes.
- When you service an asset, you can associate service requests, preventive maintenance records, and repair records with the asset to maintain a service history for that asset.
- Assets can have multiple types of measurements, including gauges, counters, and sensors. Each measurement can have multiple readings that are manually or automatically recorded and stored for problem diagnosis or for usage tracking.
- The current value of an asset is calculated or revalued according to its condition, value basis, and cost method.

Serialization of Assets

Not every asset requires a serial number. If an asset requires a serial number, then it is *serialized*. If an asset is serialized, then the asset requires a serial number for all of its movements and transactions, including the following:

- Inventory transactions
- Field part movements
- Cycle counts
- Shipments
- Receipts

For all inventory transactions involving serialized products, an asset is equivalent to 1 product. (The product quantity is 1.)

If a product is serialized (if the Serialized check box is selected in the Fulfillment view in the Service Information view in the Products view of the Administration - Product screen), then the assets of the product must also be serialized. However, an asset can be an instance of a nonserialized product and still have a serial number.

Siebel Field Service handles serialized assets differently from nonserialized assets. When you ship or receive serialized assets, the correct number of assets with serial numbers must exist in Siebel Field Service.

Registration of Assets

You can associate an asset with an account, an account site, an owner, and 1 or more contacts. If a customer buys an asset, then the owner and the account are the same. However, if a customer leases or rents the asset, then the account is the location of the asset, and the owner is the lessor or rental agent for the asset. You can view all registered assets for an account in the Accounts screen.

Hierarchical Assets

Assets can have a hierarchical relationship with asset components.

A *hierarchical asset* is an asset with a hierarchical structure that includes asset or product components. The hierarchical structure of a complex asset can include multiple levels and sublevels of asset or product components and subcomponents. There is no restriction on the number of levels or the number of components in a hierarchical asset. Asset components can be serialized or nonserialized. For example, a parent computer asset can have child assets, such as a motherboard (Part number M, Qty 1, Serial number 123), RAM (Part number RAM, Qty 16, no Serial number), and so on.

A *customizable asset* is an asset that is associated with a configurable product. You use Siebel Configurator to customize products. For more information about configurable products and Siebel Configurator, see *Siebel Product Administration Guide* .

Components of a hierarchical asset inherit some properties from the top-level asset. Changing the following fields of the top-level or parent asset of a hierarchical asset changes the same fields in all of the installed components: Account (and all account-related fields, for example, Site, Address Line 1, and so on), Owner, Ownership, and Organization.

Inheritance applies to a change that a user action or an automated process initiates. Changes to the components occur when a user updates the fields in the previous paragraph and saves the record. Users can update only the fields for the top-level asset. The fields of component assets are read-only.

Asset Transactions

Asset transactions with a value of Install, Uninstall, Upgrade, and Downgrade in the Type field maintain the installed base for an asset. Users must manually create these transactions.

For example, a computer has a defective disk drive that you must replace with another disk drive. Two asset transactions affect the change. The first transaction shows the removal of the defective disk drive from the computer. The second transaction shows the installation of the new disk drive in the computer.

If an asset has components, then a transaction for that asset automatically includes its components.

Asset Swaps

Service activities often involve replacing an asset with another asset. If the installed asset is an instance of the same product or product component as the removed asset, then you can record the replacement as a swap. When replacing an asset, the field service engineer records the replacement in the Part Tracker view of the Activities screen. For more information, see *Recording Part Movements for Activities (End User)*.

When you swap 2 assets, you can transfer the warranties and entitlements of the removed asset to the installed asset on a prorated basis. For this transfer, the assets must be root assets, and the Transferable check box (for warranties and for entitlements) must be selected before you can record the swap in the Part Tracker view. For more information about the Transferable check box, see *Creating Warranties* and *Creating Entitlements (End User)*.

A warranty transfer and an entitlement transfer are processed in slightly different ways if the removed and installed assets in the swap are instances of different products or product components. The warranties of the product for installed asset are in effect. For agreements that include entitlements for the removed asset, the asset values for the entitlements on the Service Agreement Product business component are updated with the asset number of the installed asset, replacing the asset number of the removed asset. When this business component is updated, the Asset number (#) field in the Products view in the Entitlements view in the List view of the Agreements screen changes to display the new installed asset. Consequently, the warranties and entitlements are automatically in place for the installed asset.

Asset swaps also transfer any hierarchical relationships from the removed asset to the installed asset. However, if a removed asset is a child asset, then the parent of the removed asset becomes the parent of the installed asset, but the removed asset keeps any of its child assets.

Asset Swaps Business Service

The FS Asset Swap Service business service is used during asset exchange. Using the business service methods, the warranties and entitlements of the removed asset are transferred to the installed asset. For more information about this business service, see *FS Asset Swap Service Business Service*.

About the Asset Dispatch Board

The Asset Dispatch Board provides an interface for manually scheduling asset-related activities. To access the user preferences for the Asset Dispatch Board, navigate to the Asset Dispatch Board of the User Preferences screen. For more information about these user preferences, see *Setting User Preferences for the Dispatch Board(End User)*.

The Asset Dispatch Board includes the following sections:

- Gantt chart (at the start of the Asset Dispatch Board)
- Unscheduled Activities list (at the end of the Asset Dispatch Board)

To schedule activities, you relocate activities from the Unscheduled Activities list to the Gantt chart as follows: you select the activities from the Unscheduled Activities list and without releasing the selection, then move the activities to the Gantt chart. To unschedule an activity, select the activity from the Gantt chart and then move it back to the Unscheduled Activities list.

Gantt Chart

The Gantt chart on the Asset Dispatch Board shows the scheduled and unscheduled time periods for the asset records. The chart is divided by a frame boundary into two frames as follows:

- **First frame.** Lists assets and the related products and accounts. You can drill down on the Asset number (#) field to quickly navigate to the Activities view in the List view of the Assets screen, drill down on the Product field to navigate to the Internal Product List view of the Products screen, and drill down on the Account field to navigate to the All Accounts Across Organizations view.
- **Second frame.** Appears in a calendar format and shows the activities associated with assets in different time periods. Activities appear in colors that represent priority, status, and type. You can drill down on the time bar for an activity to navigate directly to the Schedule view in the Activity List view of the Activities screen. The user preferences for the Dispatch Board also apply to the Asset Dispatch Board. For more information, see *Setting User Preferences for the Dispatch Board(End User)*.
- The second frame is positioned beside the first frame.

Unscheduled Activities List

The Unscheduled Activities list on the Asset Dispatch Board shows all activities that have a status value of Unscheduled. Users can create new activities directly from this list. This list provides the same relocation functionality as the Unscheduled Activities list of the Dispatch Board. For more information about the unscheduled activities list, see *About Using the Dispatch Board*.

You can drill down on the Type field to quickly navigate to the Schedule view in the Activity List view of the Activities screen. Drill down on the Account field to navigate to the Contacts view of the Accounts screen.

Asset Charts

The following table lists the charts in the Charts view for assets.

Chart	Description
Measurement Analysis	The readings from a measurement as a function of the date of the readings. The graphs also show the upper and lower limits of readings. Administrators set these limits in the Administration - Contracts screen.

Process of Administering Assets

The following list shows the tasks that administrators typically perform to administer assets. Your company might follow a different process according to its business requirements.

To administer assets, administrators perform the following tasks:

- *Configuring Account Service Teams*
- *Defining Assignment Rules*
- *Creating Asset Mapping Records*
- *Setting Up Measurement Types for Products*

Configuring Account Service Teams

If you need account service teams for the service delivery model of your company, then you must configure the Employee Account business component. This business component has no applets, so you must use Siebel Tools to configure the appropriate applets and views. For an example of how this view might appear, navigate to the Employees view in the List view of the Assets screen. For more information about adding views to a Siebel application, see *Configuring Siebel Business Applications* .

Membership in an account service team does not affect account visibility. Even if an employee is a member of an account service team, the account might not appear for the employee when the employee uses the My Accounts visibility filter. To make the account visible to the employee, use the Account Team Members dialog box to add the appropriate position. This dialog box appears when you click the select button in the Accounts List view of the Accounts screen.

This task is a step in *Process of Administering Assets*.

Defining Assignment Rules

You can use role priorities in assignment rules to support prioritized assignment of primary, secondary and tertiary field service engineers. Primary engineers receive the highest score, then the secondary engineers, and finally, the tertiary engineers.

After you assign role priorities to asset or account service team employees, you can define assignment rules for these priorities in Assignment Manager. Assignment Manager uses these assignment rules to determine dynamic candidates. Dynamic candidates are potential assignees for activities.

When you create the asset or account service team assignment, Assignment Manager controls the candidates that a user (for example, a dispatcher) can select.

When the dispatcher creates a new activity on the Activities screen, the dispatcher can specify an asset for the activity. When the dispatcher selects the Assign menu command, the assignment rules determine that only certain employees appear for selection. The employees appear according to their roles, and the primary candidates receive higher scores than secondary and tertiary candidates. Using this information, the dispatcher can select the most appropriate candidate for the activity.

For example, if you associate an activity with an asset, and that asset has a team of employees, then you can configure Assignment Manager to automatically consider these employees for an activity. The same employees are available as potential candidates for other activities. These employees are the dynamic candidates. For more information about how dynamic candidates are determined for activities, see *Siebel Assignment Manager Administration Guide* .

This task is a step in *Process of Administering Assets*.

To define an assignment rule

1. Navigate to the Administration - Assignment screen, then the Assignment Rules List view.
2. Create a new assignment rule record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Name	Type the name of the assignment rule.
Objects to be Assigned	Select the Activity object.
Rule Group	Select the group to include the assignment rule.
Person Candidates Source	Select Activity Asset Team.

3. Drill down on the Name field.

4. In the Criteria view, and create a new criteria record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Rule Criterion	Select Asset Team Relation Type to define an asset service team assignment rule. Select Account Team Relation Type to define an account service team assignment rule.
Comparison Method	Select Compare to Person.

5. Scroll down to the list of criteria detail, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Score	Type the score for each account relationship type. For example, type 100 for the primary relationship, 50 for the secondary relationship, and 25 for the tertiary relationship.
Account Relation Type	Select the account relationship type. Create a record for the primary relationship, the secondary relationship, and the tertiary relationship.

Creating Asset Mapping Records

Administrators create asset mapping records to configure the information that is used to calculate the cost and value of assets. The asset mapping record with values in the Cost List, Condition, and Value Basis fields that match the values in the same fields in an asset value record is used in the calculation for the asset. Other fields in this asset mapping record, such as Cost Field, Cost Method, and Factor, determine the calculation result. For more information about costs lists and asset mapping, see *Siebel Pricing Administration Guide* .

> **Note:** Asset mapping records apply to all assets with the same cost list and product line (including associated products in the product hierarchy).

This task is a step in *Process of Administering Assets*.

To create an asset mapping record

1. Navigate to the Administration - Pricing screen, then the Cost Lists view.
2. Select a cost list, and click the Asset Mapping view tab.

3. Create a new asset mapping record, and complete the fields as appropriate.
Some fields are described in the following table.

Field	Comments
Cost List	Select the cost list that applies to the asset for the calculation.
Product Line	Select the product line for the product that is associated with the asset for the calculation.
Cost Field	Select the asset field to populate with the calculation result. To calculate both an asset value and a replacement value for an asset, you must create an asset mapping record with a value of Asset Value in this field and another asset mapping record with a value of Replacement in this field. The fields that you select in the Cost Field appear in the Value view of the Assets screen.
Condition	Select the condition of the asset for the calculation.
Value Basis	Select the value basis of the asset for the calculation
Cost Method	Select the cost method in the cost list that applies to the asset for the calculation.
Factor	Type a percentage to use in the calculation. In the calculation, this percentage is applied to the cost or value of the asset. If you enter no value, then this field defaults to 100%. The current condition of the asset determines this percentage. For example, a new asset in excellent condition might have a factor to indicate 100% of its cost or value, while a used asset in average condition, might have a factor to indicate 40% of its cost or value.

Setting Up Measurement Types for Products

The measurements types that you set up for a product can apply to the assets that are associated with the product, but users must manually associate measurement types with these assets. For more information, see *Associating Measurement Types with Assets (End User)*.

This task is a step in *Process of Administering Assets*.

To set up a measurement type for a product

1. Navigate to the Administration - Product screen, then the Products view.
2. Select a product record, and click the Service Information view tab.
3. On the link bar, click the Measurements.
4. Create a new measurement record, and complete the fields as appropriate.
Some fields are described in the following table.

Field	Comments
Type	Select the type of measurement. Values include Depth and Wear.
Name	Type the name for the measurement.
Location	Type the location of the product.
Use Plan Bill Method	Select the method of accumulating data in readings. Values include: o **Incremental.** The counter increments continuously with each reading (for example, 10, 20, 30, 40, and so on). o **Absolute.** The counter resets after each reading (for example, 10, 10, 10, 10, and so on).
Method	Select the method to collect the measurement. You might collect the measurement manually (for example, a gas meter reading from gas company employee), remotely, or automatically (for example, some type of electronic feed).
Frequency	Select the frequency with which you obtain readings for the measurement.
Maximum	Type the largest possible value for the measurement device.
Minimum	Type the smallest possible value for the measurement device.
Upper Limit	Type the value of the upper control limit for readings. This field value can indicate threshold values for an asset. For example, exceeding the upper limit might generate a preventive maintenance action. This field value must be less than or equal to the Maximum field.
Lower Limit	Type the value of the lower control limit for readings. This field value can indicate threshold values for an asset. For example, exceeding the lower limit might generate a preventive maintenance action. This field value must be greater than or equal to the Minimum field.
Units of Measurement	Select the units of the measurement.
Expected Usage	Type the value for the expected use. This field is used to bill for usage if readings of usage are unavailable and if the Estimate check box is selected in the Use Plans view of the Administration - Contracts screen.
Use Basis (Days)	Type the time period for the expected use. This field value must represent the value in the Frequency field.

Field	Comments

Note: The Products screen has a read-only version of the Measurements view.

Process of Managing Assets

The following list shows the tasks that end users typically perform to manage assets. Your company might follow a different process according to its business requirements.

To manage assets, end users perform the following tasks:

- *Creating Assets (End User)*
- *Associating Other Records with Assets (End User)*
- *Creating Transactions for Assets (End User)*
- *Creating Hierarchical Assets from Product Bundles (End User)*
- *Defining Assignments for Field Service Engineers (End User)*
- *Viewing Other Records Associated with Assets (End User)*
- *Viewing Components for Assets (End User)*
- *Viewing Changes to Assets (End User)*
- *Viewing the Operating Statuses of Assets (End User)*
- *Calculating Adjusted Cost of Assets (End User)*
- *Calculating Value and Replacement Cost of Assets (End User)*
- *Associating Measurement Types with Assets (End User)*
- *Recording Readings for Assets (End User)*
- *Analyzing Readings for Assets (End User)*
- *Managing Information Display in Gantt Chart of Asset Dispatch Board (End User)*
- *Scheduling Activities for Assets (End User)*

Creating Assets (End User)

You can create an asset in Siebel Field Service.

The Customize button at the start of the Asset form is functional only if you use Siebel Configurator to customize products, and if the asset is associated with a configurable product. When you click this button, Siebel Configurator is launched for the selected asset. Configurable products have attributes, and you can change these attributes only if you use Siebel Configurator. The Attributes view of the Assets screen shows the attributes for an asset. For more information about configurable products and Siebel Configurator, see *Siebel Product Administration Guide* .

Note: If a predefined query in the List view of the Assets screen limits the displayed records, then create an asset with a configurable product, and click Customize to refresh the view. The new asset record no longer appears in the visible part of the view. To find the record again, you must query for it, then click Customize again to complete the configuration.

This task is a step in *Process of Managing Assets*.

To create an asset

1. Navigate to the Assets screen, then the List view.
2. Create a new asset record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Serial #	Type the serial number, if any, for the asset.
Status	Select the status of the asset. An asset is automatically assigned a status value of Active when you create the asset from a quote or order. That asset is automatically assigned a status value of Inactive when you disconnect it. An asset is automatically assigned a status value of Available when you add a service point to a premise. For more information about registering a premise hookup, see *Siebel Communications Guide* and *Siebel Energy Guide* .
Operating Status	Select a status that indicates whether the asset is operational and the level of operation.
Contacts	Select the contacts associated with the asset. When you select a contact, the Account field is not populated with the account for the contact.
Account	Select the account associated with the asset. When you select an account, the Contacts field is not limited to the contacts for the account.
Parent Asset #	Displays the next higher level asset for the asset. For example, the parent asset of a disk drive is a computer. This field is read-only.

3. Drill down on the Asset number (#) field for the record.
4. Click the More Info view tab.
5. Complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Product Line	Displays the product line for the asset. This field is populated using the product for the asset.

Field	Comments
Purchase Site	Type the location of the asset.
Serialized	Displays a check if the product is a serialized product. This field is read-only in the Assets screen.
Reference	Select this check box to indicate you can reference the asset for customers or other vendors.

Associating Other Records with Assets (End User)

Complete the procedures in this topic to associate other records with assets.

This topic contains the following related information:

- *Associating Change Requests with Assets*
- *Associating Backup or Dependent Assets with Primary Assets*
- *Associating Assets with Accounts*
- *Associating Preventive Maintenance Plans with Assets*

This task is a step in *Process of Managing Assets*.

Associating Change Requests with Assets

You can associate a change request with an asset. For more information about change requests, see *Quality Management*.

To associate a change request with an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Change Requests view tab.
3. Create a new change request record, and complete the fields as appropriate.

Associating Backup or Dependent Assets with Primary Assets

You can associate backup or dependent assets with a primary asset. These assets depend on the operation of a primary asset.

For example, hospital medical equipment depends on a hospital power asset. In the relationships view, the field service engineer can see the other assets that a defective power asset affects. The engineer can then take steps to make sure that no unintended disruptions occur. In this example, the engineer switches the medical equipment to the backup power supply before disconnecting the primary power supply.

To associate a backup or dependent asset with a primary asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Relationships view tab.
3. Create a new relationship record, and complete the fields as appropriate.

Associating Assets with Accounts

You can associate an asset with an account.

To associate an asset with an account

1. Navigate to the Accounts screen, then the Account List view.
2. Drill down on the Account Name field for a selected account record, and click the Assets view tab.
3. Create a new asset record, and complete the fields as appropriate.

Associating Preventive Maintenance Plans with Assets

You can associate a preventive maintenance plan with an asset. If a PM plan is already associated with an asset through the All Assets check box in the Products view in the Preventive Maintenance List of the Preventive Maintenance screen, then completing the following procedure has no effect other than to show the association. If a PM plan is not already associated with an asset through the All Assets check box, then perform the following procedure to create the association. For information about running preventive maintenance plans for an asset, see *Process of Managing Records with Barcode Readers*.

To associate a preventive maintenance plan with an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Preventive Maintenance view tab.
3. On the link bar, click Plans.
4. Create a new preventive maintenance plan record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Name	Select the name of the preventive maintenance plan.
Active	Displays a check in the check box to indicate the Preventive Maintenance Engine can process the plan.

Creating Transactions for Assets (End User)

You can manually create transactions to add installed components to assets, to remove these components, to upgrade assets, and to downgrade assets. When administrators use the Parts Movement Administration view of the Administration - Service screen to commit part movements in the field, transactions are automatically created.

Note: Asset transactions do not directly update quantities for inventory levels.

This task is a step in *Process of Managing Assets*.

To create a transaction for an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Transactions view tab.
3. Create a new transaction record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Type	Select the type of transaction. Values include Install, Uninstall, Downgrade, and Upgrade. If you select a value of Install, the values for the status and installation date of the asset are set. If you select a value of Uninstall, the values for the status and installation date of the asset are cleared. Create transactions with an Install value in this field to create a hierarchy of components for assets. To remove an installed component, you must create another transaction with an Uninstall value in this field. For more information, see *Viewing Components for Assets (End User)*. **Note:** Call Siebel Configurator to install the components of configurable products.
Asset #	Select the asset that applies to the type of transaction. The Type field value determines the assets that you can select as follows: - **Install.** You can select only the assets that are not currently installed and that exist in the same inventory location, an external location, or no location. - **Uninstall.** You can select only the assets that are currently installed. - **Upgrade.** You can select all assets. - **Downgrade.** You can select all assets

Creating Hierarchical Assets from Product Bundles (End User)

You can generate a hierarchical asset from a product bundle. A *product bundle* is a group of products offered as a package. For more information about hierarchical assets, see *Hierarchical Assets*.

Note: To successfully generate a hierarchical asset, the product bundle must include *only* parent and child products (for example, a laptop computer that includes a CD-ROM drive). The product bundle cannot include grandchild products (for example, an airplane that includes an engine that includes a fuel tank).

This task is a step in *Process of Managing Assets*.

To create a hierarchical asset from a product bundle

1. Navigate to the Assets screen, then the List view.
2. Create a new asset record, select a product bundle in the Product field, and complete the other fields as appropriate.
3. Drill down on the Asset number (#) field for the asset, and click the Components view tab.
   The asset components for the child products in the product bundle appear in the Components view.

Defining Assignments for Field Service Engineers (End User)

You can assign teams of employees to assets and accounts. An *asset service team* is a group of service personnel associated with an asset. Set up this team for field service environments that contain large pieces of equipment. Possibly the same individuals must service a set of equipment. After you assign the appropriate field service engineers to an asset, you can then define primary, secondary, or tertiary role priorities for each engineer.

An *account service team* is a group of service personnel associated with an account or an account site. This team either works at the account site, or employees contact the team about breaks, fixes, preventive maintenance, or related tasks at the site. The service personnel are then ranked as primary, secondary, or tertiary to make sure that sufficient coverage is available. Employees consider these defined role priorities to assign activities to appropriate candidates.

When you assign teams of employees to an asset or account, you expedite service to customers for the following reasons:

- Customers know the circumstances of the installation and how to allocate the activities between the team members.
- Customers know the service team and the appropriate contact for a service requirement.
- Customers can address special clearances and other entry requirements for secured locations once for the assigned team, instead of several times for different individuals.

This topic includes the following related information:

- *Creating Asset Service Teams*
- *Assigning Role Priorities to Asset Service Team Employees*
- *Creating Account Service Teams*
- *Assigning Role Priorities to Account Service Team Employees*

This task is a step in *Process of Managing Assets*.

Creating Asset Service Teams

To create asset service teams, you associate employees with an asset. For more information about associating skills with employees, see *Siebel Assignment Manager Administration Guide* .

To create an asset service team

1. Navigate to the Assets screen, then the List view.
2. Select an asset record.
3. Scroll down to the Asset form.
4. In the Employees field, select the appropriate field service engineers.
   To view a list of the selected employees, navigate to the Employees view in the List view of the Assets screen.

Assigning Role Priorities to Asset Service Team Employees

You can assign different levels of role priority to employees associated with an asset. When dispatchers assign an activity relating to the asset, the primary, secondary, and tertiary candidates appear in ascending order of received assignment scores. For more information about using role priorities to assign activities, see *Role Priorities*.

Assignment rules can use role priorities to support prioritized assignment of primary, secondary and tertiary field service engineers. Primary engineers receive the highest score, then the secondary engineers, and finally, the tertiary engineers. For more information about defining candidates for assignment rules, see *Defining Assignment Rules* and *Siebel Assignment Manager Administration Guide* .

Perform the steps in the following procedure to assign roles to asset service team employees.

> **Note:** For this procedure, employees are already associated with the asset. For more information, see *Creating Account Service Teams*.

To assign role priorities to asset service team employees

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Employees view tab.
3. In the Role field, select a primary, secondary, or tertiary role for each employee.

Creating Account Service Teams

After you configure the applets and views so that Siebel Field Service includes an Employees view in the Accounts List view for the Accounts screen (similar to the Employees view in the List view of the Assets screen), you can create the account service team. The procedure for creating account service teams is similar to the procedure for creating asset service teams. For more information, see *Creating Asset Service Teams*.

Assigning Role Priorities to Account Service Team Employees

Role priorities for an account service team identify the primary, secondary or tertiary engineer who can assist the account with a service activity.

After you create an account service team, you can assign role priorities for each employee. The procedure for assigning role priorities to account service team employees is similar to the procedure for assigning role priorities to asset service team employees. For more information, see *Assigning Role Priorities to Asset Service Team Employees*.

You can use role priorities when defining assignment rules in Assignment Manager. For more information, see *Defining Assignment Rules*. For more information about using role priorities to assign activities, see *Role Priorities*.

Viewing Other Records Associated with Assets (End User)

You can view other records that are associated with assets, such as change requests, repairs, activities, entitlements, actions for preventive maintenance, and plans for preventive maintenance.

This task is a step in *Process of Managing Assets*.

To view other records associated with an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset.

3. To see more information about the asset, complete the following steps:

    a. Click the Repairs view tab to view repairs for the asset.

    For more information about repairs, see *Repairs*.

    b. Click the Activities view tab to view activities for the asset.

    For more information about activities, see *Service Activities*.

    c. Click the Entitlements view tab to view entitlements for the asset.

    For more information about entitlements, see *Agreements and Entitlements*.

    d. Click the Preventive Maintenance tab, and on the link bar, complete the following steps:

        - To view the actions for preventive maintenance, click History.

        The scheduled and completed actions appear in the view. You can select the completion date for an action in the Completed field.

        - To view the plans for preventive maintenance, click Plans.

Viewing Components for Assets (End User)

The Components view of the Assets screen shows the immediate child components of the parent asset in the Asset form. The child components of these child components (or grandchild components) do not appear in the Components view for the parent asset. To view these grandchild components, drill down on the Asset number (#) field in the Components view, and, if necessary, click the Components view tab again.

For example, asset A has an asset B child component, and asset B has an asset C child component. The Components view for asset A shows only asset B. To view asset C, drill down on the Asset number (#) field for asset B in the Components view, and, if necessary, click the Components view tab again. Asset C appears in the Components view for asset B.

You can build a hierarchy for an asset by creating the components in each level of its hierarchy. You can create components with a Type field value of Install in the Transactions view of the Assets screen. These components automatically appear in the Components view of the Assets screen.

This task is a step in *Process of Managing Assets*.

To view the components for an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Components view tab.

    The assets with a Type field value of Install in the Transactions view appear in the Components view.

You can view the hierarchy of an asset to see the components for the asset.

To view an hierarchical asset

1. Navigate to the Assets screen.

2. On the link bar, complete one of the following steps:
    - To view assets associated with your organization, click Assets Explorer.
    - To view assets associated with all organizations, click Assets Explorer Across Organizations.
3. In the explorer list in the side pane, click the arrow in front of each asset to see a hierarchical list of its components.

    An arrow appears next to each component that has more subcomponents at a lower level.

Viewing Changes to Assets (End User)

You can access the Audit Trail view to see changes for an asset. When any of the following fields in an asset record change, the change is automatically recorded with a time stamp in the Audit Trail view:

This list describes fields in asset records. Changes in these fields are automatically recorded with a time stamp in the Audit Trail view.

- Account
- Organization
- Purchased Date
- Contacts
- Operating Status
- Registered Date
- Employees
- Owner
- Revision
- Installed Date
- Ownership
- Shipped Date
- Inventory Location
- Primary Warranty
- Status
- Manufactured Date

The following changes are also recorded in Siebel Audit Trail:

- Changes to the asset components (when you install or remove the components)
- Changes to the asset value

This task is a step in *Process of Managing Assets*.

To view the changes to an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Audit Trail view tab.

Viewing the Operating Statuses of Assets (End User)

The Uptime Data view shows a time stamp that indicates when the Operating Status field of the asset changes, the old value, the new value, and the employee who changed the status. This view also displays the Operating Status Over Time chart. This chart plots the Operating Status value on the y-axis over time on the x-axis.

This task is a step in *Process of Managing Assets*.

To view the operating status of an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Uptime Data view tab.

Calculating Adjusted Cost of Assets (End User)

You can calculate the adjusted cost of an asset. In the calculation, the value of enhancements is added to the original cost of the asset and the value of depreciation, write-downs, and so on is subtracted from the original cost of the asset.

This task is a step in *Process of Managing Assets*.

To calculate the adjusted cost of an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Value view tab.
3. In the form, complete the following fields:
    a. In the Original Cost field, enter the original cost, if necessary.
    b. In the Value Basis field, select Adjusted.
    c. In the Condition field, select a value to designate the condition of the asset.
4. In the Asset Valuation list, create at least 1 new record for the action that affects the cost of the asset, and complete the fields as appropriate.
5. On the form, click Recost.

    The Adjustment and Adjusted Cost fields in the form are populated with the result of the calculation. The Adjusted Cost field is calculated as follows:

    (Original Cost field plus or minus the sum of the values in the Amount field of the Asset Valuation list) multiplied by the Factor field in the appropriate asset mapping record.

    If asset mapping is not set up for the asset, then a factor of 100% is used in the calculation. For more information, see *Creating Asset Mapping Records*.

Calculating Value and Replacement Cost of Assets (End User)

You can calculate the value and replacement cost of an asset. Value and cost of assets allows businesses to accurately report the value of inventory and to make decisions about repairs and replacements of assets.

This task is a step in *Process of Managing Assets*.

To calculate the value and replacement cost of an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Value view tab.
3. In the form, complete the following fields:
   a. In the Cost List field, select a cost list.

      > **Note:** The product for an asset determines the cost lists that you can select. If no cost lists are available for selection, then you must associate the product with a cost list. You can add a product to a cost list in the Cost List Line Items view in the Cost Lists view of the Administration - Pricing screen. To view the cost lists that are associated with products, navigate to the Cost Lists view of the Products screen.

   b. In the Value Basis field, select a value other than Adjusted.
   c. In the Condition field, select a value to designate the condition of the asset.
4. On the form, click Recost.

   The Asset Value and Replacement Cost field in the form are populated with the result of the calculation. The Asset Value field is calculated as follows:

   Original Cost field multiplied by the Factor field in the appropriate asset mapping record.

   The Replacement Cost field is calculated as follows:

   Cost list value of the product multiplied by the Factor field in the appropriate asset mapping record.

   If asset mapping is not set up for the asset, then a factor of 100% is used in the calculation. For more information, see *Creating Asset Mapping Records*.

Associating Measurement Types with Assets (End User)

When you create an asset, you select a product for the asset. However, the measurement types for the selected product are not automatically associated with the asset. You can manually associate measurement types with assets.

The Measurements view and the Readings view of the Assets screen include the following functionality:

- Capture asset usage and compare actual to expected usage.
- Capture data needed to generate actions for preventive maintenance.
- Automate meter reading, fee-for-each-use, and other usage-based service models.
- Capture performance and quality data.

This task is a step in *Process of Managing Assets*.

To associate a measurement type with an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Measurements view tab.

3. Create a new measurement record, and complete the fields as appropriate.

   Note: You can select only measurement types that are set up for the product that is associated with the asset. For more information, see *Setting Up Measurement Types for Products*.

Recording Readings for Assets (End User)

Follow the procedures in this topic to record readings of measurements for assets.

CAUTION: Measurement types can change when you upgrade products. If users do not associate the upgraded products with the appropriate assets, and if users do not associate the changed measurement types with these assets, then the assets retain the measurement types for the original products. Consequently, users can record measurements that are invalid for the assets. It is recommended that you associate upgraded products with the assets for the original products and that you re-associate the revised measurement types with the assets. It is also recommended that only users with Service Manager responsibility, and not field service engineer responsibility, have access to the Assets screen. Field service engineers can record readings in the Readings view of the Activities screen.

This task is a step in *Process of Managing Assets*.

To record a reading for an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Readings view tab.
3. Select the record for the measurement type of the reading.
4. In the Readings list, create a new reading record, and complete the fields as appropriate.
5. Select the check box in the Done field to indicate that the reading is complete.

   When the reading is complete, the reading record is read-only. You must select the check box in the Done field so that the reading charts.

You can record the reading for an asset that is associated with an activity.

To record a reading for an asset associated with an activity

1. Navigate to the Activities screen, then the Activity List view.
2. Drill down on the Type field for a selected activity with an associated asset, and click the Readings view tab.
3. Select the record for the asset.
4. In the Asset Measurements list, select the record for the measurement type of the reading.
5. In the Readings list, create a new reading record, and complete the fields as appropriate.
6. Select the check box in the Done field to indicate that the reading is complete.

   When the reading is complete, the reading record is read-only. You must select the check box in the Done field so that the reading charts.

Analyzing Readings for Assets (End User)

After you record the readings for an asset, you can view the readings in a chart so that you can analyze those readings.

This task is a step in *Process of Managing Assets*.

To analyze the readings for an asset

1. Navigate to the Assets screen.
2. Select an asset.
3. On the link bar, click Charts.
4. In the Charts list, select a measurement type record.
5. For the Measurement Analysis chart which appears after the Charts list, select the type of chart that you want to view, and then click Go.

Managing Information Display in Gantt Chart of Asset Dispatch Board (End User)

You can change the way that information appears in Gantt chart of the Asset Dispatch Board.

This topic includes the following related information:

- *Changing the Date for Gantt Chart Information*
- *Changing Time Zoom Intervals for Gantt Chart Information*
- *Querying for Assets on the Gantt Chart*
- *Viewing a Summary of Activity Details on the Gantt Chart*

This task is a step in *Process of Managing Assets*.

Changing the Date for Gantt Chart Information

The date that appears in the field at the start of the Gantt chart is the date that applies to the information currently in the chart. You can select a new day in this field to change the date of the information in the chart.

To change the date for Gantt chart information

1. Navigate to the Assets screen, then the Dispatch Board view.
2. In the date drop-down list, select the starting day for the gantt chart.
3. Click Go.

The Gantt chart refreshes to display the specified date.

Changing Time Zoom Intervals for Gantt Chart Information

You can change the time intervals that appear on the Gantt chart using the time zoom interval buttons.

The time zoom intervals are as follows:

- **1/4.** The time axis on the Gantt chart is divided into quarter-hour intervals.
- **1/2.** The time axis on the Gantt chart is divided into half-hour intervals.
- **1.** The time axis on the Gantt chart is divided into 1-hour intervals.
- **2.** The time axis on the Gantt chart is divided into 2-hour intervals.
- **4.** The time axis on the Gantt chart is divided into 4-hour intervals.

To change the time intervals for Gantt chart information

1. Navigate to the Assets screen, then the Dispatch Board view.
2. Click the appropriate button for the time zoom interval.

   The Gantt chart changes to display the time axis divided into the appropriate time intervals.

Querying for Assets on the Gantt Chart

You can use the query assistant to display only the required assets on the Gantt chart.

To query for an asset on the Gantt chart

1. Navigate to the Assets screen, then the Dispatch Board view.
2. On the Gantt chart, click Query.
3. Click Query Assistant.

   The Query Assistant dialog box appears.
4. To enter the query parameters, complete the following steps:

   a. Select Asset number (#) from the first drop-down list.

      You can enter query parameters only for the Asset number (#) field.
   b. Select an operator in the second drop-down list.
   c. Select a value in the third drop-down list.
5. Click Go.

   The assets that met the query parameters appear on the Gantt chart.

Viewing a Summary of Activity Details on the Gantt Chart

You can view a summary of asset activity details through the Tooltip feature. These details include:

- Account name
- Planned end
- Activity number
- Priority
- Description
- Status
- Duration in minutes
- Type
- Latest start

To view a summary of activity details on the Gantt chart

1. Navigate to the Assets screen, then the Dispatch Board view.
2. Position the mouse pointer over the activity on the Gantt chart.
3. In the Tooltip that appears, review the details.

Scheduling Activities for Assets (End User)

In the Asset Dispatch Board, you can schedule activities by selecting an activity record from the Unscheduled Activities list and then moving the record to the Gantt chart.

This task is a step in *Process of Managing Assets*.

To schedule an activity for an asset

1. Navigate to the Assets screen, then the Dispatch Board view.
2. In the Date field, enter the date that you want to schedule activities.
3. Make sure that the asset for which you want to schedule activities appears on the Gantt chart.
4. In the Unscheduled Activities list, select an activity record and (without releasing the selection) then move the activity to the Gantt chart and place the activity on the appropriate asset and time interval.

21 Warranties

Warranties

This chapter describes how to track the warranties for products. It includes the following topics:

- *About Warranties*
- *Process of Administering Warranties*
- *Process of Managing Warranties*

About Warranties

Warranties include the following types: product, manufacturer, and component. Each warranty specifies the covered products, costs, and service providers. A warranty is valid for a specified amount of time or usage. Warranties are separate from entitlements that you sell to a customer.

When creating a service request or repair number to repair an asset, you can select the Check Warranty menu command to verify the warranty coverage on a specified date. If a warranty is not associated with the asset, then the feature to check warranties automatically checks the parent and root assets to determine whether an applicable component warranty covers the asset.

When you create an asset for a product that warranties cover, you can associate the applicable warranties with the asset by clicking the Get Warranties button in the Warranty view in the List view of the Assets screen. The number of days remaining on the warranty is automatically calculated.

When an asset returned from the field is still under warranty, you can create an order for the services of the warranty provider, associate the warranty with the order line items, and track warranty recovery for each order line item.

Concurrent Warranties

In Siebel Field Service, you can create concurrent warranties. For example, an automobile warranty that expires after 3 years or 36,000 miles, whichever occurs first, is a concurrent warranty. Concurrent warranties are valid for a predefined amount of time or predefined amount of usage.

Note: Time parameters are required fields and usage parameters are optional fields.

Process of Administering Warranties

The following list shows the tasks that administrators typically perform to administer warranties. Your company might follow a different process according to its business requirements.

To administer warranties, administrators perform the following tasks:

- *Creating Warranties*
- *Adding Products to Warranties*
- *Associating Warranties with Service Providers*

Creating Warranties

Administrators must create warranties. Then, users can associate warranties with appropriate records.

This task is a step in *Process of Administering Warranties*.

To create a warranty

1. Navigate to the Administration - Service screen, then the Warranties view.
2. Create a new warranty record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Start Date Type	Select the field value in the associated asset record to use as the start date of the warranty coverage for that asset. For example, if the Start Date Type of the warranty is Installed Date, then the installed date of the asset is the start date of the warranty that is associated with the asset.
Duration (Days)	Type the number of days for the warranty period.
Provider	Select the account that provides the warranty. To set up the accounts that appear in the Pick Vendor dialog box for this field, navigate to the Account List view of the Administration - Data screen. In this view, make sure you clear the Account Flag field for the accounts that you set up. This account is not necessarily the same account that supplies services for the warranty. You can click the Service Provider view tab to associate the warranty with the accounts that supply services for the warranty.
Transferable	Select this check box to indicate the warranty is transferred from a removed asset to an installed asset when recording an asset swap. For more information, see *Asset Swaps*.
Measurement Type	Select the type of measurement for measuring asset usage for the warranty.
Unit of Measure	Select the unit of measurement for measuring asset usage for the warranty.
Usage Amount	Type the amount of the limitation on asset usage for the warranty. The warranty is no longer valid if the asset usage exceeds this amount.

Field	Comments
Parts	Select this check box to indicate the warranty covers the cost of replacement parts.
Labor	Select this check box to indicate the warranty covers the cost of labor.
Expenses	Select this check box to indicate the warranty covers the cost of expenses that field service agents incur.
Transportation	Select this check box to indicate the warranty covers the cost of transportation that field service agents incur.

Adding Products to Warranties

To specify the products that a warranty covers, you add the products to the warranty. Administrators configure products in the Administration - Product screen. For more information, see *Siebel Product Administration Guide* .

This task is a step in *Process of Administering Warranties*.

To add a product to a warranty

1. Navigate to the Administration - Service screen, then the Warranties view.
2. Select a warranty, and click the Products view tab.
3. In the Products list, create a new product record, and complete the fields as appropriate for the product.

Associating Warranties with Service Providers

Service providers can provide the services for a warranty. You can associate warranties with the appropriate service providers.

This task is a step in *Process of Administering Warranties*.

To associate a warranty with a service provider

1. Navigate to the Administration - Service screen, then the Warranties view.
2. Select a warranty, and click the Service Providers view tab.
3. Create a new service provider record, and complete the fields as appropriate.

Process of Managing Warranties

The following list shows the tasks that end users typically perform to manage warranties. Your company might follow a different process according to its business requirements.

To manage warranties, end users perform the following tasks:

- *Viewing Warranty Information (End User)*
- *Verifying Warranties (End User)*
- *Associating Warranties with Assets (End User)*
- *Associating Warranties with Order Line Items (End User)*
- *Tracking Warranty Recovery (End User)*

Viewing Warranty Information (End User)

Follow the procedures in this topic to view warranty information. You can view warranty information for an asset.

This task is a step in *Process of Managing Warranties*.

To view warranty information for an asset

1. Navigate to the Assets screen, then the List view.
2. Select an asset.

   The fields for warranty information are described in the following table.

Field	Comments
Status	Displays the status of the asset.
Installed	Displays the installation date of the asset.
Registered	Displays the registration date of the asset.

You can also view the warranties for a product.

To view the warranties for a product

1. Navigate to the Products screen, then the Internal Product List view.
2. Drill down on the Product field for a selected product, and click the Warranties view tab.

   The Warranties list shows the warranties that are associated with the product.

Verifying Warranties (End User)

Follow the procedures in this topic to verify warranty coverage. When you verify warranty coverage, you find the applicable warranties for a specified date. You can verify the warranties for a service request.

This task is a step in *Process of Managing Warranties*.

To verify the warranties for a service request

1. Navigate to the Service screen, then the Service Request List view.
2. Drill down on the SR number (#) field for a selected service request that is associated with a product or asset, and click the Service Details view tab.
3. In the Warranty As of field, enter a date for verification of warranty coverage for the service request.
   The default date is the creation date for the service request.
4. Click Check Warranty.
   The updated fields are described in the following table.

Field	Comments
Product Warranty	Displays a check if a product warranty is in effect on the specified date. This field is for information only, and does not affect other fields or functions.
Component Warranty	Displays a check if a component warranty is in effect on the specified date. This field is for information only, and does not affect other fields or functions.
Manufacturer Warranty	Displays a check if a manufacturer warranty is in effect on the specified date. This field is for information only, and does not affect other fields or functions.

You can also verify the warranties for a defective product.

To verify the warranties for a defective product

1. Navigate to the Repairs screen.
2. Drill down on the Repair number (#) field for a selected repair, and click the More Info view tab.
3. In the Warranty As of field, enter a date for verification of warranty coverage for the repair.
4. Click Check Warranty.
   The updated fields are described in the following table.

Field	Comments
Product Warranty	Displays a check if a product warranty is in effect on the specified date. This field is for information only, and does not affect other fields or functions.

Field	Comments
Manufacturer Warranty	Displays a check if a manufacturer warranty is in effect on the specified date. This field is for information only, and does not affect other fields or functions.
Component Warranty	Displays a check if a component warranty is in effect on the specified date. This field is for information only, and does not affect other fields or functions.

Associating Warranties with Assets (End User)

Follow the procedures in this topic to associate warranties with assets. You can manually associate a warranty with an asset.

This task is a step in *Process of Managing Warranties*.

To manually associate a warranty with an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Warranty view tab.
3. In the Warranty list, create a new warranty record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Name	Select the name of the warranty. **Note:** Before a warranty can appear in the Pick Warranty dialog box, administrators must associate a product with that warranty in the Products view in the Warranties view of the Administration - Service screen.
Start Date	Select the starting date of the warranty.
End Date	Select the ending date of the warranty.

You can also automatically associate warranties with an asset.

To automatically associate warranties with an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Warranty view tab.

3. Click Get Warranty.

   The warranties that are associated with the selected asset and with the product for the selected asset appear in the Warranties list. Each warranty record shows the start date, the end date, and the number of days remaining in the warranty.

   > **Note:** If the date field that the Start Date Type (in the Warranties view of the Administration - Service screen) specifies is not populated in the asset record, then the Get Warranty command fails. If you do not define an appropriate measurement for the asset, then Get Warranty does not correctly add the usage-based concurrent warranty.

4. If necessary, modify the values in the Start Date, End Date, and Name fields of the warranty records.

Associating Warranties with Order Line Items (End User)

You can create an order for the services of a warranty provider. Then you can associate a warranty with the order line items.

This task is a step in *Process of Managing Warranties*.

To associate a warranty with an order line item

1. Navigate to the Service Orders screen, then the List view.
2. Drill down on the Order number (#) field for a selected order, and click the Line Items view tab.
3. Select an order line item record.
4. On the link bar, click Warranty.
5. In the Warranty list, create a new warranty record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Name	Select the name of the warranty. **Note:** Before a warranty can appear in the Pick Warranty dialog box, administrators must associate a product with that warranty in the Products view in the Warranties view of the Administration - Service screen.
Status	Select the status of the warranty.

Tracking Warranty Recovery (End User)

To track warranty recovery for order line items, you record warranty claim information.

This task is a step in *Process of Managing Warranties*.

To track warranty recovery

1. Navigate to the Service Orders screen, then the List view.
2. Drill down on the Order number (#) field for a selected order with a Type field value of RMA Return, RMA Repair Return, or RMA Advance Exchange, and click the Line Items view tab.
3. Select an order line item record.
4. On the link bar, click Warranty.
5. In the Warranty list, select a warranty record.
6. Record the warranty claim information in the appropriate fields.

   The fields are described in the following table.

Field	Comments
Status	Select the status of the warranty.
Planned Recovery	Select the date of planned recovery.
Actual Recovery	Select the date of actual recovery.

22 Preventive Maintenance

Preventive Maintenance

This chapter describes how to automatically create service requests and activities for maintenance. It includes the following topics:

- *About Preventive Maintenance*
- *About the Process Flow for Preventive Maintenance Engine*
- *About Triggers for Preventive Maintenance*
- *About Plans and Actions for Preventive Maintenance*
- *About the Preventive Maintenance Engine*
- *Process of Administering Preventive Maintenance*
- *Process of Managing Preventive Maintenance*

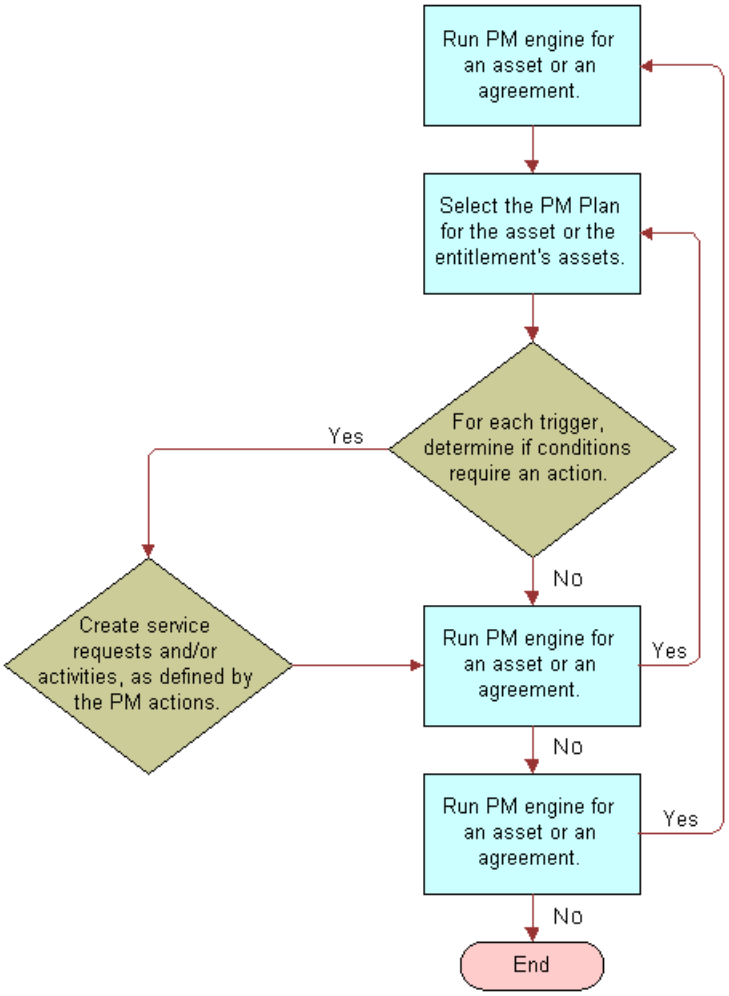
About Preventive Maintenance

The following factors can cause the Preventive Maintenance Engine to automatically create preventive maintenance (PM) service requests and PM activities:

- **Elapsed time.** Time-based triggers activate PM plans to generate service actions at regular time intervals.
- **Asset usage.** Usage-based triggers activate PM plans to generate service actions when asset usage reaches a certain level (for example, number of copies for a photocopier). These triggers apply to equipment that can keep track of usage with a counter.
- **Measurement thresholds.** Threshold-based triggers activate PM plans to generate service actions when a measurement is greater or less than a set level (similar to an alarm or engine warning light).
- **Events.** Event-based triggers activate PM plans to generate service actions when predefined events determine whether service actions are required.

About the Process Flow for Preventive Maintenance Engine

The Preventive Maintenance Engine creates service requests and the required activities. The following figure shows the process flow for the Preventive Maintenance Engine.



The process flow for the Preventive Maintenance Engine includes the following steps:

1. Run the PM Engine for an asset or agreement.
2. Select the PM plan for the asset or for the assets of the entitlement.
3. For each trigger, if conditions require an action, then create service requests and activities, and then run the PM Engine. If conditions do not require an action, then run the PM Engine.
4. Continue the process until all necessary service requests and activities are created.

About Triggers for Preventive Maintenance

The Preventive Maintenance Engine responds to triggers and generates service actions. Triggers for Preventive Maintenance activate processes in Siebel Field Service to plan and schedule routine service activities. The Optimizer can schedule these activities. For more information, see *Preventive Maintenance Integration with the Appointment Booking System*.

Preventative maintenance plans include the following trigger types:

- *Time Interval Triggers*
- *Date Triggers*

- *Usage Triggers*
- *Threshold Triggers*
- *Event Triggers*

Processing Logic for Triggers

The following rules regulate the operation of Preventive Maintenance triggers:

- Only Time Interval and Date triggers can occur for a date in the future. All other triggers can occur only for the current date (when the engine runs).
- Triggers never occur in the past. If the Preventive Maintenance Engine finds a trigger to occur in the past, then the trigger occurs for the current date unless some other constraint or condition prevents the trigger from occurring.
- No trigger can occur more than once a day.
- No trigger can occur when there is an outstanding (future) PM action for the asset and its associated PM plan.

Note: The Preventive Maintenance module has no built in constraints to limit multiple triggers.

When the trigger processing logic evaluates a trigger occurrence, a new PM action is not generated when there is an existing action for the current date or any date in the future. This behavior prevents triggers from occurring multiple times for the same trigger condition. However, plans with a Time or Date trigger combined with another trigger do run with end dates too far in the future. Time- or Date-triggered service actions in the future might prevent other valid triggers (such as Usage triggers) from occurring, and thus prevent the generation of valid service actions.

For example, a plan with Time and Usage triggers might run with an end date 1 year in the future. All the PM actions for the next year are generated by using the Time trigger, and during that time the Usage trigger never occurs, regardless of the actual usage. You can avoid this conflict by scheduling PM actions only a few weeks or a month in advance. Then, in the worst case, the engine runs and schedules a PM action by using the Time trigger even though the asset meets the usage criteria tomorrow. The difference in the time between when the PM action should be scheduled and when the PM action is actually scheduled is, at most, the difference between the end date passed to the engine and the current date (when the engine runs).

When a service request template is associated with a PM plan, and a trigger for the plan occurs, service requests and activities are created with date fields automatically populated with values. The following table lists the fields from PM triggers:

View and Screen	Field	Description
Service Requests view of the Assets screen	Opened	The date and time the PM Engine is run.
Service Requests view of the Assets screen	Committed	The date and time the PM service request is due. This field value corresponds to the date and time of the trigger.
History view in the Preventive Maintenance view of the Assets screen	Created	The date and time the PM Engine is run.
History view in the Preventive Maintenance view of the Assets screen	Scheduled	The date and time the PM action is due. This field value corresponds to the date and time of the trigger.

Prioritization of PM Plans for Date and Time Interval Triggers

You can select priority levels, ranging from 1-ASAP to 4-Low, for PM plans in the Priority field in the Preventive Maintenance List view of the Preventive Maintenance screen. The priority value determines whether actions are generated when multiple PM plans apply to the same asset. Actions can be overlapping.

If the Optional check box on the PM plan is not selected, then action generation is mandatory, and the actions are generated regardless of the PM plan priority. However, if the Optional check box is selected, then action generation for the plan depends on the priority. Prioritization of PM plans happens only in the same run, so if actions from a previous plan with lower priority are already generated, then the current plan does not override those actions, regardless of the PM plan priority. For more information about the Priority and Optional field, see *Creating Preventive Maintenance Plans (End User)*.

Prioritization of PM plans affects only Date and Time Interval triggers. Set up other triggers so that they do not overlap between different PM plans. Usage, Threshold, and Event triggers from different PM plans that activate on the same day can generate overlapping actions without application of the prioritization logic.

PM prioritization can handle the following situations:

- Two or more PM plans have the same priority.
  The PM Engine evaluates PM plans with equal priority as if they have no priority with respect to each other. All the actions to generate from these plans are generated, and the engine does not evaluate the priority.
- There is a PM plan with a high priority and a PM plan with a low priority.
  The PM Engine processes the plan with the high priority first to generate the necessary actions. Next, the engine processes the plan with the low priority. The engine then checks whether the actions to generate are scheduled for the same day as the actions already generated by the plan with the high priority. If a high priority action already exists, then the low priority plan does not generate another action that overlaps the action.
- The PM plans have a check in the Optional check box.
  Plan actions to always generate do not have a check in the Optional check box for the corresponding PM plan. In this case, the PM Engine ignores the priority, and the plan executes normally. The priority of mandatory PM plans also affects the prioritization of other plans in the same run.
- The PM plans have no set priority.
  The PM engine evaluates PM plans with no priority as the plans with the lowest priority.

Time Interval Triggers

Time Interval triggers in a PM plan for an asset determine the dates that the PM Engine schedules PM actions for that asset. The following additional factors can determine these dates:

- Installation date of the asset
- Period of time that you run the PM Engine

Time Interval triggers include the following fields:

- **Interval.** A time interval in days.
- **Valid Start.** A number that indicates the first day in the asset life when the corresponding interval applies.

- **Valid End.** A number that indicates the day in the asset life when the corresponding interval no longer applies.

Example: Using Time Interval Triggers

This topic gives an example of how the PM Engine schedules PM action dates. The following table lists the Time Interval triggers that the PM plan includes for an asset that you purchase on June 8.

Time Interval Trigger Number	Interval	Valid Start	Valid End
1	1	0	2
2	3	2	7
3	5	7	(no value)

Time Interval trigger number 1 indicates that for the first day of the asset life, a time interval of 1 day applies. Time Interval trigger number 2 indicates that for the second through the sixth day of the asset life, a time interval of 3 days applies. Time Interval trigger number 3 indicates that for the seventh and subsequent days of the asset life, a time interval of 5 days applies.

If you run the PM Engine from June 8 to June 30, then the PM Engine uses the asset installation date to calculate the PM action dates, because no PM actions currently exist. The PM Engine schedules PM action dates of June 9, 11, 14, 18, 23, 28 as follows:

- For the first day of the asset life (June 9), Time Interval trigger number 1 applies. The engine adds 1 day to the June 8 installation date to obtain the June 9 scheduled date.
- For the second through sixth days of the asset life (June 10 - June 14), Time Interval trigger number 2 applies. The engine adds 3 days to the June 8 installation date to obtain the June 11 scheduled date, and adds 6 days to the June 8 installation date to obtain the June 14 scheduled date.
- For the seventh and subsequent days of the asset life (June 15 - June 30), Time Interval trigger number 3 applies. The engine adds 10 days to the June 8 installation date to obtain the June 18 scheduled date. (The engine adds 10 days, and not 5 days, to obtain a date that is on or after the seventh day of the asset life.)
- The engine adds 15 days to the June 8 installation date to obtain the June 23 scheduled date, and adds 20 days to the June 8 installation date to obtain the June 28 scheduled date.

If you complete the June 28 scheduled action 2 days early on June 26, and if you run the PM Engine for the period of time from June 8 to July 15, then the PM Engine uses this last completion date to calculate the PM action dates. The PM Engine schedules July 1, 6, 11 PM action dates as follows:

- For the seventh and subsequent days of the asset life, Time Interval trigger number 3 applies. The engine adds 5 days to the June 26 completion date to obtain the July 1 scheduled date.
- The engine adds 10 days to the June 26 completion date to obtain the July 6 scheduled date, and adds 15 days to the June 26 completion date to obtain July 11 scheduled date.

If you do not complete the July 11 scheduled action, and if you run the PM Engine for the period of time from June 8 to July 31, then the PM Engine uses this last scheduled date to calculate the PM action dates because the last scheduled action has no completion date. The PM Engine schedules July 16, 21, 26 PM action dates as follows:

- For the seventh and subsequent days of the asset life, Time Interval trigger number 3 applies. The engine adds 5 days to the July 11 scheduled date to obtain the July 16 scheduled date.

- The engine adds 10 days to the July 11 scheduled date to obtain the July 21 scheduled date and adds 15 days to the July 11 scheduled date to obtain the July 26 scheduled date.

Although the interval can be less than 1 day, higher-level processing logic currently prevents triggers from occurring more than once a day.

Restarting Scheduling for Preventive Maintenance Actions

The asset installation date determines the age of the asset. An asset with no installation date has an age of 0 days.

Note: Do not change the installation date of an asset because the existing PM actions become inconsistent with the revised installation date.

Although you cannot change the dates of scheduled PM actions for an asset, you can restart PM action scheduling to go into effect on the current date or a future date. To restart PM action scheduling for an asset, use one of the following methods:

- In the Date Completed field of the latest PM action for the asset, enter the restart date.

  The PM Engine uses the existing Time Interval triggers in the PM plan for the asset and this restart date to schedule PM actions.
- Delete the asset from the PM plan, and create a new PM plan for the asset with new Time Interval triggers.

  The PM Engine uses the revised Time Interval triggers and the asset installation date to schedule PM actions.
- If the PM plan contains only the asset for which you want to restart PM action scheduling, then set an end day corresponding to today for any Time Interval triggers that are in effect on the restart date, delete any Time Interval triggers that are in effect after the restart date, and create new Time Interval triggers to replace the deleted triggers.

  The PM Engine uses the revised Time Interval triggers and the date of the last completed PM action for the asset to schedule PM actions. If no completed PM actions exist, then the engine uses the date of the last scheduled PM action for the asset instead of the date of the last completed action. If no scheduled PM actions exist for the asset, then the PM Engine uses the asset installation date instead of the date of the last scheduled PM action.

Date Triggers

Date triggers occur on a specific date. Like Time Interval triggers, they can have a valid start and end that are measured from the install date of the asset.

Note: In the preconfigured Siebel Field Service application, date triggers do not appear in the user interface.

Usage Triggers

Usage triggers activate a PM plan when the reading from an asset changes by a specified amount. Each trigger record has start and end values, so that the PM plan activation can change according to the usage of the asset. For example,

a service request is generated every 3,000 counts for the first 15,000 counts, then every 10,000 counts after 15,000 counts.

Note: For Time Interval and Usage triggers that use Valid Start and Valid End fields, the trigger does not occur if the interval falls past the Valid End field value.

The trigger occurs if the readings for the specified measurement change greater than the specified interval. The change is determined by the difference between the most recent reading and the reading at the time of the last PM action. The PM engine evaluates only the readings that are marked Done. 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 change is calculated as follows:

change = (max – last) + (new – min) + 1

Usage triggers can also have a Valid Start field and Valid End field. These fields define the reading values for which the trigger is valid.

You specify measurement types in Usage triggers. If an asset has more than 1 measurement of the type for the Usage trigger, and if any of the measurements exceed the usage for its type, then the trigger occurs. To avoid this occurrence, define specific types in the measurement type LOV (ASSET_MEAS_TYPE). For more information, see *Associating Measurement Types with Assets (End User)*.

Threshold Triggers

A Threshold trigger activates a PM plan when a reading from an asset exceeds a set value. Threshold triggers can occur in response to a change in a binary value. For example, a threshold of 0.5 activates a PM plan when an alarm changes state.

Threshold triggers examine the readings since the most recent PM action. If any completed reading exceeds the lower or upper limit, then the trigger occurs.

Like Usage triggers, Threshold triggers specify an applicable measurement type. The same potential issues and solutions for Usage triggers apply to Threshold triggers. For more information, see *Usage Triggers*.

Measurements and Readings

You define measurements for products in the Measurements view in the Service Information view in the Products view of the Administration - Product screen. For more information, see *Setting Up Use Plans*.

The Measurements view of the Assets screen associates measurements from a product with the selected asset. The view allows users to customize the measurements for an asset. For example, a relevant measurement for a copy machine is the number of copies, read from a counter. A relevant measurement for a car is the distance traveled, read from an odometer. A relevant measure for a pump is the oil level, oil, pressure, or temperature, read from gauges. For more information, see *Associating Measurement Types with Assets (End User)*.

The Readings view of the Assets screen allows you to record the readings for specific measurements and specific assets. These readings can act as 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 to activate a higher level PM plan after a certain number of routine PM plans are activated. For example, this trigger can activate a PM plan for a complete overhaul.

Currently, the only supported event is the number of service requests in a specified period. The PM plan is activated only for service requests that contain data in the Date Committed field or the Date Closed field.

About Plans and Actions for Preventive Maintenance

PM plans define sets of activities for preventive maintenance. Setting up a PM plan includes the following steps:

1. Create an service request template. Each service request template defines a type of preventive maintenance (for example, 5,000 mile service or major overhaul).
2. Associate 1 or more activity templates with each service request template. An activity template includes a set of activities to complete for a preventive maintenance objective. For more information about activity templates, see *Service Activity Templates and Activity Plans*.
3. Create a PM plan. Define triggers for the PM plan and the products or assets that the PM plan covers. Associate 1 or more service request templates with the PM plan. You can also directly associate activity templates with the PM plan.

Service Request Templates

When a preventive maintenance plan is activated, a service request template is used to create service requests. This template includes 1 or more activity templates and holds default values for the following service request fields:

The following list provides service request fields that are included in service request templates.

- Area
- Resolution
- Subarea
- Description
- Severity
- Substatus
- Name
- Status
- Symptoms
- Priority

Service request templates apply only to preventive maintenance.

About the Preventive Maintenance Engine

When a trigger occurs, the Preventive Maintenance Engine creates a service request. Activities are created in following ways:

- Activities are created from service request templates in PM plans. These activities are associated with the service request. For more information, see *About Plans and Actions for Preventive Maintenance* and *Associating Service Request Templates with PM Plans (End User)*.
- Activities are created from activity templates associated directly with a PM plan. For more information, see *Associating Activity Templates with PM Plans (End User)*.

Note: Administrators add activities to activity templates in the Service Details view in the Activity Templates view of the Administration - Data screen. For more information, see *Creating Activity Templates*.

Validation of PM Plans for Assets

The Products view of the Preventive Maintenance screen allows you to associate products and assets with PM plans. The PM Engine retrieves these products and assets as follows:

- Queries the Siebel database for all the products that are associated with the PM plan and then selects the All Assets check box for the products.
- Queries for all the assets that are associated with the PM plan and then clears the All Assets check box for the products.

You set the All Assets check box for products associated with PM plans in the Products view of the Preventive Maintenance screen.

Note: PM plans are always associated with products and not with product lines.

To determine whether a plan is applicable to an asset, the Preventive Maintenance Engine applies the following processing logic:

1. Checks the product of the asset against the collection of products in the plan. If the engine finds a match, then the plan applies to the asset. Otherwise, processing continues.
2. Checks the asset against the collection of assets in the plan. If the engine finds a match, then the plan applies to the asset. Otherwise, the plan does not apply to the asset.

Parameters for the Preventive Maintenance Engine

The Workflow Manager or the client can call all engines. These engines require certain passed parameters. Changing the values of these parameters changes the default behavior of the engine. To implement changes to parameters, restart the Field Service server. The following table describes the parameters for the Preventive Maintenance Engine.

Parameter	Values	Description
Mode	SQL, Id, TempTbl	Specifies how the engine locates the entities to process. In a user request, specify only SQL or ID. Client applications use TempTbl for submitting requests. This parameter is required. **Note:** Do not run component jobs in TempTbl mode to call the Preventive Maintenance Engine. This mode is reserved for interactive engine jobs sent directly from a client application.
Sub-mode	Assets, Plans, Assets&Plans, Agreements	Identifies the specified entities. A Sub-mode of Assets implies all PM plans, and a Sub-mode of Plans implies all assets. This parameter is required.
End Date	Date in YYYY-MM-DD format	Specifies the last date that the engine generates PM actions. Currently, only time-based triggers can occur for a future date. This parameter is required.
Asset ID	Row ID of an asset	Specifies an asset. This parameter is required when the Mode is ID and the Sub-mode is Assets or Assets&Plans.
Plan ID	Row ID of a PM plan	Specifies a PM plan. This parameter is required when the Mode is ID and the Sub-mode is Plans or Assets&Plans.
Agreement ID	Row ID of an agreement	Specifies an agreement. This parameter is required when the Mode is ID and the Sub-mode is Agreements.
DefOrgID	Row ID of an organization	Specifies an organization. This parameter applies to a generated service request when the asset for the service request does not have a specified account. If the asset has a specified owner account, then the BU_ID for the account is used.
DefActOwnerID	Row ID of an employee	Specifies an employee. This parameter applies when you create activities from a template that does not define the activity owner (employee).

Asset SQL	Where clause for the GET_SQL_ ASSETS template. The where clause uses the following form:
	
	[BusComp Field Name] = 'Value'
		Specifies a search specification for assets. This parameter is required when the Mode is SQL and the Sub-mode is Assets or Assets&Plans.
		
		The SQL template for retrieving assets follows:
		
		`GET_SQL_ASSETS =`
		`SELECT asset.ROW_ID`
		`FROM &Table_Owner.S_ASSET asset`
		`WHERE $SEARCH_SPEC$`
		
		The value for the Asset SQL parameter is substituted for '$SEARCH_SPEC$.' Any specification that completes this template with valid values is allowed for the parameter.

Parameter	Values	Description

Plan SQL	Where clause for the GET_SQL_PM_PLANS template. The where clause uses the following form:
	
	[BusComp Field Name] = 'Value'
		Specifies a search specification for PM plans. This parameter is required when the Mode is SQL and the Sub-mode is Plans or Assets&Plans.
		
		The SQL template for retrieving PM plans follows:
		
		`GET_SQL_PM_PLANS =`
		`SELECT pln.ROW_ID`
		`FROM&Table_Owner.S_PM_PLNITM pln`
		`WHERE pln.ACTIVE_FLG = 'Y'`
		`AND $SEARCH_SPEC$`
		
		The value for the Plan SQL parameter is substituted for '$SEARCH_SPEC$.' Any specification that completes this template with valid values is allowed for the parameter.

Agreement SQL	Where clause for the GET_SQL_AGREEMENT_IDS template. The where clause uses the following form:
	
	[BusComp Field Name] = 'Value'
		Specifies a search specification for agreements. This parameter is required when the Mode is SQL and the Sub-mode is Agreements.
		
		The SQL template for retrieving PM agreements follows:
		
		`GET_SQL_AGREEMENT_IDS =`
		`SELECT agrmnt.ROW_ID`
		`FROM &Table_Owner.S_DOC_AGREE agrmt`
		`WHERE agrmnt.VALID_FLG = 'Y'`
		`AND $SEARCH_SPEC$`
		
		The value for the Agreement SQL parameter is substituted for '$SEARCH_SPEC$.' Any specification that completes this template with valid values is allowed for the parameter.

Guidelines for Improving Performance of the Preventive Maintenance Engine

This topic provides guidelines for improving the performance of the Preventive Maintenance Engine.

Use the following guidelines to improve this performance:

- Use the Asset SQL parameter more often than the Plan SQL parameter or Agreement SQL parameter.

  The Asset SQL parameter is the most direct way to specify the assets for which the PM Engine creates PM actions. The Asset SQL parameter directly retrieves the assets.

  When evaluating the Plan SQL parameter, the PM Engine must first review the PM plans to find the corresponding assets. In this process, the PM Engine also evaluates the All Assets check box.

  When evaluating the Agreement SQL parameter, the PM Engine must first review the agreements to find the entitlements and the corresponding PM plans. In this process, the PM Engine also evaluates the All Contacts check box and All Products check box in the entitlements. Then, the PM Engine must review the found PM plans to find the corresponding assets. In this process, the PM Engine also evaluates the All Assets check box.

- Restrict the search criteria in the parameters when you use the Asset SQL, Plan SQL, and Agreement SQL parameters.
- Delete all records from the S_PM_ACTION table.

  The PM Engine does not have to check for prior actions.

Methods for Starting the Preventive Maintenance Engine

The Preventive Maintenance Engine applies to the FS Preventive Maintenance business service. For more information, see *FS Preventive Maintenance Business Service*.

Start the Preventive Maintenance Engine in the following ways:

- Use component jobs.
- Use the Field Service client.

Using Component Jobs

Administrators can set up one-time or repeating jobs for tasks that the Preventive Maintenance Engine completes. The component-specific parameters that the job specifies determine the engine actions for that job. For more information, see *Parameters for the Preventive Maintenance Engine*.

In general, tasks must define the following 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 runs. When calling the PM Engine through component jobs, you can specify either ID or SQL mode for this variable. (The Field Service client uses another mode, TempTbl, when calling the PM Engine.)
- The sub-mode. The sub-mode determines the entities for the selected mode.

The set of objects must include either assets and plans or agreements. The sub-mode parameter in the job defines these objects. For assets and plans, if you specify only assets or only plans, then all of the other object types are assumed. For example, if you specify only assets (sub-mode is Assets), then the Preventive Maintenance Engine checks the specified assets for all plans. If you specify agreements, then each agreement implicitly defines a set of assets and plans (entitlements have associated assets or products and PM plans) that the engine processes for the agreement.

Usually these jobs use an SQL parameter that completes an SQL statement. The SQL statement locates the objects that the Preventive Maintenance Engine processes for the run. Component jobs can also use ID parameters instead of SQL parameters.

Using the Field Service Client

Users can pass requests directly from the Field Service client. For information about calling the PM Engine from the Assets screen or the Agreements screen, see *Running Preventive Maintenance Plans (End User)*.

Process of Administering Preventive Maintenance

The following list shows the tasks that administrators typically perform to administer preventive maintenance. Your company might follow a different process according to its business requirements.

To administer preventive maintenance, administrators perform the following tasks:

- *Setting Component Job Parameters for the Preventive Maintenance Engine*
- *Creating Service Request Templates for Preventive Maintenance*

Setting Component Job Parameters for the Preventive Maintenance Engine

Complete the procedure in this topic to set the component jobs parameters for the preventive maintenance engine. For more information about server components and component parameters, see *Siebel System Administration Guide* .

This task is a step in *Process of Administering Preventive Maintenance*.

To set component job parameters for the Preventive Maintenance Engine

1. Navigate to the Administration - Server Management screen, Jobs, then the Job Detail view.
2. Create or edit a component job for the Field Service Preventive Maintenance Engine (alias FSPrevMnt) server component.
3. Add or modify the server component parameters, as needed.

   For more information about the applicable parameters, see *Parameters for the Preventive Maintenance Engine*.

Creating Service Request Templates for Preventive Maintenance

When the preventive maintenance plan is activated, a service request is created using the service request template. A service request template includes 1 or more activity templates to complete preventive maintenance and default values for service request fields, such as Area, Status, Priority, Symptoms, and Resolution.

Note: Service request templates apply only to preventive maintenance.

Administrators set up activity templates in the Activity Templates view of the Administration - Data screen. For more information, see *Process of Administering Service Activities*.

This task is a step in *Process of Administering Preventive Maintenance*.

To create a service request template for preventive maintenance

1. Navigate to the Administration - Service screen, then the Service Request Templates view.
2. Create a new service request template record, and complete the fields as appropriate.
3. Click the Service Request Template Activities view tab.
4. Add activity templates for preventive maintenance, as needed.

Process of Managing Preventive Maintenance

The following list shows the tasks that end users typically perform to manage preventive maintenance. Your company might follow a different process according to its business requirements.

To manage preventive maintenance, end users perform the following tasks:

- *Setting Up the Preventive Maintenance Engine (End User)*
- *Creating Preventive Maintenance Plans (End User)*
- *Associating Products and Assets with PM Plans (End User)*
- *Associating Activity Templates with PM Plans (End User)*
- *Associating Service Request Templates with PM Plans (End User)*
- *Running Preventive Maintenance Plans (End User)*
- *Viewing Generated Actions for Preventive Maintenance Plans (End User)*

Setting Up the Preventive Maintenance Engine (End User)

You can set up asynchronous or synchronous operation of the Preventive Maintenance Engine. For more information about synchronous and asynchronous processing, see *Siebel Application Services Interface Reference* .

Note: In synchronous processing, the client screen can lock, and you see a blank screen.

This task is a step in *Process of Managing Preventive Maintenance*.

To set up the Preventive Maintenance Engine

1. From the application-level menu, select Tools, then User Preferences.
   The User Preferences screen appears.
2. On the link bar, click Service.
   The Field Service form appears.
3. In the Asynchronous Processing of section, complete one of the following steps:
   - To set asynchronous operation, select the Preventive Maintenance check box.
   - To set synchronous operation, clear the Preventive Maintenance check box.

Creating Preventive Maintenance Plans (End User)

You create preventive maintenance plans to automatically create activities and service requests for preventive maintenance. You associate triggers, products, activity templates, and service request templates with preventive maintenance plans. When the plan triggers occur, the preventive maintenance plan is activated, and the appropriate activities and service requests are automatically created.

This task is a step in *Process of Managing Preventive Maintenance*.

To create a preventive maintenance plan

1. Navigate to the Preventive Maintenance screen, then the Preventive Maintenance List view.
2. Create a new preventive maintenance record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Name	Type the name of the preventive maintenance plan.
Active	Select this check box to allow the Preventive Maintenance Engine to process the plan. You can clear this check box when you define a plan or to temporarily disable specific plans. When you complete the plan definition or reinstate a plan, you select this check box to enable the plan.
Optional	Select this check box to indicate whether action generation for the PM plan is mandatory or optional. By default, this check box is not selected. However, when you select this check box, the PM Engine can consider prioritization when determining the action generation.
Reset Time Trigger	Select this check box to reset the Time Interval trigger after the PM plan is activated. For more information, see *Time Interval Triggers*.
Priority	Select the priority of the PM plan. For more information, see *Prioritization of PM Plans for Date and Time Interval Triggers*.
Last Run	Displays the time and date that the PM plan is last activated. The Preventive Maintenance Engine populates the following time stamps when it runs: o When you run the Auto PM function for an asset, the Preventive Maintenance Engine examines each active PM plan to determine whether the PM plan applies to the asset. The engine records the time stamp for this examination in the PM plan (S_PM_PLNITM.LAST_RUN_DT). o When the Preventive Maintenance Engine locates a PM plan that applies to the asset, the engine records the time stamp in the corresponding product connector or asset connector record (S_PM_APPL_ASSET.LAST_RUN_DT). (The plan has an asset connector for the asset or a corresponding product connector with the All Assets check box selected.) If required, you can display this time stamp in the following business components: o FS PM Applicable Plan Item o S PM Plan Item-Product Connecto o FS PM Plan Item-Asset Connector

After you create a preventive maintenance plan, you can add a trigger for the plan.

To add a trigger for a preventive maintenance plan

1. Navigate to the Preventive Maintenance screen, then the Preventive Maintenance List view.
2. Select a preventive maintenance plan, and click the Triggers view tab.
3. In the Time Interval list, create a new time interval record, and complete the fields as necessary.

   Some fields are described in the following table

Field	Comments
Interval	Type the time interval (in days) between the triggers that activate the PM plan. This field must be an integer. A plan can have multiple Time Interval triggers. For more information, see *Time Interval Triggers*.
Valid Start	Type the age (in days) of an asset when the trigger is effective. The asset installation date determines the age of the asset. An asset with no installation date has an age of 0 days.
Valid End	Type the age (in days) of an asset when the trigger is no longer effective. The trigger does not occur if the interval is after this date. If this field is blank, then there is no valid end.

4. In the Usage list, create a new usage record, and complete the fields as necessary.

   Some fields are described in the following table.

Field	Comments
Measurement Type	Select a type of reading that activates the PM plan. A plan can multiple Usage triggers. For more information, see *Usage Triggers*.
Interval	Type a value for the change in a reading that activates the PM plan. This field uses the units in the Measurement Type field.
Valid Start	Type the measurement value that indicates when the trigger is effective. This field uses the units in the Measurement Type field.
Valid End	Type the measurement value that indicates when the trigger is no longer effective. This field uses the units in the Measurement Type field. The trigger does not occur if the interval is after this date. If this field is blank, then there is no valid end.

5. In the Threshold list, create a new threshold record, and complete the field as necessary.

   The field is described in the following table.

Field	Comments
Measurement Type	Select a type of asset reading that activates the PM plan. A plan can have multiple Threshold triggers. For more information, see *Threshold Triggers*.

6. In the Event form, create a new event record, and complete the fields as necessary.

   Some fields are described in the following table.

Field	Comments
# of SRs	Type the number of service requests that, when exceeded, activates the PM plan. A plan can have only 1 Event trigger. For more information, see *Event Triggers*.
Over # of Days	Type the time interval over which the number of service requests must occur.

Associating Products and Assets with PM Plans (End User)

After you create a preventive maintenance plan, you can associate a product and its assets with the plan.

This task is a step in *Process of Managing Preventive Maintenance*.

To associate a product and its assets with a PM plan

1. Navigate to the Preventive Maintenance screen, then the Preventive Maintenance List view.
2. Select a preventive maintenance plan, and click the Products view tab.
3. Create a new product record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Product	Select a product for the PM plan.

Field	Comments
	CAUTION: You must configure the correct measurement types (in the Measurements view in the Service Information view in the Products view of the Administration - Product screen) for the products in the preventive maintenance plan. If you do not configure measurement types, then Usage and Threshold triggers can cause unpredictable and inappropriate results. For more information about configuring products, see *Siebel Product Administration Guide* .
All Assets	Select this check box to indicate the PM plan covers all assets of the product. Some of these assets might not appear in the Assets list. To cover only specific assets, make sure that this field is *not* selected.

4. In the Assets list, create a new record for at least 1 asset for the product, and complete the fields as appropriate.

Associating Activity Templates with PM Plans (End User)

You can associate activity templates with a PM plan. When the PM plan is activated, activities (but not activity plans) are created using the activity template. The Due Date field on these activities is set using the date of the preventive maintenance trigger, and fields are copied from the activity template to the activities. For more information about these copied fields, see *Service Activity Templates and Activity Plans*.

This task is a step in *Process of Managing Preventive Maintenance*.

To associate an activity template with a PM plan

1. Navigate to the Preventive Maintenance screen, then the Preventive Maintenance List view.
2. Select a preventive maintenance plan, and click the Actions view tab.
3. In the Activity Templates list, create a new activity template record, and complete the fields as appropriate.

Associating Service Request Templates with PM Plans (End User)

You can associate service request templates with a PM plan. When the PM plan is activated, a service request is created using the service request template. The Commit Time field on this service request is set to the date of the preventive maintenance trigger, and the following fields are copied from the service request template to the service request:

The following list provides fields that are copied from the service request template to the service request.

- Area
- Priority
- Status
- Description
- Resolution Code

- Subarea
- Name
- Severity
- Substatus
- Primary Symptom Code
- Source

Activities (but not activity plans) are also created for the activity templates that are associated with the service request. Duplication of activity templates is not verified, so the same activity template can be associated directly with a PM plan and indirectly through a service request template. For more information, see *Creating Service Request Templates for Preventive Maintenance*.

This task is a step in *Process of Managing Preventive Maintenance*.

To associate a service request template with a PM plan

1. Navigate to the Preventive Maintenance screen, then the Preventive Maintenance List view.
2. Select a preventive maintenance plan, and click the Actions view tab.
3. In the SR Templates list, create a new service request template record, and complete the fields as appropriate.

Running Preventive Maintenance Plans (End User)

You run preventive maintenance plans to generate preventive maintenance actions. When you run a preventive maintenance plan, the PM engine is called.

You can run preventive maintenance plans for an asset.

This task is a step in *Process of Managing Preventive Maintenance*.

To run preventive maintenance plans for an asset

1. Navigate to the Assets screen, then the List view.
2. Drill down on the Asset number (#) field for a selected asset, and click the Preventive Maintenance view tab.
3. On the link bar, click Plans.
4. Select a preventive maintenance plan.

   The Preventive Maintenance Engine can use the plan to schedule preventive maintenance actions only if the Active check box for the plan is selected.
5. Select a date in the End Date field (which precedes the Assets list).

   This field indicates the latest date that the PM Engine uses to generate PM actions. You can select a future date to generate the future schedule of preventive maintenance actions.
6. Complete one of the following steps:
   - To run the PM Engine for the selected asset and all the associated preventive maintenance plans for the asset, click Run PM in the Assets list.
   - To run the PM Engine for all assets and all the associated maintenance plans, click the menu button in the Assets list, and select Run PM All.

You can also run preventive maintenance plans for an agreement.

To run preventive maintenance plans for an agreement

1. Navigate to the Agreements screen, then the List view.
2. Drill down on the Name field for a selected agreement, and click the Entitlements view tab.
3. Click the Preventive Maintenance view tab.
4. In the drop-down list at the start of the Preventive Maintenance view, select PM Plans.
5. Select a preventive maintenance plan.

   The Preventive Maintenance Engine can use the plan to schedule preventive maintenance actions only if the Active check box for the plan is selected.
6. Select a date in the End Date field (which precedes the Agreements list).

   This field indicates the latest date that the PM Engine uses to generate PM actions. You can select a future date to generate the future schedule of preventive maintenance actions.
7. Complete one of the following steps:

   - To run the PM Engine for the selected agreement and all the associated preventive maintenance plans for the agreement, click Run PM in the Agreements list.
   - To run the PM Engine for all agreements and all the associated maintenance plans, click the menu button in the Agreements list, and select Run PM All.

Viewing Generated Actions for Preventive Maintenance Plans (End User)

After you run a preventive maintenance plan for an asset or agreement, you can view the generated actions for the plan.

This task is a step in *Process of Managing Preventive Maintenance*.

To view generated actions for a preventive maintenance plan

1. Navigate to the Preventive Maintenance screen, then the Preventive Maintenance List view.
2. Select a preventive maintenance plan, and click the History view tab.

23 Repairs

Repairs

This chapter describes how to process and track product repairs. It includes the following topics:

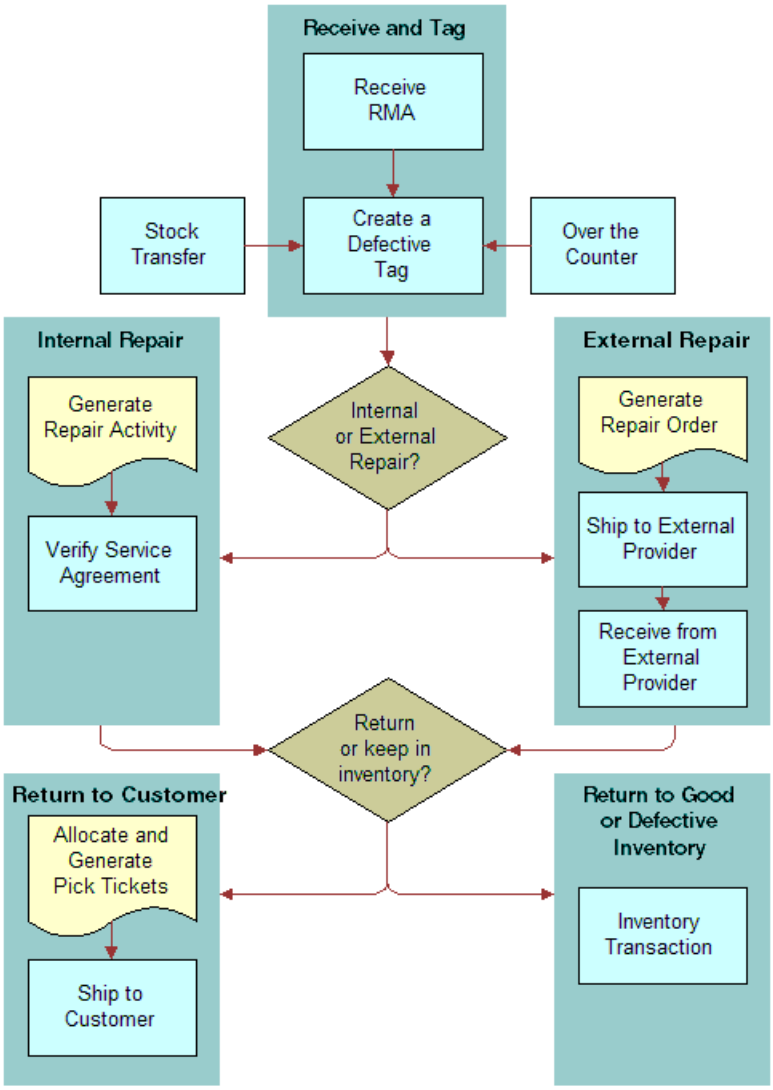
- *About Repairs*
- *About Generating Inventory Transactions for Repairs*
- *Process of Managing Repairs*

About Repairs

In Siebel Repair, you can track symptoms and resolutions for repairs, create activity plans for repairs, assign and schedule repair activities, and view repair histories.

Process Flow for Repairs

The following figure shows the process flow for repairs.



The repair process flow includes the following steps:

1. **Receive and Tag.** Receive the defective product, create a return material authorization (RMA) for the repair, and tag the product. Tagging also applies to products received as stock transfers and products received over-the-counter.
2. **Internal Repair or External Repair.** For an internal repair, generate a repair activity and verify the service agreement. For an external repair, generate a repair order, ship the product to a third-party vendor, and then receive the repaired product back from the third-party vendor.
3. **Return to Customer or Return to Good or Defective Inventory.** If you return the product to the customer after the repair is complete, then allocate the product, generate the pick ticket for the product, and ship the product. If you return the product to good or defective inventory, then generate an inventory transaction for the product movement to inventory.

Repairs begin when a customer contacts a service center about a defective product. The customer service representative asks the customer to ship the product to the repair center and associates an RMA with the product. The RMA (RMA Repair Return or RMA Advance Exchange) signifies that the product needs repair.

Repair Product Receipt

Employees at a repair center either ship a defective product to a third-party vendor for repair or repair the defective product themselves. For a shipment to a third-party vendor, you create a repair order (RO) with an order number. You can use this number to track the product to and from the third-party vendor. You can track the repair of the product to completion using the date of the shipment to and the date of the receipt from the third-party vendor. The inventory transactions to record these product movements are automatically created.

You can return repaired products to the customer or move them to good stock inventory.

Defective products are included in the repair process in the following ways:

- Using a freight carrier, a customer can deliver a defective product to a repair center. If no return material authorization (RMA) is associated with the product, then you must create the RMA.
- The field service engineer or an employee associated with an internal department can deliver a defective product over-the-counter (or directly) to a repair center.
- An employee associated with an internal location can transfer a defective product to a repair center. (For example, a field office might collect defective products and then forward them to a repair center.) You can create an internal order to track a product transferred from an inventory location to another location, or you can create an inventory transaction type of Stock Transfer to track the product.

Repair Numbers

A repair number is automatically assigned to a repair record. It uniquely identifies the product to repair. A repair center agent attaches a tag containing this number to the product. This repair number is often a bar-coded label, and allows you to track defective products through the repair process. The defective products do not need serial numbers. For more information about the methods to customize this number, see *Numbers for Business Components*.

If the product is serialized, then add the asset number to the repair record to automatically designate the product name, inventory location, and inventory level for the product.

Some businesses prefer to expedite the receiving process by creating batches of repair numbers in advance in repair records with no other information. When a defective product arrives, an employee accesses one of these repair records and completes the record for the product.

To generate a repair number for a serialized product, the product must have an asset number. The transactions associated with receiving the asset, through a return material authorization (RMA) or product movement, identify the destination inventory location for the incoming product.

Repair Activities

For the repair of a product, Siebel Field Service includes the following functionality:

- **Activity plans.** Repair activity plans include activity templates when predefined activities. When you select an activity template for an activity plan, you automatically generate activity records.
- **Activities.** You can manually create and update activity records.

Activities, activity plans, and activity templates for repairs function much as they do for other service activities. For more information, see *Service Activities*

About Generating Inventory Transactions for Repairs

You can generate repair activities from an activity plan. These repair activities can result in product movements between inventory locations. Siebel Field Service recognizes product movements between inventory locations by updating the Location, Status, or Availability fields in the repair record. You can also manually update these fields. These updates automatically generate inventory transactions. Validations are performed for each movement. For example, to move an asset to a destination inventory location, the asset must exist at the source inventory location.

The following steps summarize the inventory transaction process for an internal repair:

1. Generate an inventory transaction with a value of Stock Transfer for the Type field.
2. Commit the inventory transaction.
3. Update the inventory location ID (Prod_INV_ID) for the repair number (S_PART_RPR).

The following table describes the rules for the inventory transactions that relate to internal repairs.

Old Transaction Value	New Transaction Value	Transaction Required?
NULL	NULL	No
NULL	INV1	No
INV1	INV1	No
INV1	INV2	Yes (an inventory transaction with a value of Stock Transfer for the Type field). Validations are performed.
INV1	NULL	No

About Shipping Defective Products to Third-Party Vendors

In the Repair Pick Ticket view of the Shipping screen, clicking the Process Shipment button generates transactions (with a value of Ship To TP in the Type field) to move a product from the defective inventory location to the third-party vendor. This transaction updates INV_STATUS_CD to Defective and INV_AVAIL_CD to On Hand.

The following steps summarize the inventory transaction process for shipping a defective product to a third-party vendor:

1. Generate 2 inventory transactions with a value of Ship To TP and De-Allocate for the Type field.
2. Commit the inventory transactions.
3. Using the BusComp FS Repair Without Update processing logic, update the inventory location ID (Prod_INV_ID), inventory location (INVLOC_ID), status (INV_STSTUS_CD), and availability (INV_AVAIL_CD) for the repair number (S_PART_RPR).

About Receiving Repaired Products from Third-Party Vendors

In the Receive Purchase Order, Receive RMA, and the Receive Internal Order views of the Receiving screen, selecting the Process Receipt command generates transactions (with a value of Receive From TP in the Type field), to move a product from a third-party vendor to the appropriate inventory location.

To access the Receive Purchase Order, Receive RMA, or Receive Internal Order view, navigate to the Receiving screen, select All Pending Orders from the visibility filter, and drill down on the Receive Type field for a record. These views appear, and associated lists for line items and serial numbers appear in these views.

To receive an product from a third-party location, define the third-party location in the Service Orders screen and the receiving location in the To Inventory field in the Line Item Receipts view of the Receiving screen.

The following steps summarize the inventory transaction process for receiving a repaired product from a third-party vendor:

1. Generate an inventory transaction with a value of Receive From TP for the Type field.
2. Commit the inventory transaction.
3. Using the BusComp FS Repair Without Update processing logic, update the inventory location ID (Prod_INV_ID), inventory location (INVLOC_ID), status (INV_STSTUS_CD), and availability (INV_AVAIL_CD) for the repair number (S_PART_RPR).

The following table describes the rules for the inventory transactions that relate to receipts from third-party vendors.

Inventory Transaction Type	Source Inventory	Source Inventory Level	Source Assets	Destination Inventory	Destin. Inventory Level	Destin. Assets
Receive From TP	Source Invloc ID. The Destination Location field in the Actions view in the Line Items view of the Service Orders screen.	On Hand Defective	Yes	Destination Invloc ID. The Source Location field in the Actions view in the Line Items view of the Service Orders screen.	On Hand - Good Defective	Yes

Note: For the asset columns in the preceding table, the assets are included in the transaction validation if the product is serialized. Also, TP represents third-party vendor.

Exchanging an Asset During a Third-Party Repair

If the third-party vendor returns a different product, then the inventory transaction fails unless the new asset exists in the third-party inventory location. You can create the new asset in one of the following ways:

- Use the previous Asset ID, and change the serial number associated with the record.
- Create the new asset, and receive it from the third-party vendor using a Receive Other transaction. Then, create another transaction to delete the previous asset.

Returning Products to Good Inventory

To return a product to good inventory, select values for the Location, Availability, and Status fields in the repair record. You usually select a value of Good for the Status field. Changing the field values in the repair record creates an inventory transaction that changes the inventory quantity.

Inventory Levels for Repaired Products

If you receive a defective product with an return material authorization (RMA) for repair and return, then the repair center returns the product using the regular shipping process of allocating the product, generating a pick ticket for the product, and shipping the product.

When a third-party vendor or a company repair center repairs a product, you assign an inventory level (an Availability field value and a Status field value) to the product in the Repairs screen. When you ship the product back to the customer, the inventory transaction recognizes the movement of the product, but the information in the Repairs screen still indicates the same inventory level of the last location for the repaired product in inventory. The movement for shipping the product does not update the last location of the product in the repair record.

Process of Managing Repairs

The following list shows the tasks that end users typically perform to manage repairs. Your company might follow a different process according to its business requirements.

To manage repairs, end users perform the following tasks:

- *Creating Repair Records (End User)*
- *Adding Information to Repair Records (End User)*
- *Creating Orders for Repairs (End User)*
- *Creating Transactions for Receiving Defective Products Over-the-Counter (End User)*
- *Creating Transactions for Shipping Defective Products to Third-Party Vendors (End User)*
- *Viewing the History of Repairs (End User)*

Creating Repair Records (End User)

You create a repair record so that you can recognize information about the repair of a defective product. This information includes orders, activities, and product movements that are associated with the repair.

This task is a step in *Process of Managing Repairs*.

To create a repair record

1. Navigate to the Repairs screen.
2. Create a new repair record, and complete the fields as appropriate.

Some fields are described in the following table.

Field	Comments
Asset #	Select an asset number if the repair record applies to a serialized product.
RMA #	Select an RMA number to associate a return material authorization with the repair record. For more information about creating return material authorizations, see *Creating Orders for Repairs (End User)*.
SR #	Select a number to associate a service request with the repair record.

3. If you want to associate a repair order for a third-party vendor with the repair record, then complete the following steps:
   a. Drill down on the Repair number (#) field for the repair record, and click the More Info view tab.
   b. In the Repair Vendor field, select the third-party vendor.
   c. In the RO Item number (#) field, select the repair order.

      For more information about creating repair orders, see *Creating Orders for Repairs (End User)*.

Adding Information to Repair Records (End User)

After you create a repair record, you can add information to it. Complete the procedures in this topic to add information to repair records.

This topic includes the following related information:

- *Generating Repair Activities for Repair Records*
- *Updating Repair Activities for Repair Records*
- *Recording Movements of Defective Products in Repair Records*

This task is a step in *Process of Managing Repairs*.

Generating Repair Activities for Repair Records

You select an activity template for an activity plan to generate repair activities for a repair record. For more information about activity templates, see *Creating Activity Templates*.

To generate repair activities for a repair record

1. Navigate to the Repairs screen.
2. Drill down on the Repair number (#) field for a selected repair, and click the Activity Plans view tab.
3. In the Activity Plans list, create a new activity plan record, and complete the fields as appropriate.

   When you save the record, the Activities list is populated with the repair activities in the template that you select.

Updating Repair Activities for Repair Records

To update a repair activity for a repair record, you can change the field values for the activity, record labor for the repair activity, and record expenses for the repair activity.

To update a repair activity for a repair record

1. Navigate to the Repairs screen.
2. Drill down on the Repair number (#) field for a selected repair, and click the Activities view tab.
3. Change the values in the fields for a selected activity as needed, and drill down on the Type field for the selected activity.
4. To record labor for the repair activity, click the Time Tracker view tab, create a new time record, and complete the fields as appropriate.

   For more information, see *Recording Labor for Activities (End User)*.
5. To record expenses for the repair activity, click the Expense Tracker view tab, create a new expense record, and complete the fields as appropriate.

   For more information, see *Recording Expenses for Activities (End User)*.

Recording Movements of Defective Products in Repair Records

In a repair record, you can record the movement of defective products that relate to the repair. To record product movements, you update the Location field in the repair record and the inventory level (the Availability field and the Status field) in the repair record. These updates automatically generate inventory transactions.

To record the movement of a defective product in a repair record

1. Navigate to the Repairs screen.
2. Drill down on the Repair number (#) field for a selected repair, and click the More Info view tab.
3. Complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Location	Select the location of the product.
Availability	Select the availability of the product. Values include In Transit, On Hand, and On Order.
Status	Select the condition of the product. Values include Defective and Good.

Creating Orders for Repairs (End User)

You can create orders for repairs. For more information about creating orders, see *Siebel Order Management Guide* . For more information about associating orders for repairs with repair records, see *Creating Repair Records (End User)*.

You can create the following types of orders for repairs:

- **RMA Repair Return.** An order to return a repaired product to a customer.
- **RMA Advance Exchange.** An order to return an exchanged product to a customer.
- **Repair Order.** An order to ship a defective product to a third-party vendor for repair and to receive the repaired product back from the third-party vendor.

This task is a step in *Process of Managing Repairs*.

To create an order for repairs

1. Navigate to the Service Orders screen, then the List view.
2. Create a new order record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Type	Select the type of order. Values include RMA Repair Return, RMA Advance Exchange, and Repair Order.
Account	Select the customer account for the order.

3. Drill down on the Order number (#) field.
4. In the Line Items list, create a new record for each product to repair or exchange, and complete the fields as appropriate.

Creating Transactions for Receiving Defective Products Over-the-Counter (End User)

You can manually create an inventory transaction to receive a defect product over-the-counter (or directly) from a field service engineer or from an employee who is associated with an internal department. Customers frequently use a freight carrier to deliver defective products to you. For more information about automatically creating inventory transactions for receiving defective products with a return material authorization (RMA) or for receiving defective products by stock transfer, see *Receiving Products in Orders (End User)*. For information about automatically creating inventory transactions for receiving repaired products from third-party vendors, see *Receiving Repaired Products from Third-Party Vendors (End User)*.

This task is a step in *Process of Managing Repairs*.

To create a transaction to receive a defective product over-the-counter

1. Navigate to the Repairs screen.
2. Select a repair record, or create a new repair record.
3. Copy the value in the Repair number (#) field.
4. Navigate to the Inventory Transactions screen.
5. Create a new inventory transaction record, and complete the fields as appropriate.

Some fields are described in the following table.

Field	Comments
Type	Select Over-the-counter.
Repair ID	Paste the repair number value that you copied.

Creating Transactions for Shipping Defective Products to Third-Party Vendors (End User)

Instead of repairing a defective product at your repair center, you can ship the defective product to a third-party vendor for repair. You can manually create an inventory transaction for shipping a defective product to a third-party vendor. For more information about automatically creating inventory transactions for shipping products in orders, see *Shipping Products in Orders (End User)*.

This task is a step in *Process of Managing Repairs*.

To create a transaction to ship a defective product to a third-party vendor

1. Navigate to the Repairs screen.
2. Select a repair record, or create a new repair record.
3. Copy the value in the Repair number (#) field.
4. Navigate to the Inventory Transactions screen.
5. Create a new inventory transaction record, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
Type	Select Ship To TP.
Repair ID	Paste the repair number value that you copied.

Viewing the History of Repairs (End User)

Repair histories for assets show asset defects over time. A repair history might show several repair numbers for asset. You can detect failure trends from the repair histories for assets. If an asset has several repair numbers, then you might identify the asset as a financial liability. Also, you might use a repair history to justify the decision to scrap an asset because the repair cost is too high, and you can find a more reliable substitute asset.

This task is a step in *Process of Managing Repairs*.

To view the repair history of an asset

1. Navigate to the Repairs screen.
2. Drill down on the Asset number (#) field for a selected repair, and click the Repairs view tab.

   All of the repairs for the selected asset appear.

You can also review repair history of products.

To view the repair history of a product

1. Navigate to the Repairs screen.
2. Click Query, select the product in the Product field, and click Go.

   All of the repairs for the selected product appear.

24 Barcodes

Barcodes

This chapter includes information about setting up the barcode interface and about using a barcode reader to enter data in Siebel Field Service. It includes the following topics:

- *About Barcodes*
- *About Printing Barcodes in Reports*
- *About Using Barcode Readers*
- *Setting Up the Barcode Interface*
- *Process of Managing Records with Barcode Readers*

About Barcodes

A *barcode* is a series of vertical bars that is printed or stamped on parts, containers, labels, or other media. These bars represent information that an electronic barcode reader can interpret. A *barcode type* is a classification that uses a series of varying-width bars and spaces to represent characters. Some barcode types can encode only numbers, while other barcode types can encode numbers, letters, and special computer control characters. For more information about the supported barcode types, see *Siebel System Requirements and Supported Platforms* on Oracle Technology Network.

> **Note:** For Siebel CRM product releases 8.1.1.9 and later and for 8.2.2.2 and later, the system requirements and supported platform certifications, and information about the certifications application are available from the Certification tab on My Oracle Support.

Barcode hardware includes a barcode reader, which is sometimes called a barcode scanner. A *barcode reader* is an electronic device that detects the pattern of bars and spaces for a barcode, decodes those patterns into characters, and transmits those characters to Siebel Field Service. It appears as though the data associated with the barcode is typed into Siebel Field Service.

Input from Barcode Readers

Control character sequences before and after the barcode information notify Siebel Field Service that input is from a barcode reader. These sequences include the following characters:

- Ctrl - \
  This prefix indicates the start of barcode reader input.
- Ctrl - /
  This suffix indicates the end of barcode reader input.

You can enter these sequences as keyboard shortcuts. To change the shortcut definitions, edit the values for the Start Key Code and End Key Code user properties in the HTML Barcoding Tool Bar business service.

In Siebel Field Service, you can use any programmable barcode reader that you can configure to send the prefix and suffix before and after the barcode input. To program the scanning preamble into a barcode reader, see the user manual or product reference guide for the barcode reader.

Data from Barcode Readers

Siebel Field Service accepts data from a barcode reader into individual, active fields. The following data is often available in barcode format:

- Part numbers
- Order numbers
- Asset numbers
- Service request numbers
- Serial numbers
- Pick ticket numbers
- Repair numbers

About Printing Barcodes in Reports

The following reports can include barcodes:

- **FS Pick Ticket Details (Shipping screen).** The pick ticket number is barcoded.
- **Repair Detail (Repairs screen).** The repair number is barcoded.
- **Order Detail (Service Order screen and Sales Order screen).** The order number is barcoded.
- **Service Request Detail (Service screen).** The service request number is barcoded.

Two versions for each report are available: barcoded and not barcoded. For more information about barcode fonts, see *Siebel System Requirements and Supported Platforms* on Oracle Technology Network.

> **Note:** For Siebel CRM product releases 8.1.1.9 and later and for 8.2.2.2 and later, the system requirements and supported platform certifications, and information about certifications are available from the Certification tab on My Oracle Support.

You can change the barcode font in reports that include barcodes. For instructions about how to change the font, see *Siebel Reports Guide* .

About Using Barcode Readers

Using a barcode reader, you can perform the following types of operations:

- **New.** Enter the data from a barcode in a new record in a view. In this mode, a user goes to the view that is to receive the data, then selects an applet. A new record is created, and the appropriate field in this record is populated. For more information, see *Creating New Records for Barcode Data (End User)*.

- **Update.** Update the data in a selected record in a view. In this mode, a user goes to the view that is to receive the data, then selects a record. The appropriate field in the selected record is populated. The new data replaces the existing data. For more information, see *Updating Records with Barcode Data (End User)*.
- **Find.** Search Siebel Field Service for the location of the barcode data. In this mode, the location of the data is found, the appropriate view appears, and the record containing the data appears in that view. For more information, see *Finding Records with Barcode Readers (End User)*.

A user can perform the following specific operations:

- Enter individual barcodes of any acceptable type. The user enters individual barcodes with either the New or Update mode.
- Read multiple barcodes in succession. The records must all be of the same type (for example, either asset numbers or repair numbers).

Note: If users create multiple barcodes in succession, then make sure that all required fields in the records, except for the target field for the barcode data, have a default value.

Setting Up the Barcode Interface

You set up specific views, applets, and fields for barcode data in the Barcode Mappings view of the Service Administration screen. Using these mappings, Siebel Field Service records with barcode data are found. Also, using these mappings, barcode data is populated in specific views, applets, and fields. The barcode data can create a new record or update an existing record.

Note: Siebel Field Service includes 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 up the barcode interface

1. Navigate to the Administration - Service screen, then the Barcode Mappings view.
2. Create a new record for each field that is applicable to barcode data, and complete the fields as appropriate.

   Some fields are described in the following table.

Field	Comments
View Name	Select the appropriate view. For records with a Processing Mode field value of New and Update, this view receives barcode data. For records with a Processing Mode field value of Find, barcode data is found in this view.
Applet Name	Select the appropriate applet. For records with a Processing Mode field value of New and Update, this applet receives barcode data. For records with a Processing Mode field value of Find, barcode data is found in this applet.

Field	Comments
Field Name	Type the name of the field. For records with a Processing Mode field value of New and Update, this field receives barcode data. For records with a Processing Mode field value of Find, the record with the barcode the value in this field is found.
Entry Mode	Select the entry mode for the field. For records with a Process Mode field value of New and Update, these field values correspond to the values in the drop-down list next to the Barcode New and Barcode Update buttons in the view. For records with a Process Mode field value of Find, these field values correspond to the values in the QuickSearch section of the drop-down list in the query control that appears when you click Query (the magnifying glass icon) in the corner of the application window.
Process Mode	Select the type of operation applicable to the specified field. Values include New, Update, and Find.
Application Name	Select Siebel Field Service. For the mobile application, select Siebel Service for Mobile.

3. If you create a new record with a Process Mode field value of New or Update, then complete the following steps:
   a. Navigate to the Administration - Application screen, then the Manifest Administration view.
   b. Create two new records for each new record with a Process Mode field value of New or Update, and complete the fields as appropriate.

      Some fields are described in the following table.

Field	Comments
Type	Select a type of View for both records.
Usage Type	Select a usage type of Physical Renderer for the first record and Presentation Model for the second record.
Name	Type the name of the view for both records. When you save each record, a corresponding record is automatically created in the Object Expression list and in the Files list.

Process of Managing Records with Barcode Readers

The following list shows the tasks that end users typically perform to manage records with a barcode reader. Your company might follow a different process according to its business requirements.

To manage records with a barcode reader, perform the following tasks:

- *Creating New Records for Barcode Data (End User)*
- *Updating Records with Barcode Data (End User)*
- *Finding Records with Barcode Readers (End User)*

Creating New Records for Barcode Data (End User)

You can use a barcode reader to create new records in Siebel Field Service.

This task is a step in *Process of Managing Records with Barcode Readers*.

To create a new record for barcode data

1. Navigate to the view that is to receive the barcode data.

   The header of the appropriate applet in the view contains: a Barcode New button (a chart with a plus (+) icon), a Barcode Update button (a chart with a pencil icon), and a field with a drop-down list.
2. Click the Barcode New button.
3. In the drop-down list next to Barcode New, select the type of data associated with the barcode (for example, an asset number).

   You can select a value in the drop-down list only if multiple values appear in it. Administrators set up the values in this drop-down list. For more information, see *Setting Up the Barcode Interface*.
4. Scan the barcode.

   A new record in the applet is created, and the appropriate field in the new record is populated with the barcode data.
5. Enter other appropriate field values in the new record.

Updating Records with Barcode Data (End User)

You can use a barcode reader to update existing records in Siebel Field Service.

This task is a step in *Process of Managing Records with Barcode Readers*.

To update a record with barcode data

1. Navigate to the view that is to receive the barcode data.

   The header of the appropriate applet in the view contains: a Barcode New button (a chart with a plus (+) icon), a Barcode Update button (a chart with a pencil icon), and a field with a drop-down list.
2. Click the Barcode Update button.

3. In the drop-down list next to Barcode Update, select the type of data associated with the barcode (for example, a part number).

   You can select a value in the drop-down list only if multiple values appear in it. Administrators set up the values in this drop-down list. For more information, see *Setting Up the Barcode Interface*.
4. Select the record to receive the barcode data.
5. Scan the barcode.

   The appropriate field in the selected record is populated with the barcode data. If the field already has a value, then the barcode data replaces the value.

Finding Records with Barcode Readers (End User)

You can use a barcode reader to find records in Siebel Field Service. You do not have to navigate a specific view to find records.

This task is a step in *Process of Managing Records with Barcode Readers*.

To find a record with a barcode reader

1. In the corner of the application window, click Query (the magnifying glass icon).

   The search control appears.
2. In the drop-down list of the search control, scroll down to the QuickSearch section.

   Administrators set up the values in the QuickSearch section of this drop-down list. For more information, see *Setting Up the Barcode Interface*.
3. Select the field name for the type of data associated with the barcode (for example, a repair number).
4. Scan the barcode.

   The view (if any) that contains the record with the field data appears, and the record appears in that view.
5. To close the search control, click Query (the magnifying glass icon) again.

25 Engine Logging Levels

Engine Logging Levels

This chapter provides reference information about logging levels for the engines that are available as business services in Siebel Field Service. It includes the following topic: *About Business Service Engines for Siebel Field Service*.

About Business Service Engines for Siebel Field Service

To facilitate configuration, maintenance, and multilanguage support, the following engines in 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 business service engine has an alias. SRVRMGR commands use these aliases as parameters. For more information about configuring business services, see *Integration Platform Technologies: Siebel Enterprise Application Integration* .

The following table lists the aliases for the server components that are associated with each engine.

Engine	Server Component Alias
Cycle Counting	FSCyccnt
Fulfillment	FSFulfill
Mobile Inventory Transaction	FSInvTxn
Part Locator	FSLocate
Preventive Maintenance	FSPrevMnt
Replenishment	FSRepl

Engine	Server Component Alias

Changing Logging Levels

Each engine has an associated logging level. A *logging level* is the level of detail for automatic event logging when a Siebel application component runs. The logging level is expressed as a number, with higher numbers representing greater levels of detail. The following table describes the logging levels.

Level	Name	Description
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, and generates a chronology of events even if the events are not errors or warnings.
4	Debug	Generates a very detailed log. Mainly Siebel engineers use this level.

The default logging level for each engine is 1. If you need more detail in testing or troubleshooting, then 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 the Events view in the Components view in the Servers view of the Administration - Server Configuration screen. For the selected component in the Components view, the Events view shows the event types and their associated logging levels.
- **For all event types.** Call the SRVRMGR.EXE command line utility. The command follows:

  ```
  change evtloglvl parameter = log level for comp parameter
  ```

  For example:

  ```
  change evtloglvl FSPrevMnt = 3 for comp FSPrevMnt
  ```

  This command changes the logging level for all event types associated with the engine.

  Note: This command is case insensitive, except for the parameter.

26 Business Service Methods in Siebel Field Service

Business Service Methods in Siebel Field Service

This chapter provides details about the methods for business services in Siebel Field Service. It includes the following topics:

- *About Business Services in Siebel Field Service*
- *Business Service Methods for Advanced Contracts*
- *Business Service Methods for Agreements*
- *Business Service Methods for Assets*
- *Business Service Methods for Charges*
- *Business Service Methods for Cycle Counting*
- *Business Service Methods for the Dispatch Board*
- *Business Service Methods for Entitlements*
- *Business Service Methods for Fulfillment*
- *Business Service Methods for Inventories*
- *Business Service Methods for Invoices*
- *Business Service Methods for Preventive Maintenance*
- *Business Service Methods for Replenishment*
- *Methods for Schedules*
- *Business Service Methods for Siebel Field Service Integration to Oracle Real-Time Scheduler*

About Business Services in Siebel Field Service

Generally, business services have the following characteristics:

- Business services define reusable business logic that can be executed in the Siebel Application Object Manager.
- Business services can be built-in services that developers define in Siebel Tools or run-time services that administrators define in a client application.
- Business services can be based on the CSSService Class (standard business service) or on specialized classes (specialized business service).

  > **Note:** Only Siebel engineers use specialized business services. Do not use specialized business services unless the behavior is specifically documented.

- Properties or scripts (in Siebel Visual Basic or Siebel eScript) can configure business services.

- Workflows, scripts, or runtime events can call business services.
- Business services can be used for generic code libraries that other scripts call.
- Business services are used as building blocks in the Siebel Application Integration framework.
- Commands associated with a menu selection or toolbar button can refer to business services.

Note: You can make some business services or workflow processes available as Web services that Siebel Field Service can consume. For more information about the Web services for service requests, solutions, activities, and assets, see *Siebel CRM Web Services Reference* .

Business Service Methods for Advanced Contracts

This topic describes the following the business services (and associated methods) for Advanced Contracts:

- *Condition Evaluator Business Service*
- *Contracts Accumulator Business Service*
- *Contracts Resolver Business Service*

Condition Evaluator Business Service

The Condition Evaluator business service is used in workflows to compare 2 values to determine whether a condition is met. This business service compares the current amount to the target amount using the specified operator and sets the compliance flag. This business service includes the Evaluate Condition method.

Evaluate Condition Method

Evaluate Condition determines whether a condition is met.

Arguments

The following table describes the arguments for this method.

Argument Name	Description
Current Amount	The value used to evaluate whether the condition is met.
Operator	The operator used for the calculation. Values include `=, >, <, <=, >=, BETWEEN (< and >), and BETWEEN (<= and >=)`.
Target Amount	The value to compare with the current amount. You can specify minimum and maximum bounds separated by a colon (`Min:Max`) for the `BETWEEN` operator to compare to the benefit amount, the condition amount, or the target amount.

Return Value

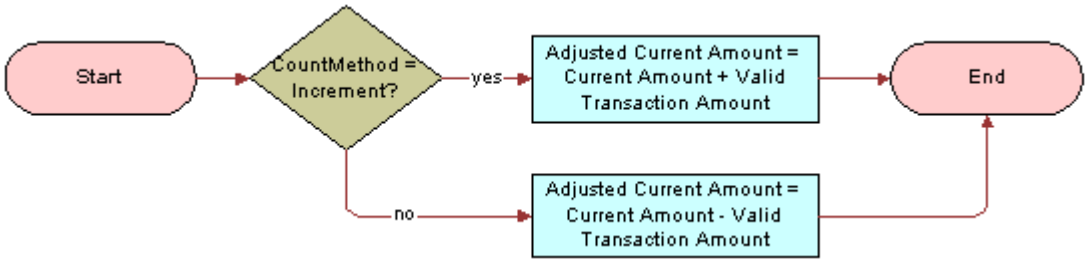
The following table describes the return value for this method.

Return Value	Description
Compliance Flag	A value that indicates whether the condition is met.

Contracts Accumulator Business Service

The Contracts Accumulator business service is used in workflows to manage increasing or decreasing an allowance pool. This business service includes the Manage Running Total method.

The following figure shows the process flow for the Contracts Accumulator business service.



Manage Running Total Method

Manage Running Total increments or decrements the running total amount for a benefit.

Arguments

The following table describes the arguments for this method.

Argument Name	Description
Count Method	A value that indicates the type of counter. Values include Increment and Decrement.
Current Amount	The current value of the counter before the benefit amount is applied for the transaction.
Valid Transaction Amount	The amount of benefit to apply and reflect in the running total. The Contracts Resolver business service can calculate this amount. For more information, see *Contracts Resolver Business Service*.

Return Value

The following table describes the return value for this method.

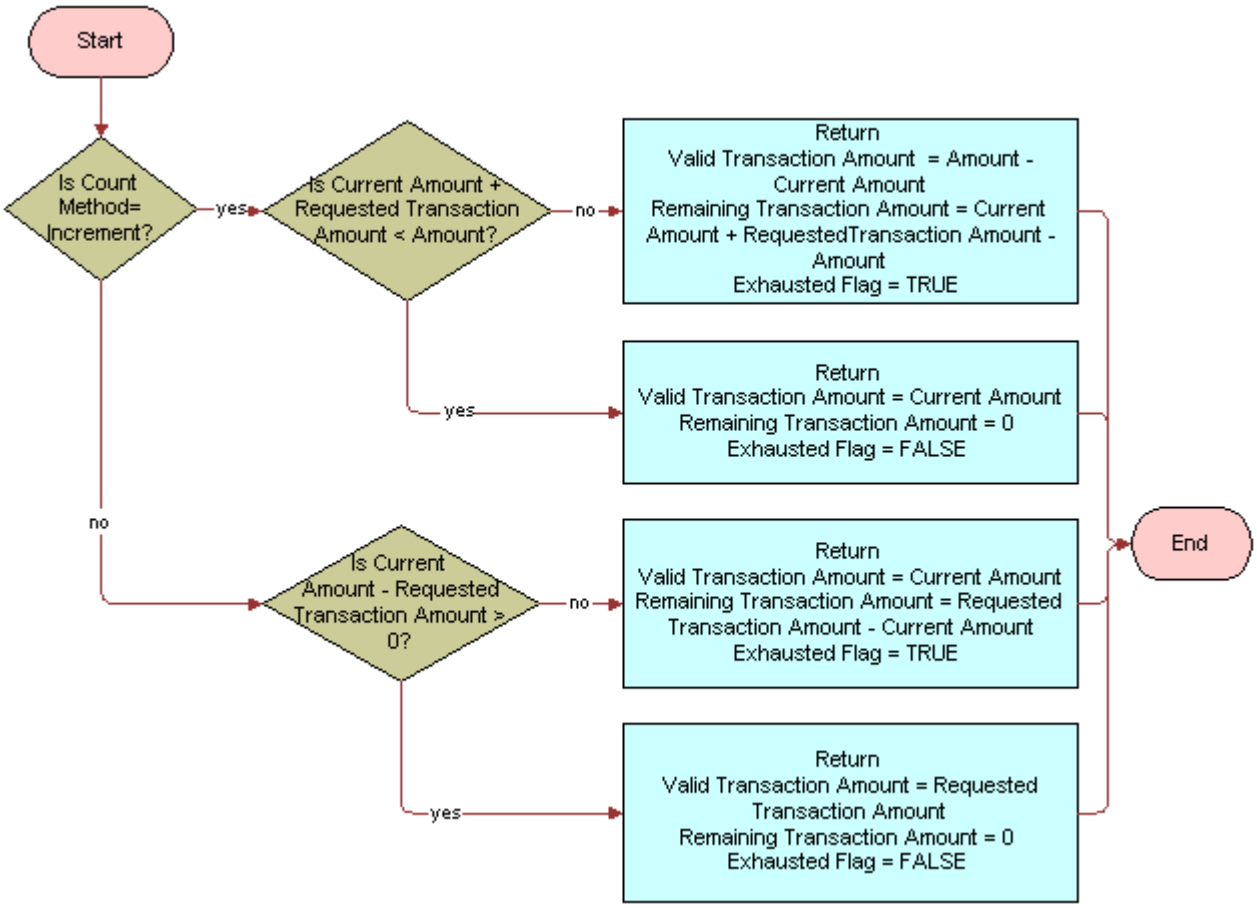
Return Value	Description
Adjusted Current Amount	The updated running total, adjusted by the Contracts Accumulator business service to reflect the amount of benefit applied (Valid Transaction Amount).

Contracts Resolver Business Service

The Contracts Resolver business service is used in workflows to resolve issues associated with managing an allowance or pool when the amount to decrement is more than the remaining allowance or pool. This business service includes the Resolve Transaction Amount method.

The following figure shows the process flow for the Contracts Resolver business service. The steps in the workflow are as follows:

1. Is Count Method = Increment?
    - If Yes, Is Current Amount + Requested Transaction less than Amount?
        - If No, Return Valid Transaction = Amount – Current Amount. Remaining Transaction Amount = Current Amount + Requested Transaction Amount – Amount, Exhausted Flag = TRUE.
        - If Yes, Return Valid Transaction Amount = Current Amount Remaining Transaction Amount = 0, Exhausted Flag = FALSE.
    - If No, Is Current Amount – Requested Transaction Amount greater than 0?
        - If No, Retrun Valid Transaction Amount = Current Amount, Remaining Transaction Amount = Requested Transaction Amount – Current Amount, Exhausted Flag = TRUE.
        - If Yes, Return Valid Transaction Amount = Requested Transaction Amount, Remaining Transaction Amount = 0, Exhausted Flag = FALSE.



Resolve Transaction Amount Method

Resolve Transaction Amount determines the valid transaction amount and the remaining transaction amount for a benefit when the decrement amount is more than the remaining allowance or pool.

Arguments

The following table describes the arguments for this method.

Argument Name	Description
Current Amount	The current value of the counter before the benefit amount is applied for the transaction.
Requested Transaction Amount	The amount of the transaction to consider for the benefit. A user-defined business service or workflow can calculate this value. For a benefit of 2% credit on all invoices, the actual dollar amount calculated by taking 2% of the total invoices is the Requested Transaction Amount.
Amount	The amount of the benefit or the threshold for the condition. For example, if you want to use the business service to manage a benefit, then you set this argument to equal the Benefit Amount field. If you want to use the business service to manage a condition, then you set this argument to equal the Condition Target Amount field.

Argument Name	Description
Count Method	A value that indicates the type of counter. Values include Increment and Decrement.

Return Values

The following table describes the return values for this method.

Return Value	Description
Valid Transaction Amount	The portion of the requested benefit (Requested Transaction Amount) to apply (Valid Transaction Amount). The Contracts Resolver business service determines this return value.
Remaining Transaction Amount	The portion of the requested benefit (Requested Transaction Amount) that cannot apply (Remaining Transaction Amount). The Contracts Resolver business service determines this return value.
Exhausted Flag	A value that indicates whether the amount of the benefit or the terms of the condition are exhausted. You can use this setting to update the status for either the benefit or the condition.

Business Service Methods for Agreements

This topic describes the following business services (and the associated methods) for agreements:

- *FS Agreement Charge Business Service*
- *FS Agreement Renewal Business Service*
- *FS Holiday API Service Business Service*
- *ISS Copy Service Business Service*

Pricing procedures define pricing processing logic. The procedures are based on the Product Selection and Pricing (PSP) Engine. The advantage of using the PSP Engine is that pricing is fully configurable. When a user adds a product to an agreement line item or adds another asset, the PSP Engine determines the price of the selected product. For more information about the PSP Engine, see *Siebel Order Management Guide* . For more information about the procedures for pricing, see *Siebel Pricing Administration Guide* . For more information about invoicing and charging, see *Business Service Methods for Charges*.

Note: Because you can use pricing procedures to define pricing processing logic, pricing models and pricing factors are no longer part of Siebel Pricer.

FS Agreement Charge Business Service

The Field Service Agreement Charge business service is used to generate charges by using the charge plan for an agreement line item.

The FS - Generate Agreement Charge workflow and the FS - Generate All Agreement Charges workflow call this business service. Modularized charging and invoicing in Siebel Field Service allows administrators to extend the

workflow, if necessary. For more information about how workflow processes use the business service methods, see *FS - Generate Agreement Charge Workflow* and *FS - Generate All Agreement Charges Workflow*.

This business service includes the following methods:

- *CalculateRCAdjustAmount Method*
- *GenerateAdjustmentCharge Method*
- *GenerateNRCCharge Method*
- *GenerateRCCharge Method*
- *GenerateUsageCharge Method*

CalculateRCAdjustAmount Method

CalculateRCAdjustAmount calculates the recurring charge (RC) adjustment amount by using the values for the RC adjustment unit amount and the RC adjustment unit (for example, Per Day or Per Week).

Invoked From

This method is called by the FS - Generate Agreement Charge workflow. This workflow adjusts the RC amount.

GenerateAdjustmentCharge Method

GenerateAdjustmentCharge generates the adjustment charge for an agreement line item.

Invoked From

This method is called by the FS - Generate Adjustment Charge workflow.

GenerateNRCCharge Method

GenerateNRCCharge generates the nonrecurring charge (NRC) for an agreement line item.

Invoked From

This method is called by the FS - Generate NRC Charge workflow. The input date for this workflow is in the local time format. The workflow converts this format to Open Database Connectivity (ODBC) format (YY-MM-DD). After the NRC is generated, the workflow also updates the NRC last-charged date on the charge plan.

GenerateRCCharge Method

GenerateRCCharge generates the recurring charge (RC) for an agreement line item.

Invoked From

This method is called by the FS - Generate RC Charge workflow. The workflow retrieves and converts the asset readings to charge amounts. The input date for this workflow is in the local time format. The workflow converts this format to the ODBC format (YY-MM-DD). After the RC amount is generated, the workflow also updates the RC last-charged date on the charge plan.

GenerateUsageCharge Method

GenerateUsageCharge generates the usage charge for an agreement line item by using asset usage.

Invoked From

This method is called by the FS - Generate Usage Charge workflow. The workflow retrieves and converts the asset readings to charge amounts. The input date for this workflow is in the local time format. The workflow converts this format to ODBC format (YY-MM-DD). After the usage charge is generated, the workflow also updates the usage last-charged date on the charge plan.

FS Agreement Renewal Business Service

The Field Service Agreement Renewal business service is used to renew agreement line items. For more information about how workflow processes use the business service methods, see *FS - Agreement Renewal Item Workflow* and *FS - Agreement Renewal All Workflow*.

This business service includes the following methods:

- *RenewAgreement Method*
- *RenewAllAgreements Method*

RenewAgreement Method

RenewAgreement renews 1 agreement line item.

The date and agreement ID are passed as arguments to this method. The renewal agreement item ID of the newly created agreement is then passed back as the return value.

Invoked From

This method is called by the FS - Agreement Renewal Item workflow.

RenewAllAgreements Method

RenewAllAgreements renews all agreement line items with a renewal date greater than the date in the argument.

Invoked From

This method is called by the FS - Agreement Renewal All workflow.

FS Holiday API Service Business Service

The Field Service Holiday API Service business service is used to calculate the business time to accomplish a task, to calculate committed time by using a service calendar and exception calendar, or to indicate whether a day is a defined holiday and the schedule hours type for that day.

> **Note:** The exception length cannot be greater than a week. If the exception length is greater than a week, then you must create multiple exception records for the time span, where each record is less than a week. For example, for a 10-day exception from Dec 21 to Dec 30, you must create two exception records: Dec 21 to Jan Dec 27 and Dec 28 to 30.

The business service includes the following methods:

- *GetElapsedBusinessTime Method*

- *GetResponseTime Method*
- *IsHoliday Method*

GetElapsedBusinessTime Method

GetElapsedBusinessTime calculates the business time to accomplish a task. This method calculates the business time that elapses between 2 dates, according to a schedule that runs in a specific time zone.

This method is not used as part of any workflow process.

Arguments

The following table describes the arguments for this method.

Argument Name	Description
Calendar Id	The ID of the schedule that is associated with the starting and ending time.
Schedule Time Zone	The time zone for the starting and ending time.
Start Time	The starting date and time of the task. This argument uses one of the following formats: • mm/dd/yyyy hh:mm:ss • m/dd/yy hh:mm:s The first part of the format designates a date (month/date/year). For this part, the separator can be a slash (/) or a hyphen (-). The second part of the format designates a time (hour:minute:second).
End Time	The ending date and time of the task. This argument uses the same formats as the Start Time argument.
Time Unit	The unit of time (for example, hours or days).

Return Value

The following table describes the return value for this method.

Return Value	Description
Business Time	The number of hours or days to accomplish the task.

IsHoliday Method

IsHolidy returns a Boolean value specifying whether a day is a defined holiday and returns the schedule hours type for that day. This method returns TRUE if the Working field is cleared for the holiday definition of that day, or FALSE if the Working field is selected. For more information about setting schedule hours, see *Setting Hours of Availability*. For more information about the Working field, see *Setting Exception Hours*.

This method is not used as part of any workflow process.

Arguments

The following table describes the arguments for this method.

Argument Name	Description
Calendar Id	The ID of the schedule that is associated with the potential holiday.
Date Time	The date and time for the potential holiday. This argument uses one of the following formats: • mm/dd/yyyy hh:mm:ss • m/dd/yy hh:mm:s The first part of the format designates a date (month/date/year). For this part, the separator can be a slash (/) or a hyphen (-). The second part of the format designates a time (hour:minute:second).
Time Zone	The time zone for the potential holiday.

Return Values

The following table describes the return values for this method.

Return Value	Description
Is Holiday	A value that indicates whether the day is a holiday. Values include: • **TRUE.** Indicates that the day is a holiday. • **FALSE.** Indicates that the day is not a holiday.
Working Hours	The type of schedule hours for the day (for example, normal, overtime, or extended overtime).

ISS Copy Service Business Service

The ISS Copy Service business service is used in numerous features in Siebel Field Service, including the auto contract feature. Siebel Order Management copies data from a document type to another document type in the following example transactions:

- Quote-to-Agreement
- Opportunity-to-Quote
- Order-to-Agreement
- Agreement-to-Order

You define all mappings between objects in the Data Map Administration views of the Administration - Application screen of the run-time client. Using the Administration - Data views and the ISS Copy Service business service, you can create new mappings and update existing mappings. A mapping can support 1 or more business components from a

business object (for example, quote, quote line item, and quote payments). For more information about the ISS Copy Service business service, see *Siebel Order Management Infrastructure Guide* .

Business Service Methods for Assets

This topic describes the following business services (and the associated methods) for assets:

- *FS Asset Swap Service Business Service*
- *FS Asset Warranty Service Business Service*

FS Asset Swap Service Business Service

The Field Service Asset Swap Service business service is used to swap warranties or entitlements during an asset exchange. For more information, see *Asset Swaps*.

This business service includes the following methods:

- *SwapAssetEntitlements Method*
- *SwapAssetWarranties Method*

SwapAssetEntitlements Method

SwapAssetEntitlements swaps asset entitlements. Service activities often include replacing an asset with another asset. When you swap 2 assets, you can individually transfer the entitlements of the removed asset to the installed asset.

For agreements that include entitlements for the removed asset, asset values for the entitlements on the Service Agreement Product business component are updated with the number of the installed asset, replacing the asset number of the removed asset. When this business component is updated, the Asset number (#) field in the Products view in the Entitlements view in the List view of the Agreements screen changes to display the new installed asset.

Asset swaps also transfer any hierarchical relationships from the removed asset to the installed asset. However, if a removed asset is a child asset, then the parent of the removed asset becomes the parent of the installed asset, but the removed asset keeps any of its child assets.

Invoked From

This method is called when a record in the FS Activity Part Movements List Applet (in the Part Tracker view of the Activities screen) includes the following information:

- A serialized asset.
- A valid Swap Part Mvmt number (#) value.
- A check in the Commit check box. You can select this check box by clicking the Commit button.

This method can also be called from Siebel eScript.

SwapAssetWarranties Method

SwapAssetWarranties swaps asset warranties. Service activities often include replacing an asset with another asset. When you swap 2 assets, you can individually transfer the warranties of the removed asset to the installed asset.

Invoked From

This method is called when a record in the FS Activity Part Movements List Applet (in the Part Tracker view of the Activities screen) includes the following information:

- A serialized asset.
- A valid Swap Part Mvmt number (#) value.
- A check in the Commit check box. You can select this check box by clicking the Commit button.

This method can also be called from Siebel eScript.

FS Asset Warranty Service Business Service

The Field Service Asset Warranty Service business service is used to retrieve, check, and create services for asset warranties.

This business service includes the following methods:

- *CheckAssetWarranty Method*
- *CreateAssetWarranty Method*
- *GetAssetWarranties Method*

CheckAssetWarranty Method

CheckAssetWarranty examines all the warranties for an asset and checks whether any warranties are applicable according to the Warranty Criteria business service user property.

If a warranty is not associated with an asset, then the warranty check automatically examines the parent and root assets to determine whether an applicable component warranty covers the asset. By default, a warranty check is made for the asset, and a component warranty check is made for the asset subcomponents. The component warranty check determines whether the subcomponent can be disabled by setting the value for the Sub Component Check business service user property to N.

You can change the criteria for selecting applicable warranties by changing the parameters in the Warranty Criteria business service user property.

Invoked From

This method is called when the user selects the Check Warranty command (in the menu in the Service Details view in the Service Request List view of the Service screen or in the More Info view of the Repairs screen) to verify the warranty coverage on a specified date when creating a service request or when creating a repair number for repairing an asset.

CreateAssetWarranty Method

CreateAssetWarranty adds the input warranty to the source asset. The number of days remaining on the warranty is automatically tracked.

Invoked From

This method is called when a user clicks the Get Warranties button (in the Warranty view in the List view of the Assets screen) to verify the applicable warranties for an asset.

GetAssetWarranties Method

GetAssetWarranties retrieves all the warranties for the product for an asset and then adds the warranties to the asset, if necessary. The number of days remaining on the warranty is automatically tracked.

Invoked From

This method is called when a user clicks the Get Warranties button (in the Warranty view in the List view in the Assets screen) to verify the applicable warranties for an asset.

Business Service Methods for Charges

This topic describes the following business services (and the associated methods) for charges:

- *FS Generate Conditional Charge Process Business Service*
- *FS Service Charge Business Service*

The Invoice Engine is extensively rewritten for version 7.7 of Siebel Field Service to make charging and invoicing for service requests and activities more modularized. The Charge module manages charges associated with agreements, service requests, and activities. To support the use of the Charge Engine, all the business services previously used to generate invoice line items generate charges instead. A flexible framework is also implemented to allow administrators to configure invoicing to meet the company business requirements by creating business services and connecting the business services to the framework.

FS Generate Conditional Charge Process Business Service

The FS Generate Conditional Charge Process business service is used to create conditional charges for agreements. For more information, see *Setting Up Conditional Charge Plans* and *FS - Generate Conditional Charge Process Workflow*.

This business service includes the following methods:

- *GenerateCharge Method*
- *GetCondCharge Method*

GenerateCharge Method

GenerateCharge uses the conditional charge to adjust the charge.

Invoked From

This method is called by the FS - Generate Conditional Charge Process workflow.

GetCondCharge Method

GetCondCharge gets the conditional charge for an agreement.

Invoked From

This method is called by the FS - Generate Conditional Charge Process workflow.

FS Service Charge Business Service

The FS Service Charge business service is used to create charges and control invoicing for service requests and activities. To support mobile devices, C ++ code on the applet class directly calls this business service. A workflow does not call this business service.

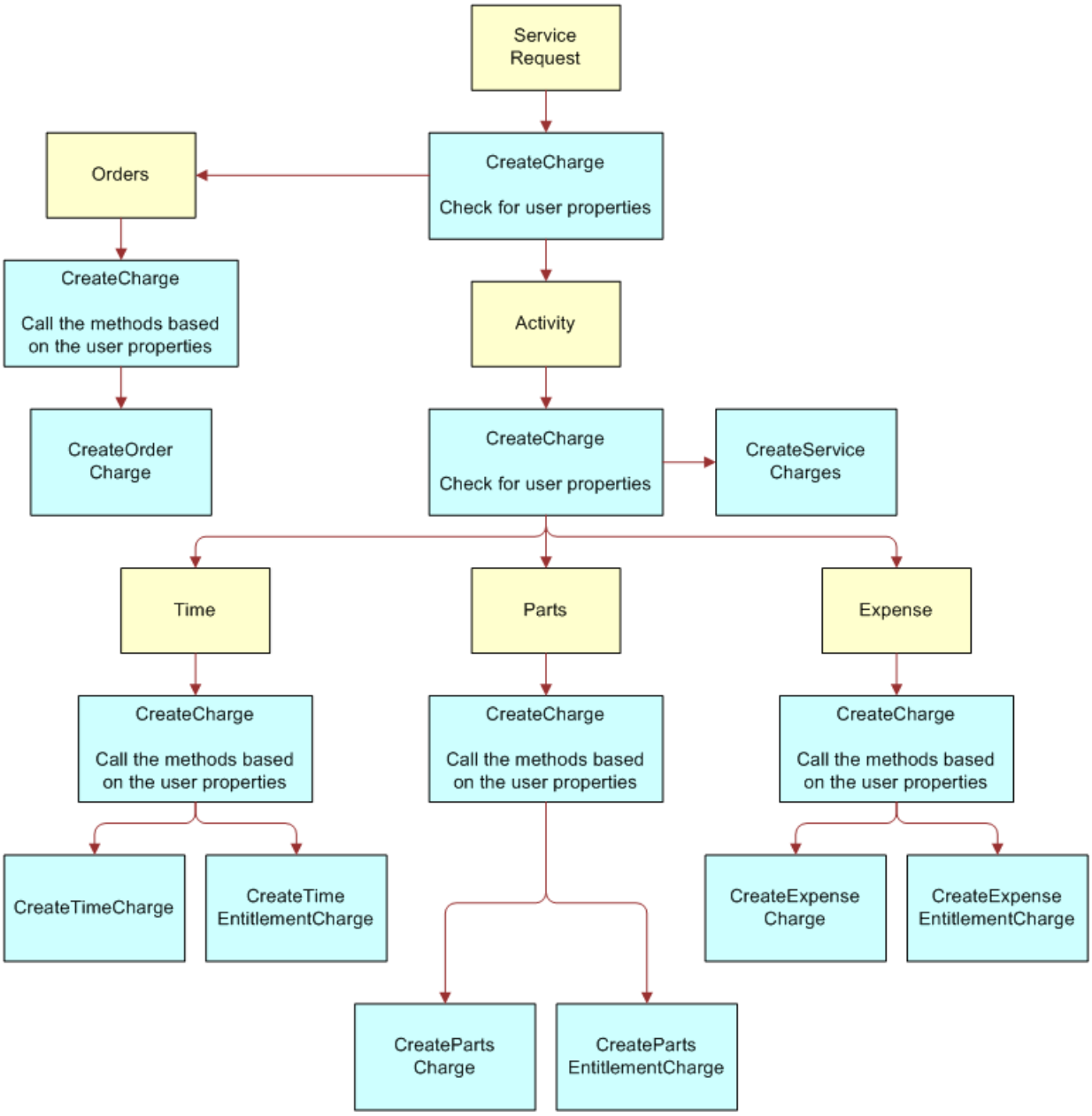
This business service includes the following methods:

- *CreateExpenseCharge Method*
- *CreateExpenseEntitlementCharge Method*
- *CreateOrderCharges Method*
- *CreatePartsCharge Method*
- *CreatePartsEntitlementCharge Method*
- *CreateServiceCharges Method*
- *CreateTimeCharge Method*
- *CreateTimeEntitlementCharge Method*

Process Flow for Invoicing Service Requests or Activities

The following figure shows the process flow for invoicing service requests or activities as follows:

- Service Request (CreateCharge) consists of Orders and Activity:
  - Orders: Create Charge, CreateOrder Charge.
  - Activity: CreateCharge, Create Service Charges.
- Activity consists of Time, Parts, and Expense:
  - Time: CreateCharge, CreateTimeCharge, CreateTimeEntitlementCharge.
  - Parts: CreateCharge, CreatePartsCharge, CreatePartsEntitlementCharge.
  - Expense: CreateCharge, CreateExpenseCharge, CreateExpenseEntitlementCharge.



If you want to create your own process flow, then review the process flow in the previous figure. This figure shows the flow of control for the methods that are available in this business service. This figure also shows that the user properties on the business component control the CreateCharge method. These user properties pass information to the user interface about the business services and methods to call.

The following table lists the user properties that you must edit to change the process flow for the service charges. You can add or remove each individual item in the process flow using these user properties.

Business Component	User Property	Value
Service Request	ChargeExecuteBusinessComponent1	Action

Business Component	User Property	Value
Service Request	ChargeExecuteBusinessComponent2	Order Entry - Orders
Action	ChargeExecuteBusinessComponent1	Time Sheet Daily Hours
Action	ChargeExecuteBusinessComponent2	FS Expense Item
Action	ChargeExecuteBusinessComponent3	FS Activity Part Movement
Action	ChargeBusinessService	Invoice Charges Business Service
Action	ChargeBusinessServiceMethod1	CreateServiceCharges
Order Entry - Orders	ChargeBusinessServiceMethod1	CreateOrderCharges
FS Activity Parts Movement	ChargeBusinessService	Invoice Charges Business Service
FS Activity Parts Movement	ChargeBusinessServiceMethod1	CreatePartsCharge
FS Activity Parts Movement	ChargeBusinessServiceMethod2	CreatePartsEntitlementCharge
FS Expense Item	ChargeBusinessService	Invoice Charges Business Service
FS Expense Item	ChargeBusinessServiceMethod1	CreateExpenseCharge
FS Expense Item	ChargeBusinessServiceMethod2	CreateExpenseEntitlement Charge
Time Sheet Daily Hours	ChargeBusinessService	Invoice Charges Business Service
Time Sheet Daily Hours	ChargeBusinessServiceMethod1	CreateTimeCharge
Time Sheet Daily Hours	ChargeBusinessServiceMethod2	CreateTimeEntitlementCharge

CreateExpenseCharge Method

CreateExpenseCharge creates the base charge for an activity expense.

If you do not want to charge expenses, then remove the ChargeBusinessServiceMethod1 user property from the FS Expense Item business component. For more information, see *Process Flow for Invoicing Service Requests or Activities*.

This method is not used as part of any workflow process.

Invoked From

This method is called by the C ++ class for the Auto Charge button (in the Charges view in the Activity List view of the Activities screen).

CreateExpenseEntitlementCharge Method

CreateExpenseEntitlementCharge creates the entitlement adjustment charge for an activity expense.

If you do not want to charge expense adjustment, then remove the ChargeBusinessServiceMethod2 user property from the FS Expense Item business component. For more information, see *Process Flow for Invoicing Service Requests or Activities*.

> **Tip:** Charges can be generated even for a zero amount ($0) adjustment charge. To remove such adjustment charges from the final invoice, you can modify the charge consolidation plan. Add a consolidation rule with a Name field value of Search Spec and a Value field value of `[FS Charge. Amount = 0] AND [FS Charge.Entitlement Id <> NULL]`. For more information, see *Creating Charge Consolidation Plans*.

This method is not used as part of any workflow process.

Invoked From

This method is called directly from the FS Charge List Applet - Auto Charge (in the Charges view in the Activity List view of the Activities screen). The business service is called directly from the applet class.

CreateOrderCharges Method

CreateOrderCharges creates charges for all line items in an order.

This method is not used as part of any workflow process.

Invoked From

This method is called directly from the FS Charge List Applet - Auto Charge (in the Charges view in the Activity List view of the Activities screen). The business service is called directly from the applet class.

CreatePartsCharge Method

CreatePartsCharge creates the base charge for an activity part movement. This method creates the charges for the parts used in an activity.

This method is not used as part of any workflow process.

Invoked From

This method is called directly from the FS Charge List Applet - Auto Charge (in the Charges view in the Activity List view of the Activities screen). The business service is called directly from the applet class.

CreatePartsEntitlementCharge Method

CreatePartsEntitlementCharge creates the entitlement adjustment charge for an activity part movement. This method adjusts the costs of the parts by using the associated entitlement.

This method is not used as part of any workflow process.

Invoked From

This method is called directly from the FS Charge List Applet - Auto Charge (in the Charges view in the Activity List view of the Activities screen). The business service is called directly from the applet class.

CreateServiceCharges Method

CreateServiceCharges creates service charges or entitlement adjustment charges for parts, expenses, and time. This method aggregates all the charges for parts, expenses, and time.

If you do not want to charge expense adjustment, then remove the ChargeBusinessServiceMethod1 user property from the Action business component. For more information, see *Process Flow for Invoicing Service Requests or Activities*.

This method is not used as part of any workflow process.

Invoked From

This method is called directly from the FS Charge List Applet - Auto Charge (in the Charges view in the Activity List view of the Activities screen). The business service is called directly from the applet class.

CreateTimeCharge Method

CreateTimeCharge creates charges by using reported time. This method creates the time charges for an activity by using the hourly rate of the activity owner.

If you do not want to charge expense adjustment, then remove the ChargeBusinessServiceMethod1 user property from the Time Sheet Daily Hours Item business component. For more information, see *Process Flow for Invoicing Service Requests or Activities*.

This method is not used as part of any workflow process.

Invoked From

This method is called directly from the FS Charge List Applet - Auto Charge (in the Charges view in the Activity List view of the Activities screen). The business service is called directly from the applet class.

CreateTimeEntitlementCharge Method

CreateTimeEntitlementCharge creates time entitlement adjustments. This method adjusts the cost of the hourly resource by using the entitlement associated with an activity.

If you do not want to charge time adjustment, then remove the ChargeBusinessServiceMethod2 user property from the Time Sheet Daily Hours Item business component. For more information, see *Process Flow for Invoicing Service Requests or Activities*.

This method is not used as part of any workflow process.

Invoked From

This method is called directly from the FS Charge List Applet - Auto Charge (in the Charges view in the Activity List view of the Activities screen). The business service is called directly from the applet class.

Business Service Methods for Cycle Counting

This topic describes the FS Cycle Counting business service (and the associated method) for cycle counting.

- *FS Cycle Counting Business Service*
- *GenerateCounts Method*

FS Cycle Counting Business Service

The Field Service Cycle Counting business service is used to generate cycle counts for inventories. This business service includes the GenerateCounts method. For more information about the Cycle Counting Engine, see *About Cycle Counting*.

GenerateCounts Method

GenerateCounts generates a part list for counting by using product classification data (for example, ABC or XYZ).

The mode, start date, and end date are passed as arguments to this method. The mode value (SQL, ID, TempTbl) determines the other needed arguments (ClientID, RowID, and Where). The Loc/Type values indicate the values for the other arguments. For example, if the Loc/Type value is Loc, then the RowID is an inventory location.

The input parameters are called when invoking from code or from a component job.

By default, the Cycle Counting Engine is run as a server component and not as a business service.

Business Service Methods for the Dispatch Board

This topic describes the following business services (and the associated methods) for the Dispatch Board:

- *FS Activity Cache Business Service*
- *FS Dispatch Board Utils Business Service*
- *FS Service Region Business Service*

FS Activity Cache Business Service

The Field Service Activity Cache Service business service is used to clear or refresh cached activity data from the Dispatch Board. This business service includes the *CleanUpCacheTable Method*.

CleanUpCacheTable Method

CleanUpCacheTable clears the activity data cache table that the Dispatch Board uses. The activity data in the cache table is duplicate data that is created during a user session.

Invoked From

This method can be manually called using the business service simulator or automatically called using a repeating component job.

FS Dispatch Board Utils Business Service

The Field Service Dispatch Board Utils business service is used to implement the functions of the Dispatch Board.

This business service includes the following methods:

- *AssetAssignActivity Method*
- *AssetUnassignActivity Method*
- *AssignActivity Method*
- *CalculateDistanceVals Method*
- *CalculateFromToAddresses Method*
- *GetCalculatedDistanceVals Method*
- *GetEmployeeScores Method*
- *GetWirelessCoverage Method*
- *UnassignActivity Method*

AssetAssignActivity Method

AssetAssignActivity assigns an activity in the Asset Dispatch Board. You can configure this method, and use it to enable drag-and-drop events for business components configured to appear along the y-axis of the Asset Dispatch Board.

In the Asset DB Planned GanttChart AX Applet, the business components shown vertically along the side are the Y business components (the y-axis). The X business component is the object to schedule (the x-axis). The scheduled object is normally an activity. This method updates the asset ID for the *X* business component as defined in the Drag and Drop Update Field business service user property.

For example, Asset Mgmt - Asset in the Asset Dispatch Board is the Y business component, and Action is the X business component. When a user selects and then moves an action to the Asset Dispatch Board to assign an asset, this method inserts the object ID of the Asset Mgmt - Asset business component into the Asset Id field for the Action business component.

If a new Dispatch Board has accounts on the y-axis, then Account is the Y business component. You can change the user property on this method to update the account ID. In this case, this method inserts the object ID for the account into the Account Id field for the Action business component.

If pre- or post-processing must occur on the drag-and-drop business event to support a specific business process, then you can access the arguments for this method from custom code.

Invoked From

This method is called by the Asset DB Planned GanttChart AX Applet when a user drops an activity to the Asset Dispatch Board.

AssetUnassignActivity Method

AssetUnassignActivity reverses the assignment of an activity in the Asset Dispatch Board. This method sets the Status field for an activity to Unscheduled and clears the Asset Id field as defined in the Drag and Drop Update Field business service user property.

If pre- or post-processing must occur on the drag-and-drop business event to support a specific business process, then you can access the arguments for this method from custom code.

Invoked From

This method is called by the FS Asset DB Unplanned Activity List Ax Applet when a user selects and moves an activity off the FS Asset DB Planned GanttChart AX Applet and puts the activity in the lower applet of the Asset Dispatch Board. The Drag Drop Business Service applet user property affects this method call.

AssignActivity Method

AssignActivity assigns an activity in the Dispatch Board. This method leverages the caching mechanism implemented on the Dispatch Board to maximize user performance.

This method applies to the CSSSWEFrameGanttDBActX class used for dispatching employees. This method performs the specialized ownership changes to update the primary owner for the Action business component and to subsequently update the performance cache for the Dispatch Board. This method removes any previous primary owner, sets the new primary owner to the employee on the Y business component (on the Dispatch Board y-axis), and sets the Status field to Scheduled.

If pre-or post-processing must occur on the drag-and-drop business event to support a specific business process, then you can access the arguments for this method from custom code.

Invoked From

This method is called by the applet for the Gantt chart for the Dispatch Board when a user drops an activity to the Gantt chart of the Dispatch Board. The Drag Drop Business Service applet user property affects this method call.

CalculateFromToAddresses Method

CalculateFromToAddresses determines the location of the activity and the location of each of the employees, and forwards the results to CalculateDistanceVals. CalculateFromToAddresses is the first method that GetCalculatedDistanceVals calls. For more information, see *GetCalculatedDistanceVals Method*.

The default method behavior identifies the location of an activity as the personal address for the activity. If the location is not available, then this method checks the business address for the activity. This method then retrieves the activity previous to the activity to schedule. If no previous activity exists in the schedule for the engineer, then this method sets the value for the From Address to the address in the employee profile for the engineer. The originating address for the engineer is set using the Start Shift Location Field Name business service user property. By default, this value is the Start Home Address ID for the engineer. The Start Home Address section in the Service Details view in the Employees view of the Administration - User screen designates this value.

This method searches the addresses of each activity, in accordance with the order that the From Address Id Props and To Address Id Props business service user properties indicate. Each of these properties specifies the business component ID and address type of the address to check. If the address type is TRUE, then the address is a personal address. If the address type is FALSE, then the address is a business address.

If the business address business component is not the same as the default, then you can set this business component by adding a Business Address CUT business service user property. Then you can specify the business address business component in this new user property. The originating address of the field service engineer is determined by the Start

Shift Location Field Name business service user property. The default value for this user property is Start Home Address ID.

CalculateDistanceVals Method

CalculateDistanceVals calculates the distance between the new activity location and the employee location, and produces a list of employee ID and distance value pairs. CalculateDistanceVals is the second method that GetCalculatedDistanceVals calls. For more information, see *GetCalculatedDistanceVals Method*.

This method checks the City, State, and Postal Code fields of an address for matching entries in the ZIP Code business component. You can view the master list of geocodes in the ZIP Code Administration view of the Administration - Data screen. All 3 fields (City, State, and Postal Code) must match exactly to return the latitude and longitude location values used in the distance calculation. This calculation determines the straight line distance between the 2 ZIP Codes using the latitude and longitude coordinates for the 2 ZIP Codes.

This method returns a distance of -1 to alert users when there is no valid result from the data provided. Typically, invalid results occur because of a missing address or unmapped ZIP Code.

GetCalculatedDistanceVals Method

GetCalculatedDistanceVals calculates the distance between the selected activity location and the employee location, and produces a list of employee ID and distance value pairs. This method calls the CalculateFromToAddress method and subsequently, the CalculateDistanceVals method.

This method performs the following tasks:

1. Determines the location and starting time of the new activity.
2. Determines the location of the employee by completing the following steps:
    a. Identifies the employee activity with an end time that is closest to the start time of the new activity.
    b. Identifies the location of this employee activity.
    c. If no such activities are found, then selects the employee default location. The Start Shift Location Field Name business service user property defines the address ID.
3. Calculates the linear distance between the 2 locations using the addresses of the unscheduled activity and the employee location.

This method returns a distance of -1 to alert users when there is no valid result from the data provided. Typically, invalid results occur because of a missing address or unmapped ZIP Code.

Invoked From

This method is called by the applet for the Gantt chart of the Dispatch Board.

GetEmployeeScores Method

GetEmployeeScores returns the appropriate scores for an employee. The Assignment Manager server component defines these scores. This method reviews the mappings in the Server Key Mappings view of the Administration - Scheduling screen to determine the appropriate Siebel Server to call for a service region.

Invoked From

This method is called when a user clicks the Assignment Score button in the Dispatch Board.

GetWirelessCoverage Method

GetWirelessCoverage checks whether an employee has a wireless device that is in coverage. This method checks whether the wireless device is on the network, and returns Y if the device is on the network or N if the device is not on the network.

This method uses the Wireless Coverage Timeout business service user property. This user property determines how many seconds the business service waits for a response.

Invoked From

This method is called when a user clicks the Wireless Coverage button in the Dispatch Board.

UnassignActivity Method

UnassignActivity reverses the assignment of an activity in the Dispatch Board and sets the Status field for the activity to Unscheduled.

If pre- or post-processing must occur on the drag-and-drop business event to support a specific business process, then you can access the arguments for this method from custom code.

Invoked From

This method is called by the FS DB Unplanned Activity List Ax Applet when a user selects and moves an activity off the applet for the Gantt chart and puts the activity in the lower applet of the Dispatch Board. The Drag Drop Business Service applet user property affects this method call.

FS Service Region Business Service

The FS Service Region business service is used to retrieve the service regions for activities. This business service includes the *GetServiceRegionId Method*.

GetServiceRegionId Method

GetServiceRegionId retrieves the service region ID by using a postal code (ZIP Code). This method determines the service region for the postal code in an address, and sets the service region in the Service Request and Activity business components.

Invoked From

This method is called when a user adds an address for a contact or an account to an activity or service request.

Business Service Methods for Entitlements

This topic describes the following business services (and the associated methods) for entitlements:

- *FS Create Entitlement Business Service*
- *FS Verify Entitlement Business Service*

FS Create Entitlement Business Service

The Field Service Create Entitlement business service is used in the process of entitlement creation. For more information about how workflow processes use the business service methods, see *FS - Create Entitlement Workflow*.

This business service includes the following methods:

- *CreateCoveredProds Method*
- *CreateEntitlements Method*
- *GetEntitlementTemplates Method*
- *ValidateEntitlementTemplates Method*

Process Flow for Creating Entitlements

Users click the Auto Entitlement button to automatically associate an entitlement with a quote or order. For more information, see *Configuring Auto-Entitlement for Quotes and Orders*.

The FS Create Entitlement business service completes the following steps when the user clicks the Auto Entitlement button and the FS - Create Entitlement workflow process begins:

1. Checks whether the agreement is valid.
2. Retrieves the appropriate business components.
3. Retrieves the details for each agreement line item.
4. If the agreement Product ID is not empty, then retrieves the entitlement templates applicable to the agreement line item product by setting the Product ID on the product entitlement template.
5. For each of the product entitlement templates, completes the following steps:

    a. Checks to make sure the current template was not already used in generating entitlements for the agreement.
    b. Creates a new entitlement from the template.
    c. Copies over the entitlement service metrics, preventive maintenance, pricing, and service details.
    d. If the Include Account check box is selected on the entitlement template, then copies over the account information from the agreement, and uses the settings from the template.
    e. If the Include Contact check box is selected on the entitlement template, then copies over the contact information from agreement, and uses the settings from the template.
    f. If the Account All Contacts check box is selected on the entitlement template, then copies over all the contacts from the account.
    g. If the Account All Products check box is selected on the entitlement template, then copies over all the products from the account, and adds the products to the entitlement with the corresponding asset number.
    h. If the Contact All Products check box is selected on the entitlement template, then copies over all the products, including asset IDs, associated with the contact.

CreateCoveredProds Method

CreateCoveredProds retrieves a list of the service products that an entitlement template covers.

Invoked From

This method is called by the FS – Create Entitlement workflow.

CreateEntitlements Method

CreateEntitlements uses the entitlement template to create an entitlement.

Invoked From

This method is called by the FS - Create Entitlement workflow when a user clicks the Auto Entitlement button. For more information, see *Configuring Auto-Entitlement for Quotes and Orders*.

GetEntitlementTemplates Method

GetEntitlementTemplates retrieves a list of the entitlement templates associated with a specific service product.

Invoked From

This method is called by the FS - Create Entitlement workflow when a user clicks the Auto Entitlement button.

ValidateEntitlementTemplates Method

ValidateEntitlementTemplates checks the list of the entitlement templates associated with a specific service product against an agreement line item to make sure the current template was not already used to generate entitlements for the agreement. This method checks each of the entitlement templates that the GetEntitlementTemplates method retrieves.

Invoked From

This method is called by the FS - Create Entitlement workflow when a user clicks the Auto Entitlement button.

FS Verify Entitlement Business Service

The Field Service Verify Entitlement business service is used to verify entitlements. For more information about how workflow processes use the business service methods, see *Workflows for Entitlement Creation and Verification*.

This business service includes the following methods:

- *GenerateList Method*
- *GetBestPricedEntitlement Method*
- *GetBestResponseTime Method*
- *GetNextItem Method*
- *GetPrice Method*
- *GetResponseTime Method*
- *GetTimeZone Method*
- *ShowEntitlementPickList Method*
- *UpdateEntitlementCounter Method*
- *VerifyPricingEntitlement Method*
- *VerifyServiceEntitlement Method*

GenerateList Method

GenerateList is a utility method that loops through the workflow. This method queries for data by using search specifications and returns a property set according to field list values. Subsequent steps in the workflow

can loop through each record in the property set using the GetNextItem method. Other methods, such as VerifyPricingEntitlement, VerifyServiceEntitlement, and GetBestPricedEntitlement, can then use the resulting data.

Invoked From

This method is called by the FS - All Charge Consolidation workflow. For more information, see *FS - All Charge Consolidation Workflow*.

Usage

The GenerateList step of the FS - Verify Entitlement Order Best Price workflow uses the GenerateList method with the following parameters:

- Business Component of Order Entry - Line Items
- Business Object of Order Entry
- Field List of “Id”, “Product Id”, “Adjusted Price”
- Search Spec of “[Order Header Id]=‘“+[&Object Id]+’””

The GenerateList step of the FS - Verify Entitlement Sales Order Best Price workflow uses the GenerateList method with the following parameters:

- Business Component of Order Entry - Line Items
- Business Object of Order Entry (Sales)
- Field List of “Id”, “Product Id”, “Adjusted Price”
- Search Spec of “[Order Header Id]=‘“+[&Object Id]+’””

The GenerateQuoteLineProductList step of the FS - Verify Entitlement Quote Best Price workflow uses the GenerateList method with the following parameters:

- Business Component of Quote Item
- Business Object of Quote
- Field List of “Id”, “Product Id”, “Adjusted List Price”
- Search Spec of “[Quote Id]=‘“+[&Object Id]+’””

The GetPrimaryAccountForLogin List step of the PMP Account Creation - Default workflow uses the GenerateList method with the following parameters:

- Business Component of Global Account
- Business Object of Global Account Hierarchy
- Field List of “Account Id”
- Search Spec of “[Primary Employee Login]=‘“+LoginName()+’” AND [Parent Account Id] IS NULL”

GetBestPricedEntitlement Method

GetBestPricedEntitlement uses entitlement discounts to retrieve the best-priced entitlement. The Price Details view in the Entitlements view of the Agreements screen shows entitlement discounts. This method automates the process of verifying entitlements by cycling through all the entitlements for order or quote line items and identifying the best-priced entitlement for each line item. This method then enters the ID of the best-priced entitlement on each line item.

You can implement this method by including it in a configured pricing procedure. This procedure can then consistently include agreement discounts without explicitly requiring the user to call this method from the line item by clicking a button.

Invoked From

This method is called by the FS - Verify Entitlement Order Best Price and FS - Verify Entitlement Quote Best Price workflows.

GetBestResponseTime Method

GetBestResponseTime gets the entitlement with best response time for a service request. This method selects the entitlement with the best response time metric that matches the service request priority. You define entitlement response times in the Metrics view of the Entitlements screen. This method then calculates the commit time according to the service calendar, and sets the Date Committed field and Entitlement field for the service request.

Invoked From

This method is called by the FS - Verify Entitlement SR Best Response Time workflow. This workflow is called when a user clicks the Verify Best Time button on the service request detail applet (in the service request form in the Service Request List view of the Service screen).

You can extend this workflow to generate a series of dates used for an escalation path that metrics on the agreement or a default set of values define. For example, the commit time for the first callback is 4 hours, the onsite date for the field service engineer is within 8 working hours, and the resolution is required within 3 days. Each of these metrics can be an independent metric that this method calculates and saves to the service request.

GetNextItem Method

GetNextItem is a utility method that loops through the workflow. This method cycles through the list of entitlements, and then adjusts the prices of the products according to the best-priced entitlement.

Invoked From

This method is called by the FS - Verify Entitlement Order Best Price and FS - Verify Entitlement Quote Best Price workflows.

For an example of how to call this method, review the FS - All Charge Consolidation workflow process. For more information, see *FS - All Charge Consolidation Workflow*.

GetPrice Method

GetPrice retrieves the price for a product by using the entitlement discounts. You can use this method in the Quotes screen and Order screen to get the price of a product after it is adjusted for the entitlement.

The product ID, base price, and entitlement ID are passed as arguments to this method. The new price is then passed back as the return value.

GetResponseTime Method

GetResponseTime uses the entitlement and priority to retrieve the response time. This method selects the response time metric that matches the service request priority for the selected entitlement. This method then calculates the commit time according to the service calendar, and sets the Date Committed and Entitlement fields for the service request.

Invoked From

This method is called by the FS - Verify Entitlement SR workflow. This workflow is called when a user clicks the Verify button on the service request detail applet (in the service request form in the Service Request List view of the Service screen).

The workflow can also be automatically called by using the priority of the service request for service-level agreements for which the committed date and time is often linked to the priority of the service request.

This method can also be called from the FS Holiday API Service business service to calculate the commit time according to a service calendar and an exception calendar.

Arguments

The following table describes the arguments for this method.

Argument Name	Description
ServiceCalendarId	The ID of the schedule that is associated with the service calendar.
Start Time	The starting date and time of the response to a service request. This argument uses one of the following formats: • mm/dd/yyyy hh:mm:ss • m/dd/yy hh:mm:s The first part of the format designates a date (month/date/year). For this part, the separator can be a slash (/) or a hyphen (-). The second part of the format designates a time (hour:minute:second).
Response Time	The time in seconds, hours, or days to respond to a service request.
Priority	The priority of the service request.
Time Unit	The unit of time (for example, seconds, hours, or days).
Time Zone	The time zone that is passed from the GetTimeZone method.

Return Value

The following table describes the return value for this method.

Return Value	Description
Committed Time	The latest date and time that a customer service representative must respond to the service request.

GetTimeZone Method

GetTimeZone retrieves the time zone to use for the response time calculation.

The time zone for the entitlement, contact, service request owner, application default are passed as arguments to this method. This method selects the entitlement time zone first. If that time zone is unavailable, then this method selects the contact time zone. If that time zone is unavailable, then this method selects the time zone for the service request owner. If that time zone is unavailable, then this method selects the application default time zone.

The retrieved time zone is passed to the GetResponseTime method to calculate the response time.

You can overwrite this method to handle other business scenarios.

ShowEntitlementPickList Method

ShowEntitlementPickList displays a list of entitlements from the search specification. This method shows in the user interface a list of all of the applicable entitlements according to the search specification. The VerifyServiceEntitlement method passes the search specification to this method.

UpdateEntitlementCounter Method

UpdateEntitlementCounter updates the counters on an entitlement. This method is not used in the preconfigured Siebel Field Service application, but you can use this method. You use this method to increase or decrease the counter on an entitlement. You can also use this method when you sell support for each unit or when you sell support for multiunit pacts, and you want to monitor usage of those units.

The entitlement ID and a number are passed as arguments to this method. The Current Quota field of the Agreement Entitlement business component is then decreased by the value of the number.

VerifyPricingEntitlement Method

VerifyPricingEntitlement returns a list of eligible pricing entitlements.

The account, contact, and product are passed as arguments to this method. A suitable search specification is then passed back as the return value. You can then provide this search specification to the ShowEntitlementPickList method to show all relevant entitlements.

VerifyServiceEntitlement Method

VerifyServiceEntitlement returns a list of eligible service entitlements.

The account, contact, asset, and product are passed as arguments to this method. A suitable search specification is then passed back as the return value. You can then provide this search specification to the ShowEntitlementPickList method to show all relevant entitlements.

Business Service Methods for Fulfillment

This topic describes the following business services (and the associated methods) for fulfillment:

- *FS Fulfillment Service Business Service*
- *FS Part Locator Service Business Service*

FS Fulfillment Service Business Service

The Field Service Fulfillment Service business service is used to perform order fulfillment tasks. For more information about the Fulfillment Engine, see *About the Fulfillment Engine*.

This business service includes the following methods:

- *Fulfill Method*
- *GenPickTickets Method*

Fulfill Method

The Fulfill method fulfills an order line item, order, or a group of orders.

By default, the Fulfillment Engine is used as a server component and not as a business service.

Invoked From

This method is called with a user selects the Fulfill command (in the menu in the List view of the Service Orders screen) to find the products in the order line items, allocate the products in those line items, and generate pick tickets for the products.

Usage

You can use this method in the following ways:

1. Call the Fulfillment Engine in the standard manner to analyze orders, allocate products for each order line item, and automatically generate pick tickets. When fulfilling the inventory, the Fulfillment Engine considers the inventory relationships in the Relationships view of the Inventory screen. For more information about the input parameters for the standard manner of usage, see *Parameters for the Fulfillment and Part Locator Engines*.
2. Explicitly specify the order that the Fulfillment Engine evaluates the inventory locations for fulfillment.

Individual inventories cannot be related to other inventories in the list. The inventories are sorted by the score. You can use inventory scoring for geocode-based fulfillment so that orders are fulfilled from the nearest warehouse. The following table describes the additional arguments for this manner of usage.

Argument Name	Description
InvLocIds	The inventory location IDs. This argument is a property set that includes the inventory IDs and the associated scores. The property set is sorted by score.
Fulfill List Mode	The method of sequencing the inventory location IDs. Values include ASCENDING and DESCENDING.

The following example code includes these arguments:

```
Fulfill List Mode = ASCENDING
{""XX-ABCD"", 10
""YY-PQRS"", 34
….
} Type = InvLocIds
```

Note: If you want to call the Fulfillment Engine with Fulfill List Mode argument of Ascending and explicitly pass the sequence of inventory location IDs to search, then do not set up fulfillment relationships between inventory locations in the Relationships view of the Inventory screen. Order fulfillment with Fulfill List Mode argument of Ascending uses only the inventory locations explicitly defined in the argument and the associated sublevel locations.

GenPickTickets Method

GenPickTickets produces a pick ticket record.

The order ID is passed as an argument to this method.

Invoked From

This method is called when a user selects the Generate PickTickets command (in the menu in the Service Order form in the List view of the Service Orders screen).

FS Part Locator Service Business Service

The Field Service Part Locator Service business service is used to locate products for fulfillment. This business service includes the *Locate Method*. For more information about the Part Locator Engine, see *Part Locator Engine*.

Locate Method

Locate finds (in the inventory hierarchy) the product in an order line item and finds substitutes if the product is unavailable. This method is similar to the Fulfillment method except that it does not allocate or generate pick tickets.

By default, the Part Locator Engine is run as a server component and not as a business service.

Invoked From

This method is called when a user clicks the Locate button (in the Part Locator view in the Line Items view of the Service Orders screen).

Business Service Methods for Inventories

This topic describes the *FS Inventory Transaction Business Service* (and the associated methods) for inventories.

FS Inventory Transaction Business Service

The Field Service Inventory Transaction business service is used to transfer 1 or more assets at a time. The Bulk Inventory Transaction - Asset List - Default workflow and Inventory Transaction - Asset List - Default workflow use this business service. For more information about these workflow processes, see *Performing Bulk Inventory Transactions (End User)*.

This business service includes the following methods:

- *AddAssetsToTxn Method*
- *AggrAssetsPerProdPerSource Method*

- *BulkTransfer Method*
- *CommitTxn Method*
- *GetDetails Method*
- *SetTxnDetails Method*
- *SetTxnDetailsFromTxnSet Method*

AddAssetsToTxn Method

AddAssetsToTxn adds assets to the inventory transaction record.

Invoked From

This method is called by the Inventory Transaction - Asset List - Default workflow.

AggrAssetsPerProdPerSource Method

AggrAssetsPerProdPerSource aggregates assets by using the properties that the Aggregate per Property 1...n string specifies. Each such aggregation forms 1 transaction. This method includes assets of the same product with the same source details in the same transaction.

Invoked From

This method is called by the Bulk Inventory Transaction - Asset List - Default workflow.

BulkTransfer Method

BulkTransfer loops and calls the next step to create each inventory transaction. During each iteration, a child is removed and passed to the next step to create the transaction. When the child count reaches zero (0), the loop stops.

Invoked From

This method is called by the Bulk Inventory Transaction - Asset List - Default workflow.

CommitTxn Method

CommitTxn commits the transaction.

Invoked From

This method is called by the Inventory Transaction - Asset List - Default workflow.

GetDetails Method

GetDetails queries the specified business component and retrieves the fields that start with Input: xxx. These fields are added to the property set as properties. This method loops for each line item and queries for the fields.

Invoked From

This method is called by the Bulk Inventory Transaction - Asset List - Default workflow.

SetTxnDetails Method

SetTxnDetails creates the inventory transaction record. This method can accept only the arguments that are fields on the Inventory Transaction business component or the fields that start with Default. This method generates the ID of the created transaction.

Invoked From

This method is called by the Inventory Transaction - Asset List - Default workflow.

SetTxnDetailsFromTxnSet Method

SetTxnDetailsFromTxnSet reads the transaction details from the Inventory Transaction Set property set and creates a transaction record. All fields that the Inv Txn Field specifies are populated on the transaction. This method internally calls the SetTxnDetails method.

Invoked From

This method is called by the Inventory Transaction - Asset List - Default workflow.

Business Service Methods for Invoices

This topic describes the *FS Charge Consolidation Business Service* (and the associated methods) for invoices.

FS Charge Consolidation Business Service

The Field Service Charge Consolidation business service is used to consolidate invoices. For more information about how workflow processes use the business service methods, see *FS - Charge Consolidation Workflow*.

This business service includes the following methods:

- *CancelInvoice Method*
- *ConsolidateCharge Method*

CancelInvoice Method

CancelInvoice cancels invoices so that the charge consolidation can run again. You can use this method to change the Status field of existing charge records for an agreement line item to Expired or Canceled. For more information, see *Canceling Charges After Charge Consolidation Completion*.

ConsolidateCharge Method

ConsolidateCharge consolidates the charges in the charge table by using a set of rules in the consolidation plans.

Invoked From

This method is called by the FS - Charge Consolidation workflow. This workflow is called when a user clicks the Execute Now button (in the Charge Consolidation Plans view of the Administration - Contracts screen).

Business Service Methods for Preventive Maintenance

This topic describes the *FS Preventive Maintenance Business Service* (and the associated method) for preventive maintenance.

FS Preventive Maintenance Business Service

The Field Service Preventive Maintenance business service is used to generate service requests and activities for asset maintenance. This business service includes the *GeneratePM Method*. For more information about the Preventive Maintenance Engine, see *About Preventive Maintenance*.

GeneratePM Method

GeneratePM generates service requests and activities for asset maintenance by using predefined triggers.

The mode, end date, and sub-mode are passed as arguments to this method. Depending on the combination of the mode and sub-mode values, other arguments are needed. For example, if the value for the mode is SQL, and the value for the sub-mode is Assets&Plans, then the plan SQL and asset SQL arguments are needed.

The input parameters are called when invoking from code or from a component job. For more information about the parameters for this engine, see *Parameters for the Preventive Maintenance Engine*.

DefOrgID denotes the default organization for the created service requests and activities, and DefActOwnerId denotes the owner of the activities.

This method is not currently used.

Business Service Methods for Replenishment

This topic describes the *FS Replenish Business Service* (and the associated methods) for replenishment.

FS Replenish Business Service

The Field Service Replenish business service is used to replenish inventories. For more information about the Replenishment Engine, see *About the Replenishment Engine*.

This business service includes the following methods:

- *GenerateOrder Method*
- *UnlockAllInventories Method*

GenerateOrder Method

GenerateOrder selects source and target inventories when restocking is needed, and then generates the orders required to obtain materials from an external provider, an internal inventory site, or an internal manufacturing facility.

The input parameters are called when invoking from code or from a component job. For more information about the input parameters for this engine, see *Parameters for the Replenishment Engine*.

By default, the Replenishment Engine is run as a server component and not as a business service.

UnlockAllInventories Method

UnlockAllInventories unlocks all of the inventories. This method can unlock the inventories in error situations when the inventories are not unlocked during replenishment.

Methods for Schedules

This topic describes the methods for schedules. For information about the methods that the ABS and Optimizer support, see:

- *Methods for the ABS*
- *Methods for the Optimizer*

To load the ABS or Optimizer, use Siebel eScript or a workflow process. For more information, see *About Calling the ABS and Optimizer Methods*.

About Calling the ABS and Optimizer Methods

A script can call the Appointment Booking System and Optimizer (or Optimization Engine) by calling the predefined Server Requests business service and specifying the Appointment Booking Engine or Optimizer component. The methods must be loaded and exist on the server before they can be called. Only the Server Request Broker can determine the correct component to call for a service region. For more information about using the Server Requests business service, see *Siebel Business Process Framework: Workflow Guide* .

The following script is an example of how to call the ABS component with the GetAppointment method.

```
var SRMSvc, BSWrite, BSRead;
var srmInputs, apptBookInputs, srmOutputs, tempPropSet;
var childPropSet, activePropSet, apptPropSet;
var errCode;
// use Server Request to call the Appointment Booking Engine
SRMSvc = TheApplication().GetService("Server Requests");
srmInputs = TheApplication().NewPropertySet();
apptBookInputs = TheApplication().NewPropertySet();
srmOutputs = TheApplication().NewPropertySet();
tempPropSet = TheApplication().NewPropertySet();

srmInputs.SetProperty("Mode", "Sync");
srmInputs.SetProperty("Method", "GetAppointment");
srmInputs.SetProperty("Component", "ApptBook");
apptBookInputs.SetProperty("ActId", "1-93J9");
apptBookInputs.SetProperty("SvcRegnId", "1-1BGD");

srmInputs.AddChild(apptBookInputs);
SRMSvc.InvokeMethod("SubmitRequest", srmInputs, srmOutputs);

// write out the outputs for debugging
childPropSet = TheApplication().NewPropertySet();

activePropSet = TheApplication().NewPropertySet();

childPropSet = srmOutputs.GetChild(0);
errCode = childPropSet.GetProperty("ErrCode");

if (errCode == "0")
 {
 var apptCount = childPropSet.GetChildCount();
 apptPropSet = TheApplication().NewPropertySet();
 for (var i = 0; i < apptCount; i++)
 {
 activePropSet = childPropSet.GetChild(i);
 apptPropSet.AddChild(activePropSet);
```

```
 }
 // write out the inputs for debugging
 apptPropSet.SetProperty("number of appointments", apptCount);
 apptPropSet.SetType("addedPropSet");
 Outputs.AddChild(apptPropSet);
 }
else
{
}
activePropSet = null;
tempPropSet = null;
childPropSet = null;
SRMSvc = null;
BSWrite = null;
BSRead = null;
srmInputs = null;
apptBookInputs = null;
srmOutputs = null;
```

Methods for the ABS

The ABS is used for scheduling in Siebel Field Service. For more information about the ABS, see *About the Appointment Booking System*.

The ABS can use the following methods:

- *CancelAppointment Method*
- *CancelRequest Method*
- *ConfirmAppointment Method*
- *DefragmentServiceRegion Method*
- *GetAppointment Method*
- *GetAppointments Method*
- *GetConfirmedAppointment Method*
- *LoadActivities Method*
- *LoadEmployees Method*
- *ReloadServiceRegion Method*
- *UnloadEmployees Method*

CancelAppointment Method

CancelAppointment cancels a scheduled appointment. This method sets the appointment status to Cancelled and removes the time values for the planned start and planned end. The time previously scheduled for the activity is then open and available for ABS booking.

Invoked From

This method is called when a user clicks the Cancel Appointment button (in the Activities view in the Service Request List view of the Service screen and in the Schedule view in the Activity List view of the Activities screen).

Arguments

The following table describes the arguments for this method.

Argument Name	Description
ActId	The activity ID of the activity to schedule.
SvcRegnId	The service region ID of the activity.

CancelRequest Method

CancelRequest releases all of the time slots that the GetAppointment method previously reserved. The time slots are then available ABS booking of other requests.

Invoked From

This method is called when a user clicks the Cancel button in the Pick Appointment dialog box (Abs Result Pick Applet). This dialog box appears when a user clicks the Book Appointment button (in the Schedule view in the Activity List view of the Activities screen).

Arguments

The following table describes the arguments for this method.

Argument Name	Description
ReqId	The request ID returned by the ABS for the GetAppointment method.
SvcRegnId	The service region ID of the activity.

There are no return values for this method.

ConfirmAppointment Method

ConfirmAppointment confirms the selected appointment (time slot) that the GetAppointment method reserves. The activity is assigned to the owner and starts during the selected time slot. This method also releases the other time slots that the GetAppointment method previously reserved.

The GetAppointment and GetAppointments methods generate a property set containing a list of time slots that are available for the activity. Each returned time slot contains properties. The time slot that these methods pass to the ConfirmAppointment method includes the Slot Start - SR Time Zone property. This property indicates the slot start time in the time zone of the service region for the activity.

Invoked From

This method is called when a user clicks the Book Appointment button (in the Schedule view in the Activity List view of the Activities screen), and selects a time slot from the Pick Appointment dialog box (Abs Result Pick Applet).

Arguments

The following table describes the arguments for this method.

Argument Name	Description
ReqId	The request ID returned by the ABS for the GetAppointment method.
SvcRegnId	The service region ID of the activity.

There are no return values for this method.

This method needs an additional input property request key for the Server Requests business service. For more information, see *About Calling the ABS and Optimizer Methods*.

The following example script defines this additional input:

```
var SRMSvc = TheApplication().GetService("Server Requests");
var srmInputs = TheApplication().NewPropertySet();
var apptBookInputs = TheApplication().NewPropertySet();
var srmOutputs = TheApplication().NewPropertySet();
srmInputs.SetProperty("Mode", "Sync");
srmInputs.SetProperty("Method", "ConfirmAppointment");
srmInputs.SetProperty("Component", "ApptBook");
srmInputs.SetProperty("ReqKey", Inputs.GetProperty("strSRId"));
// Or the way the service region ID is determined
apptBookInputs.SetProperty("ActId", Inputs.GetProperty("strActId"));
apptBookInputs.SetProperty("SvcRegnId", Inputs.GetProperty("strSRId"));
apptBookInputs.SetProperty("ReqId", Inputs.GetProperty("strReqId"));
apptBookInputs.SetProperty("SlotStart",
Inputs.GetProperty("strSlotStartTimeSRTimeZone"));
srmInputs.AddChild(apptBookInputs);
SRMSvc.InvokeMethod("SubmitRequest", srmInputs, srmOutputs);
```

DefragmentServiceRegion Method

DefragmentServiceRegion changes the service region employees calendar to remove gaps between scheduled appointments.

Invoked From

This method is called when a user clicks the Coalesce ABS button (in the Service Region List view of the Administration - Scheduling screen).

Argument

The following table describes the argument for this method.

Argument Name	Description
SvcRegnId	The service region ID of the activity.

There are no return values for this method.

GetAppointment Method

GetAppointment reserves and returns a set of employee time slots in the service region for an activity. The ConfirmAppointment or CancelAppointment method follow this method. This method has a timeout function to release reserved time slots in the event that neither of these methods are called in a timely fashion.

Invoked From

This method is called when a user clicks the Book Appointment button (in the Activities view in the Service Request List view of the Service screen and in the Schedule view in the Activity List view of the Activities screen).

Arguments

The following table describes the arguments for this method.

Argument Name	Description
ActId	The activity ID of the activity to schedule.
SvcRegnId	The service region ID of the activity.

Return Values

This method returns a property set containing a list of time slots that are available for the activity. The following table describes the return values that each returned time slot contains.

Return Value	Description
Request Id	A unique ID to identify the request sent to the engine.
Assignee	The assignee available during the time slot.
Slot Start - SR Time Zone	The slot start time in the time zone of the service region for the activity.
Slot End - SR Time Zone	The slot end time in the time zone of the service region for the activity.
Slot Start	The slot start time. This return value is always in the GMT time zone, not the time zone for the login user.
Slot End	The slot end time. This return value is always in the GMT time zone, not the time zone for the login user.
Service Region Id	The service region ID of the activity.
Activity Id	The activity ID of the activity to schedule.

GetAppointments Method

GetAppointments returns a time slot indicating when an employee can potentially be scheduled. This method reserves these time slots in memory until the ConfirmAppointment or CancelRequest method is called, or until the timeout elapses.

This method is similar to the GetAppointment method, but differs from the GetAppointment method in the following ways:

- The actual activities to book do not yet exist, and are not created until the ConfirmAppointment method is called.
- The GetAppointments method checks for several employees in the same request.
- The GetAppointments method returns only 1 time slot for each employee instead of the number that the ABS - Default number of slots parameter defines. For more information, see *Parameters for Schedules*.
- The GetAppointments method includes SameTimeFlag argument. Values include:
  - **TRUE.** All of the employees must be scheduled together for the same time. Time slots are returned for all or none of the specified employees.
  - **FALSE.** The employees can each be scheduled for different times between the earliest start time and latest start time. Time slots are returned only for those employees that can be scheduled.

Invoked From

This method is called by Assignment Manager.

Arguments

The following table describes the arguments for this method.

Argument Name	Description
SvcRegnId	The service region ID of the activity.
ReqId	A unique number to identify this request for a subsequent call to either confirm some of the time slots returned by this method or cancel the request and release those slots.
EmployeeIds	The IDs of all of the employees to schedule during this time.
ActType	The type of the activity (for example, call, appointment, administration, and so on).
ActPriority	The value from the Priority field of the activity (for example, 1-ASAP, 2-High, 3- Medium, or 4-Low).
NoSoonerThan	The value from the Earliest Start Time field of the activity.
NoLaterThan	The value from the Latest Start Time field of the activity.
Duration	The actual length of time that each employee is required.

Argument Name	Description
SameTimeFlag	A flag that specifies whether all employees must be available at the same time or whether their appointments can be spread out at different times between the earliest and latest start time. Values include: • **TRUE.** Indicates that the employees must be available for scheduling at the same time. • **FALSE.** Indicates that the employees can be scheduled for different times.
BreakFlag	A flag that specifies whether the activity can be broken into different pieces or whether the activity must be contiguous. Values include: • **TRUE.** Indicates that the activity can be broken into pieces. • **FALSE.** Indicates that the activity must be contiguous.

Return Values

This method returns a property set containing a list of time slots that are available for the activity. The following table describes the return values that each returned time slot contains.

Return Value	Description
Request Id	A unique ID to identify the request sent to the engine.
Assignee	The assignee available during the time slot.
Slot Start - SR Time Zone	The slot start time in the time zone of the service region for the activity.
Slot End - SR Time Zone	The slot end time in the time zone of the service region for the activity.
Slot Start	The slot start time. This return value is always in the GMT time zone, not the time zone for the login user.
Slot End	The slot end time. This return value is always in the GMT time zone, not the time zone for the login user.
Service Region Id	The service region ID of the activity.
Activity Id	The activity ID of the activity to schedule.

GetConfirmedAppointment Method

GetConfirmedAppointment inserts an activity into the schedule without presenting time slot alternatives.

Invoked From

This method is called when a user clicks the Insert Activity button – after navigating to either the Dispatch Board screen, then the Unscheduled Activities view or to the Activities screen, then the Schedule view. This method is also called if the user selects the Insert Activity command from the menu in the Unscheduled Activities list of the Dispatch Board.

Arguments

The following table describes the arguments for this method.

Argument Name	Description
ActId	The activity ID of the activity to schedule.
SvcRegnId	The service region ID of the activity.

Return Values

The following table describes the return values for this method.

Return Value	Description
Assignee	The employee assigned to the activity.
StartDt	The scheduled start time in the time zone of the service region for the activity.

LoadActivities Method

LoadActivities loads activities into the ABS cache. When called, the ABS attempts to insert the activities into the employee schedules.

Invoked From

This method is called when a user clicks the Load button (in the Activities view in the Service Region List view of the Administration - Scheduling screen).

Arguments

The following table describes the arguments for this method.

Argument Name	Description
ActIds	The comma-separated activity IDs.
SvcRegnId	The service region ID of the activities to load.

There are no return values for this method.

LoadEmployees Method

LoadEmployees reloads an employee into the ABS cache. This method applies to situations when users add a new employee to a service region, or when a schedule change applies to an employee already loaded into the ABS.

Invoked From

This method is called when a user clicks the Load ABS button (in the Employees view in the Service Region List view of the Administration - Scheduling screen).

Arguments

The following table describes the arguments for this method.

Argument Name	Description
SvcRegnId	The service region ID of the employees to load.
EmployeeIds	The comma-separated employee IDs.

There are no return values for this method.

ReloadServiceRegion Method

ReloadServiceRegion loads or reloads service region data into the ABS cache and changes the ABS time horizon for a service region.

Invoked From

This method is called when a user clicks the Load ABS button (in the Service Region List view of the Administration - Scheduling screen). This method is called if the parameter sets change or the schedule changes for a service region. This method is typically called from a repeating component job that refreshes the time horizon for a service region.

Argument

The following table describes the argument for this method.

Argument Name	Description
SvcRegnId	The service region ID to reload.

There are no return values for this method.

UnloadEmployees Method

UnloadEmployees removes employees from the ABS cache.

Invoked From

This method is called when a user clicks the Unload ABS button (in the Employees view in the Service Region List view of the Administration - Scheduling screen).

Arguments

The following table describes the arguments for this method.

Argument Name	Description
SvcRegnId	The service region ID of the employees to unload.
EmployeeIds	The comma-separated employee IDs.

There are no return values for this method.

Methods for the Optimizer

The Optimizer (or Optimization Engine) in Oracle's Siebel Field Service is used together with the ABS for scheduling. For more information, see *About the Schedule Optimizer*.

The Optimizer can use the following methods:

- *CancelAppointment Method*
- *GetConfirmedAppointment Method*
- *LoadActivities Method*
- *LoadEmployees Method*
- *Optimize Method*
- *ReloadServiceRegion Method*
- *StopOptimize Method*
- *UnloadEmployees Method*

CancelAppointment Method

CancelAppointment cancels a scheduled appointment. This method sets the appointment status to Cancelled, removes the time values for the planned start and planned end, and removes the activity from the cache.

This method is the same as the CancelAppointment method for the Appointment Booking Service. For more information, see *CancelAppointment Method*.

Arguments

The following table describes the arguments for this method.

Argument Name	Description
ActId	The activity ID of the activity to cancel.
SvcRegnId	The service region ID of the activity.

Return Values

The following table describes the return values for this method.

Return Value	Description
Message	The Optimizer error tracing message that is returned if an error occurs.
ErrorCode	The error code returned from the Optimizer. A value of 0 indicates the operation is successful.

GetConfirmedAppointment Method

GetConfirmedAppointment inserts the activity into the schedule without presenting time slot alternatives.

This method is the same as the GetConfirmedAppointment method for the Appointment Booking Service. For more information, see *GetConfirmedAppointment Method*.

Arguments

The following table describes the arguments for this method.

Argument Name	Description
ActId	The activity ID of the activity to schedule.
SvcRegnId	The service region ID of the activity.

Return Values

The following table describes the return values for this method.

Return Value	Description
Assignee	The employee assigned to the activity.
StartDT	The scheduled start time in the time zone of the service region for the activity.
Message	The Optimizer error tracing message that is returned if an error occurs.
ErrorCode	The error code returned from the Optimizer. A value of 0 indicates the operation is successful.
ErrArgs	The arguments for the error message associated with the returned error code.

LoadActivities Method

LoadActivities loads activities into the Optimizer cache. The Optimizer then inserts the activities into an employee calendar if the Optimizer can schedule the activities. The activities already include a planned start and planned end.

This method is the same as the LoadActivities method for the Appointment Booking Service. For more information, see *LoadActivities Method*.

Arguments

The following table describes the arguments for this method.

Argument Name	Description
ActIds	The comma-separated activity IDs.
SvcRegnId	The service region ID of the activities to load.

Return Values

The following table describes the return values for this method.

Return Value	Description
Message	The Optimizer error tracing message that is returned if an error occurs.
ErrorCode	The error code returned from the Optimizer. A value of 0 indicates the operation is successful.

LoadEmployees Method

LoadEmployees reloads an employee into the Optimizer cache. This method applies to situations when a user adds a new employee to a service region, or when a schedule change applies to an employee already loaded into the Optimizer.

Invoked From

This method is called when a user clicks the Load Optimizer button (in the Employees view in the Service Region List view of the Administration - Scheduling screen).

Optimize Method

Optimize starts the Optimizer for the requested service region.

Invoked From

This method is called when a user clicks the Optimize button (in the Service Region List view of the Administration - Scheduling screen).

Argument

The following table describes the argument for this method.

Argument Name	Description
SvcRegnId	The service region ID of the activities to optimize.

Return Values

The following table describes the return values for this method.

Return Value	Description
Message	The Optimizer error tracing message that is returned if an error occurs.
ErrorCode	The error code returned from the Optimizer. A value of 0 indicates the operation is successful.

ReloadServiceRegion Method

ReloadServiceRegion reloads the service region data into the Optimizer cache.

Invoked From

This method is called when a user clicks the Load Optimizer button (in the Service Region List view of the Administration - Scheduling screen).

Argument

The following table describes the argument for this method.

Argument Name	Description
SvcRegnId	The service region ID of the activities to reload.

Return Values

The following table describes the return values for this method.

Return Value	Description
Message	The Optimizer error tracing message that is returned if an error occurs.
ErrorCode	The error code returned from the Optimizer. A value of 0 indicates the operation is successful.

StopOptimize Method

StopOptimize stops optimization for the service region.

Invoked From

This method is called when a user selects the Stop Optimization command (in the menu in the Service Region list in the Service Region List view of the Administration - Scheduling screen).

Argument

The following table describes the argument for this method.

Argument Name	Description
SvcRegnId	The service region ID for which to stop optimization.

Return Values

The following table describes the return values for this method.

Return Value	Description
Message	The Optimizer error tracing message that is returned if an error occurs.
ErrorCode	The error code returned from the Optimizer. A value of 0 indicates the operation is successful.

UnloadEmployees Method

UnloadEmployees updates the schedule for an employee by adding new exception hours to the cache. This method applies when employees are unavailable as a result of vehicle breakdown and so on. The activities scheduled during the exception hours for the employee are rescheduled or unscheduled. Activities are rescheduled for any open slots that meet the hard constraints. Employees must have at least 1 defined exception hour.

Invoked From

This method is called when a user clicks the Unavailable button (in the Employees view in the Service Region List of the Administration - Scheduling screen).

Arguments

The following table describes the arguments for this method.

Argument Name	Description
SvcRegnId	The service region ID of the employees to unload.
EmployeeIds	The comma-separated employee IDs. However, the Optimizer processes only 1 employee ID at a time. If more than 1 employee ID is provided, then the Optimizer processes only the first employee ID.

Return Values

The following table describes the return values for this method.

Return Value	Description
Message	The Optimizer error tracing message that is returned if an error occurs.
ErrorCode	The error code returned from the Optimizer. A value of 0 indicates the operation is successful.

Business Service Methods for Siebel Field Service Integration to Oracle Real-Time Scheduler

This topic describes the following business services (and the associated methods) for Siebel Field Service Integration to Oracle Real-Time Scheduler:

- *Advanced Scheduler Activity Skill Match Service Business Service*
- *Advanced Scheduler GeoCode Service Business Service*
- *Advanced Scheduler Service Business Service*

Advanced Scheduler Activity Skill Match Service Business Service

This business service includes the following methods:

- *GetActivitySkillData Method*
- *PersistActivitySkillData Method*

GetActivitySkillData Method

GetActivitySkillData gets activity skills at run time by using the defined rules.

PersistActivitySkillData Method

PersistActivitySkillData gets activity skills at run time by using the defined rules, and causes them to persist for each activity.

Advanced Scheduler GeoCode Service Business Service

This business service includes the following methods:

- *BatchGeoCode Method*
- *GetRealTimeGeoCode Method*

BatchGeoCode Method

BatchGeoCode associates geocodes with all selected addresses in batch. This process is asynchronous.

GetRealTimeGeoCode Method

GetRealTimeGeoCode gets the geocode for the selected address in real time. This process is asynchronous. All matching geocodes are returned.

Advanced Scheduler Service Business Service

This business service includes the following methods:

- *CancelAppointment Method*
- *ConfirmAppointment Method*
- *GetAppointment Method*
- *GetConfirmAppointment Method*
- *GetTransferToORS Method*
- *RollbackServiceRegionAtORS Method*
- *UpsertActivity Method*

CancelAppointment Method

CancelAppointment sends a request to cancel a previously booked appointment in Oracle Real-Time Scheduler.

ConfirmAppointment Method

ConfirmAppointment sends a request to Oracle Real-Time Scheduler to confirm an appointment for a given slot. Invoke GetAppointment first, to get the available slots.

GetAppointment Method

GetAppointment requests appointment slots from Oracle Real-Time Scheduler and returns the list of available slots.

GetConfirmAppointment Method

GetConfirmAppointment sends a request to contract schedule an appointment in Oracle Real-Time Scheduler.

GetTransferToORS Method

GetTransferToORS transfers a service region to Oracle Real-Time Scheduler.

RollbackServiceRegionAtORS Method

RollbackServiceRegionAtORS rolls back a service region that was previously transferred to Oracle Real-Time Scheduler.

UpsertActivity Method

UpsertActivity sends a request to upsert an activity in Oracle Real-Time Scheduler.